### Advantage one

#### Advantage one is Warming ---

#### Warming is real and anthropogenic – only our evidence accounts for 2012 data

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Summary. **Global** surface **temperature in 2012** was +0.56°C (1°F) warmer than the 1951-1980 base period average, **despite** much of the year being affected by a strong **La Nina**. Global temperature thus continues at a high level that is sufficient to cause a substantial increase in the frequency of extreme warm anomalies. The 5-year mean global temperature has been flat for a decade, which we interpret as a combination of natural variability and a slowdown in the growth rate of the net climate forcing. **An update through 2012** of our global analysis1 (Fig. 1) reveals 2012 as having practically the same temperature as 2011, significantly lower than the maximum reached in 2010. These short-term global fluctuations are associated principally with natural oscillations of tropical Pacific sea surface temperatures summarized in the Nino index in the lower part of the figure. 2012 is nominally the 9th warmest year, but it is indistinguishable in rank with several other years, as shown by the error estimate for comparing nearby years. Note that **the 10 warmest years in the record all occurred since 1998.** The long-term warming trend, including continual warming since the mid-1970s, has been conclusively associated with the predominant global climate forcing, human-made greenhouse gases2, which began to grow substantially early in the 20th century. The approximate stand-still of global temperature during 1940-1975 is generally attributed to an approximate balance of aerosol cooling and greenhouse gas warming during a period of rapid growth of fossil fuel use with little control on particulate air pollution, but satisfactory quantitative interpretation has been impossible because of the absence of adequate aerosol measurements3,4. Below we discuss the contributions to temperature change in the past decade from stochastic (unforced) climate variability and from climate forcings. Fig. 1. Global surface temperature anomalies relative to 1951-1980. The Nino index is based on the detrended temperature in the Nino 3.4 area in the eastern tropical Pacific5. Green triangles mark the times of volcanic eruptions that produced an extensive stratospheric aerosol layer. Blue vertical bars are estimates of the 95% confidence interval for comparisons of nearby years. 2 Fig. 2. Annual and seasonal temperature anomalies relative to 1951-1980 base period. Dec-Jan-Feb map employs December 2011 data, while the annual map is for calendar year 2012. The most extreme temperature anomalies in 2012, exceeding 2.5°C (4.5°F) on annual mean, occurred in the Arctic and in the middle of North America (Fig. 2). The large springtime heat anomaly in North America dried out the soil in a large part of the United States, thus leaving little soil moisture to provide evaporative cooling in the summer. The summer temperature anomaly was smaller than in the prior two seasons, but summer temperature variability is smaller than in the other seasons, so the 2012 summer anomaly was also unusually large as described in NOAA reports6. 3 Fig. 3. Frequency of occurrence of local June-July-August temperature anomalies (relative to 1951-1980 mean) for Northern Hemisphere land in units of local standard deviation (horizontal axis). Temperature anomalies in 1951-1980 match closely the normal distribution (green curve), which is used to define cold (blue), typical (white) and hot (red) seasons, each with probability 33.3%. Lower graphs use only a subset of stations (1886 of 6147) that were present throughout recent decades as well as the base period. The New Climate Dice. The high current global temperature is sufficient to have a noticeable effect on the frequency of occurrence of extreme warm anomalies. The left-most "bell curve" in Fig. 3 is the frequency distribution of summer-average temperature anomalies during the base period 1951-1980, in units of the local standard deviation1 of seasonal-average temperature. The **observational data** show that the frequency of unusually warm anomalies has been increasing decade by decade over the past three decades. Perhaps the most important change is the emergence of **extremely hot outliers**, defined as anomalies exceeding 3 standard deviations. Such extreme summer heat anomalies occurred in 2010 over a large region in Eastern Europe including Moscow, in 2011 in Oklahoma, Texas and Northern Mexico, and in 2012 in the United States in part of the central Rockies and Great Plains. The location of these extreme anomalies is dependent upon variable meteorological patterns, but the decade-by-decade movement of the bell curve to the right, and the emergence of an increased number of extreme warm anomalies, is an expression of increasing global warming. Some seasons continue to be unusually cool even by the standard of average 1951-1980 climate, but the "climate dice" are now sufficiently loaded that an observant person should notice that unusually warm seasons are occurring much more frequently than they did a few decades earlier. 1 The standard deviation is a measure of typical variability about the average. About two-thirds of the cases fall within 1 standard deviation of the average and about 95 percent fall within 2 standard deviations. 4 Fig. 4. Top: Solar irradiance from composite of several satellite-measured time series. Data through 2 February 2011 is from Frohlich and Lean (1998 and Physikalisch Meteorologisches Observatorium Davos, World Radiation Center). Update is from University of Colorado Solar Radiation & Climate Experiment normalized to match means over the final 12 months of the Frohlich and Lean data. Sunspot data from http://sidc.oma.be/sunspot-data/ Global Warming Standstill. The 5-year running mean of global temperature has been flat for the past decade. It should be noted that the "standstill" temperature is at a much higher level than existed at any year in the prior decade except for the single year 1998, which had the strongest El Nino of the century. However, the standstill has led to a widespread assertion that "global warming has stopped". Examination of this matter requires consideration of the principal climate forcing mechanisms that can drive climate change and the effects of stochastic (unforced) climate variability. The climate forcing most often cited as a likely natural cause of global temperature change is solar variability. The sun's irradiance began to be measured precisely from satellites in the late 1970s, thus quantifying well the variation of solar energy reaching Earth (Fig. 4). The irradiance change associated with the 10-13 year sunspot cycle is about 0.1%. Given the ~240 W/m2 of solar energy absorbed by Earth, this solar cycle variation is about 1/4 W/m2 averaged over the planet. Although it is too early to know whether the maximum of the present solar cycle has been reached, the recent prolonged solar minimum assures that there is a recent downward trend in decadal solar irradiance, which may be a decrease of the order of 0.1 W/m2. Although several hypotheses have been made for how the solar irradiance variations could be magnified by indirect effects, no convincing confirmation of indirect forcings has been found except for a very small amplifying effect via changes of stratospheric ozone. 2 A climate forcing is an imposed perturbation of the planet's energy balance that would tend to alter global temperature. 5 Fig. 5. Update7 of 5-year mean of the growth rate of climate forcing by well-mixed greenhouse gases; ozone and stratospheric water vapor, neither well-mixed nor well-measured, are not included. The largest climate forcing is caused by increasing greenhouse gases, principally CO2 (Fig. 5). The annual increment in the greenhouse gas forcing (Fig. 5) has declined from about 0.05 W/m2 in the 1980s to about 0.035 W/m2 in recent years8. The decline is primarily a consequence of successful phase-out of ozone-depleting gases and reduction of the growth rate of methane. Also, the airborne fraction of fossil fuel CO2 emissions has declined and the forcing per CO2 increment declines slowly as CO2 increases due to partial saturation of absorption bands, so the CO2 forcing growth rate has been steady despite the rapid growth of fossil fuel emissions. The second largest human-made forcing is probably atmospheric aerosols, although the aerosol forcing is extremely uncertain3,4. Our comparison of the various forcings (Fig. 6a) shows the aerosol forcing estimated by Hansen et al.9 up to 1990; for later dates it assumes that the aerosol forcing increment is half as large as the greenhouse gas forcing but opposite in sign. This aerosol forcing can be described as an educated guess. If the aerosol forcing has thusly become more negative in the past decade, the sum of the known climate forcings has little net change in the past few decades (Fig. 6b). The increased (negative) aerosol forcing is plausible, given the increased global use of coal during this period, but the indicated quantification is arbitrary, given the absence of aerosol measurements of the needed accuracy. Even if the aerosol forcing has remained unchanged in the past decade, the dashed line in Fig. 6b shows that the total climate forcing increased at a slower rate in the past decade than in the prior three decades. The slight growth in the past decade is due to a combination of factors: solar irradiance decline, slight increase of stratospheric aerosols, and the lower growth rate of greenhouse gas forcing compared with the 1970s and 1980s. A slower growth rate of the net climate forcing may have contributed to the standstill of global temperature in the past decade, but it cannot explain the standstill, because it is known that the planet has been out of energy balance, more energy coming in from the sun than energy being radiated to space.10 The planetary energy imbalance is due largely to the increase of climate forcings in prior decades and the great thermal inertia of the ocean. The more important factor in the standstill is probably unforced dynamical variability, essentially climatic "noise". 6 Fig. 6. Estimated climate forcings, with uncertainties that vary from small for well-mixed greenhouse gases to large for unmeasured tropsopheric aerosols. Forcings through 2003 (vertical line) are the same as used by Hansen et al. (2007), except the tropospheric aerosol forcing after 1990 is approximated as -0.5 times the GHG forcing. Aerosol forcing includes all aerosol effects, including indirect effects on clouds and snow albedo. GHGs include O3 and stratospheric H2O, in addition to well-mixed GHGs. Indeed, the current stand-still of the 5-year running mean global temperature may be largely a consequence of the fact that the first half of the past 10 years had predominately El Nino conditions, while the second half had predominately La Nina conditions (Nino index in Fig. 1). Comparing the global temperature at the time of the most recent three La Ninas (1999-2000, 2008, and 2011-2012), it is apparent that global temperature has continued to rise between recent years of comparable tropical temperature, indeed, at a rate of warming similar to that of the previous three decades. We conclude that background global warming is continuing, consistent with the known planetary energy imbalance, even though it is likely that the slowdown in climate forcing growth rate contributed to the recent apparent standstill in global temperature. Climate Change Expectations. It is relevant to comment on expectations about near-term climate change, especially because it seems likely that solar irradiance observations are in the process of confirming that solar irradiance has weakened modestly over the latest solar cycle. If solar irradiance were the dominant drive of climate change that most global warming contrarians believe, then a global cooling trend might be expected. On the contrary, however, the continuing planetary energy imbalance and the rapid increase of CO2 emissions from fossil fuel use assure that global warming will continue on decadal time scales. Moreover, our interpretation of the larger role of unforced variability in temperature change of the past decade, suggests that global temperature will rise significantly in the next few years as the tropics moves inevitably into the next El Nino phase.

#### Contrary models systematically underestimate the rate and scope of warming

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Climate projections like those of the Intergovernmental Panel on Climate Change (IPCC [2001](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749bib10), [2007](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749bib11)) are increasingly used in decision-making. It is important to keep track of how well past projections match the accumulating observational data. Five years ago, it was found that CO2 concentration and global temperature closely followed the central prediction of the third IPCC assessment report during 1990–2006, whilst sea level was tracking along the upper limit of the uncertainty range (Rahmstorf et al [2007](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749bib24)). Here we present an update with five additional years of data and **using advances in removing short-term noise from global temperature data.** Atmospheric carbon dioxide concentration continues to match the prediction: **the mean value reached in 2011 was 390.5 ppm** (NOAA [2012](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749bib21)), only about 1.5 ppm higher than the central IPCC projections published in 2001. For historical perspective, in his article 'Are we on the brink of a pronounced global warming?', Broecker ([1975](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749bib1)) predicted an increase from 322 ppm observed in 1970 to 403 ppm in 2010. A more detailed analysis of anthropogenic climate forcing, which also includes other greenhouse gases, aerosols and surface albedo changes, is beyond the scope of this letter. Here we focus on two prime indicators of climate change: the evolution of global-mean temperature and sea level. 2. Global temperature evolution To compare global temperature data to projections, we need to consider that IPCC projections do not attempt to predict the effect of solar variability, or specific sequences of either volcanic eruptions or El Niño events. Solar and volcanic forcing are routinely included only in 'historic' simulations for the past climate evolution but not for the future, while El Niño–Southern Oscillation (ENSO) is included as a stochastic process where the timing of specific warm or cool phases is random and averages out over the ensemble of projection models. Therefore, model-data comparisons either need to account for the short-term variability due to these natural factors as an added quasi-random uncertainty, or the specific short-term variability needs to be removed from the observational data before comparison. Since the latter approach allows a more stringent comparison it is adopted here. Global temperature data can be **adjusted for solar variations**, **volcanic aerosols** and **ENSO using multivariate correlation analysis** (Foster and Rahmstorf [2011](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749bib6), Lean and Rind [2008](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749bib14), [2009](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749bib15), Schönwiese et al [2010](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749bib28)), since independent data series for these factors exist. We here use the data adjusted with the method exactly as described in Foster and Rahmstorf, but using data until the end of 2011. The contributions of all three factors to global temperature were estimated by linear correlation with the multivariate El Niño index for ENSO, aerosol optical thickness data for volcanic activity and total solar irradiance data for solar variability (optical thickness data for the year 2011 were not yet available, but since no major volcanic eruption occurred in 2011 we assumed zero volcanic forcing). These contributions were computed separately for each of the five available global (land and ocean) temperature data series (including both satellite and surface measurements) and subtracted. The five thus adjusted data sets were averaged in order to avoid any discussion of what is 'the best' data set; in any case the differences between the individual series are small (Foster and Rahmstorf [2011](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749bib6)). We show this average as a 12-months running mean in figure [1](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749fig1), together with the unadjusted data (likewise as average over the five available data series). Comparing adjusted with unadjusted data shows how the adjustment largely removes e.g. the cold phase in 1992/1993 following the Pinatubo eruption, the exceptionally high 1998 temperature maximum related to the preceding extreme El Niño event, and La Niña-related cold in 2008 and 2011. Figure 1. Observed annual global temperature, unadjusted (pink) and adjusted for short-term variations due to solar variability, volcanoes and ENSO (red) as in Foster and Rahmstorf ([2011](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749bib6)). 12-months running averages are shown as well as linear trend lines, and compared to the scenarios of the IPCC (blue range and lines from the third assessment, green from the fourth assessment report). Projections are aligned in the graph so that they start (in 1990 and 2000, respectively) on the linear trend line of the (adjusted) observational data. [Export PowerPoint slide](http://iopscience.iop.org/1748-9326/7/4/044035/powerpoint/figure/erl439749fig1) [Download figure (96 KB)](http://iopscience.iop.org/1748-9326/7/4/044035/downloadFigure/figure/erl439749fig1) Note that recently a new version of one of those time series has become available: version of 4 the HadCRUT data (Morice et al [2012](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749bib20)). Since the differences are small and affect only one of five series, the effect of this update on the average shown in figure [1](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749fig1) is negligible. We chose to include version 3 of the data in this graph since these data are available up to the end of 2011, while version 4 so far is available only up to the end of 2010. The removal of the known short-term variability components reduces the variance of the data without noticeably altering the overall warming trend: it is 0.15 °C/decade in the unadjusted and 0.16 °C/decade in the adjusted data. From 1990–2011 the trends are 0.16 and 0.18 °C/decade and for 1990–2006 they are 0.22 and 0.20 °C/decade respectively. The relatively high trends for the latter period are thus simply due to short-term variability, as discussed in our previous publication (Rahmstorf et al [2007](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749bib24)). During the last ten years, warming in the unadjusted data is less, due to recent La Niña conditions (ENSO causes a linear cooling trend of −0.09 °C over the past ten years in the surface data) and the transition from solar maximum to the recent prolonged solar minimum (responsible for a −0.05 °C cooling trend) (Foster and Rahmstorf [2011](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749bib6)). Nevertheless, unadjusted observations lie within the spread of individual model projections, which is a different way of showing the consistency of data and projections (Schmidt [2012](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749bib27)). Figure [1](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749fig1) shows that the adjusted observed global temperature evolution closely follows the central IPCC projections, while this is harder to judge for the unadjusted data due to their greater short-term variability. The IPCC temperature projections shown as solid lines here are produced using the six standard, illustrative SRES emissions scenarios discussed in the third and fourth IPCC reports, and do not use any observed forcing. The temperature evolution for each, including the uncertainty range, is computed with a simple emulation model, hence the temperature curves are smooth. The temperature ranges for these scenarios are provided in the summary for policy makers of each report, in figure 5 in case of the third assessment and in table SPM.3 in case of the fourth assessment (where the full time evolution is shown in figure 10.26 of the report; Meehl et al [2007](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749bib18)). For historic perspective, Broecker in 1975 predicted a global warming from 1980–2010 by 0.68 °C, as compared to 0.48 °C according to the linear trend shown in figure [1](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749fig1), an overestimate mostly due to his neglect of ocean thermal inertia (Rahmstorf [2010](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749bib23)). A few years later, Hansen et al ([1981](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749bib8)) analysed and included the effect of ocean thermal inertia, resulting in lower projections ranging between 0.28 and 0.45 °C warming from 1980–2010. Their upper limit thus corresponds to the observed warming trend. They further correctly predicted that the global warming signal would emerge from the noise of natural variability before the end of the 20th century. 3. Global sea-level rise Turning to sea level, the quasi linear trend **measured by satellite altimeters** since 1993 has continued essentially unchanged when extending the time series by five additional years. It continues to run near the upper limit of the projected uncertainty range given in the third and fourth IPCC assessment reports (figure [2](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749fig2)). Here, the sea-level projections provided in figure 5 of the summary for policy makers of the third assessment and in table SPM.3 of the fourth assessment are shown. The satellite-based linear trend 1993–2011 is 3.2 ± 0.5 mm yr−1, which is 60% faster than the best IPCC estimate of 2.0 mm yr−1 for the same interval (blue lines). The two temporary sea-level minima in 2007/2008 and 2010/2011 may be linked to strong La Niña events (Llovel et al [2011](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749bib17)). The tide gauges show much greater variability, most likely since their number is too limited to properly sample the global average (Rahmstorf et al [2012](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749bib25)). For sea level the fourth IPCC report did not publish the model-based time series (green lines), but these were made available online in 2012 (CSIRO [2012](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749bib5)). They do not differ significantly from the projections of the third IPCC report and thus continue to underestimate the observed upward trend. Figure 2. Sea level measured by satellite altimeter (red with linear trend line; AVISO data from (Centre National d'Etudes Spatiales) and reconstructed from tide gauges (orange, monthly data from Church and White ([2011](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749bib4))). Tide gauge data were aligned to give the same mean during 1993–2010 as the altimeter data. The scenarios of the IPCC are again shown in blue (third assessment) and green (fourth assessment); the former have been published starting in the year 1990 and the latter from 2000. [Export PowerPoint slide](http://iopscience.iop.org/1748-9326/7/4/044035/powerpoint/figure/erl439749fig2) [Download figure (91 KB)](http://iopscience.iop.org/1748-9326/7/4/044035/downloadFigure/figure/erl439749fig2) Could this underestimation appear because the high observed rates since 1993 are due to internal multi-decadal variability, perhaps a temporary episode of ice discharge from one of the ice sheets, rather than a systematic effect of global warming? **Two pieces of evidence make this very unlikely.** First, the IPCC fourth assessment report (IPCC [2007](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749bib11)) found a similar underestimation also for the time period 1961–2003: the models on average give a rise of 1.2 mm yr−1, while the best data-based estimate is 50% larger at 1.8 mm yr−1 (table 9.2 of the report; Hegerl et al [2007](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749bib9)). This is despite using an observed value for ice sheet mass loss (0.19 mm yr−1) in the 'modelled' number in this comparison. Second, the observed rate of sea-level rise on multi-decadal timescales over the past 130 years shows a highly significant correlation with global temperature (Vermeer and Rahmstorf [2009](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749bib30)) by which the increase in rate over the past three decades is linked to the warming since 1980, which is very unlikely to be a chance coincidence. Another issue is whether non-climatic components of sea-level rise, not considered in the IPCC model projections, should be accounted for before making a comparison to data, namely water storage in artificial reservoirs on land (Chao et al [2008](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749bib3)) and the extraction of fossil groundwater for irrigation purposes (Konikow [2011](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749bib13)). During the last two decades, both contributions approximately cancel (at −0.3 and +0.3 mm yr−1) so would not change our comparison in figure [2](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749fig2), see figure 11 of Rahmstorf et al ([2012](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749bib25)) based on the data of Chao et al ([2008](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749bib3)) and Konikow ([2011](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749bib13)). This is consistent with the lack of recent trend in net land-water storage according to the GRACE satellite data (Lettenmaier and Milly [2009](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749bib16)). For the period 1961–2003, however, the effect of dam building (which peaked in the 1970s at around −0.9 mm yr−1) very likely outstripped groundwater extraction, thus widening the gap between modelled and observed climatically-forced sea-level rise. It is instructive to analyse how the rate of sea-level rise changes over longer time periods (figure [3](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749fig3)). The tide gauge data (though noisy, see above) show that the rate of sea-level rise was around 1 mm yr−1 in the early 20th century, around 1.5–2 mm yr−1 in mid-20th-century and increased to around 3 mm yr−1 since 1980 (orange curve). The satellite series is too short to meaningfully compute higher order terms beyond the linear trend, which is shown in red (including uncertainty range). Finally, the AR4 projections are shown in three bundles of six emissions scenarios: the 'mid' estimates in green, the 'low' estimates (5-percentile) in cyan and the 'high' estimates (95-percentile) in blue. These are the scenarios that comprise the often-cited AR4-range from 18 to 59 cm sea-level rise for the period 2090–99 relative to 1980–99 (IPCC [2007](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749bib11)). For the period 2000–2100, this corresponds to a range of 17–60 cm sea-level rise. Figure 3. Rate of sea-level rise in past and future. Orange line, based on monthly tide gauge data from Church and White ([2011](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749bib4)). The red symbol with error bars shows the satellite altimeter trend of 3.2 ± 0.5 mm yr−1 during 1993–2011; this period is too short to determine meaningful changes in the rate of rise. Blue/green line groups show the low, mid and high projections of the IPCC fourth assessment report, each for six emissions scenarios. Curves are smoothed with a singular spectrum filter (ssatrend; Moore et al [2005](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749bib19)) of 10 years half-width. [Export PowerPoint slide](http://iopscience.iop.org/1748-9326/7/4/044035/powerpoint/figure/erl439749fig3) [Download figure (94 KB)](http://iopscience.iop.org/1748-9326/7/4/044035/downloadFigure/figure/erl439749fig3) Figure [3](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749fig3) shows that in all 'low' estimates, the rate of rise stays well below 3 mm yr−1 until the second half of the 21st century, in four of the six even throughout the 21st century. The six 'mid' estimates on average give a rise of 34 cm, very close to what would occur if the satellite-observed trend of the last two decades continued unchanged for the whole century. However, figure [3](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749fig3) shows that the reason for this relatively small projected rise is not an absence of acceleration. Rather, all these scenarios show an acceleration of sea-level rise in the 21st century, but from an initial value that is much lower than the observed recent rise. Figure [3](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749fig3) further shows that only the 'high' models represented in the range of AR4 models validate when compared to the observational data and can in this regard be considered valid projection models for the future. These 'high' model scenarios represent a range of 21st century rise of 37–60 cm. Nevertheless, this range cannot be assumed to represent the full range of uncertainty of future sea-level rise, since the 95-percentile can only represent a very small number of models, given that 23 climate models were used in the AR4. The model(s) defining the upper 95-percentile might not get the right answer for the right reasons, but possibly by overestimating past temperature rise. Note that the IPCC pointed out that its projections exclude 'future rapid dynamical changes in ice flow'. The projections now published online (CSIRO [2012](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749bib5)) include an alternative version that includes 'scaled-up ice sheet discharge'. These projections validate equally well (or poorly) with the observed data, since they only differ substantially in the future, not in the past, from the standard projections. The sea-level rise over 2000–2100 of the 'high' bundle of these scenarios is 46–78 cm. Alternative scalings of sea-level rise have been developed, which in essence postulate that the rate of sea-level rise increases in proportion to global warming (e.g. Grinsted et al [2009](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749bib7), Rahmstorf [2007](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749bib22)). This approach can be calibrated with past sea-level data (Kemp et al [2011](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749bib12), Vermeer and Rahmstorf [2009](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749bib30)) and leads to higher projections of future sea-level rise as compared to those of the IPCC. The latter is immediately plausible: if we consider the recently observed 3 mm yr−1 rise to be a result of 0.8 °C global warming since preindustrial times (Rahmstorf et al [2012](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749bib25)), then a linear continuation of the observed warming of the past three decades (leading to a 21st century warming by 1.6 °C, or 2.4 °C relative to preindustrial times) would linearly raise the rate of sea-level rise to 9 mm yr−1, as in the highest scenario in figure [3](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749fig3)—but already for a rather moderate warming scenario, not the 'worst case' emissions scenario. 4. Conclusions In conclusion, the rise in CO2 concentration and global temperature has continued to closely match the projections over the past five years, **while sea level continues to rise faster than anticipated.** The latter suggests that the 21st Century sea-level projections of the last two IPCC reports may be systematically biased low. Further support for this concern is provided by the fact that the ice sheets in Greenland and Antarctica are increasingly losing mass (Rignot et al [2011](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749bib26), Van den Broeke et al [2011](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749bib29)), while those IPCC projections assumed that Antarctica will gain enough mass in future to largely compensate mass losses from Greenland (see figure 10.33 in Meehl et al ([2007](http://iopscience.iop.org/1748-9326/7/4/044035/article#erl439749bib18))). For this reason, an additional contribution ('scaled-up ice sheet discharge') was suggested in the IPCC fourth assessment. Our results highlight the need to thoroughly validate models with data of past climate changes before applying them to projections.

#### And, it causes extinction – US leadership is key

Ferris, 1/17/13 [The Big Thaw, [Elizabeth Ferris](http://www.brookings.edu/experts/ferrise) Co-Director, [Brookings-LSE Project on Internal Displacement](http://www.brookings.edu/about/projects/idp), <http://www.brookings.edu/research/papers/2013/01/the-big-thaw>]

Global warming is occurring at a faster pace than predicted by scientists. Temperatures are rising, icecaps and glaciers are melting, and extreme weather events are becoming both more frequent and more intense. Last fall, the National Snow and Ice Data Center documented a record low of the level of Arctic sea ice – a figure 49 percent lower than the 1979-2000 average. If these trends continue, the results will be far-reaching for life on this planet. But if the warming accelerates dramatically and if polar ice melts even faster, the results could be catastrophic. This could occur if the Greenland ice sheet or the West Antarctica Ice Sheet (WAIS) collapses, triggering a significant rise in sea levels throughout the world with particularly devastating impacts on populations living in low-lying coastal areas. Although the effects of climate change are likely to be long-term and the worst effects will probably neither be experienced in your presidency nor even in your lifetime, the future is inherently unpredictable. Climate change is already affecting communities around the world. It is likely to produce devastating consequences whether in the near or distant future. Taking bold steps now to address climate change offers an opportunity for you not only to leave a legacy that will impact future generations but also an opportunity to address current problems resulting from the effects of climate change. Recommendations: • Raise the priority of climate change on your foreign policy agenda, in particular by re-vitalizing negotiations over a post-Kyoto treaty. The Doha round of negotiations, which ended last month, was disappointing. Countries are further away today than they were a year ago on reducing emissions. U.S. leadership can reverse current trends of inadequate global commitment to reduce greenhouse gases. • Support measures that will enable communities and countries to adapt to the most egregious effects of climate change. On the international level this means supporting and leading the difficult discussions around climate finance and using U.S. aid to support government planning to respond to the effects of climate change, including financial assistance to encourage communities to stay where they are as well as to plan for the relocation of communities whose homes will no longer be habitable. • Support effective multilateral action to increase both mitigation and adaptation measures. Use your influence with the multilateral development banks to encourage more attention to disaster riskreduction measures in development planning. Work with international agencies and legal experts to devise an international legal regime for dealing with the expected increase in trans-border migration. It is easier to put a system in place before a crisis is at hand. • Strengthen domestic efforts to mitigate the effects of climate change by reducing carbon emissions and enhancing domestic capacity to prepare for, respond, and recover from sudden-onset natural disasters. Background: Since the first report of the Intergovernmental Panel on Climate Change (IPCC) in 1990, the projections about the impact of global warming have become direr. From projecting the widespread consequences of a global rise in temperature of 2 degrees Celsius by the end of the century, current projections are that the rise in temperature will double to 4 degrees Celsius. The seas are rising 60 percent faster than predicted by the IPCC. The Greenland ice sheet is shrinking twice as fast as estimated by the IPCC and is losing mass at about five times the rate it was in the early 1990s. If the Greenland ice sheet were to melt completely, global sea rise could reach seven meters. And the consequences of global warming go far beyond sea-level rise. For example, the National Oceanic and Atmospheric Administration warns that the conditions that led to the 2011 Texas drought are 20 times more likely to occur now than in the 1960s as a result of increases in greenhouse gas concentrations. Although climate change will have many negative effects in different parts of the world, including prolonged droughts, reduction in arable land, declining agricultural productivity, and increased flooding due to more extreme weather events, the impact of sea level rise perhaps best illustrates the potential dangers. Throughout the world, more people are living in coastal areas as the result of population growth, urbanization and government policies. Presently 10 percent of the world’s population — 600 million people — live in low-elevation coastal zones and the percentage is growing. Sixty-five percent of the world’s megacities (those over 5 million) are located in these coastal areas. A rise in sea level of even a meter would have major implications for coastal populations; if sea levels were to rise by several meters, the consequences would be catastrophic. Most obviously, sea level rise will submerge land, causing countries to lose physical territory. The areas expected to experience the largest land loss by 2030 are the Arctic Ocean coasts of Canada, Alaska, Siberia and Greenland as well as coastal areas of Pakistan, Sri Lanka, southeast Indonesia, and eastern Africa. In the United States, particularly vulnerable areas include the coastal areas of the east and west coasts and the Gulf of Mexico. Rising sea levels will affect economics, politics, community life and security. For example, the mega-deltas of Asia are the food baskets of the region, and the impact of a sea level rise on food security will be considerable. But perhaps the most significant impact of climate change in general and rising sea levels in particular will be the displacement of people. Migration is a complex process driven by a range of economic, social and political factors but it is becoming clear that environmental factors will increasingly influence migration. In Bangladesh, for example, moving to cities has become a common coping strategy in the face of flooding. One of the IPCC background studies posits that a 40-centimeter rise in sea levels will affect 100 million people. As hundreds of millions of people in Africa and Asia are at risk of flooding by 2060, it is likely that many will move to cities such as Dhaka and Lagos that are located in coastal flood plain areas. In other words, the trend is for people to migrate to areas of greater — not lesser — environmental vulnerability. At the same time, as the UK’s authoritative Foresight study concludes, those who are able to migrate may well be the lucky ones; those who are unable to move may be the most vulnerable. Large-scale migration has many consequences. If sea level rise renders small island states uninhabitable (which is likely to occur long before the islands are actually submerged by the seas), issues of sovereignty, legal status, and responsibility will present the world with huge challenges. Most climate change-induced or displacement will be internal, placing strain on infrastructure and pressure on governments to deliver services. Political instability, conflict poor governance exacerbate these problems. Climate change is a threat multiplier, often affecting those countries least able to respond appropriately. How will governments cope with the movement of large numbers of people from coasts toward inland areas? There is also a possibility that some, perhaps many, will seek to move to other countries because of the effects of climate change. The international legal system is unprepared to deal with trans-border movements triggered by environmental factors or disasters, since the displaced do not fall under the 1951 Refugee Convention (unless they leave because of political turmoil exacerbated by climate change.) Projecting possible massive displacement from climate change is complicated by the difficulty of comprehending the interrelationships between the different effects of climate change, for example, changes in fish stocks and coral reefs brought about by the acidification of the world’s oceans; changing patterns of disease; changing habitats for animals and plants; the intersection of deforestation and increasingly arid climates in some parts of the world. Delicate ecological balances are changing in ways that are as yet poorly understood. Similarly, there is much we do not know about the dynamic nature of the effects of climate change. For example, some scientists are reporting that the melting of Arctic ice itself is releasing more carbon into the atmosphere, increasing global warming which will in turn increase the rate of Arctic ice melt. Most scientists have observed that the climate is becoming warmer and that extreme weather events are becoming more frequent. While it is impossible to attribute any single weather event, such as Hurricane Sandy, to climate change, the global trends clearly demonstrate an increase in the frequency of extreme weather events. These **trends are likely to** intensify. The interaction between increasing extreme weather events and other effects of climate change – such as increased erosion, acidification of the seas, desertification, sea-level rise – is also likely to lead to large-scale movement of people. Conclusion: There are certainly obstacles and pitfalls to making climate change a centerpiece of your foreign policy. Perhaps the projections of scientists are too pessimistic and the effects of global warming will not be as serious as now thought. Perhaps you will be unable to marshal the necessary political support to enact necessary legislation. Perhaps other governments will fail to rally to your leadership and perhaps the negotiations over climate change mitigation and adaptation will widen, not narrow the North- South divide. It is certainly understandable that you would want to put aside these longer-term challenges and focus on more immediate economic issues. But a climate catastrophe could be lurking around the corner. Unless urgent action is taken now, the effects of climate change on life on this planet and on life in the United States will increase. Climate change is a domestic, foreign policy, security, development, human rights, and intergenerational justice issue. Preparing better for climate change disasters at home and abroad is a good short-term prophylactic. But making serious and sustained efforts to reduce global warming can solidify America’s present leadership in the world. It can lay the foundation for the country’s sustainable future development. It can address the causes of future humanitarian crises and alleviate future human suffering. It can be a legacy issue for the Obama administration that will impact the world for generations.

#### And, action now can reverse warming

Peters, et al December 12 [Peer Reviewed Journal, Glen, Center for International Climate and Environmental Research – Oslo (CICERO) The challenge to keep global warming below 2 [deg]C, Glen P. Peters, Robbie M. Andrew, Tom Boden, Josep G. Canadell, Philippe Ciais, Corinne Le Quéré, Nature Climate Change, <http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html>]

On-going climate negotiations have recognized a “significant gap” between the current trajectory of global greenhouse-gas emissions and the “likely chance of holding the increase in global average temperature below 2 °C or 1.5 °C above pre-industrial levels”[1](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref1). Here we compare recent trends in carbon dioxide (CO2) emissions from fossil-fuel combustion, cement production and gas flaring with the primary emission scenarios used by the Intergovernmental Panel on Climate Change (IPCC). Carbon dioxide emissions are the largest contributor to long-term climate change and thus provide a good baseline to assess progress and examine consequences. We find that current emission trends continue to track scenarios that lead to the highest temperature increases. Further delay in global mitigation makes it increasingly difficult to stay below 2 °C. Long-term emissions scenarios are designed to represent a range of plausible emission trajectories as input for climate change research[2](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref2), [3](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref3). The IPCC process has resulted in four generations of emissions scenarios[2](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref2): Scientific Assessment 1990 (SA90)[4](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref4), IPCC Scenarios 1992 (IS92)[5](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref5), Special Report on Emissions Scenarios (SRES)[6](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref6), and the evolving Representative Concentration Pathways (RCPs)[7](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref7) to be used in the upcoming IPCC Fifth Assessment Report. The RCPs were developed by the research community as a new, parallel process of scenario development, whereby climate models are run using the RCPs while simultaneously socioeconomic and emission scenarios are developed that span the range of the RCPs and beyond[2](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref2). It is important to regularly re-assess the relevance of emissions scenarios in light of changing global circumstances[3](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref3), [8](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref8). In the past, decadal trends in CO2 emissions have responded slowly to changes in the underlying emission drivers because of inertia and path dependence in technical, social and political systems[9](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref9). Inertia and path dependence are unlikely to be affected by short-term fluctuations[2](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref2), [3](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref3), [9](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref9) — such as financial crises[10](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref10) — and it is probable that emissions will continue to rise for a period even after global mitigation has started[11](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref11). Thermal inertia and vertical mixing in the ocean, also delay the temperature response to CO2 emissions[12](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref12). Because of inertia, path dependence and changing global circumstances, there is value in comparing observed decadal emission trends with emission scenarios to help inform the prospect of different futures being realized, explore the feasibility of desired changes in the current emission trajectory and help to identify whether new scenarios may be needed. Global CO2 emissions have increased from 6.1±0.3 Pg C in 1990 to 9.5±0.5 Pg C in 2011 (3% over 2010), with average annual growth rates of 1.9% per year in the 1980s, 1.0% per year in the 1990s, and 3.1% per year since 2000. We estimate that emissions in 2012 will be 9.7±0.5 Pg C or 2.6% above 2011 (range of 1.9–3.5%) and 58% greater than 1990 ([Supplementary Information](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#supplementary-information) and ref. [13](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref13)). The observed growth rates are at the top end of all four generations of emissions scenarios ([Figs 1](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#f1) and [2](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#f2)). Of the previous illustrative IPCC scenarios, only IS92-E, IS92-F and SRES A1B exceed the observed emissions ([Fig. 1](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#f1)) or their rates of growth ([Fig. 2](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#f2)), with RCP8.5 lower but within uncertainty bounds of observed emissions. Figure 1: Estimated CO2 emissions over the past three decades compared with the IS92, SRES and the RCPs. The SA90 data are not shown, but the most relevant (SA90-A) is similar to IS92-A and IS92-F. The uncertainty in historical emissions is ±5% (one standard deviation). Scenario data is generally reported at decadal intervals and we use linear interpolation for intermediate years. [Full size image (386 KB)](http://www.nature.com/nclimate/journal/v3/n1/fig_tab/nclimate1783_F1.html) [Figures index](http://www.nature.com/nclimate/journal/v3/n1/fig_tab/nclimate1783_ft.html) [Next](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#f2) Figure 2: Growth rates of historical and scenario CO2 emissions. The average annual growth rates of the historical emission estimates (black crosses) and the emission scenarios for the time periods of overlaps (shown on the horizontal axis). The growth rates are more comparable for the longer time intervals considered (in order: SA90, 27 years; IS92, 22 years; SRES, 12 years; and RCPs, 7 years). The short-term growth rates of the scenarios do not necessarily reflect the long-term emission pathway (for example, A1B has a high initial growth rate compared with its long-term behaviour and RCP3PD has a higher growth rate until 2010 compared with RCP4.5 and RCP6). For the SRES, we represent the illustrative scenario for each family (filled circles) and each of the contributing model scenarios (open circles). The scenarios generally report emissions at intervals of 10 years or more and we interpolated linearly to 2012; a sensitivity analysis shows a linear interpolation is robust ([Supplementary Fig. S14](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#supplementary-information)). [Full size image (112 KB)](http://www.nature.com/nclimate/journal/v3/n1/fig_tab/nclimate1783_F2.html) [Previous](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#f1) [Figures index](http://www.nature.com/nclimate/journal/v3/n1/fig_tab/nclimate1783_ft.html) Observed emission trends are in line with SA90-A, IS92-E and IS92-F, SRES A1FI, A1B and A2, and RCP8.5 ([Fig. 2](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#f2)). The SRES scenarios A1FI and A2 and RCP8.5 lead to the highest temperature projections among the scenarios, with a mean temperature increase of 4.2–5.0 °C in 2100 (range of 3.5–6.2 °C)[14](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref14), whereas the SRES A1B scenario has decreasing emissions after 2050 leading to a lower temperature increase of 3.5 °C (range 2.9–4.4°C)[14](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref14). Earlier research has noted that observed emissions have tracked the upper SRES scenarios[15](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref15), [16](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref16) and [Fig. 1](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#f1) confirms this for all four scenario generations. This indicates that the space of possible pathways could be extended above the top-end scenarios to accommodate the possibility of even higher emission rates in the future. The new RCPs are particularly relevant because, in contrast to the earlier scenarios, mitigation efforts consistent with long-term policy objectives are included among the pathways[2](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref2). RCP3-PD (peak and decline in concentration) leads to a mean temperature increase of 1.5 °C in 2100 (range of 1.3–1.9 °C)[14](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref14). RCP3–PD requires net negative emissions (for example, bioenergy with carbon capture and storage) from 2070, but some scenarios suggest it is possible to stay below 2 °C without negative emissions[17](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref17), [18](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref18), [19](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref19). RCP4.5 and RCP6 — which lie between RCP3–PD and RCP8.5 in the longer term — lead to a mean temperature increase of 2.4 °C (range of 1.0–3.0 °C) and 3.0 °C (range of 2.6–3.7 °C) in 2100, respectively[14](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref14). For RCP4.5, RCP6 and RCP8.5, temperatures will continue to increase after 2100 due to on-going emissions[14](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref14) and inertia in the climate system[12](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref12). Current emissions are tracking slightly above RCP8.5, and given the growing gap between the other RCPs ([Fig. 1](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#f1)), significant emission reductions are needed by 2020 to keep 2 °C as a feasible goal[18](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref18), [19](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref19), [20](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref20). To follow an emission trend that can keep the temperature increase below 2 °C (RCP3-PD) requires sustained global CO2 mitigation rates of around 3% per year, if global emissions peak before 2020[11](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref11), [19](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref19). A delay in starting mitigation activities will lead to higher mitigation rates[11](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref11), higher costs[21](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref21), [22](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref22), and the target of remaining below 2 °C may become unfeasible[18](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref18), [20](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref20). If participation is low, then higher rates of mitigation are needed in individual countries, and this may even increase mitigation costs for all countries[22](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref22). Many of these rates assume that negative emissions will be possible and affordable later this century[11](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref11), [17](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref17), [18](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref18), [20](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref20). Reliance on negative emissions has high risks because of potential delays or failure in the development and large-scale deployment of emerging technologies such as carbon capture and storage, particularly those connected to bioenergy[17](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref17), [18](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref18). Although current emissions are tracking the higher scenarios, it is still possible to transition towards pathways consistent with keeping temperatures below 2 °C (refs [17](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref17),[19](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref19),[20](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref20)). The historical record shows that some countries have reduced CO2 emissions over 10-year periods, through a combination of (non-climate) policy intervention and economic adjustments to changing resource availability. The oil crisis of 1973 led to new policies on energy supply and energy savings, which produced a decrease in the share of fossil fuels (oil shifted to nuclear) in the energy supply of Belgium, France and Sweden, with emission reductions of 4–5% per year sustained over 10 or more years ([Supplementary Figs S17–19](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#supplementary-information)).A continuous shift to natural gas — partially substituting coal and oil — led to sustained mitigation rates of 1–2% per year in the UK in the 1970s and again in the 2000s, 2% per year in Denmark in the 1990–2000s, and 1.4% per year since 2005 in the USA ([Supplementary Figs S10–12](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#supplementary-information)). These examples highlight the practical feasibility of emission reductions through fuel substitution and efficiency improvements, but additional factors such as carbon leakage[23](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref23) need to be considered. These types of emission reduction can help initiate a transition towards trajectories consistent with keeping temperatures below 2 °C, but further mitigation measures are needed to complete and sustain the reductions. Similar energy transitions could be encouraged and co-ordinated across countries in the next 10 years using available technologies[19](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref19), but well-targeted technological innovations[24](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref24) are required to sustain the mitigation rates for longer periods[17](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref17). To move below the RCP8.5 scenario — avoiding the worst climate impacts — requires early action[17](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref17), [18](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref18), [21](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref21) and sustained mitigation from the largest emitters[22](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref22) such as China, the United States, the European Union and India. These four regions together account for over half of global CO2 emissions, and have strong and centralized governing bodies capable of co-ordinating such actions. If similar energy transitions are repeated over many decades in a broader range of developed and emerging economies, the current emission trend could be pulled down to make RCP3-PD, RCP4.5 and RCP6 all feasible futures. A shift to a pathway with the highest likelihood to remain below 2 °C above pre-industrial levels (for example, RCP3-PD), requires high levels of technological, social and political innovations, and an increasing need to rely on net negative emissions in the future[11](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref11), [17](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref17), [18](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref18). The timing of mitigation efforts needs to account for delayed responses in both CO2 emissions[9](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref9) (because of inertia in technical, social and political systems) and also in global temperature[12](http://www.nature.com/nclimate/journal/v3/n1/full/nclimate1783.html#ref12) (because of inertia in the climate system). Unless large and concerted global mitigation efforts are initiated soon, the goal of remaining below 2 °C will very soon become unachievable.

#### And, federal laws chill investment in offshore wind – that’s key

Thaler, 9/17/12 [FIDDLING AS THE WORLD BURNS: HOW CLIMATE CHANGE URGENTLY REQUIRES A PARADIGM SHIFT IN THE PERMITTING OF RENEWABLE ENERGY PROJECTS,  [Jeff Thaler](http://papers.ssrn.com/sol3/cf_dev/AbsByAuth.cfm?per_id=1870962)  University of Maine School of Law September 17, 2012 [Environmental Law, Volume 42, Issue 4, Forthcoming](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2148122##), <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2148122>]

Unfortunately, as the economic and health costs from fossil fuel emissions have grown so too has the byzantine labyrinth of laws and regulations to be navigated before a renewable energy project can be approved, let alone financed and developed. 6 The root cause goes back to the 1970s when some of our fundamental environmental laws were enacted, before we were aware of climate change threats, to slow down the review of proposed projects by requiring more studies of potential project impacts before approval.7 But in our increasingly carbon-based 21st century, we need a paradigm shift. While achieving important goals, those federal laws and regulations, and similar ones at the state and local levels, have become so unduly burdensome, slow, and expensive that they will chill investment in, and kill any significant growth of, renewable carbon-free energy sources and projects, thereby imposing huge economic, environmental and social costs upon both our country and the world8 unless they are substantially changed. Indeed, by 2050 the U.S. must reduce its greenhouse gas emissions by 80% to even stabilize atmospheric levels of carbon, and can do so by increasing generated electricity from renewable sources from the current thirteen percent up to eighty percent9-- but only if there are targeted new policy efforts to accelerate, fifty times faster than since 1990, implementation of clean, renewable energy sources.10 Thus, Part II focuses on one promising technology to demonstrate the flaws in its current licensing permitting regimes, and makes concrete recommendations for reform.11 Wind power generation from onshore installations is proven, generates no GHGs and consumes no water,12 is increasingly cost-competitive with most fossil fuel sources, and can be employed relatively quickly in many parts of the United States and world. Offshore wind power is a relatively newer technology, especially deep-water floating projects, and presently less cost-competitive than onshore wind. However, because wind speeds are on average about ninety percent stronger and more consistent over water than over land, with higher power densities and lower shear and turbulence,13 America’s offshore resources can provide more than our current electricity use.14 Moreover, these resources are near many majorcities that are home to much of the population and electricity demand thereby “reducing the need for new high-voltage transmission from the Midwest and Great Plains to serve coastal lands…”15 Therefore, in light Part II’s spotlight on literally dozens of different federal (yet alone state and local) statutes and their hundreds of regulations standing between an offshore wind project applicant and construction, Part III makes concrete statutory and regulatory recommendations to much more quickly enable the full potential of offshore wind energy to become a reality before it is too late. Greenhouse gases (GHGs) trap heat in the atmosphere; the primary GHG emitted by human activities is carbon dioxide (CO2), which in 2012 represented 84 percent of all human-sourced U.S. GHG emissions.16 “The combustion of fossil fuels to generate electricity is the largest single source of CO2 emissions in the nation, accounting for about 40% of total U.S. CO2 emissions and 33% of total U.S. greenhouse gas emissions in 2009.”17 The significant increased concentrations of GHGs into our atmosphere since the 1750 Industrial Revolution began greater use of fossil fuel sources have caused our world to warm and climate to change.18 Climate change may be the single greatest threat to human society and wildlife, as well as to the ecosystems upon which each depends for survival.19 In 1992, the U.S. signed and ratified the United Nations Framework Convention on Climate Change (UNFCC), whose stated objective was: “[s]tabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner.”20 In 2007, the Intergovernmental Panel on Climate Change (IPCC) concluded that it is “very likely,” at least ninety percent certain, that humans are responsible for most of the “unequivocal” increases in globally averaged temperatures of the previous fifty years. 21 Yet in the twenty years since the UNFCCC, it also is unequivocal that GHG levels have not stabilized but continue to grow, ecosystems and food production have not been able to adapt, and our heavy reliance on fossil-fueled energy continues “dangerous anthropogenic interference with the climate system.”22 Equally unequivocal is that 2011 global temperatures were “the tenth highest on record and [were] higher than any previous year with a La Nina event, which [normally] has a relative cooling influence”; “the warmest 13 years of average global temperatures [also] have all occurred in the 15 years since 1997.”23 Global emissions of carbon dioxide also jumped 5.9% in 2010 by the largest amount on record -- 500 million extra tons of carbon was pumped into the air, “the largest absolute jump in any year since the Industrial Revolution [began in 1750], and the largest percentage increase since 2003.”24 In order to even have a fifty-fifty chance that the average global temperature will not rise more than 2° C25 beyond the temperature of 1750,26 our cumulative emissions of CO2 after 1750 must not exceed one trillion tons; but by mid-July 2012 we had already emitted over 559 billion tons and rising, and at current rates will emit the trillionth ton in July 2043.27 The consequence is that “the current generation are uniquely placed in human history: the choices we make now—in the next 10-20 years—will alter the destiny of our species (let alone every other species) unalterably, and forever.”28 Unfortunately, by the end of 2011 the more than 10,000 government and U.N. officials from all over the world attending the Durban climate change conference29 agreed that there is a “significant gap between the aggregate effect of Parties’ mitigation pledges in terms of global annual emissions of greenhouse gases by 2020 and aggregate emission pathways consistent with having a likely chance of holding the increase in global average temperature below 2 °C or 1.5 °C above pre-industrial levels.”30 What are some of the growing economic, public health, and environmental costs to our country proximately31 caused by our daily burning of fossil fuels? The National Research Council (NRC) analyzed the "hidden" costs of energy production and use not reflected in market prices of coal, oil, other energy sources, or the electricity and gasoline produced from them. For the year 2005 alone, the NRC estimated $120 billion of damages to the U.S. from fossil fuel energy, reflecting primarily health damages from air pollution associated with electricity generation and motor vehicle transportation. Of that total, $62 billion was due to coal-fired electricity generation; $56 billion from ground transportation (oil-petroleum); and over $2.1 billion from electricity from and heating with natural gas. The $120 billion figure did not include damages from climate change, harm to ecosystems and infrastructure, insurance costs, effects of some air pollutants, and risks to national security, which the NRC examined but did not specifically monetize. 32 The NRC did, however, suggest that under some scenarios climate damages from energy use could equal $120 billion.33 Thus, adding natural resource damages from harm to ecosystems, infrastructure damages, insurance costs, air pollutant costs, and fossil-fueled national security costs to $240 billion, our burning of fossil fuels appears to be costing Americans about $300 billion each year—a “hidden” number likely to be larger in the future. What does the future hold for a carbon-stressed world? Most scientific analyses presently predict that by 2050 the Earth may warm by 2 to 2.5° C due to the rising level of greenhouse gases in the atmosphere; at the high-end of projections, the 2050 warming could exceed 4.5° C.34 But those increases are not consistent globally; rather, “[i]n all possible [predicted] outcomes, the warming over land would be roughly twice the global average, and the warming in the Arctic greater still.”35 For example, the NRC expects that each degree Celsius increase will produce in the U.S. double to quadruple the area burned by wildfires in the western U.S.; a 5-15 percent reduction in crop yields; more destructive power from hurricanes; greater risk of very hot summers; and more changes in precipitation frequency and amounts.36 Globally, a summary of studies predicts that a 1°C global average temperature rise will reduce Arctic sea ice by an annual average of fifteen percent and by twenty-five percent in Septembers 37; at 2°C Europe suffers greater heat waves, the Greenland Ice Sheet significantly melts, and many land and marine species are driven to extinction; at 3°C the Amazon suffers severe drought and resultant firestorms that will release significantly more carbon into the atmosphere38; at 4°C hundreds of billions of tons of carbon in permafrost melt, releasing methane in immense quantities, while the Arctic Ocean ice cap disappears and Europe suffers greater droughts.39 To presently assess what a 5°C rise will mean, we must look back into geological time, 55 million years ago, when the Earth abruptly experienced dramatic global warming due to the release of methane hydrates--a substance presently found on subsea continental shelves. Fossils demonstrate that crocodiles were in the Canadian high Arctic, breadfruit trees were growing on the coast of Greenland, and the Arctic Ocean saw water temperatures of 20 °C within 200km of the North Pole itself.40 And a 6°C average rise takes us even further back, to the end of the Permian period, 251 million years ago, when up to 95% of species relatively abruptly became extinct.41 This may sound extreme, but the International Energy Administration warned this year that the 6°C mark is in reach by 2050 at current rates of fossil fuel usage.42 However, even given the severity of these forecasts, many still question the extent that our climate is changing,43 and thus reject moving away from our largely fossil-fueled electricity, transportation and heating sources. Therefore, in this next subsection I provide the latest scientific data documenting specific climate impacts to multiple parts of U.S. and global daily lives, and the costly consequences that establish the urgency for undertaking the major regulatory reforms I recommend in Part III of this Article. B. Specific Climate Threats and Consequences 1. When Weather Extremes Increase A 2011 IPCC Special Report predicted that it is virtually certain [99-100% probability] that increases in the frequency of warm daily temperature extremes and decreases in cold extremes will occur throughout the 21st century on a global scale. It is very likely [90% to 100% probability] that heat waves will increase in length, frequency, and/or intensity over most land areas…. It is very likely that average sea level rise will contribute to upward trends in extreme sea levels and extreme coastal high water levels. 44 Similarly, a House of Representatives Committee report (ACESA Report) found that “[t]here is a broad scientific consensus that the United States is vulnerable to weather hazards that will be exacerbated by climate change.”45 It also found that the “cost of damages from weather disasters has increased markedly from the 1980s, rising to more than $100 billion in 2007. In addition to a rise in total cost, the frequency of weather disasters costing more than one billion dollars has increased."46 In 2011, the U.S. faced the most billion-dollar climate disasters ever, with fourteen distinct disasters alone costing at least $53 billion to our economy.47 In the first six months of 2012 in the U.S., there were more than 40,000 hot temperature records, horrendous wildfires, major droughts, oppressive heat waves, major flooding, and a powerful derecho wind storm.48 The IPCC Fourth Assessment Report identified impacts from growing weather hazards upon public health to include: more frequent and more intense heat waves; more people suffering death, disease and injury from floods, storms, fires, and droughts; increased cardio-respiratory morbidity and mortality associated with ground-level ozone pollution; changes in the range of some infectious disease carriers spreading, for example, malaria and the West Nile virus; and increased malnutrition and consequent disorders.49 As noted above, $120 billion per year of the NRC’s Hidden Energy report’s damage assessment were based on health damages,50 including an additional 10,000-20,000 deaths per year.51 And by 2050, cumulative heat-related deaths from unabated climate change are predicted to be an additional 33,000 in the forty largest U.S. cities, with more than 150,000 additional deaths by 2100.52 Weather extremes also threaten our national security, whose policy is premised on stability. In 2007 the CNA Corporation’s report National Security and the Threat of Climate Change described climate change as a “threat multiplier for instability” and warned that p]rojected climate change poses a serious threat to America's national security. The predicted effects of climate change over the coming decades include extreme weather events, drought, flooding, sea level rise, retreating glaciers, habitat shifts, and the increased spread of life-threatening diseases. These conditions have the potential to disrupt our way of life and to force changes in the way we keep ourselves safe and secure.53 The following year, in the first-ever U.S. government analysis of climate change security threats, the National Intelligence Council issued an assessment warning, in part, that climate change could threaten U.S. security by leading to political instability, mass movements of refugees, terrorism, and conflicts over water and other resources.54 2. When Frozen Water Melts In 2007 the IPCC predicted that sea levels would rise by 8 to 24 inches above current levels by 2100; since then, however, numerous scientists and studies have suggested that the 2007 prediction is already out-of-date and that sea levels will likely rise up to 1.4 meters (55 inches) given upwardly trending CO2 emissions.55 The 2009 ACESA Report found that rising sea levels are already causing inundation of low-lying lands, corrosion of wetlands and beaches, exacerbation of storm surges and flooding, and increases in the salinity of coastal estuaries and aquifers…. Further, about one billion people live in areas within 75 feet elevation of today's sea level, including many US cities on the East Coast and Gulf of Mexico, almost all of Bangladesh, and areas occupied by more than 250 million people in China.56 This year NASA’s Chief Scientist testified to Congress that two-thirds of sea level rise from the last three decades is derived from the Greenland and Antarctic ice sheets and the melting Arctic region, then warned: [t]he West Antarctic ice sheet (WAIS), an area about the size of the states of Texas and Oklahoma combined….contains the equivalent of 3.3 m of sea level, and all that ice rests on a soft-bed that lies below sea level. In this configuration, as warm seawater melts the floating ice shelves, causing them to retreat and the glaciers that feed them to speed up, there is no mechanism to stop the retreat and associated discharge, if warming continues. Thus the WAIS exhibits great potential for substantial and relatively rapid contributions to sea level rise. … In Greenland, the situation is not as dramatic, since the bed that underlies most of the ice is not below sea level, and the potential for unabated retreat is limited to a few outlet glaciers. In Greenland, however, summer air temperatures are warmer and closer to ice’s melting point, and we have observed widespread accumulation of meltwater in melt ponds on the ice sheet surface..57 In the West Antarctic ice sheet region, glacier retreat appears to be widespread, as the air has “warmed by nearly 6°F since 1950.”58 As for Greenland’s Ice Sheet, it also is at greater risk than the IPCC had thought. Recent studies with more complete modeling suggest that the warming threshold leading to an essentially ice-free state is not the previous estimate of an additional 3.1°C, but only 1.6°C. Thus, the 2°C target may be insufficient to prevent loss of much of the Ice Sheet and resultant significant sea level rise.59 The ACESA Report also identified the Arctic as “one of the hotspots of global warming”60 because “[o]ver the past 50 years average temperatures in the Arctic have increased as much as 7 °F, five times the global average.”61 Moreover, in “2007, a record 386,000 square miles of Arctic sea ice melted away, an area larger than Texas and Arizona combined and as big a decline in one year as had occurred over the previous decade”.62 “Arctic sea ice is melting faster than climate models [had] predict[ed], and is about thirty years ahead” of the 2007 IPCC predictions, thus heading toward the Arctic Ocean being ice-free in the late summer beginning sometime between 2020 and 2037.63 How is the Arctic’s plight linked to non-Arctic impacts? “The Arctic region arguably has the greatest concentration of potential tipping elements in the Earth system, including Arctic sea ice, the Greenland ice sheet, North Atlantic deep-water formation regions, boreal forests, permafrost and marine methane hydrates.”64 Additionally: Warming of the Arctic region is proceeding at three times the global average….Loss of Arctic sea ice has been tentatively linked to extreme cold winters in Europe… Near complete loss of the summer sea ice, as forecast for the middle of this century, if not before, will probably have knock-on effects for the northern mid-latitudes, shifting jet streams and storm tracks.65 Since 1980, sea levels have been rising three to four times faster than the global average between Cape Hatteras, N.C. and Boston.66 “[P]ast and future global warming more than doubles the estimated odds of ‘century’ or worse floods occurring within the next 18 years” for most coastal U.S. locations.67 Although land-based glacier melts are not major contributors to sea level rise, they do impact peoples’ food and water supplies. Virtually all of the world's glaciers, which store seventy-five percent of the world’s freshwater, are receding in direct response to global warming, aggravating already severe water scarcity--both in the United States and abroad.68 While over fifteen percent of the world population currently relies on melt water from glaciers and snow cover for drinking water and irrigation for agriculture, the IPCC projects a sixty percent volume loss in glaciers in various regions and widespread reductions in snow cover throughout the twenty-first century.69 Likewise, snowpack has been decreasing, and it is expected that snow cover duration will significantly decrease in eastern and western North America and Scandinavia by 2020, and globally by 2080.70 Climate change thus increases food insecurity by reducing yields of grains, such as corn and wheat, from increased water scarcity and intensification of severe hot conditions, thereby causing corn price volatility to sharply increase.71 Globally, the number of people living in "severely stressed" river basins will increase “by one to two billion people in the 2050s”…About two-thirds of the global land area is expected to experience increased water stress”.72 3. When Liquid Water Warms Over the past century, oceans, which cover seventy percent of the Earth’s surface, are warming. Global sea-surface temperature has increased about 1.3°F, while the heat has also penetrated almost two miles into the deep ocean.73 This increased warming is contributing to the destruction of seagrass meadows, causing an annual release back into the environment of 299 million tons of carbon.74 Elevated atmospheric carbon dioxide concentrations also are leading to higher absorption of CO2 into the upper ocean, making the surface waters more acidic (lower Ph).75 “[O]cean chemistry currently is changing at least 100 times more rapidly than it has changed during the 650,000 years preceding our [fossil-fueled] industrial era.”76 The acidification has serious implications for the calcification rates of organisms and plants living at all levels within the global ocean. Coral reefs, the habitat for about a quarter of (over a million ) of marine species, are collapsing, endangering more than a third of all coral species77; indeed, temperature thresholds for the majority of coral reefs worldwide are expected to be exceeded, causing mass bleaching and complete coral mortality.78 “[T]he productivity of plankton, krill, and marine snails, which compose the base of the ocean food-chain, [also] declines as the ocean acidifies,”79 adversely impacting populations of everything from whales to salmon80-- who also are being harmed by the oceans’ warming up. 81 Extinctions from climate change also are expected to be significant and widespread. The IPCC Fourth Assessment found that “approximately 20-30% of plant and animal species assessed so far are likely to be at increased risk of extinction if increases in global average temperature exceed 1.5-2.5°C82—a range likely to be exceeded in the coming decades. “[R]ecent studies have linked global warming to declines in such [] species as [] blue crabs, penguins, gray whales, salmon, walruses, and ringed seals[; b]ird extinction rates are predicted to be as high as 38 percent in Europe and 72 percent in northeastern Australia, if global warming exceeds 2°C above pre-industrial levels.”83 Between now and 2050, Conservation International estimates one species will face extinction every twenty minutes; the current extinction rate is one thousand times faster than the average during Earth's history, 84 in part because the climate is changing more than 100 times faster than the rate at which many species can adapt.85 4. When Land Dries Out The warming trends toward the Earth’s poles and higher latitudes are threatening people not just from melting ice and sea level rise, but also from the predicted thawing of permafrost of thirty to fifty percent by 2050, and as much or more of it by 2100.86 “The term permafrost refers to soil or rock that has been below 0°C (32°F) and frozen for at least two years.”87 Permafrost underlies about twenty-five percent of the land area in the northern hemisphere, and is “estimated to hold 30 percent or more of all carbon stored in soils worldwide”—which equates to four times more than all the carbon humans have emitted in modern times.88 Given the increasing average air temperatures in Eastern Siberia, Alaska and northwestern Canada, thawing of the Northern permafrost would release massive amounts of carbon dioxide (doubling current atmospheric levels) and methane89 into the atmosphere. Indeed, there are about 1.7 trillion tons of carbon in northern soils (roughly twice the amount in the atmosphere), about eighty-eight percent of it in thawing permafrost.90 Permafrost thus may become an annual source of carbon equal to fifteen to thirty-five percent of today's annual human emissions.91 But like seagrass meadows and unlike power plant emissions, we cannot trap or prevent permafrost carbon emissions at the source. Similarly, forests, which “cover about 30 percent of the Earth's land surface and hold almost half of the world's terrestrial carbon…act both as a source of carbon emissions to the atmosphere when cut, burned, or otherwise degraded and as a sink when they grow...”92 A combination of droughts, fires, and spreading pests, though, are causing economic and environmental havoc:. “In 2003, [] forest fires in Europe, the United States, Australia, and Canada accounted for more global [carbon] emissions than any other source...”93 There have been significant increases in both the number of major wildfires and the area of forests burned in the U.S. and Canada.94 Fires fed by hot, dry weather have killed enormous stretches forest in Siberia and in the Amazon, “which recently suffered two ‘once a century’ droughts just five years apart”.95 Climate change also is exacerbating the geographic spread and intensity of insect infestations. For example, in British Columbia “the mountain pine beetle extended its range north and has destroyed an area of soft-wood forest three times the size of Maryland, killing 411 million cubic feet of trees—double the annual take by all the loggers in Canada. Alaska has also lost up to three million acres of old growth forest to the pine beetle.”96 Over the past fifteen years the spruce bark beetle extended its range into Alaska, where it has killed about 40 million trees, “more than any other insect in North America's recorded history”.97 The drying and burning forests, and other increasingly dry landscapes, also are causing “flora and fauna”[ to move] to higher latitudes or to higher altitudes in the mountains”. 98 The human and environmental costs from failing to promptly reduce dependence on carbon-dioxide emitting sources for electricity, heating and transportation are dire and indisputable. Rather than being the leader among major countries in per capita GHG emissions, our country urgently needs to lead the world in cutting eighty percent our emissions by 2050, and using our renewable energy resources and technological advances to help other major emitting countries do the same. However, significantly increasing our use of carbon-free renewable sources to protect current and future generations of all species—human and non-human—requires concrete changes in how our legal system regulates and permits renewable energy sources. One of those sources with the potential for significant energy production and comparable elimination of fossil fueled greenhouse gases near major American and global population sources is offshore wind. II. THE OFFSHORE WIND POWER PERMITTING AND LEASING OBSTACLE COURSE A. Overview of Technology and Attributes As noted in the Introduction, offshore wind energy projects have the potential to generate large quantities of pollutant-free electricity near many of the world’s major population centers, and thus to help reduce the ongoing and projected economic, health, and environmental damages from climate change.99 Wind speeds over water are stronger and more consistent than over land, and “have a gross potential generating capacity four times greater than the nation’s present electric capacity.”100 The net capacity factor101 for offshore turbines is greater than standard land-based turbines, and their blade-tip speeds are higher than their land-based counterparts.102 Offshore wind turbine substructure designs mainly fall into three depth categories: shallow (30 m or less), transitional (>30 m to 60 m), and deep water (>60 m).103 All of the grid-scale offshore wind farms in Europe have monopole foundations embedded into the seabed in water depths ranging from 5m to 30m; the proposed American projects such as Cape Wind in Massachusetts and Block Island in Rhode Island would likewise be shallow-water installations.

#### The most recent rigorous studies point to the necessity and sufficiency of wind power.

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Other analyses using more accurate assumptions and more reliable sources have found that wind’s emissions savings are as large or larger than expected. A recent analysis using real-world data derived from EPA emission monitors found that in an absolute worst case, wind energy achieves 98.3% of the expected carbon dioxide emissions savings, and 103.3% of the expected nitrogen oxide emissions savings. An ongoing phase of that analysis, due to be completed within the next several months, is likely to show that wind’s net emissions savings are even larger than expected. This result occurs because wind energy tends to disproportionately displace dirtier and less flexible coal generation instead of more flexible natural gas generation, so any slight decrease in power plant efficiency is more than offset by this additional emissions savings. This result was also found in the Argonne analysis, which noted that “…increasing wind generation leads to a shift in dispatch from coal toward natural gas,” though those emissions savings were masked by the larger impact of the incorrect assumption that wind energy would displace nuclear generation. - Real-world data confirms that states that have added significant amounts of wind energy, such as Illinois, have seen fossil fuel use and emissions decline by as much as or more than expected. Department of Energy data for Colorado show that as wind energy jumped from providing 2.5% of the state’s electricity in 2007 to 6.1% of the state’s electricity in 2008, carbon dioxide emissions fell by 4.4%, nitrogen oxide and sulfur dioxide emissions fell by 6%, coal use fell by 3% (571,000 tons), and electric-sector natural gas use fell by 14%. DOE data for Texas show that as wind and other renewables’ share of Texas’s electric mix increased from 1.3% in 2005 to 4.4% in 2008, an increase in share of 3.1 percentage points. During that period, electric sector carbon dioxide emissions declined by 3.3%, even though electricity use actually increased by 2% during that time. Because of wind energy, the state of Texas was able to turn what would have been a carbon emissions increase into a decrease of 8,690,000 metric tons per year, equal to the emissions savings of taking around 1.5 million cars off the road. Similarly, thanks to the growth of wind energy in the state, Illinois saw a 0.5% decrease in CO2 emissions from 2006 to 2009, even though electricity use actually increased by 0.75% over that time period. In Minnesota, as wind energy grew from providing less than 4% of the state’s electricity in 2006 to almost 10% in 2009, electric sector carbon dioxide emissions fell by more than 10%, or 4 million metric tons per year. As further evidence, four of the seven major independent grid operators in the U.S. have studied the emissions impact of adding wind energy to their power grids, and all four have found that adding wind energy drastically reduces emissions of carbon dioxide and other harmful pollutants. While the emissions savings depend somewhat on the existing share of coal-fired versus gas-fired generation in the region, as one would expect, it is impossible to dispute the findings of these four independent grid operators that adding wind energy to their grids has significantly reduced emissions. The results of these studies are summarized below. Finally, analysis of readily available DOE data puts to rest the idea that wind energy has a significant negative impact on the efficiency of fossil-fired power plants. The Department of Energy collects detailed data on the amount of fossil fuels consumed at power plants, as well as the amount of electricity produced by those power plants. By comparing how the efficiency of power plants has changed in states that have added significant amounts of wind energy against how it has changed in states that have not, one can test the hypothesis that wind energy is having a negative impact on the efficiency of fossil-fired power plants. The data clearly shows that there is no such relationship, and in fact states that use more wind energy have seen greater improvements in the efficiency of their fossil-fired power plants than states that use less wind energy. Specifically, coal plants in the 20 states that obtain the most electricity from wind saw their efficiency decline by only 1.00% between 2005 and 2010, versus 2.65% in the 30 other states. Increases in the efficiency at natural gas power plants were virtually identical in the top 20 wind states and the other states, at 1.89% and 2.03% improvements respectively. The conclusion that adding wind energy actually increases fossil plant efficiency makes intuitive sense, because as explained above, adding wind energy to the grid displaces the output of the most expensive, and therefore least efficient, fossil-fired power plants first.

### Advantage two

#### Advantage two

#### Competitiveness prevents great power war

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Hence, economic policies and performance do have strategic consequences.2 In the modern era, the idea that strong economic performance is the foundation of power was argued most persuasively by historian Paul Kennedy. 'Victory (in war)', Kennedy claimed, 'has repeatedly gone to the side with more flourishing productive base'.3 Drawing attention to the interrelationships between economic wealth, technological innovation, and the ability of states to efficiently mobilize economic and technological resources for power projection and national defence, Kennedy argued that nations that were able to better combine military and economic strength scored over others. 'The fact remains', Kennedy argued, 'that all of the major shifts in the world's military-power balance have followed alterations in the productive balances; and further, that the rising and falling of the various empires and states in the international system has been confirmed by the outcomes of the major Great Power wars, where victory has always gone to the side with the greatest material resources'.4 In Kennedy's view, the geopolitical consequences of an economic crisis, or even decline, would be transmitted through a nation's **inability to** find adequate financial resources to simultaneously **sustain** economic growth and **military power**, the classic 'guns versus butter' dilemma.

#### Global economic involvement prevents collapse—leadership key to resilience

**Mandelbaum**, **5** – Professor and Director of the American Foreign Policy Program at Johns Hopkins – 2005

[Michael, The Case for Goliath: How America Acts As the World’s Government in the Twenty-First Century, p. 192-195]

Although the spread of nuclear weapons, with the corresponding increase in the likelihood that a nuclear shot would be fired in anger somewhere in the world, counted as the most serious potential consequence of the abandonment by the United States of its role as the world's government, it was not the only one. In the previous period of American international reticence, the 1920s and 1930s, the global economy suffered serious damage that a more active American role might have mitigated. A twenty-first-century American retreat could have similarly adverse international economic consequences. The economic collapse of the 1930s caused extensive hardship throughout the world and led indirectly to World War II by paving the way for the people who started it to gain power in Germany and Japan. In retrospect, the Great Depression is widely believed to have been caused by a series of errors in public policy that made an economic downturn far worse than it would have been had governments responded to it in appropriate fashion. Since the 1930s, acting on the lessons drawn from that experience by professional economists, governments have taken steps that have helped to prevent a recurrence of the disasters of that decade.' In the face of reduced demand, for example, governments have increased rather than cut spending. Fiscal and monetary crises have evoked rescue efforts rather than a studied indifference based on the assumption that market forces will readily reestablish a desirable economic equilibrium. In contrast to the widespread practice of the 1930s, political authorities now understand that putting up barriers to imports in an attempt to revive domestic production will in fact worsen economic conditions everywhere. Still, a serious, prolonged failure of the international economy, inflicting the kind of hardship the world experienced in the 1930s (which some Asian countries also suffered as a result of their fiscal crises in the 1990s) does not lie beyond the realm of possibility. Market economies remain subject to cyclical downturns, which public policy can limit but has not found a way to eliminate entirely. Markets also have an inherent tendency to form bubbles, excessive values for particular assets, whether seventeenth century Dutch tulips or twentieth century Japanese real estate and Thai currency, that cause economic harm when the bubble bursts and prices plunge. In responding to these events, governments can make errors. They can act too slowly, or fail to implement the proper policies, or implement improper ones. Moreover, the global economy and the national economies that comprise it, like a living organism, change constantly and sometimes rapidly: Capital flows across sovereign borders, for instance, far more rapidly and in much greater volume in the early twenty-first century than ever before. This means that measures that successfully address economic malfunctions at one time may have less effect at another, just as medical science must cope with the appearance of new strains of influenza against which existing vaccines are not effective. Most importantly, since the Great Depression, an active American international economic role has been crucial both in fortifying the conditions for global economic well-being and in coping with the problems that have occurred, especially periodic recessions and currency crises, by applying the lessons of the past. The absence of such a role could weaken those conditions and aggravate those problems. The overall American role in the world since World War II therefore has something in common with the theme of the Frank Capra film It's a Wonderful Life, in which the angel Clarence, played by Henry Travers, shows James Stewart, playing the bank clerk George Bailey, who believes his existence to have been worthless, how life in his small town of Bedford Falls would have unfolded had he never been born. George Bailey learns that people he knows and loves turn out to be far worse off without him. So it is with the United States and its role as the world's government. Without that role, the world very likely would have been in the past, and would become in the future, a less secure and less prosperous place. The abdication by the United States of some or all of the responsibilities for international security that it had come to bear in the first decade of the twenty-first century would deprive the international system of one of its principal safety features, which keeps countries from smashing into each other, as they are historically prone to do. In this sense, a world without America would be the equivalent of a freeway full of cars without brakes. Similarly, should the American government abandon some or all of the ways in which it had, at the dawn of the new century, come to support global economic activity, the world economy would function less effectively and might even suffer a severe and costly breakdown. A world without the United States would in this way resemble a fleet of cars without gasoline.

#### That goes nuclear without leadership

**Mandelbaum, 5** – Professor and Director of the American Foreign Policy Program at Johns Hopkins – 2005

[Michael, The Case for Goliath: How America Acts As the World’s Government in the Twenty-First Century, p. 224]

At best, an American withdrawal would bring with it some of the political anxiety typical during the Cold War and a measure of the economic uncertainty that characterized the years before World War II. At worst, the retreat of American power could lead to a repetition of the great global economic failure and the bloody international conflicts the world experienced in the 1930s and 1940s. Indeed, the potential for economic calamity and wartime destruction is greater at the outset of the new century than it was in the first half of the preceding one because of the greater extent of international economic interdependence and the higher levels of prosperity—there is more to lose now than there was then—and because of the presence, in large numbers, of nuclear weapons.

#### Perception of economic decline causes nuclear war

**O’Hanlon, 12** (Kenneth Lieberthal, Director of the China Center, Senior Fellow at the Brookings Institution, Michael O’Hanlon, Director of Research, Senior Fellow at the Brookings Institution, “The Real National Security Threat: America’s Debt,” Los Angeles Times, July 3, 2012, http://articles.latimes.com/2012/jul/03/opinion/la-oe-ohanlon-fiscal-reform-20120703)

Lastly, American economic weakness undercuts U.S. leadership abroad. Other countries sense our weakness and wonder about our purported decline. If this **perception** becomes more widespread, and the case that we are in decline becomes more persuasive, countries will begin to take actions that reflect their skepticism about America's future. Allies and friends will doubt our commitment and may **pursue nuclear weapons** for their own security, for example; adversaries will sense opportunity and be less restrained in throwing around their weight in their own neighborhoods. The crucial Persian Gulf and Western Pacific regions will likely become less stable. **Major war will become** more **likely.**

#### Port upgrades are inadequate and federal initiatives fail—private investment key

Natale, 1/31/13 [We Need $30.2 Billion by 2020¶ By Patrick J. Natale, P.E.¶ P.E., Executive Director, American Society of Civil Engineers, <http://transportation.nationaljournal.com/2013/01/ports-matter-too.php>]

The U.S. Army Corps of Engineers estimates that over 95 percent of overseas trade produced or consumed by the United States moves through our nation’s 300 commercial ports. Yet, our ports are in danger of losing their competitive advantage due to the slow and very complex process of critical dredging projects. Wednesday’s hearing by the Senate Environment and Public Works Committee on the Harbor Maintenance Trust Fund and the status of the nation's ports put a giant spotlight on that alarming fact. This issue is made all the more critical due to the looming arrival of new, larger container ships that will begin to pass through America’s ports once upgrades to the Panama Canal are completed in 2015.¶ To accommodate this new traffic, U.S. seaports and inland waterways will need an investment of $30.2 billion by 2020 according to a report by the American Society of Civil Engineers (ASCE). In Failure to Act: The Economic Impact of Current Investment Trends in Airports, Inland Waterways, and Marine Ports Infrastructure, ASCE finds that only $14.4 billion in inland waterway and seaport funding is anticipated by 2020, creating a funding gap of $15.8 billion.¶ This funding gap will have many consequences. Congestion and delays in our ports lead to goods sitting on the docks and in warehouses for shipment. These delays increase transportation costs for businesses, and then these costs are passed on to American families at the checkout counter. According to the ASCE study, if we do not invest in our nation’s ports and inland waterways systems, we are on a target to lose 738,000 jobs in 2020 and nearly $1 trillion in personal disposable income over next seven years.¶ The good news is that with the additional investment between now and 2020, the nation can eliminate this potential drag on our economy.¶ Unless America’s infrastructure investment gaps are filled, transporting goods will become costlier, prices will rise, and the United States will become less competitive in the global market. The nation’s seaports and inland waterways are critical links that make international commerce possible, and they deserve our attention. ¶

And, reliance on government deepening projects devastates port competitiveness

Economist, 2/3/13 [Crying out for dollars, http://www.economist.com/news/united-states/21571167-underinvestment-ports-and-inland-waterways-imperils-american-competitiveness-crying-out]

But it will take far more than that to get America’s maritime infrastructure in the condition it ought to be. Like much of America’s infrastructure, its ports, locks, dams and inland waterways are old, underinvested in, and too often ignored—to the cost of the businesses that depend on them, and the consumers both in America and abroad who buy things that pass through them. **Some 70% of America’s imports and 75% of its exports go through its ports.**¶ The number of ships calling at American ports is rising—by 13% in 2010 after an 8% decline a year earlier—**as is those ships’ size**: after expansion is complete in 2014, the Panama Canal will accommodate 366-metre-long ships with a 15-metre draft, compared with pre-expansion lengths of 294 metres and 12-metre drafts. The canal’s expansion will make it easier for Asian ships to reach America’s east and gulf coasts—home to five of its ten busiest container ports—and for American commodities to cross the Pacific. By 2030 “post-Panamax” ships are expected to comprise a majority of the world’s container ship capacity. And yet **just seven of American container ports stand ready to receive such ships**—and only one of these is in the South, where population growth is highest.¶ Last year the president approved plans to deepen or begin the long review process of deepening ports in Charleston, Jacksonville, Miami, New York/New Jersey and Savannah, but—as the Industrial Canal lock shows—**a long and winding road runs between approval and completion**. **And approval does not necessarily come with funding**. Kurt Nagle, who heads the American Association of Ports Authorities, says that in the next five years “public ports and their private partners expect to invest $9 billion in port infrastructure There… is a shared responsibility, and the federal government, we believe, is not upholding its end of the partnership.”

#### The impact is total breakdown in economic competitiveness

O’hare, 1/28/13 [US risks falling behind competition¶ By Kerry O'Hare¶ Vice President, Director of Policy, Building America's Future, http://transportation.nationaljournal.com/2013/01/ports-matter-too.php]

Ports are indeed integral to the U.S. economy. Trade between the U.S. and other countries increased by 13 percent a year between 2003 and 2008. Our freight transportation system was not built for the explosive growth of coast-to-coast shipping and international trade experienced over the past two decades, and our economically vital gateways and corridors – our primary port, road, and rail routes for shipping goods in and out of the country – now operate at or over capacity. Congestion plagues our freight corridors and acts as a drag on the American economy as a whole. In Chicago, the nation’s biggest rail center, congestion is so bad that it takes a freight train longer to get through the city limits than it does to get to Los Angeles. ¶ Freight moving by water is slowed by similar constraints on capacity and limitations of aging infrastructure. Many of our ports were built for the last century’s economy, without sufficient intermodal access for increased container traffic. And only two East Coast ports can currently accommodate the post-Panamax ships that will become more common with the widening of the Panama Canal.¶ As described in our Falling Apart and Falling Behind report, our inland waterways are similarly overburdened as dozens of locks along major inland shipping routes are past their 50-year lifespan, and some are more than a century old and showing their age.¶ The bottom line is that delays in freight movement impose real costs on businesses that reduce productivity, impede our economic competitiveness and increase prices for consumers. ¶ It is clearly time for policymakers to get serious about modernizing the nation’s infrastructure policy. We need a long term strategy that prioritizes investment in our economically vital gateways and corridors and on projects that will provide the greatest economic returns. MAP-21 has started to lay the groundwork for much needed policy reforms with regard to surface transportation but more needs to be done. For example, it has been roughly five years since Congress approved that last WRDA bill. This looks to change in the 113th Congress as both Chairmen Shuster and Boxer have made passage of a new WRDA a bill a priority for both of their committees. That is welcome news.¶ But until these long term strategies are put in place, the U.S. risks having our global economic competitors pass us by. We must not allow that to happen.

#### Only port upgrades solve—spills over to global trade and economic leadership

Kiefer et al, 2k – principal investigator for Planning and Management Consultants– study authorized by Section 401 of the Water Resources Development Act of 1999, report to the US Army Corps of Engineers (Jack, Planning and Management Consultants, “The National Dredging Needs Study of Ports and Harbors Implications to Cost-Sharing of Federal Deep Draft Navigation Projects Due to Changes in the Maritime Industry”, May 2000, http://www.iwr.usace.army.mil/docs/iwrreports/00-R-8.pdf)

Some benefits of harbor improvements are difficult or impossible to quantify. For individual projects these are given little attention. Policy decisions concerning project authorizations and appropriations should consider intangible benefits as well as tangible direct and secondary benefits. This idea is particularly applicable to international trade and specifically container trade. For example, America is such a big market, **international trade gives the U.S. considerable leverage when dealing with foreign governments**. Thus, **international trade can enhance the U**nited **S**tates’ **role as a world leader. National harbors are** also **a vital part of our military’s power projection platform.**

Economists believe in the law of comparative advantage, which states that nations benefit when they specialize in producing certain goods and services and then trade with each other rather than producing everything themselves. For example, most people perceive that the majority of foreign trade consists of consumer goods such as clothing and televisions. However, as shown in Table 2-2, a significant portion of U.S. foreign trade consists of semi-manufactured commodities and raw materials such as iron and steel or crude petroleum. These products are used to produce other goods, or are further processed in the importing country. For example, in the United States imported car parts are often used to produce exports of finished automobiles. Machinery and electrical equipment are often used the same way. Thus, efficient flow of international commodities is important for all nations including the United States.

Global trade is very competitive and profit margins are thin. This is particularly true for maritime transportation including the container shipping industry. . Growth in U.S. foreign trade, even though it is substantial, is not as high as growth in total international trade, particularly with respect to containerships. It is quite possible for some U.S. trade to be diverted or to be serviced by less efficient ships. This may occur if American ports and the Federal government are not able to meet current challenges posed by developments in international trade.

2.2.4 Lost Benefits

There are lost benefits associated with delays in the construction of harbor improvement projects. Costs increase with delays, not only because of inflation but because the construction process becomes distorted by available funds. Costs associated with delays can and have been estimated. Typically, a year’s delay in schedule leads to a penalty of more than 10 percent of project cost. This is sizable and should be considered when making cost-sharing policies. Cost-sharing policies should seek to insure that both public ports and the Federal government fund projects in a timely manner. There are also benefits foregone due to lost transportation cost savings with project delays.

Project delays affect the Nation in another way. Although these benefits are difficult to quantify, such effects are perhaps more important than those that can be measured. Delays create an uncertain atmosphere that can impact decisions to develop infrastructure elsewhere. Container ports are very capital intensive and require long term planning. Massive containerships are rapidly being put into service at ports throughout the world. Without a clear signal of intent to accommodate these vessels in the United States, necessary ports and facilities may be built elsewhere. Once major investments are made elsewhere, the full efficiencies of large containerships in the form of lower transportation costs for general cargo may be lost to the Nation for a long time to come.

2.3 Geographical Incidence of International Trade

Public ports generally have a regional or local economic development mandate along with authorizations to improve harbor facilities. This does not mean, however, that local economies near ports capture all or most of the benefits associated with international trade. For example, when a port unloads crude petroleum from a ship, it charges a fee that generates revenues for the port and the local community. But imported oil also fuels cars and homes throughout the Nation. Likewise, when a port loads grain or coal onto a ship for export, farmers in the U.S. heartland benefit as do coal miners in the hills of West Virginia, Pennsylvania and Kentucky. Container trade benefits all regions of the country as well.

As shown in Table 2-3, fifteen U.S. ports account for about 80 percent of international maritime trade in terms of value. These ports represent only ten states, however much of the cargo they handle flows to other regions. Table 2-4 shows the origin and destination of international cargo for each U.S. state measured in terms of value. On average, any given state uses the services of 15 different ports around the country. For example, the California ports of Los Angeles, Long Beach and Oakland collectively handle about $187 billion worth of cargo, but the state of California is the origin or destination of only $106 billion. While most container trade flows in and out of ports on the East and West Coasts, it is distributed throughout the Nation as shown in Tables 2-5 and 2-6. For instance, the Port of Charleston, S.C. handled about 800 thousand TEUs in 1996, but the state of South Carolina was the origin or destination of only 160 thousand of these TEUs. Similarly, the ports of Los Angeles, Long Beach and Oakland handled five million TEUs but only 2.5 million originated or were destined to sites within California.

[table omitted]

2.4 Conclusion

The benefits of harbor improvements are numerous. Expenditures for harbor improvements have facilitated international trade by providing ships more efficient access to the Nation's ports. International trade in turn creates and sustains jobs and generates Federal tax revenues. Foreign commerce has become crucial to the economic well-being of the United States. In 1946, U.S. international trade represented a relatively small portion of the U.S. economy, but today foreign trade accounts for 27 percent of U.S. gross domestic product. Harbor improvements also affect prices of U.S. imports and exports. With deeper channels vessel operators can load more cargo onto a ship and sail deeper, or they can use larger more efficient vessels. Unit transportation costs decline and lower transportation costs are reflected in commodity prices. Intangible benefits are also important. Free trade promotes international relations and stability and bolsters the United States’ position as a world leader. Lastly, it is important to stress that the economic benefits of international trade are widespread and are not limited to a handful of coastal states.

#### The plan solves

#### Expanded offshore wind development increases port capacities and causes port upgrades

Taylor, 12 [10/25/12, OFFSHORE WIND, Phil Taylor, E&E reporter¶ <http://www.eenews.net/public/Greenwire/2012/10/25/1>]

NORFOLK, Va. -- Port officials here are vowing to roll out the red carpet for the nascent offshore wind industry.¶ The Port of Virginia, home to Naval Station Norfolk and the world's largest military-industrial complex, hopes to become a home base for assembling, shipping and installing massive wind turbines for mid-Atlantic power projects.¶ It is among a handful of East Coast ports jockeying for a piece of what business leaders here say could be a $15 billion prize in offshore wind projects over the next decade.¶ "We welcome you here; we want you here," Lt. Gov. Bill Bolling (R) told hundreds of industry officials who gathered earlier this month at the American Wind Energy Association's annual offshore wind conference at the Virginia Beach Convention Center. "We want this to be the epicenter of this new and growing industry."¶ Cranes stand guard at the Portsmouth Marine Terminal in Hampton Roads. State officials hope offshore wind developers use the area to store and assemble turbine parts. Photo by Phil Taylor.¶ Virginia officials say their state offers a steady but powerful ocean breeze in waters that are shallow but far enough from shore to protect the coastal scenery.¶ Offshore wind, a keystone of the Obama administration's energy policy, could offer significant onshore job opportunities from Savannah, Ga., to Maine, proponents said. **The sheer size and weight of offshore wind turbines will require significant upgrades to docks and ships.**¶Virginia officials touted their port's deep waters, unrestricted navigation and proximity to the ocean in hopes of elbowing out competitors in Baltimore; Narragansett, R.I.; and New Bedford, Mass.¶ The wind industry is backed by labor groups, including dock builders and pile drivers who sponsored an exhibit at the AWEA conference, in addition to environmental groups that see offshore turbines as a significant opportunity to transition away from carbon-intensive fuels.¶ But the industry has been hobbled by high costs, unsettled federal energy policy and, in the case of the Cape Wind project in Massachusetts, a handful of lawsuits over impacts to viewsheds, cultural resources and airplanes.¶ Offshore wind development has occurred almost exclusively in Europe -- where more than 50 projects and nearly 4,000 megawatts have been installed in the past decade, according to the U.S. Department of Energy. The United States could see up to 54,000 MW of projects in the Atlantic by 2030, DOE said.¶ J.J. Keever, senior deputy executive director for the Virginia Port Authority, said the building boom in Europe has spawned major land-based projects like England's Green Port Hull, a collaboration between Siemens and the owners of the Alexandra Dock, to manufacture and export offshore wind turbines.¶ Siemens this summer signed a deal reportedly worth $3.1 billion to supply 300 turbines for offshore projects owned by Danish firm DONG Energy, according to the BBC. Components for those turbines would be built at the port.¶ "I show you that to compare it to Portsmouth Marine Terminal," he said, referring to a 285-acre former container facility in Virginia that stands vacant along the shores of the Elizabeth River, and which port officials here are promoting as a staging area for offshore wind.¶ From the deck of a local tour boat, the Victory Rover, the Portsmouth terminal's massive blue cranes could be seen standing idly along the waterfront. The terminal closed in 2010 when container-handling operations were moved to the other side of the port.¶ A few miles north, a dump truck rumbled over Craney Island, a man-made peninsula that for decades has served as a dumping ground for muck dredged from the seabed. The Army Corps of Engineers has authorized the island's east end to become a 500-acre marine terminal, the port's fourth.¶ 'Flash in the pan'?¶ Keever said offshore wind could generate more than $400 million in economic growth in Virginia alone, ranging from the fabrication of turbine foundations to the outfitting of electric service platforms, charter vessels, leasing of large port landings and transmission upgrades.¶ Docks and boats will need to be able to support turbines weighing more than 325 tons and their subsea foundations, which weigh upward of 450 tons, according to Richard Palmer, vice president of Weeks Marine Inc., a New Jersey-based vessel contractor.¶ Weeks in June launched the first U.S.-built vessel designed exclusively for the installation of wind turbines at sea.¶ The R.D. MacDonald will elevate itself by sinking eight giant legs into the seafloor, providing a platform for a crane to lower turbines into the water.¶ General Dynamics works on a ship on the Elizabeth River. Offshore wind farms will require extensive port infrastructure, and labor, to support East Coast projects. Photo by Phil Taylor.¶ "What we are looking for, obviously, is a continuing industry," said Palmer. "We don't want this to be a flash in the pan. ... We need to keep the vessel working in order to pay for it."

#### The plan causes colocation of manufacturing and port upgrades – creates a sustainable industry

AWEA, 11 [American Wind Energy Assosciation, http://www.awea.org/learnabout/publications/factsheets/upload/Offshore-Wind-America-s-New-Energy-Opportunity.pdf]

Offshore Wind: America’s New Energy Opportunity¶ We must act urgently to support the development of the first generation of offshore wind projects in the United States in order to capture a new American manufacturing opportunity and create thousands of new American jobs. Newly created manufacturing facilities and the associated jobs will be located in some of the areas of our country where they are needed most, near ports along the Eastern Seaboard, the Gulf Coast and in the Great Lakes region. In addition, offshore wind will allow us to tap a vast new source of clean domestic energy that will help to stabilize energy prices.¶ Offshore wind energy development will create American jobs¶  Once a pipeline of projects is established, there is a tremendous opportunity for regional port and supply chain development in support of the offshore wind industry. Substantial industrial manufacturing jobs are expected to be created to manufacture turbines, foundations, blades, sub-stations, and cables.¶  The U.S. Department of Energy (DOE) estimates that by 2030, the development of 54,000 MW of offshore wind projects in the U.S. could create more than 43,000 permanent operations and maintenance jobs and approximately 20.7 direct jobs per annual megawatt (MW).i¶  The success of the land-based wind industry in the U.S., which has created over 75,000 jobs and contributed to the placement of over 400 manufacturing facilities across 43 states, ii demonstrates the economic development potential for offshore wind.¶  For the wind sector overall, including both land-based and offshore, DOE estimates that the wind industry will support 500,000 American jobs by 2030.iii¶ Offshore wind is an established global industry and a new opportunity for the United States¶  The U.S. National Renewable Energy Laboratory estimates that the potential for offshore wind power in the U.S. is four times greater than the country's current total generating capacity from all sources.iv¶  The first offshore wind farm was installed off the coast of Denmark in 1991 and in Europe today, 4,000 MW of offshore wind capacity has been constructedv. This is enough electricity to power the equivalent of almost 1.3 million homes in the U.S.vi¶  By 2020, with an annual investment of the equivalent of $10.76 billion, Europe is expected to have installed 40,000 MW of offshore wind capacity,vii enough electricity to power the equivalent of almost 13 million homes in the U.S.viii¶  China plans to increase the combined installed capacity of its offshore wind power sector to 5,000 MW by 2015 and 30,000 MW by 2020ix, enough electricity to power the equivalent of 1.6 million and almost 10 million U.S. homes respectively.

That ensures port and industry clusters

Bowen, 11 [Offshore Wind: Port and Staging Area Needs and Status WEBINAR, resenters:¶ James Bowen, Program Manager, Clean Energy Sector Development, MASSACHUSETTS CLEAN ENERGY CENTER (MASSCEC)¶ Joel Constantino, Vice President, Director of Operations, NEW ENGLAND STEAMSHIP AGENTS, INC.¶ Brian Fariello, Ship Power Sales, WARTSILA NORTH AMERICA¶ Fred Hashway, Director of Strategic Initiatives, RHODE ISLAND DEVELOPMENT CORPORATION, http://infocastinc.com/events/offshorewindweb]

A critical infrastructure requirement for the installation of offshore wind farms is a port facility designed to serve as the central logistical point for delivery of components and construction of wind turbines before they are loaded onto installation vessels. As a base of operations for offshore wind projects, **port facilities are drivers for the resulting economic development and industry clustering that comes from the wind farm construction activity**. In Southern New England, the offshore wind industry cluster has been growing in large part due to the expectation that New Bedford, MA and Quonset Point, RI will be the two primary regional ports used in future wind farm installations. ¶ This webinar presented by officials representing the New Bedford and Quonset facilities will discuss the role that port facilities play in offshore wind projects, including the following topic areas:¶ The logistical role of a port facility in an offshore wind project ¶ Port selection criteria and basic requirements ¶ Major design elements of an offshore wind port facility ¶ Misconceptions and pitfalls in designing an offshore wind port facility ¶ Compare/contrast the European port experience with the US experience ¶ Economic development benefits ¶ How ports create industry clusters: Southern New England offshore wind cluster as a case study ¶ vessel selection ¶ the process of importing Offshore Wind components

#### And, causes the deepening of ports

Barlow, 11 [Jason, Jason practices in the Maritime Law and Government Contracts Practice Group at Troutman Sanders, where his practice focuses on a variety of maritime related matters, including regulatory compliance, maritime contract, marine insurance, general average, salvage, cargo damage, and charter party disputes, vessel documentation and finance, marine pollution, vessel collisions, maritime personal injury and marine insurance defense and subrogation. Jason is also a member of Troutman Sanders’ Renewable Energy Practice Team, which advises clients engaged in a variety of renewable energy projects, including offshore wind energy development. ¶ Jason is a 2010 graduate of Tulane University Law School, where he concentrated his studies on admiralty and maritime law, earning a Juris Doctorate with Maritime Law Certificate, cum laude. While in law school, he served as Senior Notes and Comments Editor of the Tulane Maritime Law Journal. In addition, Jason worked as law clerk at Ostendorf, Tate, Barnett, and Wells, LLP, a New Orleans based law firm specializing in transportation, admiralty/maritime, and premises liability litigation. He also worked as law clerk at Forrester & Dick, a Baton Rouge boutique law firm specializing in, among other practice areas, railroad defense litigation. ¶ Prior to attending law school, Jason earned his Bachelor of Arts in Political Science and English, with honors, from Randolph-Macon College in 2007, http://www.troutmansanders.com/files/FileControl/2e66ece0-0b9a-4dff-bdb7-57a768601573/7483b893-e478-44a4-8fed-f49aa917d8cf/Presentation/File/TS%20-%20North%20American%20Windpower%20Article.pdf]

From the European example, it ¶ is clear that port size is critical during the initial construction of offshore wind farms. Port facilities ¶ must have acres of lay-down space ¶ to unload, store and pre-assemble ¶ turbine and monopole components. ¶ The Port of Viissingen, for example, ¶ has more than 50 acres of dedicated ¶ component-storage space. ¶ Construction ports also need ¶ deep water and substantial pier and ¶ berth facilities to accommodate the ¶ large vessels. Viissingen, for example, ¶ boasts water depths of over 54 feet ¶ along over 1,100 feet of berth, and ¶ Harwich has up to 31 feet of water ¶ along more than 3,000 feet of berth. ¶ These wharf facilities must be sturdy ¶ and equipped with heavy-lift cranes ¶ to load and unload the massive wind ¶ farm components.¶ Furthermore, transit between the ¶ construction ports and open sea must ¶ be quick, with no significant air or sea ¶ draft restrictions. Given these require ¶ ments, the ports of Dunkirk, Ilarwich ¶ and Viissin gen have emerged as lead ¶ ers in offshore wind farm construc ¶ tion support. Each of these ports has ¶ substantial lay-down space, an ability ¶ to accommodate large vessels, heavy- ¶ lift capability, deep water, no air draft ¶ restrictions, and a proximity to Eu ¶ rope’s largest wind farms. ¶ European offshore wind develop ¶ ers also looked for ports that offered ¶ turnkey solutions. That is, ports that ¶ could provide facilities not only to receive completed turbines, but also to ¶ manufacture and assemble the equip ment. This combination of manufac¶ turing, pre-assembly and loading at ¶ one single port can provide substan ¶ tial savings over facilities that require ¶ turbines to be constructed at one lo ¶ cation and then shipped to another. ¶ The Port of Viissingen, for example, ¶ has created a separate offshore wind ¶ terminal, complete with available ex ¶ pansion space, in an effort to court ¶ the European offshore wind industry. ¶ Smaller ports have also played siz ¶ able roles in Europe’s offshore wind ¶ energy development. The Port of ¶ Rainsgate, a small commercial fishing ¶ and recreational harbor in the U.K., ¶ has been designated as the O&M base ¶ for two of the world’s largest offshore ¶ wind farms: the London Array project ¶ and the Thanet offshore wind farm. ¶ Location trumps port size when it ¶ comes to lifelong O&M of offshore ¶ wind farms. To maintain the Lon ¶ don Array and Thanet projects, it is ¶ estimated that fewer than a dozen ¶ smaller vessels, such as crew and work ¶ boats, will be needed. Several smaller ¶ ports, such as Ramsgate, are capable ¶ of accommodating these vessels, and ¶ Ramsgate’s location allows these ves-¶ sels to sail to wind farm sites in less ¶ than an hour — a distinct advantage ¶ for long-term wind farm maintenance. ¶ Along the eastern seaboard of ¶ the U.S., ports are investing in in infrastructure and vying to establish ¶ themselves as the most suitable port ¶ for offshore wind investment and de ¶ velopment. Drawing from European ¶ offshore wind experience, offshore ¶ wind proponents in the U.S. estimate ¶ that vessels transporting component ¶ parts may require berths of at least ¶ 450 feet and navigation channels with ¶ at least 24-foot drafts, 130-foot lateral ¶ clearance, and air draft sufficient to ¶ transport jack-up rigs and turbines ¶ in upright positions from terminal ¶ facilities to wind farm sites. ¶ The final assembly and deployment of the turbines must occur at ¶ high-capacity port facilities equipped ¶ with rail and heavy-lift cranes, due to ¶ the size and weight of offshore wind¶ farm components. Although component parts could be manufactured ¶ off-site, cost efficiencies and transport ¶ logistics favor centralizing manufac ¶ turing and assembly functions for ¶ turbines, towers and blades. ¶ Component manufacturers are the ¶ primary targets for ports hoping to ¶ take the lead in offshore wind devel ¶ opment. For these manufacturers, lay ¶ down space is a major infrastructure ¶ consideration once channel depth ¶ and vertical and lateral clearance arc ¶ deemed sufficient to support offshore ¶ wind development. ¶ Along the east coast of the U.S.,¶ several terminals may emerge as vi ¶ able options for manufacturers; ¶ however, due to inadequate bridge ¶ clearance or insufficicnt lay-down ¶ acreage, sorne of these sites may be ¶ limited to support and maintenance ¶ operations or to the manufacture ¶ of smaller component parts, rather ¶ than staging ports for final turbine ¶ assembly ¶ For example, there is unobstruct ¶ ed access to the South Terminal in ¶ the Port of New Bedford, Mass., and ¶ the Portsmouth Marine Terminal in ¶ the Port of Virginia. With 150 feet ¶ of lateral clearance in the channel ¶ leading to the South Terminal, the ¶ Port of New Bedford has proposed a ¶ plan to expand the terminal’s berth ¶ to 1,600 feet and to dredge a 30-foot ¶ channel to that berth and the 14 acres¶ to 20 acres of land adjacent to it. ¶ 1’hc Portsmouth Marine ‘l’erminal ¶ sits on 219 acres of land with 3,540 ¶ feet of wharf, three berths and six ¶ cranes. Although the Port of Virginia ¶ will build a 500,000 square-foot paper ¶ and pulp warehouse facility on term j ¶ nal property in the next year, the port ¶ still has room for growth. ¶ The port has water depths of 43 ¶ feet at the entrance channel and at ¶ the terminal wharf, which will allow it ¶ to accommodate large purpose-built ¶ offshore wind vessels. Its geographic ¶ location on the mid-Atlantic coast ¶ is ideal for offshore wind manufac ¶ turers and maintainers looking to ¶ serve wind farms north and south of ¶ Virginia. ¶ The Port of Baltimore is a deep ¶ water port with substantial lay-down¶ acreage and heavy-lift capability. The ¶ North Locust Point Terminal, in par ¶ ticular, sits on 90 acres and cornes ¶ equipped with two 75-ton gantry ¶ cranes. The terminal has 19 acres ¶ of outside storage space, two sheds ¶ with a combined 399,311 square feet ¶ of covered storage space, and five ¶ 34-foot draft finger piers. ¶ However, the Port of Baltimore has ¶ a disadvantage when compared with ¶ other East Coast ports because it is ¶ 125 miles inland on the Chesapeake ¶ Bay. The Chesapeake Bay Bridge pro ¶ vides only 1 86 feet of vertical clear ¶ ance, which is likely insufficient to ¶ accommodate turbine assembly and ¶ delivery to offshore wind farm sites. ¶ Savannah, Ga.’s Ocean Terminal ¶ includes 73 acres of open storage, fIve ¶ dccpwatcr berths totaling 3,599 feet ¶ with a depth alongside of 42 feet, 1.4 ¶ million square lèet. of covered storage ¶ with 60% immediately adjacent to ¶ the berth, and 73 acres of paved open ¶ storage with additional lay-down area ¶ available. However, like the Port of ¶ Baltimore, the potential of the Ocean ¶ Termina] is limited by a bridge; the ¶ Talmadge Bridge has only 185 feet of ¶ vertical clearance.¶ The Port of Charleston is hop ¶ ing to attract offshore wind manu ¶ facturers with a $45 million federal ¶ grant awarded to Clemson University ¶ for the development of a wind tur ¶ bine testing laboratory at the Clem ¶ son University Restoration Institute ¶ in North Charleston, S.C. Two of ¶ Charleston’s five terminals arc ca ¶ pable of handling traditional break ¶ bulk, heavy-lift and project cargo. ¶ Both have sufficiently deep channels ¶ and wharves, ample warehouses, open ¶ storage and berth space, and short ¶ transit times to the ocean. Neverthe ¶ less, the Port of Charleston also has ¶ low bridge clearance. ¶ As development of offshore wind ¶ progresses on the east coast of the ¶ U.S., support and infrastructure ¶ requirements will continually be ¶ refined. In the meantime, manufac ¶ turers will take careful account of the ¶ political climate and incentives of ¶ fered by the various East Coast states, ¶ but the main contenders will remain ¶ the ports with the best infrastructure ¶ to support the physical requirements ¶ of offshore wind power.

#### Economic incentives ensures upgrades

Sargent, 9/13/12 [Rob Sargent, U.S. Poised to Join the Race on Offshore Wind: Lawmakers Must Commit to More Pollution-Free Energy”, http://www.environmentamerica.org/news/ame/us-poised-join-race-offshore-wind]

The Turning Point for Atlantic Offshore Wind Energy includes details on the key milestones each Atlantic Coast state and along with the wind potential and the economic benefits. Among the highlights of the report: Offshore wind energy will be an economic powerhouse for America. Harnessing the 52 gigawatts of already-identified available Atlantic offshore wind energy – just 4 percent of the estimated generation potential of this massive resource – could generate $200 billion in economic activity, create 300,000 jobs, and sustain power for about 14 million homes. (Europe already produces enough energy from offshore wind right now to power 4 million homes.) America is closer than ever to bringing offshore wind energy ashore. Efforts are underway in 10 Atlantic Coast states, with over 2,000 square nautical miles of federal waters already designated for wind energy development off of Massachusetts, Rhode Island, New Jersey, Delaware, Maryland, and Virginia. Environmental reviews finding no significant impacts have been completed, and leases are expected to be issued for some of these areas by the end of the year. Despite this progress, leadership is urgently needed at both the state and federal level to ensure offshore wind energy becomes a reality in America: President Obama should set a clear national goal for offshore wind energy development, and each Atlantic state governor should also a set goal for offshore wind development off their shores. These goals must be supported by policies that prioritize offshore wind energy and other efforts to secure buyers for this new source of reliable, clean energy.

### Plan

#### The United States Federal Government should provide a long-term investment tax credit for offshore wind production in the United States.

### Solvency

#### Solvency!

#### PTC extension kills link uniqueness

Pierson, 1/23/13 [Wind to Lead Phase-Out of Energy Subsidies?, Carol, Carol Pierson Holding writes on environmental issues and social responsibility for policy and news publications, including the Carnegie Council's Policy Innovations, Harvard Business Review, San Francisco Chronicle, India Times, and many websites. Her articles on corporate social responsibility can be found at CSRHUB.com, a website that provides sustainability ratings data on 5,000 companies worldwide. Carol holds degrees from Smith College and Harvard University, <http://www.huffingtonpost.com/carol-pierson-holding/wind-energy-subsidies_b_2527076.html>]

After a year where wind producers sat on their hands, waiting until Congress decided whether the wind tax credits would be extended, it finally happened: on December 31, as part of the fiscal cliff deal, Congress extended the production tax credit (PTC) for wind and other renewables through the end of 2013. But one year is not enough time to get a wind production facility up and running. There are plenty of wind operations -- some 100 pre-operational wind projects in the Northwest alone -- that are far enough through planning stages to break ground in time to qualify. But any longer-term projects are stalled because of the lack of predictability for tax credits. Wall Street can't invest with that much uncertainty. Even operating concerns cut back. In fact, this year's uncertainty caused turbine manufacturers including Siemens and Vestas to cut back in the middle of last year.

ITC is key – only way to create an offshore industry

Colman, 1/31/13 [Energy & Environment Staff Writer at The Hill

Sen. Carper plans renewed push for offshore wind credit legislation<http://thehill.com/blogs/e2-wire/e2-wire/280347-carper-plans-to-push-for-offshore-wind-credit#ixzz2JmkWGj31> ]

Sen. Tom Carper (D-Del.) said Thursday that he plans to reintroduce a bill that offers tax credits for a limited amount of offshore wind projects. Carper told reporters he did not have a timeline for resubmitting the bill, but said its content would likely mirror the one he co-sponsored last Congress with former Sen. Olympia Snowe (R-Maine). “We’ve been trying to get that done. As it turns out when [the Congressional Budget Office] prices that — they score that — it’s not cheap. And so pretty high score, hard to get it done,” Carper said during an event hosted by the Center for American Progress Action Fund in Washington, D.C. That means the bill could run into some Republican opposition; many in the House and the Senate want to close — not expand — incentives to a suite of clean-energy technologies. Many fiscal conservatives contend the federal government should not be in the business of jump-starting nascent industries through subsidies, especially in light of the growing federal deficit. With Carper declaring, “We’re going to do tax reform this year,” he indicated he is not in a rush to throw his bill into the hopper. Carper’s bill from last Congress would have reimbursed developers for up to 30 percent of the project cost **through an investment tax credit**. The credit would expire after offshore wind projects reached a combined generating capacity of 3,000 megawatts. With the Obama administration recently offering some of the first-ever offshore leases on federal waters, Carper said the credit could help foster a domestic offshore wind industry to compete with China and others. The investment tax credit would also get a key language change under Carper’s bill. Developers would be able to collect the credit so long as projects begin construction this year, rather than come into service. That tweak emulates the revised wind production tax credit, which was extended for one year earlier this month. While the investment tax credit throws a kickback to developers for the total project cost, the production tax credit repays wind power producers 2.2 cents per kilowatt-hour. Carper said **an investment tax credit is** the only way to spark offshore wind development**,** adding that the language change would “shake things up in a very positive way.” He said the risks to developers are greater for offshore wind, as technical expertise and scale is not as mature in the United States compared with onshore. The U.S., he noted, does not have a single operating offshore wind farm. “The production tax credit for offshore wind does us no good. That’s not going to get one offshore windmill farm built,” Carper said. Republicans, however, disliked the language change to the production tax credit. They said it expanded the program, ballooning the cost of a one-year extension to $12.1 billion through 10 years. But there is reason to believe the investment tax credit, even with the language change, would fail to spur 3,000 megawatts of new offshore wind generation this year. Developers are still unsure of how tax writers will interpret what counts as beginning construction, an energy tax and regulatory attorney said following the event. Such uncertainty could sideline prospective developers, the attorney said. Regardless of what tax writers, the attorney said Carper's bill would still be a boon for the U.S. offshore wind industry.

#### Long-term ITC solves industry viability

Taylor, 12 [Phil Taylor, E&E reporter, “With advance of tax credit and OCS leases, optimism builds in nascent U.S. industry”, <http://www.eenews.net/public/Greenwire/2012/08/10/1>]

Officials in the offshore wind industry are cheering a series of moves by Congress and federal agencies that have raised hopes that wind farms could soon sprout in U.S. waters.¶ While construction of the first turbines off the Eastern Seaboard is likely years away, industry officials say the Senate Finance Committee's decision this month to extend the investment tax credit, combined with continued approvals of projects and lease areas from federal agencies, has sent a strong signal to potential investors.¶ Significant steps include:¶ The Interior Department said it plans to offer its first competitive lease for offshore wind by the end of the year in the mid-Atlantic, a sale that could set a template for East Coast development.¶ The Army Corps of Engineers in mid-July issued final approval for Fishermen's Energy to begin construction of a 25-megawatt facility in state waters off the New Jersey coast, making it the second commercial-scale facility to navigate the federal permit process ([Greenwire](http://www.eenews.net/Greenwire/2012/07/20/archive/20), July 20).¶ Industry officials say the Energy Department by next month could announce the winner of up to $20 million to support the first of four innovative offshore wind installations.¶ That's good, said Jim Lanard, president of the Washington, D.C.-based Offshore Wind Development Coalition, because the United States has a lot of catching up to do to match the 1,371 turbines and 53 offshore wind farms that have already been built in Europe.¶ "It's time to put steel in the water," said Lanard, praising the Finance Committee for extending the ITC. "We need the investment tax credit."¶ The committee's bipartisan 19-5 vote brightened prospects that the measure will pass the Senate when it returns from recess next month, though the outlook is dimmer in the House, Lanard said.¶ Under the Senate bill, the credit would be extended one year from its current expiration in December. But projects would also qualify as long as they have started construction, a significant break from current rules that require projects to be placed into service to qualify ([E&E Daily](http://www.eenews.net/EEDaily/2012/08/03/archive/2), Aug. 3).¶ Effects of the credit¶ If passed, the extension could help firms like Fishermen's Energy and Deepwater Wind LLC, which has proposed a separate 30 MW project in state waters off Rhode Island, Lanard said. It could also boost the long-delayed -- and litigated -- 420 MW Cape Wind project off the coast of Cape Cod, Mass.¶ While other proposals are likely too far off to qualify, keeping the ITC in the tax code will make future extensions easier to defend, Lanard said.¶ Although industry also cheered the committee's decision to extend the production tax credit, experts note the PTC is harder to assess for offshore wind farms because they lack the operational history of onshore facilities. Whereas the PTC is based on power produced -- it offers 2.2 cents per kilowatt-hour -- the ITC allows developers to receive a 30 percent tax credit in lieu of the PTC.¶ "We could extend the PTC until the cows come home, but that's not going to build one offshore wind farm," said Sen. Tom Carper (D-Del.), who has authored a bill with Sen. Olympia Snowe (R-Maine) to extend the ITC to the first 3,000 MW of offshore wind facilities to go into service.¶ "You need an investment tax credit," Carper said. "If you look at my top three priorities for taxes and legislation going forward, probably my number one would be that. Number two would be that. Even number three might be that."¶ Extension of both incentives is less certain in the House, where many Republicans have opposed continued subsidies for green energy. In addition, GOP presidential hopeful Mitt Romney -- who opposed the Cape Wind project while governor of Massachusetts -- last month came out strongly against extending the PTC.¶ "Wind energy will thrive wherever it is economically competitive, and wherever private sector competitors with far more experience than the President believe the investment will produce results," Romney's campaign said in a statement at the time ([E&E Daily](http://www.eenews.net/EEDaily/2012/07/31/archive/1), July 31).¶ But Mary Doswell, senior vice president of Alternative Energy Solutions at Dominion Resources Inc., said the ITC is critical for offshore wind, which the Energy Information Administration predicts will cost about 24 cents per kilowatt-hour generated in 2016, far higher than onshore wind farms or conventional fossil fuels.¶ "The costs are so much higher today that you need to provide some incentive to help get this going," Doswell said.¶ For one, there is no established supply chain in the United States for offshore wind, and some equipment and ships must be imported from Europe, which creates potential complications with a law requiring use of U.S.-owned and -operated ships, Doswell said. In addition, offshore turbines and associated transmission represent steep upfront costs, and it is unclear how the facilities will operate, particularly during hurricane season, she said.¶ "From a supply chain perspective, once the industry becomes more established, we will see certain reductions as we move forward," she said. "The challenge is how you get the first thousand megawatts -- at least -- installed where you are starting to attract players that will invest in the market here, and then also see a pipeline of projects so they would hang around."¶ She added, "To Dominion, we don't want to just sit down and say, 'All right, call us when the cost comes down.'"¶ Virginia first in federal waters?¶ One of the first steps in developing a wind farm is installing meteorological towers to more accurately gauge the resource, Doswell said.¶ That process could happen quite soon, as Interior's Bureau of Ocean Energy Management later this year plans to offer the first of a handful of leases covering roughly 2,400 square miles off Virginia, New Jersey, Maryland, Massachusetts and Rhode Island. It is also assessing noncompetitive leasing proposals off Delaware and Maine. Most areas are more than 10 miles off the coast, which will help minimize conflicts over coastal views that have dogged the Cape Wind project.¶ Dominion earlier this year told Interior it is interested in buying leases on the agency's 176-square-mile wind energy area off Virginia Beach, Va., which it believes could potentially generate up to 2,000 MW.¶ That is a tiny sliver of the roughly 1 million MW of offshore wind power the Atlantic is believed to contain -- about as much electricity as the entire country consumes. DOE estimates offshore wind investments could reach 54,000 MW by 2030.¶ Lanard predicted the first area to be leased will be Virginia, whose wind energy area about 25 miles off the coast attracted [interest](http://www.boem.gov/uploadedFiles/BOEM/Renewable_Energy_Program/State_Activities/Nominations%20of%20Interest%20Summary.pdf) from eight companies earlier this year. The winning bidder obtains the exclusive right to assess the site and submit a project development plan.¶ If it wins, Dominion would install a wind data tower within the next year or two to help confirm the resource, Doswell said. Few meteorological towers have been installed in the United States.¶ BOEM this summer released draft auction rules and is expected to issue a proposed sale notice next month, Lanard said.¶ "It's good news because it will really get some momentum going," Lanard said of the first competitive lease. "It will get companies thinking about whether they want to bid in Virginia or at least understand what it's going to take to bid somewhere else."¶ Interior streamlining¶ Lanard said Interior also deserves praise for establishing an efficient template for approving lease sales in the Atlantic Ocean. The agency finalized its first handful of wind energy leasing areas using environmental assessments rather than environmental impact statements -- which could have added years to the process.¶ "That is a huge success," Lanard said. "BOEM is to be credited for making sure it didn't set a precedent. ... Environmental groups are comfortable, developers are comfortable."¶ Indeed, environmental groups have rallied around offshore wind, even though some have opposed land-based projects amid concerns over their impacts to wildlife.¶ "There are steps the administration has taken to streamline the [offshore wind] process to make it quicker and not lose the integrity of the environmental review, and we upport those efforts," said Courtney Abrams, federal clean energy advocate for Environment America. "Conservation groups and advocates across the board are standing together in support of offshore wind -- sometimes that's not the perception in media around local project development."¶ In a [letter](http://www.eenews.net/assets/2012/08/10/document_gw_02.pdf) last month to the president, Environment America and more than 200 other environmental groups, businesses and local officials urged continued efforts to renew the ITC, review and approve wind energy areas and projects, and standardize a lease auction format.¶ Interior in the past week alone has announced it will begin reviewing a proposal by Statoil North America to build a 12 MW floating wind farm in deep water off Maine, a first-of-its-kind proposal in the United States, and a separate transmission proposal by Deepwater Wind to connect its Block Island wind project off Rhode Island to the mainland ([Greenwire](http://www.eenews.net/Greenwire/2012/08/09/archive/3), Aug. 9; [E&ENews PM](http://www.eenews.net/eenewspm/2012/08/07/archive/4), Aug. 7).¶ Still, skeptics of Interior's offshore wind energy program, known as "smart from the start," include the Institute for Energy Research, a think tank led by a former oil industry lobbyist, which last month criticized the cost of new projects.¶ "It is 'dead in the water' because offshore wind energy is 3.4 times more expensive than onshore wind energy," the group said in a July 26 blog [post](http://www.instituteforenergyresearch.org/2012/07/26/interiorss-smart-from-the-start-is-likely-dead-in-the-water/), "making it not a prudent investment compared to other renewable alternatives for electricity generation."¶ DOE grants¶ But Lanard said the industry also expects DOE to soon announce the winner of a $20 million grant to help jump-start construction of innovative wind projects.

#### Long-term incentive ensure that the supply chain follows investment—fed support key

Galluci, 11 [Maria, Staff Reporter at InsideClimate News Honduras Contributor at Fodor's, Co-Editor & Reporter at The News, Newsroom Intern at Associated Press, Newsroom Intern at Columbus Business ... ¶ Education: ¶ Ohio University ¶ Never-Used Tax Credit Could Jumpstart US Offshore Wind Energy—if Renewed, [http://truth-out.org/news/item/4778:neverused-tax-credit-could-jumpstart-us-offshore-wind-energy%E2%80%94if-renewed](http://truth-out.org/news/item/4778%3Aneverused-tax-credit-could-jumpstart-us-offshore-wind-energy%E2%80%94if-renewed)]

Matt Kaplan, a North American wind analyst at [IHS Emerging Energy Research](http://www.emerging-energy.com/), said removing the tax credit's end date could help lure investors by guaranteeing the government's support even if projects gets held up by bureaucracy or politics.¶ "Having a long-term incentive for offshore wind would help ... investors to feel a bit more comfortable with knowing what they can expect out of these projects," he said.¶ But even if the bill passes Congress, attracting financing will remain a challenge for never-before-seen wind farms in America, said Amy Grace, a North American wind analyst with [Bloomberg New Energy Finance](http://bnef.com/). Most financiers prefer to invest only after the first generation of projects proves successful, she said. "Most banks want to be the first to invest in your second project."¶ Still, the subsidy gives the industry at least a shot, she said. "The tax credit won't guarantee investment in the industry. But not having the tax credit will guarantee no investment in the industry."¶ Why The Legislation May Have a Chance¶ Sen. Tom Carper (D-Del.) introduced the Senate bill with Sen. Olympia Snowe (R-Maine) in July, in part to support NRG Bluewater's planned Delaware wind park.¶ Carper, who chairs the Senate finance committee, said last month that he would meet with all six Senate members of the [Joint Select Committee on Deficit Reduction](http://www.deficitreduction.gov/public/) to discuss the bill. The panel is tasked with creating a plan to curb $1.5 trillion from the federal budget deficit by Thanksgiving. Clean energy supporters in Congress have appealed to committee members in recent months to secure or extend tax credits for cleantech manufacturing and R&D.¶ In the House, Reps. Bill Pascrell (D-N.J.) and Frank LoBiondo (R-N.J.) have proposed a companion bill that they say would help a 25-megawatt project by [Fishermen's Energy](http://www.fishermensenergy.com/) get built off New Jersey's coastline.¶ The 3,000-megawatt incentive would cost the U.S. Treasury roughly $1.5 billion, according to estimates provided to InsideClimate News by Jim Lanard, president of the [Offshore Wind Development Coalition](http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CC0QFjAA&url=http%3A%2F%2Foffshorewinddc.org%2F&ei=DHu6TvfQFsWJhQeSudC7Bw&usg=AFQjCNHxEffNpg1E04rk2UZAIAKlEJbHnw), a lobbying group. The current tax credit, which the federal stimulus approved in 2009 for offshore and land-based wind, geothermal, biomass and other clean energy projects, costs roughly $3 billion. ¶ Grybowski of Rhode Island's Deepwater said he's optimistic the investment tax credit will be approved by Congress, despite the ideological resistance from some Republicans to continue Obama's green energy subsidies in the wake of the collapse of solar firm Solyndra, which received a $535 million federal loan.¶ "We have lots of strong support on both sides of the aisle," he said.¶ One possible reason is that payments to the large-scale projects won't begin for five years. "We think it will take 10 years before those first 3,000 [megawatts] are used up," explained Lanard. He and other advocates of the bills hope this will sway a spending-averse Congress to okay the measure.¶ Another selling point is jobs. Mandelstam of NRG Bluewater said the first 200 megawatts of its Delaware project would create 500 construction and supply chain jobs over three years—a point he aims to drive home to lawmakers.¶ According to the [DOE's National Renewable Energy Laboratory](http://www.nrel.gov/) (NREL), the Obama administration's goal to deploy 10,000 megawatts of offshore wind capacity in the next decade and 54,000 megawatts by 2030, would create more than 43,000 permanent jobs and generate around $200 billion in new economy activity.¶ A large chunk of that growth would come from luring global turbine and equipment manufacturers to set up shop along the Atlantic Coast, developers say. Lanard noted that making one offshore wind turbine requires some 8,000 parts from hundreds of different companies.¶ Mandelstam, who also heads the offshore group of the [American Wind Energy Association](http://www.awea.org/), said he often plays "matchmaker" between European manufacturers and legislators and governors in coastal states, in an effort to entice them to open factories in the U.S. But manufacturers aren't likely to follow until turbines are out at sea, he said. "The supply chain will follow the projects."¶ Along with creating jobs, a domestic network of suppliers and skilled technicians could significantly cut the cost of building an offshore wind farm in the U.S., which right now "is higher than it would be for a comparable project in northern Europe, where there's a developed supply chain," Deepwater's Grybowski said.¶ Who Will Build the First Offshore Wind Farm?¶ Meanwhile, the race to build America's first floating wind farm is on. At this point Deepwater's proposed 30-megawatt Block Island demo installation off Rhode Island appears to be leading—in part because it doesn't need government financing.¶ The tax credit is "less critical for the Block Island wind farm because it is a smaller project," Grybowski said. The project, which includes an underwater network of transmission cables to carry electricity from wind turbines to the mainland, is [expected to cost around $250 million](http://www.businesswire.com/news/home/20110701006119/en/RI-Supreme-Court-Upholds-Block-Island-Wind). Permits could be wrapped up by 2013, and the turbines, which would produce enough power for 12,000 homes on the island, could go up that same year.¶ "We are confident that we will have a financing package in place to allow the project to proceed," Grybowski said. But for larger wind farms, he added, federal support is "critical."¶ For now it's still anyone's guess which utility-scale wind part will be up and running first—and by when.¶ If the tax credit is extended, the first payments for big projects would likely be dispensed in five years or later and divvied up among the leaders—Cape Wind, NRG Bluewater's Delaware wind park and Deepwater's trio of 1,000-megawatt projects.¶ Cape Wind and NRG Bluewater are the furthest along. NRG Bluewater says it expects to wrap up all the necessary permitting by 2014. It could sign a lease even sooner from the U.S. Bureau of Ocean Energy Management (BOEM), which is expected to start leasing blocks off the coasts of Delaware, New Jersey, Maryland and Virginia by the end of this year. (The developer is also seeking to build an additional 2,000 megawatts off Maryland, Massachusetts, New Jersey and New York.)¶ Theoretically, winds blowing off the Atlantic Coast's Outer Continental Shelf could provide more than [1,000 gigawatts](http://www.doi.gov/news/pressreleases/upload/02-07-10-wea-fact-sheet.pdf) of electricity, enough to power 800 million average homes. But it's not just the Atlantic states that are vying for offshore renewable energy.¶ Ohio wants to build a 20-megawatt demo on Lake Erie. Off the coast of Galveston, Tex., developer Coastal Point Energy is proposing a 12-megawatt project. It suffered a setback this summer after utility Austin Energy turned down the developer's proposal for a power purchase agreement. Eventually, Coastal Point hopes to build 300 megawatts at the site and 2,100 more megawatts throughout the area.¶ The key for the entire U.S. offshore wind industry will be consistent government support, say the developers. "Stability in tax and regulatory policies will go a long way toward helping this industry develop in the United States," Grybowski said.

#### Wind bad offense is inevitable—only a question of incentives for offshore

Salih, 1/9/13 [Swara, Columbia University, Huffington Post, The Promises and Challenges of Wind Power in the US, <http://www.huffingtonpost.com/swara-salih/obama-wind-energy_b_2441538.html>]

 While wind energy can seem like a near-ideal solution to our environmental and energy issues, it has not been without its challenges in the United States. It has not been, so far, a major component of the energy market. At the end of 2011, total wind energy production in the U.S. constituted [3.3 percent of total energy demand](http://money.cnn.com/2012/08/14/news/economy/wind-energy/index.htm), according to the Department of Energy. Yet the industry has made several gains in the past few years, and the renewal of the integral tax credit will allow projects to continue. The DOE ambitiously projects wind energy to supply as much as 20 percent of U.S. electricity by 2030. Despite financial and logistical difficulties, the current pace of onshore and offshore production of wind farms indicates that this may be a realistic goal. In the run-up to the fiscal cliff, many speculated whether the wind energy tax credit would be renewed. The production tax credit provides a 2.2-cent tax credit for each kilowatt-hour of electricity produced from large-scale wind farms. Experts agree that the credit acts an integral economic stimulant for the industry. [According to the Penn State Wind Application Center](http://www.hispanicbusiness.com/2013/1/7/wind_energy_tax_credit_survives_the.htm), the tax credit has permitted the wind industry's nationwide capacity to grow from roughly 9,000 megawatts in 2005 to over 50,000 megawatts in 2012, which is enough to power 13 million homes. Luckily, it won out in the negotiations, [along with the tax credit for solar energy](http://cleanenergyauthority.com/solar-energy-news/congress-extends-tax-credit-010312). The most recent extension of the tax credit now covers wind farms that begin construction in 2013, not just those that go into operation this year, and will thus stem more growth in the industry. The tax credit is also attributed with helping to sustain jobs in the industry. [The American Wind Energy Association (AWEA) estimates](http://www.bloomberg.com/new/2013-01002/wind-tax-credit-extension-seen-driving-growth-trade-group-says.html) that the tax credit's extension will save as many as 37,000 jobs in the wind energy sector. It is estimated that the tax credit would cost approximately $12.1 billion over the next decade, a quantity some legislators deem too costly for an energy source that is difficult to integrate into the power grid. Adapting it into the grid is one of the main issues facing renewable energy. Power plants tend to run a "predictable" amount of electricity daily, and consistently attempt to match what people TVs, appliances, computers, and their other electronic devices need. The problem with wind and solar energy is that they are "unpredictable" sources of electricity: the amounts of watts they produce are consistent only with wind speeds and the degree of sunlight received by panels. However, renewable energy developers are hopeful that they can modify the grid itself. Michael Goggin of the AWEA [asserts](http://npr.org/2012/03/12/148318905/renewable-energy-throws-power-grid-off-balance) that gird operators could possibly accommodate the vagaries of these renewables by moving power on the grid minute by minute, instead of hour by hour as they do now. If the power grid is modified to handle this precise flow of electrons, wind energy may be able to match more of our electricity needs. Since 2005, worldwide wind energy manufacturers have branched into U.S. production of turbines. Seven of the leading global turbine manufacturers (Vestas, GE, Gamesa, Suzlon, Siemens, Acciona, and Nordex) now [produce turbines in the U.S.](http://www.renewableenergyworld.com/rea/new/article/2009/04/the-economic-reach-of-wind) **However,** doubts about the tax credit's longevity, combined with other economic difficulties, saw German-based Siemens lay off 945 workers in the U.S. last year, and Vestas, the world's largest turbine-manufacturer with operations in Colorado and Texas, lay off 1,400 workers globally. The relative lateness and uncertainty of the tax credit's extension has influenced some foreign companies to anticipate less investment in the United States. Vestas, for example, expects a significant "significant reduction in 2013 installations, relative to previous years," according to company spokesman Michael Zarin. **The uncertainty of the tax credit's extension in 2014 and following years may hinder long-term potential growth by these companies.** If Congress declared a longer standing commitment to the tax credit, Vestas and other companies might commit to longer-term investment in the U.S. In the past few years, many have pointed to natural gas as a major source of new domestic energy. It also serves as a backup energy source for wind and solar power when weather conditions aren't ideal. In the development of newly installed sources, however, wind energy has overtaken natural gas. During 2012 the wind industry installed a whopping 44 percent of all new energy capacity in the U.S., compared to 30 percent for natural gas. In the past five years, cumulative wind energy capacity has constituted 35 percent of all newly built energy capacity. Until now, U.S. wind energy development has only concerned onshore sources. **The U.S. has yet to launch mass production of offshore wind farms**. Onshore, wind blows most heavily during nighttime, during which we have overall less electricity consumption. Because offshore winds blow strongly 24 hours a day, they would [deliver energy during the daytime](http://green.blogs.nytimes.com/2012/12/04/outlook-for-offshore-wind-dark-and-stormy/?ref=windpower), when electricity sells for a higher price in wholesale markets. The Obama administration [is looking to increase offshore production](http://usatoday.com/story/news/nation/2012/12/12/obama-offshore-wind-projects/1765029) in key "wind energy areas," according to Interior Secretary Ken Salazar. In the DOE's new budget for 2013, seven offshore projects in six states, Texas, Delaware, Maryland, New Jersey, Virginia, Maine, and Ohio (which holds two projects off the coast of Cleveland), will each receive up to $4 million for startup costs. The DOE plans to select up to three of the projects and offer each up to $47 million to assist in their commercial operation for 2017.

#### Offshore potential is huge—signal of long-term federal support ensures it

BGA, 12 [Blue Green Alliance, September, Extend the Investment Tax Credit for Offshore Wind, <http://www.bluegreenalliance.org/news/publications/document/ITC-Two-Pager.pdf>]

Extend the Investment Tax Credit for Offshore Wind The Investment Tax Credit (ITC) is a vital component to the development of a wealth of untapped, domestic energy resources. **Offshore wind has the potential to play a significant role in** diversifying America’s **energy portfolio**. As projects along our coasts begin to secure financing and pass regulatory standards, the expiration of the ITC for offshore wind would cripple the momentum of an industry posed to create good-paying American jobs and clean, renewable energy. How it currently works The American Recovery and Reinvestment Act of 2009 allows wind, namely, offshore wind, facilities to receive a 30 percent of capital expenditures investment tax credit, or a treasury grant up front, in lieu of credit, for any size wind project placed in service by December 31, 2012.1 This provision helps finance offshore wind facilities and it is expiring this year. Why offshore wind is different than onshore wind Offshore wind is a burgeoning industry in the United States. Currently there are no operating facilities, however, many projects are in advanced phases. Offshore wind typically requires longer timelines for development and construction than onshore wind facilities. Therefore, it is imperative that if the United States is to realize the economic and environmental benefits assured through an offshore wind industry, it provide a tailored incentive approach to attract investment and reflect the distinct realities of offshore production. Bigger blades, more electricity Offshore turbines are typically placed in areas with larger wind resources. Higher capacity turbines mean more energy generated and more emissions reduced—a displacement per gigawatt (GW) of approximately 2.7 million tons of carbon dioxide per year.2 Offshore wind creates American manufacturing jobs and revitalizes port industries An offshore wind industry would build upon the benefits of traditional onshore wind. In the past five years, the American wind industry has created close to 30,000 manufacturing jobs – 75,000 overall – in almost 500 facilities. 3 Based on the successes in Europe, an American offshore wind industry could see 43,000 permanent jobs through 54 GW of capacity.4 These jobs directly stimulate depressed sectors of our economy and bring new life to American ports. Without appropriate incentives, turbines do not spin and jobs are lost The United States is last in offshore wind facility permitting, construction and installation. Europe is the global leader with nearly 25,000 MW planned and a fertile private investment landscape.5 6 As the deadline to pass an ITC for the offshore wind industry approaches, American developers and manufacturers are feeling the pressure. Projects aimed at generating renewable energy and job growth are forced to put the brakes on both due to unclear federal support.7 Extending the ITC for offshore wind would send strong signals that the United States is serious about competing globally in this industry and clean energy as a whole BLUEGREEN ALLIANCE: WE MUST EXTEND THE INVESTMENT TAX CREDIT FOR OFFSHORE WIND SEPTEMBER Pass the Investment Tax Credit for Offshore Wind Offshore wind can play a central role in our economy by providing renewable, domestic energy and good jobs around the country. Recently, the Senate Finance Committee passed a series of extensions for clean energy tax programs, including a one-year extension for the Investment Tax Credit for offshore wind. This credit amends the eligibility of a project as being placed in service, to “commencement of construction” by the end of 2013, allowing offshore wind developers the lead-time unique to the industry.8 **Congress must act** to protect the progress of this US industry **with clear incentives** from the federal government. The ITC for offshore wind is an investment in American jobs, American manufacturing and renewable, American energy.

Other cards:

#### DOE grants kill link uniqueness

Lamonica, 12/13/12 [Martin, MIT Tech Review, DOE Grants Try to Crack the Code on Offshore Wind Direct-drive wind turbines and floating foundations to be tested in $28 million offshore wind grant program, <http://www.technologyreview.com/view/508751/doe-grants-try-to-crack-the-code-on-offshore-wind/>]

The Department of Energy hopes to unlock some of the United State’s offshore wind potential by demonstrating emerging wind technology.¶ The DOE yesterday announced a grant programwhere seven projects will receive $4 million to do the initial design and testing of direct-drive turbines and new types of foundations for offshore use. After this first phase, the DOE intends to give $47 million to three of the projects, which is subject to Congressional approval. The hope is to have demonstration-scale offshore-wind farms operating by 2017.

#### Reject skeptics – they are bought off clowns

**Prothero 12** (Donald Prothero, Professor of Geology at Occidental College, Lecturer in Geobiology at CalTech, "How We Know Global Warming is Real and Human Caused," 3/1/12, EBSCO)

How do we know that global warming is real and primarily human caused? There are numerous lines of evidence that converge toward this conclusion. 1. Carbon Dioxide Increase Carbon dioxide in our atmosphere has increased at an unprecedented rate in the past 200 years. Not one data set collected over a long enough span of time shows otherwise. Mann et al. (1999) compiled the past 900 years' worth of temperature data from tree rings, ice cores, corals, and direct measurements in the past few centuries, and the sudden increase of temperature of the past century stands out like a sore thumb. This famous graph is now known as the "hockey stick" because it is long and straight through most of its length, then bends sharply upward at the end like the blade of a hockey stick. Other graphs show that climate was very stable within a narrow range of variation through the past 1000, 2000, or even 10,000 years since the end of the last Ice Age. There were minor warming events during the Climatic Optimum about 7000 years ago, the Medieval Warm Period, and the slight cooling of the Litde Ice Age in the 1700s and 1800s. But the magnitude and rapidity of the warming represented by the last 200 years is simply unmatched in all of human history. More revealing, the timing of this warming coincides with the Industrial Revolution, when humans first began massive deforestation and released carbon dioxide into the atmosphere by burning an unprecedented amount of coal, gas, and oil. 2. Melting Polar Ice Caps The polar icecaps are thinning and breaking up at an alarming rate. In 2000, my former graduate advisor Malcolm McKenna was one of the first humans to fly over the North Pole in summer time and see no ice, just open water. The Arctic ice cap has been frozen solid for at least the past 3 million years (and maybe longer),[ 4] but now the entire ice sheet is breaking up so fast that by 2030 (and possibly sooner) less than half of the Arctic will be ice covered in the summer.[ 5] As one can see from watching the news, this is an ecological disaster for everything that lives up there, from the polar bears to the seals and walruses to the animals they feed upon, to the 4 million people whose world is melting beneath their feet. The Antarctic is thawing even faster. In February-March 2002, the Larsen B ice shelf -- over 3000 square km (the size of Rhode Island) and 220 m (700 feet) thick -- broke up in just a few months, a story -typical of nearly all the ice shelves in Antarctica. The Larsen B shelf had survived all the previous ice ages and interglacial warming episodes over the past 3 million years, and even the warmest periods of the last 10,000 years -- yet it and nearly all the other thick ice sheets on the Arctic, Greenland, and Antarctic are vanishing at a rate never before seen in geologic history. 3. Melting Glaciers Glaciers are all retreating at the highest rates ever documented. Many of those glaciers, along with snow melt, especially in the Himalayas, Andes, Alps, and Sierras, provide most of the freshwater that the populations below the mountains depend upon -- yet this fresh water supply is vanishing. Just think about the percentage of world's population in southern Asia (especially India) that depend on Himalayan snowmelt for their fresh water. The implications are staggering. The permafrost that once remained solidly frozen even in the summer has now thawed, damaging the Inuit villages on the Arctic coast and threatening all our pipelines to the North Slope of Alaska. This is catastrophic not only for life on the permafrost, but as it thaws, the permafrost releases huge amounts of greenhouse gases which are one of the major contributors to global warming. Not only is the ice vanishing, but we have seen record heat waves over and over again, killing thousands of people, as each year joins the list of the hottest years on record. (2010 just topped that list as the hottest year, surpassing the previous record in 2009, and we shall know about 2011 soon enough). Natural animal and plant populations are being devastated all over the globe as their environments change.[ 6] Many animals respond by moving their ranges to formerly cold climates, so now places that once did not have to worry about disease-bearing mosquitoes are infested as the climate warms and allows them to breed further north. 4. Sea Level Rise All that melted ice eventually ends up in the ocean, causing sea levels to rise, as it has many times in the geologic past. At present, the sea level is rising about 3-4 mm per year, more than ten times the rate of 0.1-0.2 mm/year that has occurred over the past 3000 years. Geological data show that the sea level was virtually unchanged over the past 10,000 years since the present interglacial began. A few mm here or there doesn't impress people, until you consider that the rate is accelerating and that most scientists predict sea levels will rise 80-130 cm in just the next century. A sea level rise of 1.3 m (almost 4 feet) would drown many of the world's low-elevation cities, such as Venice and New Orleans, and low-lying countries such as the Netherlands or Bangladesh. A number of tiny island nations such as Vanuatu and the Maldives, which barely poke out above the ocean now, are already vanishing beneath the waves. Eventually their entire population will have to move someplace else.[ 7] Even a small sea level rise might not drown all these areas, but they are much more vulnerable to the large waves of a storm surge (as happened with Hurricane Katrina), which could do much more damage than sea level rise alone. If sea level rose by 6 m (20 feet), most of the world's coastal plains and low-lying areas (such as the Louisiana bayous, Florida, and most of the world's river deltas) would be drowned. Most of the world's population lives in low-elevation coastal cities such as New York, Boston, Philadelphia, Baltimore, Washington, D.C., Miami, and Shanghai. All of those cities would be partially or completely under water with such a sea level rise. If all the glacial ice caps melted completely (as they have several times before during past greenhouse episodes in the geologic past), sea level would rise by 65 m (215 feet)! The entire Mississippi Valley would flood, so you could dock an ocean liner in Cairo, Illinois. Such a sea level rise would drown nearly every coastal region under hundreds of feet of water, and inundate New York City, London and Paris. All that would remain would be the tall landmarks such as the Empire State Building, Big Ben, and the Eiffel Tower. You could tie your boats to these pinnacles, but the rest of these drowned cities would lie deep underwater. Climate Change Critic's Arguments and Scientists' Rebuttals Despite the overwhelming evidence there are many people who remain skeptical. One reason is that they have been fed distortions and misstatements by the global warming denialists who cloud or confuse the issue. Let's examine some of these claims in detail: \* "It's just natural climatic variability." No, it is not. As I detailed in my 2009 book, Greenhouse of the Dinosaurs, geologists and paleoclimatologists know a lot about past greenhouse worlds, and the icehouse planet that has existed for the past 33 million years. We have a good understanding of how and why the Antarctic ice sheet first appeared at that time, and how the Arctic froze over about 3.5 million years ago, beginning the 24 glacial and interglacial episodes of the "Ice Ages" that have occurred since then. We know how variations in the earth's orbit (the Milankovitch cycles) controls the amount of solar radiation the earth receives, triggering the shifts between glacial and interglacial periods. Our current warm interglacial has already lasted 10,000 years, the duration of most previous interglacials, so if it were not for global warming, we would be headed into the next glacial in the next 1000 years or so. Instead, our pumping greenhouse gases into our atmosphere after they were long trapped in the earth's crust has pushed the planet into a "super-interglacial," already warmer than any previous warming period. We can see the "big picture" of climate variability most clearly in ice cores from the EPICA (European Project for Ice Coring in Antarctica), which show the details of the last 650,000 years of glacial-inters glacial cycles (Fig. 2). At no time during any previous interglacial did the carbon dioxide levels exceed 300 ppm, even at their very warmest. Our atmospheric carbon dioxide levels are already close to 400 ppm today. The atmosphere is headed to 600 ppm within a few decades, even if we stopped releasing greenhouse gases immediately. This is decidedly not within the normal range of "climatic variability," but clearly unprecedented in human history. Anyone who says this is "normal variability" has never seen the huge amount of paleoclimatic data that show otherwise. \* "It's just another warming episode, like the Medieval Warm Period, or the Holocene Climatic Optimum or the end of the Little Ice Age." Untrue. There were numerous small fluctuations of warming and cooling over the last 10,000 years of the Holocene. But in the case of the Medieval Warm Period (about 950-1250 A.D.), the temperatures increased only 1°C, much less than we have seen in the current episode of global warming (Fig. 1). This episode was also only a local warming in the North Atlantic and northern Europe. Global temperatures over this interval did not warm at all, and actually cooled by more than 1°C. Likewise, the warmest period of the last 10,000 years was the Holocene Climatic Optimum ( 5,000-9,000 B.C.E.) when warmer and wetter conditions in Eurasia contributed to the rise of the first great civilizations in Egypt, Mesopotamia, the Indus Valley, and China. This was largely a Northern Hemisphere-Eurasian phenomenon, with 2-3°C warming in the Arctic and northern Europe. But there was almost no warming in the tropics, and cooling or no change in the Southern Hemisphere.[ 8] From a Eurocentric viewpoint, these warming events seemed important, but on a global scale the effect was negligible. In addition, neither of these warming episodes is related to increasing greenhouse gases. The Holocene Climatic Optimum, in fact, is predicted by the Milankovitch cycles, since at that time the axial tilt of the earth was 24°, its steepest value, meaning the Northern Hemisphere got more solar radiation than normal -- but the Southern Hemisphere less, so the two balanced. By contrast, not only is the warming observed in the last 200 years much greater than during these previous episodes, but it is also global and bipolar, so it is not a purely local effect. The warming that ended the Little Ice Age (from the mid-1700s to the late 1800s) was due to increased solar radiation prior to 1940. Since 1940, however, the amount of solar radiation has been dropping, so the only candidate remaining for the post-1940 warming is carbon dioxide.[ 9] "It's just the sun, or cosmic rays, or volcanic activity or methane." Nope, sorry. The amount of heat that the sun provides has been decreasing since 1940,[ 10] just the opposite of the critics' claims (Fig. 3). There is no evidence of an increase in cosmic ray particles during the past century.[ 11] Nor is there any clear evidence that large-scale volcanic events (such as the 1815 eruption of Tambora in Indonesia, which changed global climate for about a year) have any long-term effects that would explain 200 years of warming and carbon dioxide increase. Volcanoes erupt only 0.3 billion tonnes of carbon dioxide each year, but humans emit over 29 billion tonnes a year,[ 12] roughly 100 times as much. Clearly, we have a bigger effect. Methane is a more powerful greenhouse gas, but there is 200 times more carbon dioxide than methane, so carbon dioxide is still the most important agent.[ 13] Every other alternative has been looked at and can be ruled out. The only clear-cut relationship is between human-caused carbon dioxide increase and global warming. \* "The climate records since 1995 (or 1998) show cooling." That's simply untrue. The only way to support this argument is to cherry-pick the data.[ 14] Over the short term, there was a slight cooling trend from 1998-2000, but only because 1998 was a record-breaking El Nino year, so the next few years look cooler by comparison (Fig. 4). But since 2002, the overall long-term trend of warming is unequivocal. All of the 16 hottest years ever recorded on a global scale have occurred in the last 20 years. They are (in order of hottest first): 2010, 2009, 1998, 2005, 2003, 2002, 2004, 2006, 2007, 2001, 1997, 2008, 1995, 1999, 1990, and 2000.[ 15] In other words, every year since 2000 has been on the Top Ten hottest years list. The rest of the top 16 include 1995, 1997, 1998, 1999, and 2000. Only 1996 failed to make the list (because of the short-term cooling mentioned already). \* "We had record snows in the winter of 2009-2010, and also in 2010-2011." So what? This is nothing more than the difference between weather (short-term seasonal changes) and climate (the long-term average of weather over decades and centuries and longer). Our local weather tells us nothing about another continent, or the global average; it is only a local effect, determined by short-term atmospheric and oceano-graphic conditions.[ 16] In fact, warmer global temperatures mean more moisture in the atmosphere, which increases the intensity of normal winter snowstorms. In this particular case, the climate change critics forget that the early winter of November-December 2009 was actually very mild and warm, and then only later in January and February did it get cold and snow heavily. That warm spell in early winter helped bring more moisture into the system, so that when cold weather occurred, the snows were worse. In addition, the snows were unusually heavy only in North America; the rest of the world had different weather, and the global climate was warmer than average. Also, the summer of 2010 was the hottest on record, breaking the previous record set in 2009. \* "Carbon dioxide is good for plants, so the world will be better off." Who do they think they're kidding? The Competitive Enterprise Institute (funded by oil and coal companies and conservative foundations[ 17]) has run a series of shockingly stupid ads concluding with the tag line "Carbon dioxide: they call it pollution, we call it life." Anyone who knows the basic science of earth's atmosphere can spot the gross inaccuracies in this ad.[ 18] True, plants take in carbon dioxide that animals exhale, as they have for millions of years. But the whole point of the global warming evidence (as shown from ice cores) is that the delicate natural balance of carbon dioxide has been thrown off balance by our production of too much of it, way in excess of what plants or the oceans can handle. As a consequence, the oceans are warming[ 19, 20] and absorbing excess carbon dioxide making them more acidic. Already we are seeing a shocking decline in coral reefs ("bleaching") and extinctions in many marine ecosystems that can't handle too much of a good thing. Meanwhile, humans are busy cutting down huge areas of temperate and tropical forests, which not only means there are fewer plants to absorb the gas, but the slash and burn practices are releasing more carbon dioxide than plants can keep up with. There is much debate as to whether increased carbon dioxide might help agriculture in some parts of the world, but that has to be measured against the fact that other traditional "breadbasket" regions (such as the American Great Plains) are expected to get too hot to be as productive as they are today. The latest research[ 21] actually shows that increased carbon dioxide inhibits the absorption of nitrogen into plants, so plants (at least those that we depend upon today) are not going to flourish in a greenhouse world. It is difficult to know if those who tell the public otherwise are ignorant of basic atmospheric science and global geochemistry, or if they are being cynically disingenuous. \* "I agree that climate is changing, but I'm skeptical that humans are the main cause, so we shouldn't do anything." This is just fence sitting. A lot of reasonable skeptics deplore the right wing's rejection of the reality of climate change, but still want to be skeptical about the cause. If they want proof, they can examine the huge array of data that points directly to human caused global warming.[ 22] We can directly measure the amount of carbon dioxide humans are producing, and it tracks exactly with the amount of increase in atmospheric carbon dioxide. Through carbon isotope analysis, we can show that this carbon dioxide in the atmosphere is coming directly from our burning of fossil fuels, not from natural sources. We can also measure the drop in oxygen as it combines with the increased carbon levels to produce carbon dioxide. We have satellites in space that are measuring the heat released from the planet and can actually see the atmosphere getting warmer. The most crucial evidence emerged only within the past few years: climate models of the greenhouse effect predict that there should be cooling in the stratosphere (the upper layer of the atmosphere above 10 km or 6 miles in elevation), but warming in the troposphere (the bottom layer below 10 km or 6 miles), and that's exactly what our space probes have measured. Finally, we can rule out any other suspects (see above): solar heat is decreasing since 1940, not increasing, and there are no measurable increases in cosmic rays, methane, volcanic gases, or any other potential cause. Face it -- it's our problem. Why Do People Continue to Question the Reality of Climate Change? Thanks to all the noise and confusion over climate change, the general public has only a vague idea of what the debate is really about, and only about half of Americans think global warming is real or that we are to blame.[ 23] As in the evolution/creationism debate, the scientific community is virtually unanimous on what the data demonstrate about anthropogenic global warming. This has been true for over a decade. When science historian Naomi Oreskes[ 24] surveyed all peer-reviewed papers on climate change published between 1993 and 2003 in the world's leading scientific journal, Science, she found that there were 980 supporting the idea of human-induced global warming and none opposing it. In 2009, Doran and Kendall Zimmerman[ 25] surveyed all the climate scientists who were familiar with the data. They found that 95-99% agreed that global warming is real and human caused. In 2010, the prestigious Proceedings of the National Academy of Sciences published a study that showed that 98% of the scientists who actually do research in climate change are in agreement over anthropogenic global warming.[ 26] Every major scientific organization in the world has endorsed the conclusion of anthropogenic climate change as well. This is a rare degree of agreement within such an independent and cantankerous group as the world's top scientists. This is the same degree of scientific consensus that scientists have achieved over most major ideas, including gravity, evolution, and relativity. These and only a few other topics in science can claim this degree of agreement among nearly all the world's leading scientists, especially among everyone who is close to the scientific data and knows the problem intimately. If it were not such a controversial topic politically, there would be almost no interest in debating it since the evidence is so clear-cut. If the climate science community speaks with one voice (as in the 2007 IPCC report, and every report since then), why is there still any debate at all? The answer has been revealed by a number of investigations by diligent reporters who got past the PR machinery denying global warming, and uncovered the money trail. Originally, there were no real "dissenters" to the idea of global warming by scientists who are actually involved with climate research. Instead, the forces with vested interests in denying global climate change (the energy companies, and the "free-market" advocates) followed the strategy of tobacco companies: create a smokescreen of confusion and prevent the American public from recognizing scientific consensus. As the famous memo[ 27] from the tobacco lobbyists said "Doubt is our product." The denialists generated an anti-science movement entirely out of thin air and PR. The evidence for this PR conspiracy has been well documented in numerous sources. For example, Oreskes and Conway revealed from memos leaked to the press that in April 1998 the right-wing Marshall Institute, SEPP (Fred Seitz's lobby that aids tobacco companies and polluters), and ExxonMobil, met in secret at the American Petroleum Institute's headquarters in Washington, D.C. There they planned a $20 million campaign to get "respected scientists" to cast doubt on climate change, get major PR efforts going, and lobby Congress that global warming isn't real and is not a threat. The right-wing institutes and the energy lobby beat the bushes to find scientists -- any scientists -- who might disagree with the scientific consensus. As investigative journalists and scientists have documented over and over again,[ 28] the denialist conspiracy essentially paid for the testimony of anyone who could be useful to them. The day that the 2007 IPCC report was released (Feb. 2, 2007), the British newspaper The Guardian reported that the conservative American Enterprise Institute (funded largely by oil companies and conservative think tanks) had offered $10,000 plus travel expenses to scientists who would write negatively about the IPCC report.[ 29] In February 2012, leaks of documents from the denialist Heartland Institute revealed that they were trying to influence science education, suppress the work of scientists, and had paid off many prominent climate deniers, such as Anthony Watts, all in an effort to circumvent the scientific consensus by doing an "end run" of PR and political pressure. Other leaks have shown 9 out of 10 major climate deniers are paid by ExxonMobil.[ 30] We are accustomed to hired-gun "experts" paid by lawyers to muddy up the evidence in the case they are fighting, but this is extraordinary -- buying scientists outright to act as shills for organizations trying to deny scientific reality. With this kind of money, however, you can always find a fringe scientist or crank or someone with no relevant credentials who will do what they're paid to do. Fishing around to find anyone with some science background who will agree with you and dispute a scientific consensus is a tactic employed by the creationists to sound "scientific". The NCSE created a satirical "Project Steve,"[ 31] which demonstrated that there were more scientists who accept evolution named "Steve" than the total number of "scientists who dispute evolution". It may generate lots of PR and a smokescreen to confuse the public, but it doesn't change the fact that scientists who actually do research in climate change are unanimous in their insistence that anthropogenic global warming is a real threat. Most scientists I know and respect work very hard for little pay, yet they still cannot be paid to endorse some scientific idea they know to be false. The climate deniers have a lot of other things in common with creationists and other anti-science movements. They too like to quote someone out of context ("quote mining"), finding a short phrase in the work of legitimate scientists that seems to support their position. But when you read the full quote in context, it is obvious that they have used the quote inappropriately. The original author meant something that does not support their goals. The "Cli-mategate scandal" is a classic case of this. It started with a few stolen emails from the Climate Research Unit of the University of East Anglia. If you read the complete text of the actual emails[ 32] and comprehend the scientific shorthand of climate scientists who are talking casually to each other, it is clear that there was no great "conspiracy" or that they were faking data. All six subsequent investigations have cleared Philip Jones and the other scientists of the University of East Anglia of any wrongdoing or conspiracy.[ 33] Even if there had been some conspiracy on the part of these few scientists, there is no reason to believe that the entire climate science community is secretly working together to generate false information and mislead the public. If there's one thing that is clear about science, it's about competition and criticism, not conspiracy and collusion. Most labs are competing with each other, not conspiring together. If one lab publishes a result that is not clearly defensible, other labs will quickly correct it. As James Lawrence Powell wrote: Scientists…show no evidence of being more interested in politics or ideology than the average American. Does it make sense to believe that tens of thousands of scientists would be so deeply and secretly committed to bringing down capitalism and the American way of life that they would spend years beyond their undergraduate degrees working to receive master's and Ph.D. degrees, then go to work in a government laboratory or university, plying the deep oceans, forbidding deserts, icy poles, and torrid jungles, all for far less money than they could have made in industry, all the while biding their time like a Russian sleeper agent in an old spy novel? Scientists tend to be independent and resist authority. That is why you are apt to find them in the laboratory or in the field, as far as possible from the prying eyes of a supervisor. Anyone who believes he could organize thousands of scientists into a conspiracy has never attended a single faculty meeting.[ 34] There are many more traits that the climate deniers share with the creationists and Holocaust deniers and others who distort the truth. They pick on small disagreements between different labs as if scientists can't get their story straight, when in reality there is always a fair amount of give and take between competing labs as they try to get the answer right before the other lab can do so. The key point here is that when all these competing labs around the world have reached a consensus and get the same answer, there is no longer any reason to doubt their common conclusion. The anti-scientists of climate denialism will also point to small errors by individuals in an effort to argue that the entire enterprise cannot be trusted. It is true that scientists are human, and do make mistakes, but the great power of the scientific method is that peer review weeds these out, so that when scientists speak with consensus, there is no doubt that their data are checked carefully Finally, a powerful line of evidence that this is a purely political controversy, rather than a scientific debate, is that the membership lists of the creationists and the climate deniers are highly overlapping. Both anti-scientific dogmas are fed to their overlapping audiences through right-wing media such as Fox News, Glenn Beck, and Rush Limbaugh. Just take a look at the "intelligent-design" cre-ationism website for the Discovery Institute. Most of the daily news items lately have nothing to do with creationism at all, but are focused on climate denial and other right-wing causes.[ 35] If the data about global climate change are indeed valid and robust, any qualified scientist should be able to look at them and see if the prevailing scientific interpretation holds up. Indeed, such a test took place. Starting in 2010, a group led by U.C. Berkeley physicist Richard Muller re-examined all the temperature data from the NOAA, East Anglia Hadley Climate Research Unit, and the Goddard Institute of Space Science sources. Even though Muller started out as a skeptic of the temperature data, and was funded by the Koch brothers and other oil company sources, he carefully checked and re-checked the research himself. When the GOP leaders called him to testify before the House Science and Technology Committee in spring 2011, they were expecting him to discredit the temperature data. Instead, Muller shocked his GOP sponsors by demonstrating his scientific integrity and telling the truth: the temperature increase is real, and the scientists who have demonstrated that the climate is changing are right (Fig. 5). In the fall of 2011, his study was published, and the conclusions were clear: global warming is real, even to a right-wing skeptical scientist. Unlike the hired-gun scientists who play political games, Muller did what a true scientist should do: if the data go against your biases and preconceptions, then do the right thing and admit it -- even if you've been paid by sponsors who want to discredit global warming. Muller is a shining example of a scientist whose integrity and honesty came first, and did not sell out to the highest bidder.[ 36] \* Science and Anti-Science The conclusion is clear: there's science, and then there's the anti-science of global warming denial. As we have seen, there is a nearly unanimous consensus among climate scientists that anthropogenic global warming is real and that we must do something about it. Yet the smokescreen, bluster and lies of the deniers has created enough doubt so that only half of the American public is convinced the problem requires action. Ironically, the U.S. is almost alone in questioning its scientific reality. International polls taken of 33,000 people in 33 nations in 2006 and 2007 show that 90% of their citizens regard climate change as a serious problem[ 37] and 80% realize that humans are the cause of it.[ 38] Just as in the case of creationism, the U.S. is out of step with much of the rest of the world in accepting scientific reality. It is not just the liberals and environmentalists who are taking climate change seriously. Historically conservative institutions (big corporations such as General Electric and many others such as insurance companies and the military) are already planning on how to deal with global warming. Many of my friends high in the oil companies tell me of the efforts by those companies to get into other forms of energy, because they know that cheap oil will be running out soon and that the effects of burning oil will make their business less popular. BP officially stands for "British Petroleum," but in one of their ad campaigns about 5 years ago, it stood for "Beyond Petroleum."[ 39] Although they still spend relatively little of their total budgets on alternative forms of energy, the oil companies still see the handwriting on the wall about the eventual exhaustion of oil -- and they are acting like any company that wants to survive by getting into a new business when the old one is dying. The Pentagon (normally not a left-wing institution) is also making contingency plans for how to fight wars in an era of global climate change, and analyzing what kinds of strategic threats might occur when climate change alters the kinds of enemies we might be fighting, and water becomes a scarce commodity. The New York Times reported[ 40] that in December 2008, the National Defense University outlined plans for military strategy in a greenhouse world. To the Pentagon, the big issue is global chaos and the potential of even nuclear conflict. The world must "prepare for the inevitable effects of abrupt climate change -- which will likely come [the only question is when] regardless of human activity." Insurance companies have no political axe to grind. If anything, they tend to be on the conservative side. They are simply in the business of assessing risk in a realistic fashion so they can accurately gauge their future insurance policies and what to charge for them. Yet they are all investing heavily in research on the disasters and risks posed by climatic change. In 2005, a study commissioned by the re-insurer Swiss Re said, "Climate change will significantly affect the health of humans and ecosystems and these impacts will have economic consequences."[ 41] Some people may still try to deny scientific reality, but big businesses like oil and insurance and conservative institutions like the military cannot afford to be blinded or deluded by ideology. They must plan for the real world that we will be seeing in the next few decades. They do not want to be caught unprepared and harmed by global climatic change when it threatens their survival. Neither can we as a society.

### 2ac death cult (1)

#### No impact uniqueness – discussion of death pervades policy now, proves their k is empirically denied

#### No link - their K assumes obsession with personal death; Turn -- stopping meaningless human created extinction is key to affirm life

Barash and Lipton, 1985 David P., Professor of Psychology at the University of Washington (Seattle) and Judith Eve, psychiatrist at the Swedish Medical Center in Washington, “The Caveman and the Bomb” p.261-267

Fortunately, whatever genetic imperatives operate in Homo sapiens, they are unlikely to extend directly to nuclear weapons, any more than a tendency for body adornment necessarily leads to a Christian Dior necktie or a New Guinea penis sheath. The general patterns that char­acterize today's nuclear Neanderthal are, in fact, general, nonspecific. They may incline us to a degree of saber rattling that seems likely to trouble the world in one way or another as long as we and the world persist, but these patterns don't require that the saber be nuclear. On this level the nuclear Neanderthal doesn't even have to play "as if": We are called on to behave not as if we had free will regarding the renun­ciation of nuclear weapons and nuclear war, but to act in accord with that free will, which we assuredly have. That is honest empowerment indeed. Teilhard de Chardin wrote about the "Omega point" at which human beings become conscious of their own evolution and, hence, of them­selves. He called for a recognition of unity and connectedness, with our species born on this planet and spread over its entire surface, coming gradually to form around its earthly matrix a single, major organic unity, enclosed upon itself; a single, hypercomplex, hyperconcentrated, hyperconscious arch-molecule, coextensive with the heavenly body on which it is born.9 In overcoming the Neanderthal mentality we could finally become hu­man, or perhaps even more than this, at last able to answer affirmatively the question: Is there intelligent life on earth? As poet and novelist Nikos Kazantzakis pleaded, "Let us unite, let us hold each other tightly, let us merge our hearts, let us create for Earth a brain and a heart, let us give a human meaning to the superhuman struggle."'° Something has spoken to me in the night, burning the tapers of the waning year; something has spoken in the night, and told me I shall die, I know not where. Saying: "To lose the earth you know, for greater knowing; to lose the life you have, for greater life; to leave the friends you loved, for greater loving; to find a land more kind than home, more large than earth—Whereupon the pillars of this earth are founded, toward which the conscience of the world is tending—a wind is rising and the rivers flow." THOMAS WOLFE 11 For the existentialists the essence of humanity is in saying no—no to injustice, to murder, to the absurd and dehumanizing universe itself. But the ultimate existential tragedy is that in the long run, saying no cannot succeed. Each of us will eventually die, and this looming inevitability makes our lives absurd**.** By our very aliveness we are therefore embarked on a hopeless campaign, which may yield some victories, but only tem­porary ones. Like a cosmic poker game, we are playing against the house, but in this game the house never loses; even if we are briefly ahead, we cannot cash in our chips and go home winners. There is no other place to go. At the close of The Plague, Albert Camus lets us inside the thoughts of Dr. Rieux, who had courageously battled a typhoid epidemic in a North African city. Just as the plague has finally been overcome, and the survivors were celebrating in the streets, Dr. Rieux understood that the tale he had to tell could not be one of a final victory. It could be only the record of what had had to be done, and what assuredly would have to be done again in the never-ending fight against terror and its relentless onslaughts, despite their personal afflictions, by all who, while unable to be saints but refusing to bow down to pestilences, strive their utmost to be healers. And, indeed, as he listened to the cries of joy rising from the town, Rieux remembered that such joy is always imperiled. He knew what those jubilant crowds did not know but could have learned from books: that the plague bacillus never dies or disappears for good; that it can lie dormant for years and years in furniture and linen-chests; that it bides its time in bedrooms, cellars, trunks, and bookshelves; and that perhaps the day would come when, for the bane and the enlightening of men, it would rouse up its rats again and send them forth to die in a happy city.12 But effectiveness per se is not the issue. The rats may come again, and with them the plague, just as every person now alive must some day die. The real question—for would-be post-Neanderthals no less than for existential thinkers—concerns the obligation of human beings in the face of such a world**. "**In everlasting terms—those of eternity," wrote Thomas Wolfe, "there is no greater wisdom than the wisdom of Ecclesiastes, no acceptance finally so true as the stern fatalism of the rock. Man was born to live, to suffer, and to die, and what befalls him is a tragic lot. There is no denying this in the final end." Nonetheless, he concludes, we must "deny it all along the way." Although admitting the "stern lesson of acceptance," which calls for acknowledging the "tragic under-weft of life into which man is born, through which he must live, out of which he must die," Wolfe described his intention, "having accepted it, to try to do what was before me, what I could do, with all my might."13 Camus went farther. According to Greek mythology, Sisyphus had been condemned to spend eternity rolling an enormous rock up a steep hill;when the rock neared the top, it would roll back down, and Sisyphus would have to start again. In "The Myth of Sisyphus," Sisyphus serves not only as a metaphor for humanity but, as Camus sees it, as a model as well. His struggle is not only self-defining, but also ennobling. More­over, Camus concludes that Sisyphus is happy. There are some important differences between Sisyphus and Dr. Rieux, and the post-Neanderthal. For one thing, Dr. Rieux could afford to lose many battles and even many patients, just as Sisyphus can tolerate the constant victory of gravity**.** Sisyphus, after all, is crushed neither mentally nor literally by his stone; no matter how many people die from a plague, some survive. Dr. Rieux will never eradicate the plague; his glory comes from his fighting on in the face of that knowledge. Sisyphus will never succeed in his labor; his happiness comes from his self-defi­nition, knowing his futility. Unlike them, however, we are not doomed to failure. Before beginning their combat the Roman gladiators used to face the spectators in the Coliseum and announce, "We who are about to die salute you." Two thousand years later the poet W. H. Auden updated their credo: "We who are about to die demand a miracle." Like the gladiators, Auden was concerned about the end of his life, what Kurt Vonnegut calls "plain old death." And to overcome plain old personal death, nothing less than a bona fide miracle in the theological sense will do. We can say no to personal death and an absurd universe all we like, but in the end, like Rieux and Sisyphus, we are bound to lose. The good news, however, is that the other kind of death—the mass, meaningless annihilation that would come with nuclear war—is not inevitable. Unlike the overturning of personal death, no divine intervention is required. Unlike the eruption of a volcano or the brewing of a hurricane, nuclear war is a man-made problem, with man- and woman-made solutions. Unlike Auden and the gladiators, we have a precious and unique op­portunity: We can say no to our Neanderthal mentality, to our genes. We are the only creatures on earth who can do this. We have this op­portunity because our genes whisper to us, they do not shout. They can be stubborn, but they can be persuaded, cajoled, bribed, or, if necessary, simply overruled and strong-armed into submission. Dr. Rieux learned in a time of pestilence that "there are more things to admire in men than to despise." Similarly, the whole can be greater than the sum of its parts, if we choose to be. We can be greater than the sum of our genes. If that is our decision, evolution can't do a thing about it. Making that decision is the supreme test of our humanity, our greatest challenge and our most sublime opportunity. Nonetheless, war touches a deep chord in most human beings, and the decision to say no will not be an easy one. Sigmund Freud com­mented that prohibitions and taboos by their very existence strongly suggest a preexisting desire to perform the prohibited act, otherwise there would be no need for the prohibition: "What no human soul desires, there is no need to prohibit; it is automatically excluded. The very em­phasis of the commandment Thou Shalt Not Kill makes it certain that we spring from an endless ancestry of murderers, with whom the lust for killing was in the blood, as possibly it is to this day with ourselves." He also emphasized that wars occur because nations, like individuals, "still obey their immediate passions far more readily than their inter­ests,"14 a succinct summary of the plight of today's Neanderthal. Prior to World War I especially, the making of war was generally considered a laudable activity. Admiration and often adulation flowed to such men as Alexander, Achilles, Caesar, Charlemagne, Frederick the Great, Napoleon, and Robert E. Lee. The first masterpiece of Western literature (Homer's Iliad) and the first histories (Herodotus' account of the Persian Wars, and Thucydides' study of the Peloponnesian War) focused on war. Western culture is by no means unique in its glorification of war, as witness the cultures of ancient Africa, Mexico, and Fiji. Ac­cordingly, "the war against war," as William James pointed out, "is going to be no holiday excursion or camping party."15 The fact is that war and sanctified violence have had a powerful and persistent appeal cross‑culturally, although not in all cultures, and throughout human history. Thus, as James said, war has come to be seen as "preserving our ideals of hardihood," a supreme test of human effectiveness, the most de­manding and, hence, for many people, the most rewarding activity of which they are capable. It is revealing that whereas "war" exists in the plural, "peace" is conceived only in the singular. (A similar pattern obtains in other lan­guages as well.) We have the War of the Roses, the Napoleonic wars, the Maori wars, World Wars I and II, and so on, but only one peace, despite the fact that there must have been as many different kinds of peace as different kinds of wars. As with the Eskimos, who are said to have eleven words for what in English we simply call "snow," or the Bedouin, who have more than one hundred words for "camel," human beings distin­guish carefully among whatever is important to them. For countless generations the human Neanderthal has been obsessed with war, and indifferent to peace, even slightly bored with it. When and if peace becomes as appealing as war, perhaps then we shall focus on it, identi­fying its varieties and nuances. Words signifying normalcy, like "peace," "health," and "sanity," have lagged behind their pathological counter­parts; thus, we know more about diseases than about wellness. Yet, as the holistic health movements are demonstrating, in order to practice preventive medicine, it is necessary to define, describe, and validate the state of wellness before one can act effectively to preserve it. Much of war's appeal, according to William James, comes from its aura of extremis, embodying the most dangerous and strenuous of human struggles, and hence becoming strangely ennobling despite (or in part, because of) its extraordinary horror. The contemplation of war, the prep­aration for war, and in many cases even the fighting of war is something that most Neanderthals find compelling, exciting, and even fun. Accord­ing to James, this gut-level attraction "cannot be met effectively by mere counter-insistency on war's expensiveness and horror. The horror makes the thrill; and when the question is of getting the extremist and supremist out of human nature, talk of expense sounds ignominious." He therefore proposed a "substitute for war's disciplinary function"—his now-famous Moral Equivalent of War, suggesting a peacetime conscription which would not so much overcome the Neanderthal mentality as bypass it with a bit of social ju jitsu, sublimating dangerous human urges into constructive activity.16 In a sense, the Peace Corps was a practical example of James's con­ception; but a real peace corps can be fashioned only when peacemaking becomes recognized as an acceptable and active verb, and when peace takes its rightful place at our own core. Ironically, in a world society that is increasingly intolerant of personal violence, that forbids murder, assault, even the threat of physical abuse, and in which fistfights and even bullying are grossly out of place, in diplomatic parlors, war and the threat of war remain acceptable. Rather than finding a moral equivalent of war, we have collectively made war itself into a morally acceptable form of violence such that societies can contemplate and plan actions that would be unacceptable if undertaken by its individual members. Those old Neanderthal cravings are still alive and well, running just beneath the surface, needing only the slightest provocation to erupt, even in the most sophisticated and presumably civilized societies. Just let some Americans be taken hostage in Iran, or a Korean airliner violate Soviet airspace, and suddenly the cavemen are at it again and the old predictable tribal bellowing resumes. Homo, called sapiens, is all but drowned in an atavistic avalanche of anger, distrust, and intolerance. The structures of peace, built up with such care and needing such nurturance, seem woefully delicate and fragile before the crude, easily evoked Neanderthal onslaught. But here we note Theodore Roethke's observation, "In a dark time, the eye begins to see." Perhaps by thinking, feeling, and believing, we can see through our Neanderthal mentality, and forge a new awareness where we confront our limitations and our strengths, able to bend, but nonetheless to resist and not to break. A major impediment to this awareness has been our ignorance that the Neanderthal mentality even exists. There is also the double irony of pessimism—the assumption that the Neanderthal mentality, under the alias of "human nature," is un­changeable. Insofar as it succeeds, this assumption is a triumph for the Neanderthal mentality and, moreover, a self-fulfilling prophecy. It is also seductive; it leaves each of us free to go ahead with his or her own little life, all the while treading on unstable slopes, heedless of the danger. "The challenge to humans in our time is whether they can become aroused not just over small but over larger dangers," observed Norman Cousins. "Whether they can perceive universal problems as well as per­sonal ones, whether they can become as concerned over their survival as a species as they are over their jobs."" This arousal is growing, in part because the overriding universal problem is increasingly perceived as an intensely personal one, because it threatens the deepest personal values of every human being, and also because it demands a committed personal response. Perhaps we shall have the final laugh after all, and perhaps the laugh will be on evolution. In giving so much autonomy to the bodies they create, the genes of Homo sapiens have unwittingly sewn the seeds of their own overthrow (not the seeds of their destruction, for that would mean our own demise as well). It is precisely—and only—by overthrowing our genes, by taking the unprecedented step and saying no to their dangerous and insistent whisperings, that we can preserve them, along with everything else. By saying no to that aspect of our genes, we say yes to life, to love, and to hope, and even to the continuation of those troublesome genes themselves. There is no better time. "At this moment," wrote Albert Camus, when each of us must fit an arrow to his bow and enter the lists anew, to reconquer, within history and in spite of it, that which he owns already, the thin yield of his fields, the brief love of this earth, at this moment when at last a man is born, it is time to forsake our age and its adolescent furies. The bow bends; the wood complains. At the moment of supreme tension, there will leap into flight an unswerving arrow, a shaft that is inflexible and free.18 Maybe in the long run we shall all laugh together, as through our negation of the Neanderthal mentality we arrive at a new affirmation, a higher level of life, its most exalted accomplishment. This will be the point at which, while unable to be saints but refusing to bow down to universal murder, we resolve to overcome the Neanderthal mentality and thereby transcend,if not overcome, our biology itself.

#### Turn – Compassion – discussing death impacts is reduces anxiety towards others

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We don't do death well in this country which results in a lot of unnecessary suffering. Most of us do not talk about death and are terribly uncomfortable being in death's presence. Yet, death is normal. By treating death like an invisible elephant sitting in the room, we deprive ourselves of making peace with our mortality, of deeply communicating with and comforting each other in the face of death and of taking the opportunity to make meaningful plans for the end of our life's journey.¶ Talking about and dealing with death is our last great social taboo. We all know that we will die someday as will our beloved ones and cherished pets and everybody else. Yet, most of us relate to death as wrong -- as something that shouldn't happen.¶ The taboo against talking about or dealing with death runs deep in our culture. As a result, most of us relate to death much like children squeezing our eyes shut behind our covering hands, as though what we were looking at has disappeared because we aren't seeing it. According to a 2011 Associated Press-LifeGoesStrong poll, Americans are typically unwilling to face their own mortality and many fear that the mere act of planning for the end of life will somehow hasten their demise.¶ Despite our difficulty in dealing with death, its presence as our one certainty begs the question of our relationship to death and how that informs the quality of our lives. Treating death as bad and life as good puts us in the position of resisting and avoiding death as though we could somehow beat the 100 to 1 odds that we will indeed die. This polarized view of life and death deprives us of developing a better understanding of the meaning, wisdom and blessings that the full cycle of life and death bring to our lives. Those who have the courage to accept the reality of death and to observe and experience it with their eyes wide open have access to this deeper understanding.¶ Social taboos take time to lose their grip on us. Typically, a few brave souls recognize a need to swim upstream against the current, and little by little a momentum builds until an alternative way of being becomes an option. Breaking through a taboo happens one person at a time, one situation at a time as a result of conscious and determined effort. The really good news is that we are living in very exciting times in terms of the prospects for disempowering the taboo against death in America. We are seeing more and more hospice and other palliative care programs that are teaching us a kinder and gentler approach to the end of life. Doctors and other health care workers are being challenged to reframe how they view death from seeing it as a professional failure to accepting the limitations of medicine and technology and the wisdom of passing the baton to a palliative care program as a way to comfort patients who are dying.¶ The baby boomers, now ages 47-65, are becoming elder boomers. Beginning Jan. 1, 2011, an average of 10,000 boomers will turn 65 each day. Thus, death is becoming a much more familiar part of the landscape of our lives as boomers care for aging and dying parents, and watch more and more of their peers face chronic and terminal illnesses and death.¶ Buddhist teachings advise us to avoid attachments and aversions as they block our ability to be present in the true reality of our lives. With both attachments and aversions we attempt to play God, saying "I must have this" or "I must never have that." When we resist death, not only are we engaging in a statistically losing battle, but we exhaust our precious energy trying to avoid the inevitable rather than accepting and working with what is truly present. By resisting and avoiding death, while holding on for dear life to life, we end up with a life filled with always trying to second guess what is coming and grabbing hold of whatever we like that comes our way while pushing away that which we do not want.¶ The result of avoiding talking about or dealing with death is that when we are forced to experience death either as a spectator or as the one who is dying, most of us are woefully ill-prepared mentally, emotionally, physically and spiritually. Death shocks and disturbs us not because it is some awful occurrence but because we have made it so. In reality, death is quite normal. Each of us is born, has a life and then dies. Life and death are inexorably paired -- we don't get to have one without the other. That is not negotiable. However, our attitude and beliefs about death and how we relate to life and death are both socially and individually negotiable¶ As a life coach, minister and grief counselor I have encountered an enormous range of beliefs and behaviors regarding death and have seen how profoundly these points of view inform the lives of my clients. At one extreme, I have worked with people who are so terrified by the fact that they will someday die that they are unable to function in their daily lives. At the other extreme are those who have either intentionally explored their fear of death or those who have had a life experience that brought them to a place of peace and acceptance of their mortality. Some among this later group have shared that by changing their perspective on death, they have also changed how they view humanity and they find themselves more deeply compassionate and understanding of themselves and others.

#### The alt can’t solve the case impacts – denying a discussion of death impacts forces people to turn inwards

HARTMAN, 11 – Graduate Liberal Studies at Georgetown (Hartman, Eva Hinton. “THE ROLE OF MYSTERY IN LIFE AND IN DEATH”. April 5, 2011. http://repository.library.georgetown.edu/bitstream/handle/10822/553332/hartmanEva.pdf?sequence=1)

Individuals experience life (albeit through distorted lenses), and they have witnesses to their birth (though they obviously do not remember their birth). The “not remembering” of birth is irrelevant because humans are thrown into existence and have no idea what comes after. The “what comes before” question does not often vex individuals, though one could intellectualize that what comes before life could be exactly the same as what comes after. Yet, individuals fixate on the afterlife. Regardless, life functions as the in-between time: in between what precedes life and what succeeds life. Thus, the before-and-after periods are completely mysterious. The denial of death means ignoring—through deliberate or unconscious means—the reality of death. Neurotic individuals—individuals who repeat the same behavior patterns over and over, hoping for a new result but never receiving one—particularly deny death. Becker states, “Neurosis is another word for describing a complicated technique for avoiding misery, but reality is a misery” (Ibid., 57). People with neurotic behavior patterns attempt to control their experiences—developing (from their point of view) predictability in an unpredictable world. ¶ Society provides the individual with opportunities to engage in mindless activities, games, to exert control on a large, scary universe. Scheduling the day, planning for retirement, churning the same thoughts over and over in one’s mind, all serve as ways to detract from human reality. Modern society no longer provides the individual with rites of passage and strong communal ties that were present centuries before continue to dissolve. More and more, humans operate on the individual level, they feel isolated, and in turn isolate themselves. The more the individual isolates himself, the more he becomes a prisoner of his own existence. The more the individual indulges neurotic behavior, the more constricted his life becomes. Ultimately, one can imagine a neurotic human closing himself off so much that he becomes a veritable shut-in. And, in this extremely controlled environment, the human still does not find safety. Death looms everywhere. A person locked in a room still must face death; denying death through repression does not stop time, though neurotic individuals seem to attempt to defy the passage of time every chance they have. The life of a neurotic character becomes full of phrases and actions that deny movement closer to death’s door. For instance, the repeated storytelling of a neurotic elderly man obsessed with his high school football career—with each re-telling of the story the man throws himself back in time to a period in which he felt young and capable. The man eschews the present moment in an attempt to deny the reality of his situation—that he no longer is young and athletic. In addition, in this example, the high school version of the man was engaged in heroic fights he won (maybe a high school championship game in which he scored the winning touchdown). The man in his older age may feel less and less potent and denies this fact by reliving his days of personal heroism. A lack of acknowledgement of the present, by daydreaming about the past, serves as a by-product of his denial of death. Daydreaming about the future functions as an aspect of the denial of death as well.¶ Humans, in general, do not focus on the immediate moment. Throwing away the present, human thought tends to slink backward or propel forward. Hence, humans keep away from the only guarantee in life—that the individual owns the present moment. Yet, individuals willingly give away this potential for authentic living by allowing the mind to wander from thought to thought. This type of thinking serves as a defense mechanism against the reality that humans only have the present moment. The past has died, and the future may not exist. To acknowledge this means to acknowledge one’s own fallibility. The denial of death represents the variety of methods humans employ in order to eschew the present moment, thereby eschewing life.

#### Discussing death AFFIRMS value to life

BHAGWAD ’12 – St. Stephen’s College MBA from ICFAI Hyderabad (Bhagwad. “Why is talking about Death Taboo in Indian Society?” July 1, 2012. http://www.bhagwad.com/blog/2011/philosophy/why-is-talking-about-death-taboo-in-indian-society.html/)

This incident got me thinking – why are we so touchy about the subject of death in general? Anupa assures me that the hesitancy is pretty widespread and that I’m the anomaly for not minding. Perhaps it has something to do with both my parents being doctors. We discuss death all the time at home. Just the other day, my mother and I were discussing the best way to commit suicide without pain and expense in case my parents get so old and pain ridden than life is just not worth living anymore. In fact, whenever my mother used to go on a trip somewhere, she would pull us aside before leaving and tell us where the important keys and documents were kept just in case she never came back. I have a file in my Google docs which has all these important details so that we don’t have to go into a flap in case someone in the family dies.¶ So as a person who’s quite comfortable talking about death, I find the tendency to avoid the topic in Indian society pretty puzzling. I mean sure, no one wants a loved one to die. But talking about it won’t cause it to happen. Keeping quiet about it won’t prevent it either. Unless of course it’s a superstition, in which case I understand. We’re all superstitious about something or the other I guess. But if it’s not superstitious, what is it?¶ Strangely, I find that it’s Indians who dislike talk of death more than people here in the US for example. It’s strange because Hinduism is arguably a very chill religion when it comes to the final end. Other religions postulate that there’s a final judgement which is pretty scary if you ask me. Hinduism on the other hand simply treats death as shedding your clothes. The soul finds a new body and things go on as usual. Krishna told Arjun not to grieve for loved ones because they’re not really dead.¶ If anything, it should be the Atheists who hate discussing death because everything literally ends for them. No rebirth, no heaven…nothing. But I’ve met quite a few Atheists who don’t mind discussing their death or the death of others in public. But I don’t know whether it’s a religious thing, or a cultural thing here. Perhaps the problem is philosophical and people feel that since death is a horrible and bad thing, then talking about it is in poor taste.¶ It’s like the elephant in the room. Every knows it’s there but no one wants to acknowledge it. We all know we’re going to die and everyone we love is going to die and yet we don’t talk about it. This despite that fact that talking about death can be very interesting since it presents concepts such as the soul, mortality, God, the value of life etc. One of the most important distinctions between humans and animals is that we seem to be the only creature who is aware of our own mortality.

#### Denying death impacts fails – creates greater anxiety

HARTMAN ’11 – Graduate Liberal Studies at Georgetown (Hartman, Eva Hinton. “THE ROLE OF MYSTERY IN LIFE AND IN DEATH”. April 5, 2011. http://repository.library.georgetown.edu/bitstream/handle/10822/553332/hartmanEva.pdf?sequence=1)

Often, the denial of death intrudes on healthy human functioning through the development of a closed worldview. Even in overlap of common personality traits between individuals, the individual’s worldview belongs exclusively to him. Becker opines, “[I]t is plain that the famous ‘mechanisms of defense’—projection, repression, denial, introjection . . . are the behavioral aspects of the self-system” and remain unique to each person (Liechty 2005, 63). “To change them is to effect a change in the self-system itself, without any reference to any other constructs but the total behavioral style which is a unique creation of the individual” (Ibid.). ¶ This unique worldview begins with early childhood experiences when the child encounters new stimuli in the way of events or even feelings. Psychoanalyst Otto Feinchel says, “Stimuli from the outside world or from the body initiate a state of tension that seeks for motor or secretory discharge, bringing about relaxation. However, between stimulus and discharge, forces are at work opposing that discharge tendency . . . . [w]ithout these counterforces there would be no psyche, only reflexes” (Feinchel 1945, 10). A child experiences something unpleasant, perhaps a parent yelling at him for eating dirt. This child simply equates dirt with food, something to sate the sensation of hunger. Becker writes, “Children feel hounded by the symbols they don’t understand the need of, verbal demands that seem picayune and rules and codes that call them away from their pleasure in a straightforward expression of their natural energies” (Becker 1973, 28). By yelling at the child, the parent intrudes on the child’s current worldview and the child experiences (for example) fear. The parent’s opinion on what dirt may do to the child 1 lies outside the child’s worldview. His mother’s anger about eating dirt demarcates a new experience, an unpleasant and intrusive one. Therefore, in order to reach a safe psychic place again, the child represses the memory. ¶ Repression as a key component of the denial of death leads the way to the neurotic character type. Through his concept of shut-upness, philosopher Soren Kierkegaard describes the neurotic individual as one who relies on repression to deal with life. As an accompaniment to transference, repression plays a key role in the development of a person’s worldview. The more repression plays a role, the bigger the role of transference. Thus, concerning the denial of death, transference functions as a sort of repeat button—it allows an individual to replay the events of the individual’s life and has a direct impact on the individual’s relationships. Finally, the chapter ends with a more extensive exploration of the concept of neurosis. ¶

Condo Bad

### AT: Deforestation

#### Defo alt cause doesn’t matter

Manjaro, 11 [[mpact of deforestation on global warming varies with latitude](http://thewatchers.adorraeli.com/2011/11/19/impact-of-deforestation-on-global-warming-varies-with-latitude/), Chilly, The Watchers, <http://thewatchers.adorraeli.com/2011/11/19/impact-of-deforestation-on-global-warming-varies-with-latitude/>]

The new research, from a team of scientists representing 20 institutions from around the world, discovered that **the impact** of deforestation on global warming **varies with latitude**. It depends where the deforestation is. It could have some cooling effects at the regional scale, at higher latitudes, but there’s no indication deforestation is cooling lower latitudes, and in fact may actually cause warming. The surprising finding calls for new climate-monitoring strategies. According to study, surface station observations are made in grassy fields with biophysical properties of cleared land and that’s why they do not accurately represent the state of climate for 30 percent of the terrestrial surface covered by forests. Researchers found that deforestation in the boreal region, north of 45 degrees latitude, **results in a net cooling effect**. While cutting down trees releases carbon into the atmosphere, it also increases an area’s albedo, or reflection of sunlight. Surface temperatures in open, non-forested, high-latitude areas were cooler because these surfaces reflected the sun’s rays, while nearby forested areas absorbed the sun’s heat. At night, without the albedo effect, open land continued to cool faster than forests, which force warm turbulent air from aloft to the ground. Scientists are debating whether afforestation is a good idea in high latitudes. Study points that tree planting cause absorbing of carbon, which is a benefit to the climate system. At the same time, tree planting warm the landscape because trees are darker compared to other vegetation types. So they absorb solar radiation. But researchers points that the findings should not be viewed as a “green light” to cut down forests in high latitudes. The intent is to clarify where we can see these regional effects using actual temperature measurements.

#### Plan solves it

### AT: Co2 Ag

#### New tech and adaption solve food shortages

Michaels 11 Patrick Michaels is senior fellow in environmental studies at the CATO Institute. "Global Warming and Global Food Security," June 30, CATO, http://www.cato.org/publications/commentary/global-warming-global-food-security

While doing my dissertation I learned a few things about world crops. Serial adoption of new technologies produces a nearly constant increase in yields. Greater fertilizer application, improved response to fertilizer, better tractor technology, better tillage practices, old-fashioned genetic selection, and new-fashioned genetic engineering all conspire to raise yields, year after year.¶ Weather and climate have something to do with yields, too. Seasonal rainfall can vary a lot from year-to-year. That's "weather." If dry years become dry decades (that's "climate") farmers will switch from corn to grain sorghum, or, where possible, wheat. Breeders and scientists will continue to develop more water-efficient plants and agricultural technologies, such as no-till production.¶ Adaptation even applies to the home garden. The tomato variety "heat wave" sets fruit at higher temperatures than traditional cultivars.¶ However, Gillis claims that "[t]he rapid growth in farm output that defined the late 20th century has slowed" because of global warming.¶ His own figures show this is wrong. The increasing trend in world crop yields from 1960 to 1980 is exactly the same as from 1980 to 2010. And per capita grain production is rising, not falling.

#### Warming kills crops more – ozone, floods, weeds, natural disasters – and ceiling to CO2’s positive effect, especially for C4 plants

**NRC 11**, National Research Council, Committee on Stabilization Targets for Atmospheric Greenhouse Gas Concentrations; National Research Council [“Climate Stabilization Targets: Emissions, Concentrations, and Impacts over Decades to Millennia,” April, the National Academies Press]

Even in the most highly mechanized agricultural systems, food production is very dependent on weather. Concern about the potential impacts of climate change on food production, and associated effects on food prices and hunger, have existed since the earliest days of climate change research. Although there is still much to learn, several important findings have emerged from more than three decades of research. It is clear, for example, that higher CO2 levels are beneficial for many crop and forage yields, for two reasons. In species with a C3 photosynthetic pathway, including rice and wheat, higher CO2 directly stimulates photosynthetic rates, although this mechanism does not affect C4 crops like maize. Secondly, higher CO2 allows leaf pores, called stomata, to shrink, which results in reduced water stress for all crops. The net effect on yields for C3 crops has been measured as an average increase of 14% for 580 ppm relative to 370 ppm (Ainsworth et al., 2008). For C4 species such as maize and sorghum, very few experiments have been conducted but the observed effect is much smaller and often statistically insignificant (Leakey, 2009). Rivaling the direct CO2 effects are the impacts of climate changes caused by CO2, in particular changes in air temperature and available soil moisture. Many mechanisms of temperature response have been identified, with the relative importance of different mechanisms varying by location, season, and crop. Among the most critical responses are that crops develop more quickly under warmer temperatures, leading to shorter growing periods and lower yields, and that higher temperatures drive faster evaporation of water from soils and transpiration of water from crops. Exposure to extremely high temperatures (e.g., > 35ºC) can also cause damage in photosynthetic, reproductive, and other cells, and recent evidence suggests that even short exposures to high temperatures can be crucial for final yield (Schlenker and Roberts, 2009; Wassmann et al., 2009).

A wide variety of approaches have been used in an attempt to quantify yield losses for different climate scenarios. Some models represent individual processes in detail, while others rely on statistical models that, in theory, should capture all relevant processes that have influenced historical variations in crop production. Figure 5.1 shows model estimates of the combined effect of warming and CO2 on yields for different levels of global temperature rise. It is noteworthy that although yields respond nonlinearly to temperature on a daily time scale, with extremely hot days or cold nights weighing heavily in final yields, the simulated response to seasonal warming is fairly linear at broad scales (Lobell and Field, 2007; Schlenker and Roberts, 2009). Several major crops and regions reveal consistently negative temperature sensitivities, with between 5-10% yield loss per degree warming estimated both by process-based and statistical approaches. Most of the nonlinearity in Figure 5.1 reflects the fact that CO2 benefits for yield saturate at higher CO2 levels. For C3 crops, the negative effects of warming are often balanced by positive CO2 effects up to 2-3ºC local warming in temperate regions, after which negative warming effects dominate. Because temperate land areas will warm faster than the global average (see Section 4.2), this corresponds to roughly 1.25-2ºC in global average temperature. For C4 crops, even modest amounts of warming are detrimental in major growing regions given the small response to CO2 (see Box 5.1 for discussion of maize in the United States). The expected impacts illustrated in Figure 5.1 are useful as a measure of the likely direction and magnitude of average yield changes, but fall short of a complete risk analysis, which would, for instance, estimate the chance of exceeding critical thresholds. The existing literature identifies several prominent sources of uncertainty, including those related to the magnitude of local warming per degree global temperature increase, the sensitivity of crop yields to temperature, the CO2 levels corresponding to each temperature level (see Section 3.2), and the magnitude of CO2 fertilization.

#### Co2 depletes soil – kills plants and ecosystems

**Korner et al. 7 –** Christian Korner professor of botany at University Basel, Jack Morgan, plant physiologist at USDA and faculty member in the Crops and Soils Department at Colorado State University, and Richard Norby, researcher in the Environmental Sciences Division at the Oak Ridge National Laboratory (“Terrestrial Ecosystems In A Changing World”, Chapter Two: CO2 Fertilization: When, Where, How Much? p. 9-10, Google Books)

It is obvious that these carbon investments also depend on resources other than CO2, in particular mineral nutrients. A common effect of short-term plant exposure to elevated CO2 is a reduced consumption of nutrients, but also water, per unit of biomass produced (Drake et al. 1997) or a constant consumption at greater biomass per unit land area (Niklaus and Körner 2004). In cases where total nutrient uptake is increased under elevated CO2 (Finzi et al. 2002) this will deplete soil resources in the long run. In cases where tissue nutrient concentrations are depleted, this will induce **cascades of negative ecosystem level feedbacks**, which eventually may also cause initial rates of carbon gain to diminish. In many cases, it became questionable whether carbon is a limiting resource at the whole plant or ecosystem level (Körner 2003a). It is worth recalling that all taxa of today’s biosphere grew and reproduced successfully with only 180–190 ppm, half the current CO2 concentration, 18 000 years before present (peak of last glaciation). Based on this reference period, current biota operate already in a double CO2 atmosphere. In addition, the observed reduction of water consumption per unit land area is likely to induce climatic feedbacks (through a drier atmosphere), not yet accounted for in experiments. Furthermore, any CO2 enrichment effect on plants will depend on their developmental stage, with younger plants more responsive than older ones (Loehle 1995). Most of the CO2-enrichment responses for woody species available to date are – for very practical reasons – for young, rapidly expanding life stages, during which carbon is more likely a limiting resource.

#### Reject ev – bias

**Anthony 09 –** a Senior Research Fellow at the Centre for Marine Studies. Ken started his work on coral reef biology at James Cook University in 1995 (Ken, “CO2 non-science journalism is not doing the World a favour” <http://www.climateshifts.org/?p=1043>)

Remember the last time you tried to reason with someone who constantly took your words out of context in an attempt to argue an opposite futile point? If that left you smiling politely while shaking your head, you probably felt like me after reading the article “Coral Reefs and Climate Change: Unproved Assumptions” by the Idso family posted on their website “CO2 Science” at the Center for the Study of Carbon Dioxide and Global Change**. The article is another sad addition to their more than 500 un-reviewed pieces** - all with the obvious agenda of making their readers believe that climate change science is nothing but alarmist propaganda. In their latest anti-science scribble (Vol 12, No 3) the Idso’s attempt to build the case that “it is premature to suggest that widespread reef collapse is a certain consequence of ongoing bleaching” and that “nature is far more resilient [to climate change] than many people give it credit for..” All of their quotes are from a recent paper by a group of young and excellent Australian marine biologists, Maynard, Baird and Pratchett published in Coral Reefs (27:745-749). Contrary to the Idso’s claims, Maynard et al.’s paper does not question that climate change is a threat to coral reefs. The purpose of Maynard et al.’s paper is to provoke debate around some specific assumptions of thermal thresholds and coral reef’s adaptability to climate change and the functional link between reef degradation and fisheries. Rest assured, Maynard et al. will get the debate they have provoked within the scientific community. Critiques and responses are part of the quality control system of the scientific process and add to the foundation on which our knowledge system is built across disciplines from physics and engineering to medicine. However, by running with a few bits of quotes, stitched together in a fabricated “they say” story, the Idso’s are not doing their readers any favours. Instead, the Idso’s demonstrate two points quite clearly: (1) they have very limited understanding of the science, and (2) their agenda is to write journalism that systematically attempts to discredit the best available climate-change science. After reading a number of their smear campaigns, the Center for the Study of Carbon Dioxide and Global Change takes shape of a law firm defending a client’s case (wonder who they could be?) that is up against an overwhelming amount of opposing evidence. Like rookies, they fumble in their exhibits folder, hoping to win the jury over by causing confusion. The danger of their practise is that they generate disinformation about climate change in a time when the public, the media and governments are in urgent need of good information.

### AT: Production

#### Framework – the k needs to prove the whole plan is bad – any other interp kils fairness and trivializes effective decision- making skills

#### And, external factors prove the status quo is structurally improving

**Dash, 2/4** Co-Founder and Managing Director at Activate, a new kind of strategy consultancy that advises companies about the opportunities at the intersection of technology and media co-founder and CEO of ThinkUp, which shows you how to be better at using your social networks, publisher, editor and owner of Dashes.com, my personal blog where I've been publishing continuously since 1999, entrepreneur, writer and geek living in New York City (Anil Dash, 4 February 2013, “THE WORLD IS GETTING BETTER. QUICKLY.,” http://dashes.com/anil/2013/02/the-world-is-getting-better-quickly.html)//CC

The world is getting better, faster, than we could ever have imagined. For those of us who are fortunate enough to live in wealthy communities or countries, we have a common set of reference points we use to describe the world's most intractable, upsetting, unimaginable injustices. Often, we only mention these horrible realities in minimizing our own woes: "Well, that's annoying, but it's hardly as bad as children starving in Africa." Or "Yeah, this is important, but it's not like it's the cure for AIDS." Or the omnipresent description of any issue as a "First World Problem". But let's, for once, look at **the** actual **data** around developing world problems. Not our condescending, world-away displays of **emotion**, or our slacktivist tendencies to see a retweet as meaningful action, but the actual numbers and metrics about how progress is happening for the world's poorest people. Though metrics and measurements are always fraught and flawed, Gates' single biggest emphasis was the idea that measurable progress and metrics are necessary for any meaningful improvements to happen in the lives of the world's poor. So how are we doing? THE WORLD HAS CHANGED The results are astounding. Even if we caveat that every measurement is imprecise, that billionaire philanthropists are going to favor data that strengthens their points, and that some of the most significant problems are difficult to attach metrics to, it's inarguable that the past two decades have seen the greatest leap forward in the lives of the global poor in the history of humanity. Some highlights: Children are 1/3 less likely to die before age five than they were in 1990. The global childhood mortality rate for kids under 5 has dropped from 88 in 1000 in 1990 to 57 in 1000 in 2010. The global infant mortality rate for kids dying before age one has plunged from 61 in 1000 to 40 in 1000. Now, any child dying is of course one child too many, but this is astounding progress to have made in just twenty years. In the past 30 years, the percentage of children who receive key immunizations such as the DTP vaccine has quadrupled. The percentage of people in the world living on less than $1.25 per day has been cut in half since 1990, ahead of the schedule of the Millennium Development Goals which hoped to reach this target by 2015. The number of deaths to tuberculosis has been cut 40% in the past twenty years. The consumption of ozone-depleting substances has been cut 85% globally in the last thirty years. The percentage of urban dwellers living in slums globally has been cut from 46.2% to 32.7% in the last twenty years. And there's more progress in hunger and contraception, in sustainability and education, against AIDS and illiteracy. After reading the Gates annual letter and following up by reviewing the UN's ugly-but-data-rich Millennium Development Goals statistics site, I was surprised by how much progress has been made in the years since I've been an adult, and just how little I've heard about the big picture despite the fact that I'd like to keep informed about such things. I'm not a pollyanna — there's a lot of work to be done. But I can personally attest to the profound effect that basic improvements like clean drinking water can have in people's lives. Today, we often use the world's biggest problems as metaphors for impossibility. But the evidence shows that, actually, we're really good at solving even the most intimidating challenges in the world. What we're lacking is the ability to communicate effectively about how we make progress, so that we can galvanize even more investment of resources, time and effort to tackling the problems we have left.

#### Permutation do the plan and reject the aff’s neoliberal ideology – their author admits their k is just an interesting FYI

Zeller, 12 [Tom, Ozzie Zehner's 'Green Illusions' Ruffles Feathers. <http://www.huffingtonpost.com/tom-zeller-jr/ozzie-zehner-green-illusions_b_1710382.html>]

¶ Does that mean Zehner is anti-solar? He says no. "In my mind, 'Green Illusions' does not throw these technologies under the bus," he told me. "It just situates their full effects in context and shows how we could address the context to make these technologies more relevant."¶ "Alternative energy is not a free ride, just a different ride," he added, "and there's no reason to believe it will offset fossil fuel use in a society that has high levels of consumption and is growing exponentially."¶ Put another way, renewable energy only makes sense if undertaken in concert with other, more fundamental changes in the way we deploy and make use of energy in our everyday lives. At the moment, we're really paying attention to the technology end of things, Zehner argues, and without a holistic approach, these innovations get us nowhere.

#### And, the alt alone prevents any progressive energy change – the whole aff is a disad

Nead, 12 \*Citing a refuation of the book that their alt comes from [Benjamin Nead, Attacking EVs: New Book Says Electric Cars Aren't Clean employed by Arizona Public Media, the NPR/PBS affiliated radio/television complex at the University of Arizona in Tucson, since 1988. He is currently the local weekday/afternoon on-air host for KUAZ radio's NPR news and information programming. Prior to this, he was the station's evening weeknight Jazz music host. Ben was the coordinator for Tucson Plugs In 2011, one component of Plug In America's multi-city National Plug In Day, which occured on Sunday, October 16, 2011, http://www.plugincars.com/attacking-evs-new-book-says-electric-cars-arent-clean-123063.html

I'm being somewhat factitious in the above paragraph, of course, but it isn't all that different from your wide brush criticism of any or all that you are presumably excoriating in Green Illusions. Your online book reviews are causing quite a stir right now and I'm going to guess that this will move a lot of product for you. Unfortunately, most will emphasize only the most alarmist claims you make there in attacking emerging clean technologies. Those who hope to perpetuate the energy status quo - especially as its practiced in the U.S. today - will use only those points to do battle with aspects of emerging clean technology that could possibly do us some good. To paraphrase one of your own catchphrases, The Boomerang Effect, naysayers will take us full circle and back to where we are today - oil, urban sprawl, etc. - and conveniently leave out the joys of commuting to work with modest muscle and skipping that cheeseburger in favor of a salad.¶ Congratulations. You have just given the Republican nominee for U.S. President and his supporters a powerful new weapon.

#### And, Zellner causes transition wars

Harris 2 (Lee, Atlanta writer, policy review, the intellectual origins of America-bashing, <http://www.hoover.org/publications/policyreview/3458371.html>)

This is the immiserization thesis of Marx. And it is central to revolutionary Marxism, since if capitalism produces no widespread misery, then it also produces no fatal internal contradiction: If everyone is getting better off through capitalism, who will dream of struggling to overthrow it? Only genuine misery on the part of the workers would be sufficient to overturn the whole apparatus of the capitalist state, simply because, as Marx insisted, the capitalist class could not be realistically expected to relinquish control of the state apparatus and, with it, the monopoly of force. In this, Marx was absolutely correct. No capitalist society has ever willingly liquidated itself, and it is utopian to think that any ever will. Therefore, in order to achieve the goal of socialism, nothing short of a complete revolution would do; and this means, in point of fact, a full-fledged civil war not just within one society, but across the globe. Without this catastrophic upheaval, capitalism would remain completely in control of the social order and all socialist schemes would be reduced to pipe dreams.

#### And, permutation do the plan and

#### And, Neolib’s inevitable and movements are getting smothered out of existence—no alternative economic system

Jones 11—Owen, Masters at Oxford, named one of the Daily Telegraph's 'Top 100 Most Influential People on the Left' for 2011, author of "Chavs: The Demonization of the Working Class", The Independent, UK, "Owen Jones: Protest without politics will change nothing", 2011, [www.independent.co.uk/opinion/commentators/owen-jones-protest-without-politics-will-change-nothing-2373612.html](http://www.independent.co.uk/opinion/commentators/owen-jones-protest-without-politics-will-change-nothing-2373612.html)

My first experience of police kettling was aged 16. It was May Day 2001, and the anti-globalisation movement was at its peak. The turn-of-the-century anti-capitalist movement feels largely forgotten today, but it was a big deal at the time. To a left-wing teenager growing up in an age of unchallenged neo-liberal triumphalism, just to have "anti-capitalism" flash up in the headlines was thrilling. Thousands of apparently unstoppable protesters chased the world's rulers from IMF to World Bank summits – from Seattle to Prague to Genoa – and the authorities were rattled.¶ Today, as protesters in nearly a thousand cities across the world follow the example set by the Occupy Wall Street protests, it's worth pondering what happened to the anti-globalisation movement. Its activists did not lack passion or determination. But they did lack a coherent alternative to the neo-liberal project. With no clear political direction, the movement was easily swept away by the jingoism and turmoil that followed 9/11, just two months after Genoa.¶ Don't get me wrong: the Occupy movement is a glimmer of sanity amid today's economic madness. By descending on the West's financial epicentres, it reminds us of how a crisis caused by the banks (a sentence that needs to be repeated until it becomes a cliché) has been cynically transformed into a crisis of public spending. The founding statement of Occupy London puts it succinctly: "We refuse to pay for the banks' crisis." The Occupiers direct their fire at the top 1 per cent, and rightly so – as US billionaire Warren Buffett confessed: "There's class warfare, all right, but it's my class, the rich class, that's making war, and we're winning."¶ The Occupy movement has provoked fury from senior US Republicans such as Presidential contender Herman Cain who – predictably – labelled it "anti-American". They're right to be worried: those camping outside banks threaten to refocus attention on the real villains, and to act as a catalyst for wider dissent. But a coherent alternative to the tottering global economic order remains, it seems, as distant as ever. **¶** Neo-liberalism crashes around, half-dead, with no-one to administer the killer blow.**¶** There's always a presumption that a crisis of capitalism is good news for the left. Yet in the Great Depression, fascism consumed much of Europe. The economic crisis of the 1970s did lead to a resurgence of radicalism on both left and right. But, spearheaded by Thatcherism and Reaganism, the New Right definitively crushed its opposition in the 1980s.This time round, there doesn't even seem to be an alternative for the right to defeat. That's not the fault of the protesters. In truth, the left has never recovered from being virtually smothered out of existence. It was the victim of a perfect storm: the rise of the New Right; neo-liberal globalisation; and the repeated defeats suffered by the trade union movement.¶ But, above all, it was the aftermath of the collapse of Communism that did for the left. As US neo-conservative Midge Decter triumphantly put it: "It's time to say: We've won. Goodbye." From the British Labour Party to the African National Congress, left-wing movements across the world hurtled to the right in an almost synchronised fashion. It was as though the left wing of the global political spectrum had been sliced off. That's why, although we live in an age of revolt, there remains no left to give it direction and purpose.

#### No political crises

Stelzer 9 Irwin Stelzer is a business adviser and director of economic policy studies at the Hudson Institute, “Death of capitalism exaggerated,” [http://www.theaustralian.news.com.au/story/0,25197,26174260-5013479,00.html](http://www.theaustralian.news.com.au/story/0%2C25197%2C26174260-5013479%2C00.html)

A FUNNY thing happened on the way to the collapse of market capitalism in the face of the worst economic crisis since the Great Depression. It didn't. Indeed, in Germany voters relieved Chancellor Angela Merkel of the necessity of cohabiting with a left-wing party, allowing her to form a coalition with a party favouring lower taxes and free markets. And in Pittsburgh leaders representing more than 90 per cent of the world's GDP convened to figure out how to make markets work better, rather than to hoist the red flag. The workers are to be relieved, not of their chains but of credit-card terms that are excessively onerous, and helped to retain their private property - their homes. All of this is contrary to expectations. The communist spectre that Karl Marx confidently predicted would be haunting Europe is instead haunting Europe's left-wing parties, with even Vladimir Putin seeking to attract investment by re-privatising the firms he snatched. Which raises an interesting question: why haven't the economic turmoil and rising unemployment led workers to the barricades, instead of to their bankers to renegotiate their mortgages? It might be because Spain's leftish government has proved less able to cope with economic collapse than countries with more centrist governments. Or because Britain, with a leftish government, is now the sick man of Europe, its financial sector in intensive care, its recovery likely to be the slowest in Europe, its prime credit rating threatened. Or it might be because left-wing trade unions, greedily demanding their public-sector members be exempted from the pain they want others to share, have lost their credibility and ability to lead a leftward lurch. All of those factors contribute to the unexpected strength of the Right in a world in which a record number of families are being tossed out of their homes, and jobs have been disappearing by the million. But even more important in promoting reform over revolution are three factors: the existence of democratic institutions; the condition of the unemployed; and the set of policies developed to cope with the recession. Democratic institutions give the aggrieved an outlet for their discontent, and hope they can change conditions they deem unsatisfactory. Don't like the way George W. Bush has skewed income distribution? Toss the Republicans out and elect a man who promises to tax the rich more heavily. Don't like Gordon Brown's tax increases? Toss him out and hope the Tories mean it when they promise at least to try to lower taxes. Result: angry voters but no rioters, unless one counts the nutters who break windows at McDonald's or storm banks in the City. Contrast that with China, where the disaffected have no choice but to take to the streets. Result: an estimated 10,000 riots this year protesting against job losses, arbitrary taxes and corruption. A second factor explaining the Left's inability to profit from economic suffering is capitalism's ability to adapt, demonstrated in the Great Depression of the 1930s. While a gaggle of bankers and fiscal conservatives held out for the status quo, Franklin D. Roosevelt and his experimenters began to weave a social safety net. In Britain, William Beveridge produced a report setting the stage for a similar, indeed stronger, net. Continental countries recovering from World War II did the same. So unemployment no longer dooms a worker to close-to-starvation. Yes, civic institutions were able to soften the blow for the unemployed before the safety net was put in place, but they could not cope with pervasive protracted lay-offs. Also, during this and other recessions, when prices for many items are coming down, the real living standard of those in work actually improves. In the US, somewhere between 85 per cent and 90 per cent of workers have kept their jobs, and now see their living costs declining as rents and other prices come down. So the impetus to take to the streets is limited. Then there are the steps taken by capitalist governments to limit the depth and duration of the downturn. As the economies of most of the big industrial countries imploded, policy went through two phases. The first was triage - do what is necessary to prevent the financial system from collapse. Spend. Guarantee deposits to prevent runs on banks and money funds, bail out big banks, force relatively healthier institutions to take over sicker ones, mix all of this with rhetorical attacks on greedy bankers - the populist spoonful of sugar that made the bailouts go down with the voters - and stop the rot. Meanwhile, have the central banks dust off their dog-eared copies of Bagehot and inject lots of liquidity by whatever means comes to mind. John Maynard Keynes, meet Milton Friedman for a cordial handshake. Then came more permanent reform, another round of adapting capitalism to new realities, in this case the malfunctioning of the financial markets. Even Barack Obama's left-wing administration decided not to scupper the markets but instead to develop rules to relate bankers' pay more closely to long-term performance; to reduce the chance of implosions by increasing the capital banks must hold, cutting their profits and dividends, but leaving them in private hands; and to channel most stimulus spending through private-sector companies. This leaves the anti-market crowd little room for manoeuvre as voters seem satisfied with the changes to make capitalism and markets work better and more equitably. At least so far. There are exceptions. Australia moved a bit to the left in the last election, but more out of unhappiness with a tired incumbent's environmental and foreign policy. Americans chose Obama, but he had promised to govern from the centre before swinging left. And for all his rhetorical attacks on greedy bankers and other malefactors of great wealth, he sticks to reform of markets rather than their replacement, with healthcare a possible exception. Even in these countries, so far, so good for reformed capitalism. No substitutes accepted.

**Sustainability is impossible and causes extinction**

**Barnhizer 6** (David, Professor of Law, Cleveland State University, Waking from Sustainability's "Impossible Dream": The Decisionmaking Realities of Business and Government, 18 Geo. Int'l Envtl. L. Rev. 595, Lexis)

Medieval alchemists sought unsuccessfully to discover the process that would enable them to turn base metal into gold--assigning the name "Philosopher's Stone" to what they sought. The quest was doomed to failure. Just as a "sow's ear" cannot become a "silk purse," a base metal cannot become gold. Sustainability is impossible for the same reasons. It asks us to be something we are not, both individually and as a political and economic community. It is impossible to convert humans into the wise, selfless, and nearly omniscient creatures required to build and operate a system that incorporates sustainability. Even if it were ultimately possible (and it is not), it would take many generations to achieve and we are running out of time.¶ There is an enormous gap among what we claim we want to do, what we actually want to do, and our ability to achieve our professed goals. I admit to an absolute distrust of cheap and **easy** **proclamations of lofty ideals** and commitments to voluntary or unenforceable codes of practice. The only thing that counts is the actor's actual behavior. For most people, that behavior is shaped by self-interest determined by the opportunity to benefit or to avoid harm. In the economic arena this means that if a substantial return can be had without a high risk of significant negative consequences, the decision will be made to seek the benefit. It is the reinvention of Hardin's Tragedy of the Commons. n1¶ This essay explores the nature of human decisionmaking and motivation within critical systems. These systems include business and governmental decisionmaking with a focus on environmental and social areas of emerging crisis where the consequence of acting unwisely or failing to act wisely produces large-scale harms for both human and natural systems. The analysis begins by suggesting that nothing humans create is "sustainable." Change is inevitable and [\*597] irresistible whether styled as systemic entropy, Joseph Schumpeter's idea of a regenerative "creative destruction," or Nikolai Kondratieff's "waves" of economic and social transformation. n2¶ Business entities and governmental decisionmakers play critical roles in both causing environmental and social harms and avoiding those consequences. Some have thought that the path to avoiding harm and achieving positive benefits is to develop codes of practice that by their language promise that decisionmakers will behave in ways consistent with the principles that have come to be referred to as "sustainability." That belief is a delusion--an "impossible dream." Daniel Boorstin once asked: "Have we been doomed to make our dreams into illusions?" n3 He adds: "An illusion . . . is an image we have mistaken for reality. . . . [W]e cannot see it is not fact." n4 Albert Camus warns of the inevitability of failing to achieve unrealistic goals and the need to become more aware of the limited extent of our power to effect fundamental change. He urges that we concentrate on devising realistic strategies and behaviors that allow us to be effective in our actions. n5¶ As companies are expected to implement global codes of conduct such as the U.N. Global Compact and the Organisation for Economic Co-operation and Development's (OECD) Guidelines for Multinational Enterprises, n6 and governments [\*598] and multilateral institutions supposedly become more concerned about limiting the environmental and social impacts of business decisionmaking, it may be useful to consider actual behavior related to corporate and governmental responses to codes of practice, treaties, and even national laws. Unfortunately, business, government, and multilateral institutions have poor track records vis-a-vis conformity to such codes of practice and treaties.¶ Despite good intentions, empty dreams and platitudes may be counterproductive. This essay argues that the ideal of sustainability as introduced in the 1987 report of the Brundtland Commission and institutionalized in the form of Agenda 21 at the 1992 Rio Earth Summit is false and counterproductive. The ideal of sustainability assumes that we are almost god-like, capable of perceiving, integrating, monitoring, organizing, and controlling our world. These assumptions create an "impossible" character to the "dream" of sustainability in business and governmental decisionmaking.¶ Sustainability of the Agenda 21 kind is a utopian vision that is the enemy of the possible and the good. The problem is that while on paper we can always sketch elegant solutions that appear to have the ability to achieve a desired utopia, such solutions work "if only" everyone will come together and behave in the way laid out in the "blueprint." n7 Humans should have learned from such grand misperceptions as the French Enlightenment's failure to accurately comprehend the quality and limits of human nature or Marxism's flawed view of altruistic human motivation that the "if only" is an impossibly **utopian reordering of human nature** we will never achieve. n8¶ [\*599] A critical defect in the idea of sustainable development is that it continues the flawed assumptions about human nature and motivation that provided the foundational premises of Marxist collectivism and centralized planning authorities. n9 Such perspectives inject rigidity and bureaucracy into a system that requires monitoring, flexibility, adaptation, and accountability. But, in criticizing the failed Marxist-Leninist form of organization, my argument should not be seen as a defense of supposed free market capitalism. Like Marxism, a true free market capitalism does not really exist.¶ The factors of greed and self interest, limited human capacity, inordinate systemic complexity, and the power of large-scale driving forces beyond our ability to control lead to the unsustainability of human systems. Human self-interest is an **insurmountable barrier** that can be affected to a degree only by effective laws, the promise of significant financial or career returns, or fear of consequences. The only way to change the behavior of business and governmental decisionmakers is through the use of the "carrot" and the "stick." n10 Yet even this approach can only be achieved incrementally with limited positive effects.

### AT: Port Deepening

#### Perm do both –

--- solves the link to politics because the conjunction of both is spun as transportation infrastructure

#### Doesn’t solve the Case - 1ac Natale, Economist and O’hare are from 2013 and assume the newest port infrastructure – long federal approval processes and complex dredging projects make the CP take decades – that collapses competitiveness

#### CP links to politics – unpopular in congress

**Spivak 11** -- senior research analyst at the HNTB Corporation, a transportation design and engineering firm (Jeffrey, "The Battle of the Ports", May/June, American Planning Association, aapa.files.cms-plus.com/Battle%20of%20the%20Ports%20-%20Planning%20mag%20-%20May\_June%202011.pdf) // NK

The fact is, with the federal deficit-cutting climate in Washington D.C., getting funding for port projects could become more difficult. For one thing, the Harbor Maintenance Trust Fund is tapped ¶ every year to help offset the federal deficit. For another, Congress has sworn off the earmarks, or ¶ individual projects requested by lawmakers, that were a major source of port funding. "There is too ¶ much competition for scarce federal dollars," says Russell Held of the Virginia Port Authority.

#### That costs capital

**Barnett, 12** (Ron, USA Today, 5/24, “East Coast ports scramble to dig deep, for supersize ships,” [http://www.usatoday.com/money/economy/story/2012-05-24/deepening-harbors/55653540/1)//DH](http://www.usatoday.com/money/economy/story/2012-05-24/deepening-harbors/55653540/1%29/DH) ‘the association’ = the American Association of Port Authorities

The association is lobbying Congress for approval, which is required by the Constitution for such projects, and for funding. But, "Because freight doesn't really have as strong a voice as the movement of people, it's going to take a lot of heavy lifting," Ellis said.

"We're fighting hard enough in this country just to keep our navigation channels maintained at their authorized depths and widths."

#### Federal efforts fail – engineering failures and economics

Edwards, 2012 – director of tax policy studies at Cato, senior economist, and expert on federal and state tax and budget issues, senior economist on the congressional Joint Economic Committee (Chris, “Cutting the Army Corps of Engineers”, CATO, March 2012, [http://www.downsizinggovernment.org/usace#6)](http://www.downsizinggovernment.org/usace#6)//MM)

The U.S. Army Corps of Engineers is a federal agency that constructs and maintains a wide range of infrastructure for military and civilian purposes.[1](http://www.downsizinggovernment.org/usace%22%20%5Cl%20%22_edn1) This essay concerns the civilian part of the agency, which employs about 23,000 people and will spend about $9.2 billion in fiscal 2012.[2](http://www.downsizinggovernment.org/usace%22%20%5Cl%20%22_edn2) The civilian part of the Corps—called "civil works"—builds and operates locks, channels, and other navigation infrastructure on river systems. It also builds flood control structures, dredges seaports, manages thousands of recreation sites, and owns and operates hydroelectric power plants across the country. While the Army Corps has built some impressive infrastructure, many of its projects have been economically or environmentally dubious. The agency's activities have often subsidized private interests at the expense of federal taxpayers. Furthermore, the Corps has a history of **distorting its cost-benefit analyses** in order to justify its projects. The civilian side of the Corps grew out of the engineering expertise gained by the agency's military activities early in the nation's history. In mid-19th century, Congress began adding civilian missions to the Corps in response to political demands and various natural disasters. Today we are left with an agency involved in far flung activities such as beach replenishment, upgrades to city water systems, agriculture irrigation, clean-up of hazardous waste sites, and efforts to revive the Florida Everglades. The Corps has been greatly mismanaged over the decades, with problems ranging from frequent **cost overruns** on projects to the major engineering failures that **contributed to** the disaster of Hurricane Katrina. In addition, the dominance of special-interest politics on the agency's activities has resulted in it supporting many wasteful projects. Fortunately, most of the Corps' activities do not need to be carried out by the federal government. Some of its activities—such as flood control and the management of recreational areas—should be turned over to state and local governments. Other activities—such as seaport dredging and hydropower generation—should be turned over to the private sector. This essay focuses on cutting the Corps' spending activities, and does not address the calls for reforming the agency's regulatory functions.[3](http://www.downsizinggovernment.org/usace%22%20%5Cl%20%22_edn3) The following sections look at the history of the Army Corps, the pork-barrel nature of its spending, its legacy of mismanagement, and its role in Hurricane Katrina. The essay concludes that the bulk of the agency's civilian activities and assets should be privatized or transferred to state and local governments. The remaining activities of the Corps that are truly federal in nature should be transferred to the Department of the Interior. The civilian side of the Army Corps should be closed down.

#### Means it doesn’t access any of the case

Edwards, 2012 – director of tax policy studies at Cato, senior economist, and expert on federal and state tax and budget issues, senior economist on the congressional Joint Economic Committee (Chris, “Cutting the Army Corps of Engineers”, CATO, March 2012, [http://www.downsizinggovernment.org/usace#6)](http://www.downsizinggovernment.org/usace#6)//MM)

These longstanding problems are the result both of the agency's pro-building culture and congressional politics. The ad hoc way that the agency's projects are funded creates further problems. New projects are typically authorized in Water Resources Development Acts, which are passed every few years. The last of such acts was enacted in 2007 over a veto by President George W. Bush.[36](http://www.downsizinggovernment.org/usace%22%20%5Cl%20%22_edn36) **After authorization**, **each project included may or may not receive funding a year at a time in** annual **appropriations bills.**¶The problem is that Congress has crammed far too many projects into the Corps' pipeline, with the result that progress on each project is slow and erratic. For example, Congress has authorized more than 400 municipal water and sewer projects for the Corps, with a total price tag of more than $5 billion. However, only about $140 million or so is actually appropriated for these projects each year.[37](http://www.downsizinggovernment.org/usace%22%20%5Cl%20%22_edn37)¶ **The slow progress of Corps' projects contrasts with private sector construction projects, which are built as quickly as possible to hold down costs.** A Government Accountability Office report on the Corps found that "**funding projects in increments hinders project efficiency by increasing costs and timelines.**"[38](http://www.downsizinggovernment.org/usace%22%20%5Cl%20%22_edn38) One Corps' official told the GAO, "this is one of the reasons that a civil works project takes 20 years to execute, instead of 3 if we were fully funded from the start."[39](http://www.downsizinggovernment.org/usace%22%20%5Cl%20%22_edn39) The Corps currently has a backlog of more than 1,000 feasibility studies and construction projects worth more than $80 billion that have been authorized but not funded.[40](http://www.downsizinggovernment.org/usace%22%20%5Cl%20%22_edn40)¶ The Corps is an engineering and construction organization, and in our economy such activities are usually carried out by private businesses. The Corps has never been run like a private business—it doesn't have an efficient structure, it doesn't pursue the highest-return projects, and it doesn't construct projects quickly and efficiently. Former Senate majority leader Tom Daschle (D-SD) said the Corps is "one of the most incompetent and inept organizations in all the federal government."[41](http://www.downsizinggovernment.org/usace%22%20%5Cl%20%22_edn41) The good news is that we don't need a civilian Army Corps organization because most of its functions could be carried out by state and local governments and the private sector.

### AT: States

#### The CP solves none of the case – 1ac Conathan says Federal extension of the ITC is necessary to catalyze multiyear ad long term investor certainty – the impact is the entire case

#### Presumption goes AFF – you read a CP – it is more change than the AFf – tie goes to whose policy is better

RPS doesn’t solve wind key

#### Perm all the pl,anks

#### And, the CP doesn’t create predictable regulatory environments – stymies investment

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B. State Climate Change Policies Similarly, the states have taken the initiative in addressing climate change under a devolved federalist paradigm, implementing comprehensive and crosscutting programs as well as those narrowly focused on agriculture, transportation, education, and energy. As of 2006, more than forty states have developed comprehensive greenhouse gas inventories, twenty-eight have completed climate change action plans, and fourteen have mandated greenhouse gas emissions targets. n279 The most aggressive is New York, aiming for five percent below 1990 carbon dioxide emissions levels by 2010, followed by Connecticut, Illinois, Massachusetts, Maine, New Hampshire, New Jersey, Rhode Island, and Vermont, aiming for 1990 levels by 2010. n280 Motivated to encompass a broader geographic area, eliminate duplication of work, and create more uniform regulatory environments, many states have also established regional initiatives to fight climate change such as the Western Climate Initiative on the West Coast [\*461] and the Regional Greenhouse Gas Initiative (RGGI) on the East Coast. n281 California has also tried to forge ahead in adopting greenhouse gas standards for new cars, trucks, and vans. Effective for the 2009 model year and later, rules proposed by the California Air Resources Board (CARB) will require manufacturers to reduce emissions of carbon dioxide and other greenhouse gases by 30 percent. The standards will apply to [\*463] automakers' fleet averages, rather than each individual vehicle, and automobile manufacturers are given the option of qualifying for credits through the use of alternative compliance strategies - such as the increased use of a [sic] less greenhouse gas intensive fuels ... in certain vehicles. n284 Under increased pressure from automobile manufacturers, the EPA is currently attempting to thwart California's effort on the grounds that the Clean Air Act already establishes stringent enough regulations. n285 Furthermore, Oregon, New Hampshire, Massachusetts, and Washington, call for regulation of carbon dioxide from electric power generators. Under the ... Washington law ... new power plants must offset twenty percent of their carbon dioxide emissions by planting trees, buying natural gas-powered buses or taking other steps to cure such emissions. n286 New Hampshire and Massachusetts laws apply to existing power plants, capping emissions and allowing plants to meet the standard through energy efficiency and credit trading. n287 In their assessment of worldwide action on climate change, David G. Victor, Joshua C. House, and Sarah Joy concluded that that the "fragmented "bottom-up' approach to carbon-trading ... is pragmatic and effective." n288 Despite these impressive strides and the claims put forth from Victor and his colleagues, however, local and regional efforts to combat climate change suffer from difficulties relating to design, fairness, and legality. 1. Design. Like RPS programs, state climate change policies lack consistency and harmony. Most states attempt to promote research, ensure economic stability, and encourage public and private cooperation. However, they tend to place very little [\*464] emphasis on mandatory standards, and they fail to create **predictable regulatory environments**. In other words, United States policy has so far provided "lots of carrots but without any sticks." n289 True to the devolved federalism thesis that states will act as laboratories of democracy, states have demonstrated great variability in addressing climate change. The states have, in short, created a "flurry of sub-federal activity" on climate change. n290 Thomas D. Peterson identified "over 200 specific policy actions with [greenhouse gas] objectives [that] are under development or have been implemented by the states... ." n291 These actions range from appliance standards to alternative fuel mandates for the transportation sector, industrial process regulations, and farm conservation programs. n292 They "use a variety of voluntary and mandatory approaches," such as codes and standards, permits, technical assistance, procurement, information, and education. n293 They also span different greenhouse-gas-emitting sources. Some focus on power supply, while others focus on transportation, land use, and waste management. n294 Even those that focus solely on particular greenhouse-gas-emitting sources such as electricity generators differ greatly. Some state standards are input-based, enabling allowances to be "auctioned to individual generators based on historical emissions or fuel input." n295 Some are load-based, allowing utilities to achieve carbon credits not from historical emissions or projections, but from real-time generation. Others are offset-based, enabling carbon-reducing actions such as the planting of trees to count. n296 Still others are set-aside-based, counting allowances retired by customers in the voluntary market through green power programs. n297 Such variability and experimentation, however, is becoming a weakness. The multitude of state greenhouse gas policies is more costly than a single, federal standard because it **creates complexity for investors**. State-by-state standards significantly increase the cost [\*465] for those attempting to conduct business in multi-state regions. n298 Statewide implementation programs also require separate inventory, monitoring, and implementation mechanisms to check progress against goals and provide feedback, adding to their cost. n299 And state programs provide incentives for local and regional actors to duplicate their research-and-development efforts on carbon-saving building technologies and energy systems, compromising efficiency. n300 Lack of a "**meaningful federal policy** on greenhouse gas emissions [also means that] investors in long-term energy assets such as power plants (the single greatest emitters of carbon dioxide) must make multibillion-dollar commitments without knowing what regulatory regime may exist in the future." n301 2. Free-riding and leakage. State-by-state action on climate change is prone to the "free rider" phenomenon. A very high "political hurdle" exists for state-level action on climate change, mainly "because [greenhouse gases] mix globally and have global impacts, local abatement actions pose local costs, yet deliver essentially no local climate benefits." n302 Utilities operating in a region that includes states with mandatory emissions regulations and those without have an extra incentive to build new power plants only in those without. For example, PacifiCorp, a utility serving customers in the Pacific Northwest, has repeatedly attempted to build coal-fired power plants in Wyoming and Utah, states without mandatory greenhouse gas reduction targets, but not in Oregon (which has mandated a stabilization of greenhouse gas emissions by 2010) and Washington (which has mandated 1990 levels by 2020). n303 The state-by-state patchwork of climate change policies, in other words, allows stakeholders to manipulate the existing market to their advantage. This is exactly what is happening in RGGI. RGGI is a carbon cap-and-trade program where fossil fuel plants are allotted a [\*466] certain number of allowances that permit emission of greenhouse gases. These allowances are based on the plant's historical emissions or the input of fuel needed to generate every unit of electricity, making it an "input-or generator-based" scheme. n304 Power plants that need more allowances than they are given must purchase them from another plant that has an excess number, retrofit old equipment, sequester carbon geologically or in algae, or purchase offsets. Offsets come in five categories: landfill methane capture, reductions of sulfur hexafluoride emissions, carbon sequestration due to reforestation or afforestation, reduction of fossil fuel use due to improved energy efficiency, and avoidance of methane emissions from agricultural manure management. n305 Over time, the total number of allowances is decreased, making it harder for generators to pollute. The design of the program, however, creates perverse incentives for generators to lower emissions by purchasing energy from fossil fuel plants in neighboring states that do not have carbon restrictions. Estimates for RGGI have shown leakage rates as high as sixty to ninety percent due to the importation of electricity alone, as power plants in adjacent states have increased their output to sell into the higher-priced electricity markets in RGGI states. n306 Since carbon emitted into the atmosphere has the same warming potential regardless of its geographic source, such gaming of the system does not result in meaningful carbon reductions. Localized climate action also sends **distorted price signals**. By lowering demand for carbon-intense products, state standards reduce the regional (and even global) price for carbon-intense fuels. But in doing so, they provide further incentives for nearby states without climate regulation to do nothing because of lowered prices. n307 Put another way, states acting on climate change depress the cost of fossil fuels and other carbon-intense commodities by lowering demand for them, and thus lowering their price. Yet reduced prices encourage over-consumption in areas without [\*467] carbon caps, decrease the incentive to enact energy efficiency and conservation measures, and discourage the adoption of alternative fuels for vehicles and renewable energy technologies. After assessing state and local climate change programs, for example, Robert B. McKinstry, Jr. noted that without coordinated action, "reduction in demand for fossil fuel in the industrial sector may keep prices down and encourage growth in the transportation sector. Similarly, in the short run, reductions required in one state may benefit competitors operating in states that do not require reductions." n308 The danger of this free riding and leakage is threefold. Most obviously, it undermines the environmental effectiveness of any restrictions on greenhouse gas emissions, and if leakage exceeds 100 percent (something possible given the experiences with RGGI), net emissions of greenhouse gases could hypothetically **increase**. n309 Even if physical leakage does not occur, the fear of leakage and its adverse effects on economic competitiveness may create political obstacles to meaningful climate change action. n310 Finally, leakage has a tendency to lock in asymmetries between carbon-intensive and climate-friendly regions and commit nonparticipants to a path of future emissions. As leakage proceeds over time, it shifts greenhouse gas emissions from regulated regions to unregulated ones. It thereby renders the unregulated region's economy more emissions-intensive than it otherwise would have been, making it more difficult to persuade communities that initially decided to avoid participation ever to commit to greenhouse gas reductions. n311 3. Legality. As is the case with state RPSs, state action on climate change risks constitutional challenge under the Compacts Clause of the constitution (states are not permitted to form compacts with each other) and the Supremacy Clause (federal regulation preempts contradicting state law). n312 The Clean Air Act expressly prohibits [\*468] state regulation of vehicle emissions standards. n313 Likewise, by mandating national corporate fuel economy standards, the federal government preempts state regulations related to the efficiency of automobiles. This means that most states are unable to legally address carbon emissions from the transportation sector (thus the current battle between California and the EPA). n314 4. Insufficiency. Finally, even the most aggressive climate statutes will make only a negligible contribution to offsetting greenhouse gas emissions. In the Northeast, states with mandatory greenhouse gas regulations all rank relatively low in greenhouse gas emissions, with the exceptions of New York and New Jersey (which rank ninth and seventeenth respectively). According to the EIA, by 2030, total energy-related carbon dioxide emissions in the United States will equal approximately 8.115 billion metric tons per year, equal to a sixty-two percent increase from 1990 levels with an average increase of 1.2 percent per year. n315 "Yet those states that had committed to achieving time-bounded, quantitative reduction targets for greenhouse gas emissions as of 2006 accounted for only around twenty percent of nationwide emissions in 2001." n316 Even if all attained their targets, which is not certain, state policies would result in a reduction of around just 460 million metric tons of carbon dioxide by 2020, or a reduction of 6.38 percent compared to business as usual. Furthermore, the other states would not just offset these gains; the overall growth rate still would increase at 1.06 percent each year. n317 [\*469] A few examples help prove this point. If Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, and Tennessee were considered a country, it would rank fifth in the world for greenhouse gas emissions, ahead of even India and Germany - yet none of these states have mandatory greenhouse gas targets. n318 Similarly, on the West Coast, most states emit more greenhouse gases than a majority of countries on the planet: California exceeds the emissions of 211 nations; Arizona and Colorado, 174 nations each; Oregon, 151 nations; and Idaho, 129 nations. n319 The scale of the challenge is enormous, and as Scott Segal from the Electric Reliability Coordinating Council put it, "the notion that any one state or group of states could make a material contribution to solving the problem [of global climate change] is **farcical**." n320 Local and state efforts to address climate change are also inadequate in a second sense: they do nothing to significantly reduce ambient levels of carbon dioxide. Jonathan B. Wiener argues that no single city, state, or region can effectively control ambient levels of carbon dioxide and other greenhouse gases on its own. n321 Ambient concentrations of carbon dioxide are determined only by worldwide concentrations in the atmosphere. Wiener concludes that the nature of greenhouse gas emissions demonstrates why attempts to regulate carbon dioxide as a pollutant under the National Ambient Air Quality Standards and State Implementation Plans of sections 109 and 110 of the Clean Air Act will face immense challenges. **No state mechanism**, in isolation, could attain serious reductions in the ambient level of CO2 without significant international cooperation. n322 As a result, state-by-state reductions do not lower emissions quickly enough nor do they reduce ambient levels of carbon dioxide. They "are nowhere near the magnitude of reductions needed to bring the United States into compliance with the Kyoto Protocol's call for reductions of five percent below 1990 levels from 2008 to 2012 - much less the reductions needed to avert [\*470] "dangerous anthropogenic interference with the climate system.'" n323 V. Part Four: The Case for Federal Interaction The above examples with state-based RPS and climate change policies demonstrate that there are situations in which federal interaction is desirable, or even essential, to avoid many of the shortcomings presented by centralized, devolved, and dual federalist attempts to protect the environment. As a rule of environmental policy, such examples seem to suggest that the prevalence of four distinct conditions warrant federal interaction. First, general agreement must exist on the magnitude of the environmental problem, and existing state actions must be insufficient to prevent it. n324 Unless the worst offenders can be persuaded to join them, state and regional attempts to improve the environment, particularly when they are voluntary, will do little to substantially enhance environmental quality. As the previous section on renewable energy and climate change demonstrates, this is **especially the case** concerning renewable energy (which will grow to only four percent of national capacity by 2030 under state initiatives) and greenhouse gases (where state action will do nothing to slow, let alone equalize or reverse, emissions). Second, the states must face constitutional challenges to dealing with the problem individually. Innovative state programs dealing with interstate spillovers will always face challenges alleging that they interfere with interstate commerce under the dormant commerce clause. Moreover, attempts to forge interstate and international cooperation face legal questions based upon the Compacts Clause and the Supremacy Clause of the Constitution. For these reasons, federal interaction is needed to remove the underlying tensions between state-by-state environmental action and the United States Constitution. Third, the existing state regulatory environment must impose additional costs on businesses and consumers. Differing state statutes can complicate efforts to conduct business in multiple states. They risk creating incentives for multiple firms to duplicate costly research and development. And they can significantly increase transaction costs associated with enforcing and [\*471] monitoring a plethora of distinct individual programs. Federal interaction can provide investors with a level of **simplicity and clarity** needed to facilitate sound decisions. n325 Redundant and overlapping state regulation can **lead to confusion**, high compliance costs, and a drag on otherwise beneficial activities. A multiplicity of regulators that do not match well with an underlying social ill can lead to a regulatory commons problem, where neither potential regulators nor those desiring regulation know where to turn. n326 Fourth, the matching principle must illustrate that the proper scale in addressing the problem is national or international, not local. When problems are national or international in scale, the matching principle in environmental law suggests that the level of jurisdictional authority should best "match" the geographic scale of that very problem. n327 The current state-by-state approach ensures that the distribution of the costs and benefits of providing public goods remains **uneven and asymmetrical**. n328 Generally, it is more efficient and effective to address national or international environmental problems through **institutions of equivalent scope** of the problem in question. The matching principle ensures that "ecologies of scale" are created so that environmental degradation or pollution extending beyond individual state borders can be addressed. n329 When interstate spillovers or public goods are involved, federal intervention is needed to equalize disparities between upstream and downstream communities. n330 [\*472] The **historical support** for federal interaction based on these four conditions seems strong. Examples of areas where state action made the way for an eventual federal statute include air quality, low emissions vehicles, hazardous waste, water quality, land reclamation, energy efficiency, acid rain, mercury emissions, and wetlands development. When Congress wants uniformity but still wants to enable the states to experiment, it can allow for the development of a single standard met by all of the states themselves, but should set a "floor" instead of a "ceiling." Federal floors allow for greater state stringency, as well as diversity and creativity in implementing federal regulatory standards. Especially in the setting of environmental regulation, with its developed delegated program structure, the process of setting federal floors can achieve many of the benefits of both devolution and centralization at once. n331 Congress did something similar with the Clean Air Act of 1965, which allowed California to establish air pollution emission standards for vehicles. All other states were given the opportunity to adopt California's standards or remain subject to the federal standards developed by the Environmental Protection Agency. n332 Similarly, California implemented its Low Emission Vehicle Standards (Cal LEV) in the 1990s, well before a national standard. n333 California mandated that the state phase in four categories of progressively lower-emitting vehicles. The automobile industry reacted negatively, fearing the spread of California's stringent standards. The federal government brokered a compromise in which the industry produced automobiles meeting nationally uniform standards that were less stringent than California's but more stringent than the existing ones. The states were free to adopt nationally low emission vehicles (NLEV) or Cal LEV, but not both. n334

#### Key to offshore wind expansion – only federal leadership solves

NREL, 10 [National Renewable Energy Laboratory, “Large-Scale Offshore Wind Power in the United States ASSESSMENT OF OPPORTUNITIES AND BARRIERS September 2010 <http://www.nrel.gov/wind/pdfs/40745.pdf>]

In the United States, more than 2,000 MW of offshore wind projects are in the permitting process but none have yet been installed. Uncertainty and projections of lengthy timelines **have motivated states to encourage offshore wind development** in their near-shore **waters**. By doing this, state governments hope to lock in early manufacturing investments, which would strategically position them to capture the economic benefits of the future offshore wind build-out. In many instances, state-sponsored projects appear to be moving ahead of projects under federal agency jurisdiction. **Projects in** state waters face a unique set of challenges including a patchwork of rules and permits, **along with gaps in leasing**, zoning, and fee structures for using the seabed. Siting projects in state waters could accelerate the deployment of offshore wind energy, but this must be done carefully to avoid problems related to regulatory uncertainties, aesthetic issues (arising from the close proximity to the coast),9and other public concerns about uses of the coastal waters (see Section 7). A positive trend is the coalescence of regional entities directing efforts to assuage public and regulatory concerns and minimize siting conflicts arising from offshore wind development. Several groups, such as the USOWC, AWEA’s OWWG, the AOWEC, OffshoreWindDC, the Clean Energy States Alliance (CESA), and the GLWC are building stakeholder relationships. Maryland, Virginia, and Delaware have also signed an MOU to collaborate on offshore wind issues. **Many groups have identified a need to coordinate offshore issues among the states,** but they will need federal leadership, technical guidance, and financial resources.

#### 50 state fiat is a voting issue for deterrence - no single actor controls both federal and state policies, no literature for uniform 50 state action makes AFF offense impossible and kills effective research skills

#### Perm do both – shields the link to politics

Overby 3 – A. Brooke, Professor of Law, Tulane University School of Law, “Our New Commercial Law Federalism.” Temple University of the Commonwealth System of Higher Education Temple Law Review, Summer, 2003 76 Temp. L. Rev. 297 Lexis

We held in New York that Congress cannot compel the States to enact or enforce a federal regulatory program. Today we hold that Congress cannot circumvent that prohibition by conscripting the States' officers directly. The Federal Government may neither issue directives requiring the States to address particular problems, nor command the States' officers, or those of their political subdivisions, to administer or enforce a federal regulatory program. It matters not whether policymaking is involved, and no case-by-case weighing of the burdens or benefits is necessary; such commands are fundamentally incompatible with our constitutional system of dual sovereignty.n65 The concerns articulated in New York and echoed again in Printz addressed the erosion of the lines of political accountability that could result from federal commandeering.n66 Federal authority to compel implementation of a national legislative agenda through the state legislatures or officers would blur or launder the federal provenance of the legislation and shift political consequences and costs thereof to the state legislators. Left unchecked, Congress could foist upon the states **expensive or** unpopular programs yet shield itself from accountability to citizens**.** While drawing the line between constitutionally permissible optional implementation and impermissible mandatory implementation does not erase these concerns with accountability, it does ameliorate them slightly.

#### The cp doesn’t solve federal waters which is where turbines have to be located

NREL, 10 [National Renewable Energy Laboratory, “Large-Scale Offshore Wind Power in the United States ASSESSMENT OF OPPORTUNITIES AND BARRIERS September 2010 <http://www.nrel.gov/wind/pdfs/40745.pdf>]

Implementing an actual project will be important to assessing how the regulation works in practice, because several uncertainties remain. One uncertainty is estimating the time it takes from the initial bidding process to securing a permit for constructing a project. As noted previously, sequential NEPA analyses will take significantly longer to complete than combined analyses. Also, regulatory steps such as combining the lease sale and site assessment activities into one review will reduce potential timelines (MMS 2009b). Another uncertainty remains in how current projects under development, especially those with a limited lease, will be able to convert their lease to a commercial lease, and how the data they gather, such as resource assessments, will be handled, because of privacy concerns. Additionally, **states** have begun to hold competitive bids to preselect preferred developers for offshore wind, and the relationship to the federal process is still unclear. Finally, questions remain as to how developers will fulfill the needs of various reporting requirements. Although **most utility-scale developments will** probably take place in federal waters in the long term, to expedite initiation of offshore wind and the benefits to local and regional economies, projects may be developed first in state waters (Dhanju and Firestone 2009). On the other hand, state projects will also face unexpected hurdles such as PPA approvals and legal gaps such as provisions for conveying state submerged lands. Examples include Deepwater Wind’s Block Island project, Fisherman’s Energy’s near-shore New Jersey

### AT: DA

#### No China war

Robert J. **Art**, Fall 20**10** Christian A. Herter Professor of International Relations at Brandeis University and Director of MIT's Seminar XXI Program The United States and the rise of China: implications for the long haul Political Science Quarterly 125.3 (Fall 2010): p359(33)

The workings of these three factors should make us cautiously optimistic about keeping Sino-American relations on the peaceful rather than the warlike track. The peaceful track does not, by any means, imply the absence of political and economic conflicts in Sino-American relations, nor does it foreclose coercive diplomatic gambits by each against the other. What it does mean is that the conditions are in place for war to be a low-probability event, if policymakers are smart in both states (see below), and that an **all-out war is** nearly **impossible** to imagine. By the historical standards of recent dominant-rising state dyads, this is no mean feat. In sum, there will be some security dilemma dynamics at work in the U.S.-China relationship, both over Taiwan and over maritime supremacy in East Asia, should China decide eventually to contest America's maritime hegemony, and there will certainly be political and military conflicts, but nuclear weapons should work to mute their severity because the security of each state's homeland will never be in doubt as long as each maintains a second-strike capability vis-a-vis the other. If two states cannot conquer one another, then the character of their relation and their competition **changes dramatically**. These three benchmarks--China's ambitions will grow as its power grows; the United States cannot successfully wage economic warfare against a China that pursues a smart reassurance (peaceful rise) strategy; and Sino-American relations are not doomed to follow recent past rising-dominant power dyads--are the starting points from which to analyze America's interests in East Asia. I now turn to these interests.

**No impact to the Chinese economy and the response measures check**

Coonan 08 (10/25, Clifford, IrishTimes.com, “China's stalling boom has globe worried,” <http://www.irishtimes.com/newspaper/opinion/2008/1025/1224838827729.html>

All of this downbeat news feeds into a growing suspicion that China has had its cake and eaten for way too long, and that there is simply no precedent for a country growing and growing without some kind of respite. Establishing what that pause will look like and what it means to the rest of the world is the latest challenge facing global analysts. A hangover is considered inevitable and the Olympics, while meaningless economically, are widely considered the psychological trigger for China to face a slowdown. Despite all this gloom, however, writing China off is premature. The Beijing government is well placed to help protect the economy from the worst ravages of a global downturn. It has spent the last two years trying to fight inflation and cool the overheating economy, so it's a lot easier for it to take the foot off the brakes than it is to put them on in the first place. The central bank has lowered its benchmark interest rate twice in the past two months, the first time in six years. The State Council is increasing spending on infrastructure, offering tax rebates for exporters and allowing state-controlled prices for agricultural products to rise. Expect significant measures to kick-start the property market to avoid house prices falling too drastically. China has a lot of plus points to help out. Chinese banks did not issue subprime loans as a rule, and the country's €1.43 trillion in hard-currency reserves is a useful war chest to call on in a downturn*.* The currency is stable and there are high liquidity levels, all of which give China the most flexibility in the world to fend off the impact of the global financial crisis, says JP Morgan economist Frank Gong. China is now a globalised economy, but its domestic market is still massively underexploited, and it is to this market that the government will most likely turn. While it is a globalised economy committed to the WTO, China is also a centralised economy run by the Communist Party, and it has no real political opposition at home to stop it acting however it sees fit to stop sliding growth. Should the economy start to worsen significantly, public anger will increase, but China has been so successful in keeping a tight leash on the internet and the media that it is difficult for opposition to organise itself in a meaningful way. Recent years of surging growth in China have certainly done a lot to keep global economic data looking rosy, but perhaps China's influence has been somewhat oversold*.* It is not a big enough economy by itself to keep the global economy ticking over, accounting for 5 per cent of the world economy, compared to the United States with a muscular 28 per cent. And whatever about slowing growth, 9 per cent is still an admirable rate, one that European leaders gathered this weekend in Beijing for the Asian-Europe Meeting would give their eye teeth to be able to present to their constituencies.

#### Prices are headed back to $7

**Hurdle**, writer for the Main Wire, 9/14/**2012** (Jon, “U.S. Natgas Prices Firming on Lower Production,” Lexis)

While the upcoming winter is an important price determinant that can't be predicted far in advance, **the market is unlikely to see a return to its low and is headed to levels at which producers can return to making money**, predicted Aubrey McClendon, chief executive of Chesapeake Energy Corp., the second-biggest U.S. natural gas producer with about 10% of aggregate output.¶ In a presentation to energy analysts on Sept. 6, McClendon predicted **the days of $2 to $3 gas will be** "**quickly over**" but the market won't return to the $8 to $10 range. He said **it's likely in coming years to trade between $4 and $7** where there is "a lot of money to be made."

#### Prices won’t stay down

**Lesser, 13 -** Dr. Jonathan Lesser is the founder and President of Continental Economics, Inc., an economic and litigation consulting firm providing services to utilities, industry, and regulators on a broad array of market, regulatory, investment, and environmental issues affecting all segments of the energy industry in the U.S., Canada, and Latin America (“Wind Generation Patterns and the Economics of Wind Subsidies” The Electricity Journal, Volume 26, Issue 1, January–February 2013, Pages 8–16, Science Direct)

IV. Policy Implications

Our analysis shows that continued subsidies for wind generation represent both bad economics and bad energy policy, for at least three reasons. First and foremost, wind generation's production pattern not only is volatile and unpredictable, but even more significantly, has low economic value. Rather than displacing high-variable-cost fossil generating resources used to meet peak demand, wind generation's observed availability peaks when electricity demand is lowest. As a result, wind generation tends to displace low-variable-cost generation or simply forces baseload generators to pay greater amounts to inject power onto the grid because the units cannot be cycled cost-effectively. The low economic value of wind power is comparable to the government paying farmers to plow under high-value crops in order to plant low-value ones, or even weeds.

Second, as with all subsidies, subsidized wind generation distorts electric markets by artificially lowering electric prices in the short run, but leads to higher prices in the long run. This imposes economic harm on competitive generators and consumers, **thus** reducing economic growth.

Third, because geographic dispersion of wind resources does not address inaccurate forecasts of wind availability, additional fossil generating resources are required to maintain system reliability. Moreover, geographic dispersion requires billions of dollars to be spent on additional transmission lines. These costs, along with most of the system integration costs, are socialized across all grid customers, that is, borne by all generators and, ultimately, consumers. In other words, wind generation imposes external costs on other market participants.

After 35 years of direct and indirect subsidies, there is no economic rationale for continued subsidization of wind generation. At the federal level, direct subsidies, such as the federal **PTC**, **should not be continued**. State-level subsidies, whether feed-in tariffs established by state regulators or statutory RPS mandates, further exacerbate market distortions and raise electricity prices, again to the detriment of consumers.

#### Natural gas prices will keep increasing despite flat consumption—that impacts sectors throughout the economy

Schwartzel, 13 [Erich Schwartzel, Pittsburgh Post-Gazette, Expert on Fracking, visited Pappas’ Public Policy Class and was part of a round table discussion that consisted of Barry Rabe, professor at UM and others, really funny too, “U.S. report predicts rising natural gas prices in 2013-14”, <http://www.post-gazette.com/stories/business/news/us-report-predicts-rising-natural-gas-prices-in-2013-14-669602/>]

The average price of natural gas is expected to increase by almost a dollar in 2013, hitting $3.74 per million British thermal units. That's a significant jump from the $2.75 average seen last year, when accelerated drilling created a glut in supply that caused prices to drop and made drilling in many places unprofitable. **Increases are expected to** continueinto2014, when prices are predicted to hit $3.90. The EIA report released Tuesday is the first look into 2014 for the domestic and international energy scene, and it includes projections that could affect gas and coal activity in Pennsylvania and surrounding states. Higher gas prices would send reverberationsacross multiple sectors, helping coal become competitive with natural gas again as an electricity source and allowing drillers to broaden their focus beyond shale formations that are rich in oil. In addition, the federal energy agency projects increased domestic oil production will break new records over the next couple of years and eventually lead to lower prices at the gasoline station. The report is the latest set of tea leaves for an industry that's been in flux: Enthusiasm for drilling was tempered in recent years by economic realities that made it risky for every rig to turn a profit. The low prices made natural gas an easy sell to large, industrial customers who consume a lot of energy, but slowed lease activity as companies waited for prices to rebound. If natural gas prices continue an upward trend toward $4 per mcf, companies that had drilled wells but weren't bringing the gas to market could decide it is worth hooking those wells up to pipelines and selling the gas, said Adam Sieminski, the EIA administrator. Natural gas consumption, meanwhile, is expected to be relatively flat in 2013, though the EIA forecasts an increase in its use to heat homes and offices over the next two years. Consumption in 2012 was low due to an unnaturally warm winter. Over the next several years, **the EIA's projections** call for a steady rise in natural gas prices, said Mr. Sieminski, "continuing to go up to $5 or $6 in the longer term." That would be welcome news to drillers who found the bargain-basement prices unsustainable for rapid-fire drilling in the Marcellus region, which includes much of Pennsylvania, and in other shale formations around the country. Companies in recent years have concentrated on shale regions where more lucrative oil and natural gas liquids are housed, and a rise in regular natural gas prices "might turn the drift from natural gas to oil around," said Mr. Sieminski. Pennsylvania gets one shout-out in the administration's Short-Term Energy Outlook, with researchers saying Marcellus production "continues at a strong pace as producers target oil-and-gas wells." Nationwide, the natural gas rig count was at 431 at the end of 2012 -- almost half of the 811 rigs seen in the beginning of the year. But domestic gas production is expected to remain relatively steady despite the drop in rig count, which the EIA said suggests greater rig efficiency in extracting more gas from a single location.

#### And, shale gas is physically and economically unsustainable—continued reliance dashes expectations of future supply

Heinberg, 10/22/12 [Richard, He is Senior Fellow-in-Residence of the Institute and is widely regarded as one of the world’s foremost Peak Oil educators, He has authored scores of essays and articles that have appeared in such journals as Nature, The Ecologist, The American Prospect, Public Policy Research, Quarterly Review, Z Magazine, Resurgence, The Futurist, European Business Review, Earth Island Journal, Yes!, Pacific Ecologist, and The Sun; and on web sites such as Alternet.org, EnergyBulletin.net, TheOilDrum.com, ProjectCensored.com, and Counterpunch.com.¶ He has appeared in many film and television documentaries, including Leonardo DiCaprio’s 11th Hour, is a recipient of the M. King Hubbert Award for Excellence in Energy Education, and in 2012 was appointed to His Majesty the King of Bhutan's International Expert Working Group for the New Development Paradigm initiative, “Gas Bubble Leaking, About to Burst”, <http://www.postcarbon.org/blog-post/1262435-gas-bubble-leaking-about-to-burst>]

In those early days almost no one wanted to hear about problems with the shale gas boom—the need for enormous amounts of water for fracking, the high climate impacts from fugitive methane, the threats to groundwater from bad well casings or leaking containment ponds, as well as the unrealistic supply and price forecasts being issued by the industry. I recall attempting to describe the situation at the 2010 Aspen Environment Forum, in a session on the future of natural gas. I might as well have been claiming that Martians speak to me via my tooth fillings. After all, the Authorities were all in agreement: The game has changed! Natural gas will be cheap and abundant from now on! Gas is better than coal! End of story! These truisms were echoed in numberless press articles—none more emblematic than Clifford Krauss’s *New York* *Times* piece, “[There Will Be Fuel](http://www.nytimes.com/2010/11/17/business/energy-environment/17FUEL.html?pagewanted=all),” published November 16, 2010. Now Krauss and the *Times* are singing a somewhat different tune. “[After the Boom in Natural Gas](http://www.nytimes.com/2012/10/21/business/energy-environment/in-a-natural-gas-glut-big-winners-and-losers.html?pagewanted=1&tntemail1=y&_r=1&emc=tnt),” co-authored with Eric Lipton and published October 21, notes that “. . . the gas rush has . . . been a money loser so far for many of the gas exploration companies and their tens of thousands of investors.” Krauss and Lipton go on to quote Rex Tillerson, CEO of ExxonMobil: “We are all losing our shirts today. . . . We’re making no money. It’s all in the red.” It seems gas producers drilled too many wells too quickly, causing gas prices to fall below the actual cost of production. Sound familiar? The obvious implication is that one way or another **the market will balance itself out**. Drilling and production will decline (drilling rates have already started doing so) **and** prices will rise until production is once again profitable. So we will have less gas than we currently do, and gas will be more expensive*.* Gosh, whoda thunk? The current Times article doesn’t drill very far into the data that make Berman and Hughes pessimistic about future unconventional gas production prospects—the high per-well decline rates, and the tendency of the drillers to go after “sweet spots” first so that future production will come from ever-lower quality sites. For recent analysis that does look beyond the cash flow problems of Chesapeake and the other frackers, see “[Gas Boom Goes Bust](http://www.theoildrum.com/node/8900)” by Jonathan Callahan, and Gail Tverberg’s latest essay, “[Why Natural Gas isn’t Likely to be the World’s Energy Savior](http://ourfiniteworld.com/2012/10/17/why-natural-gas-isnt-likely-to-be-the-worlds-energy-savior/)”. David Hughes is working on a follow-up report, due to be published in January 2013, which looks at unconventional oil and gas of all types in North America. As part of this effort, he has undertaken **an** exhaustive analysis of 30 different shale gas plays and 21 shale/tight oil plays—over 65,000 wells altogether. It appears that the pattern of rapid declines and the over-stated ability of shale to radically grow production is true across the U.S., for both gas and oil. In the effort to maintain and grow oil and gas supply, Americans will effectively be chained to drilling rigs to offset production declines and meet demand growth, and will have to endure collateral environmental impacts of escalating drilling and fracking. No, shale gas **won’t entirely go away** anytime **soon. But** expectations of continuing low prices (which drive business plans in the power generation industry and climate strategies in mainstream environmental organizations) are about to be dashed. And notions that the U.S. will become a major gas exporter, or that we will convert millions of cars and trucks to run on gas, now ring hollow.

#### And, that ensures catastrophic price spikes

Maize, 12/1/12 [“Is Shale Gas Shallow or the Real Deal?”, Kennedy, Veteran Journalist¶ Kennedy Maize has spent the past 40 years working as a journalist, analyst, and manager in the private sector and federal government, with over 35 years of that focused on energy and environmental topics. Over that time, he has seen myriad examples of how group think, policy fads, and bad judgment can result in colossal failures, particularly in the field of atomic energy. Maize has seen, up close and personal, the demise of the U.S. Atomic Energy Commission, the arrival of the U.S. Nuclear Regulatory Commission, the birth of the U.S. Department of Energy, the failures of nuclear flight, the hubris of atomic earthmoving, the boom and bust uranium market, the birth and death of breeder reactors, and the 60-year wandering in the wilderness of nuclear waste policy. After graduating from Penn State and graduate study at the University of Maryland, Kennedy Maize worked for newspapers in Pennsylvania, New York, and Virginia and the Associated Press in Baltimore. He then spent five years in management at the National Institute of Health and the U.S. Nuclear Regulatory Commission before taking a job covering energy, environment, and business topics for Editorial Research Reports, a division of Congressional Quarterly, where his work appeared in over 1,000 daily newspapers in the U.S. during the mid-to-late 1970s. Maize became a staff writer and editor at The Energy Daily, a preeminent energy trade paper, on March 28, 1979, the day the Three Mile Island accident began outside Harrisburg, Pa. Over more than 10 years at The Energy Daily, he covered the nuclear and coal industries, including stories involving the Clinch River Breeder Reactor, the U.S. Synthetic Fuels Corp., the Powder River Basin coal leasing scandal, and the Chernobyl explosion. In 1993, he founded The Electricity Daily, where he was the editor for 14 years, writing about changes in the electricity business, the rise and fall of Enron, the stagnation of the nuclear power business, and the arrival of market forces in the utility field. Since 2006, he has been an editor at POWER magazine, and the founder of MANAGING POWER magazine, where he has written about the Fukushima catastrophe, the emergence of shale gas and decline of coal, and the often ill-advised push for renewable electricity technologies¶ http://www.powermag.com/gas/Is-Shale-Gas-Shallow-or-the-Real-Deal\_5188.html]

In an interview with POWER, Berman argued that the boom in drilling shale gas wells has obscured a long-term decline in conventional gas supply. But **a coming rapid decline in shale production**, he said, will soon reveal the overall limits to the gas boom, and volatility and upward pressure could return to natural gas prices. “It’s not a problem for today or tomorrow,” Berman said, “but it is coming. Once we work through the current oversupply, if capital is not forthcoming,” prices will spike. The gas supply bubble will burst.¶ Because of the current gas glut, with long prices in the range of $3 per million cubic feet (mcf), drilling shale gas wells has tanked, noted Berman. Chesapeake Energy, the most bullish of the shale gas players, is selling assets and shifting rigs to drilling for oil because the company just can’t make money on $3 gas. “I can see a time not too many months away when we could see gas supply in rather serious decline,” Berman said, noting that “there is plenty of gas, but it takes a long time to shift momentum back” to gas drilling. At a 2010 meeting in Washington, as low gas prices were resulting in a decline in new drilling, Berman commented, “Shale plays are marginally commercial at best.”¶ Greatly complicating the supply equation, said Berman, is the nature of shale gas wells. “Shale wells decline 30 to 40% per year,” he said. “Conventional wells decline 20 to 25%. What most don’t grasp is how many wells it takes just to keep supply flat.”¶ In the Barnett Shale in Texas, where Berman is most familiar with the geology, he calculates that the annual decline in the gas resource is 1.7 bcf/day. In order to add to the net Barnett production, Berman says, companies would have to drill 3,880 wells, at a cost of $12 billion.¶ “We are setting ourselves up for a potential reduction in supply and price will go up,” said Berman. “I don’t know how much it will go up, and there is a check-and-balance with coal. There will be gas-coal switching if prices do go much higher than now.”

**Plan solves maritime industry**

**Weakley 8** – Realize America’s Maritime promise, Harbor Maintenance Trust Fund Fairness Coalition, testimony of James Weakley the president of the Lake Carriers’ Association (James, “Realize America’s Maritime Promise,” Harbor Maintenance Trust Fund Fairness Coalition, 4/30/08, http://www.ramphmtf.org/speeches\_043008.html)

Port-related jobs are critical to augment our economy**.** Direct and indirect jobs generated by ports result in the employment of more than 8 million Americans who earned and spent $314.5 billion in 2006. Every $1 billion in exports alone creates an estimated 15, 000 new jobs. In Texas alone one in every four jobs is linked to trade. America´s deep-draft navigation system is at a crossroads, with a future that can be bright or bleak. Our waterways´ ability to support the Nation?s continuing growth in trade and in the defense of our Nation, hinges on much-needed Federal attention to unresolved funding needs that are derailing critical channel maintenance and deep-draft construction projects of the water highways to our ports. Because most ports do not have naturally deep harbors, they must be regularly dredged to allow ships to move safely through Federal navigation channels. Also, as modern vessels increase in size, navigation channel depths must increase accordingly, if we are to continue to be a player on the international marketplace. A recent U.S. Army Corps of Engineers study reports that almost 30 percent of the 95, 550 vessel calls at U.S. ports are constrained due to inadequate channel depths. Ladies and gentlemen, these are the things that cause port directors nightmares. Without a channel dredged to its authorized depth, nothing else comes into play. Attracting new customers, dealing with labor issues, environmental concerns, and the public - all go away - because without a properly-dredged channel, business goes away. Public ports are at a critical state in keeping their channels open for business. We are losing existing business and potential new business to ports outside of the United States and once lost, it is rarely regained. **Dredging can literally make or break our industry,** and a lack of dredging is an issue throughout the United States. In fact, it is not an overstatement to say that in many parts of the United States, we face a dredging crisis. On the Great Lakes, as Chairman James L. Oberstar of this Committee and Chairman David R. Obey of the Appropriations Committee well know, decades of inadequate funding for dredging have left a backlog of 18 million cubic yards of sediment. The U.S. Army Corps of Engineers estimates removing the backlog will cost more than $230 million on the Great Lakes alone. In some cases, ports on the Great Lakes have actually shutdown due to inadequate dredging. There are similar examples of dredging problems in ports and harbors on all coasts of our Nation. In many cases, vessels must load light because of dredging shortfalls. The economic implications of light loading are enormous. On the Great Lakes, for example, **vessels lose** between 50 to **270 tons of cargo for each inch they** must **reduce their draft** and, in some areas, the lost draft is measured in feet, not inches. Light loading because of inadequate dredging impacts everyone. A ship that is light-loaded reduces its efficiencies in the same way that a commercial airplane that is required to set aside seats with no passengers would quickly lose its efficiencies.

#### naval power --- maritime and shipping industry are key

**NLUS 12** (Navy League of the United States, Since 1902, the NLUS has sought to provide a stronger sea voice to Congress and to the American people, “America’s Maritime Industry: the Foundation of American Seapower,” May 7, 2012, http://www.navyleague.org/files/americas-maritime-industry.pdf)

The American Maritime Industry also contributes to our national defense by sustaining the shipbuilding and repair sector of our national defense industrial base upon which our standing as a seapower is based. History has proven that **without a strong maritime infrastructure** —shipyards, suppliers, and seafarers— **no country can hope to build and support a Navy** of sufficient size and capability to protect its interests on a global basis. Both our commercial and naval fleets rely on U.S. shipyards and their numerous industrial vendors for building and repairs. The U.S. commercial shipbuilding and repair industry also impacts our national economy by adding billions of dollars to U.S. economic output annually.

#### Reliance on naval power is inevitable --- only effective naval projection capabilities solve great power war

**England 11** (Gordon England, former secretary of the Navy, James L. Jones, former commandant of the Marine Corps, Vern Clark, former chief of naval operations, Wall Street Journal, July 11, 2011, “The Necessity of U.S. Naval Power”)

All our citizens, and especially our servicemen and women, expect and deserve a thorough review of critical security decisions. After all, decisions today will affect the nation's strategic position for future generations. The future security environment underscores two broad security trends. First, international political realities and the internationally agreed-to sovereign rights of nations will increasingly limit the sustained involvement of American permanent land-based, heavy forces to the more extreme crises. This will make offshore options for deterrence and power projection ever more paramount in support of our national interests. Second, the naval dimensions of American power will re-emerge as the primary means for assuring our allies and partners, ensuring prosperity in times of peace, and countering anti-access, area-denial efforts in times of crisis. We do not believe these trends will require the dismantling of land-based forces, as these forces will remain essential reservoirs of power. As the United States has learned time and again, once a crisis becomes a conflict, it is impossible to predict with certainty its depth, duration and cost. That said, the U.S. has been shrinking its overseas land-based installations, so the ability to project power globally will make the forward presence of naval forces an even more essential dimension of American influence. What we do believe is that uniquely responsive Navy-Marine Corps capabilities provide the basis on which our most vital overseas interests are safeguarded. Forward presence and engagement is what allows the U.S. to maintain awareness, to deter aggression, and to quickly respond to threats as they arise. Though we clearly must be prepared for the high-end threats, such preparation should be made in balance with the means necessary to avoid escalation to the high end in the first place. The versatility of maritime forces provides a truly unmatched advantage. The sea remains a vast space that provides nearly unlimited freedom of maneuver. Command of the sea allows for the presence of our naval forces, supported from a network of shore facilities, to be adjusted and scaled with little external restraint. It permits reliance on proven capabilities such as prepositioned ships. Maritime capabilities encourage and enable cooperation with other nations to solve common sea-based problems such as piracy, illegal trafficking, proliferation of W.M.D., and a host of other ills, which if unchecked can harm our friends and interests abroad, and our own citizenry at home. The flexibility and responsiveness of **naval forces provide** our country with **a** general **strategic deterrent** in a potentially violent and unstable world. Most importantly, our naval forces project and sustain power at sea and ashore at the time, place, duration, and intensity of our choosing. Given these enduring qualities, tough choices must clearly be made, especially in light of expected tight defense budgets. The administration and the Congress need to balance the resources allocated to missions such as strategic deterrence, ballistic missile defense, and cyber warfare with the more traditional ones of sea control and power projection. The maritime capability and capacity vital to the flexible projection of U.S. power and influence around the globe must surely be preserved, especially in light of available technology. Capabilities such as the Joint Strike Fighter will provide strategic deterrence, in addition to tactical long-range strike, especially when operating from forward-deployed naval vessels. Postured to respond quickly, the Navy-Marine Corps team integrates sea, air, and land power into adaptive force packages spanning the entire spectrum of operations, **from** everyday cooperative security activities to unwelcome—but not impossible—**wars between major powers.** This is exactly what we will need to meet the challenges of the future.

### AT Immigration

#### Keystone thumps

David Lewis (writer for The Energy Collective) February 4, 2013 “Rethinking Opposition to Keystone XL” http://theenergycollective.com/david-lewis/180651/rethinking-opposition-keystone-xl

The Keystone Pipeline is the environmental litmus test for this President, for the new generation, the rising generation of environmentalists in particular. This is their first big fight on the environment. It was their first big victory more than a year ago. If the President takes that victory away from them, he is going to break the hearts of an entire generation of young people, whom he’s expecting to stay in his coalition through the midterms and beyond, and I think he should do the right thing by them, but also, frankly, do the right thing not just by the young people today, but by their children and their grandchildren. The tar sands are the dirtiest, most dangerous fuels on Earth. They should not come out of the ground. They certainly should not come through the United States. It’s not just a litmus test issue, it’s a leadership issue. Is he willing to match his rhetoric with deeds? And we’ll see very soon if he is." (transcript and audio of the complete interview is available here).¶ If the "movement" succeeds in persuading Obama he needs to spend some of his limited political capital by refusing to approve Keystone XL, there will be less political capital available to accomplish whatever else Obama may decide can also be done, including whatever comes out of this Waxman-Whitehouse initiative. And the result of no Canadian tar sand oil crossing the US border via the Keystone XL is likely to be the discovery by US activists that Canada can and will move its expanding oil production over its own territory to its own ports.

#### CIR would create the mother of all backlogs – impossible to solve

David North, former Assistant to the U.S. Secretary of Labor and Center for Immigration Studies Fellow, April 7, 2010, “Would Legalization Backlogs Delay Other USCIS Applications? Probably,” Center for Immigration Studies, http://cis.org/north/legalization-backlogs

An interesting question has arisen as a result of a congressional hearing: would a massive legalization program, as many advocates want, slow the processing of applications filed routinely by citizens and legal aliens wanting immigration benefits? The numbers are daunting. U.S. Citizenship and Immigration Services (USCIS) currently faces six million applications a year according to one news story. The estimates of the number of illegal aliens in the nation runs to 11 or 12 million. Could USCIS handle both these multi-million caseloads with its current paper-based systems? There are many complaints that the backlogs are currently too long on the normal collection of six million cases a year. The government's expert on such things, Frank W. Deffer, Assistant Inspector General for Information Technology in the Department of Homeland Security, told a congressional committee on March 23: "adding 12 million more people to the system would be the mother of all backlogs. Clearly to us the systems could not handle it now."

#### The impact on Obama’s PC is empirically denied

Gayer, 1/2/13 [[President Obama, Congress Save Wind Power in Fiscal Cliff Agreement](http://www.environmentgeorgia.org/news/gae/president-obama-congress-save-wind-power-fiscal-cliff-agreement) For Immediate Release Wednesday, January 2, 2013 , Ms. Gayer coordinates policy development, research, and legislative advocacy for Environment Georgia. She is based in Atlanta and organizes around a number of issues to bring cleaner air, water and open spaces to Georgia. She serves on the board of Citizens for Progressive Transit, a statewide group dedicated to increasing public transportation, and is a member of the Beltline Tax Advisory District Advisory Council. Previously, she directed field campaigns to build a million solar roofs and cap global warming for Environment Georgia's sister organization, Environment California. She also worked as a Consumer Advocate with CALPIRG, where she sat on the state of California's Bureau of Automotive Repair and helped to found Angelenos for Equitable Access to Technology a media reform community group. Ms. Gayer grew up in Virginia and graduated from the College of William and Mary, <http://www.environmentgeorgia.org/news/gae/president-obama-congress-save-wind-power-fiscal-cliff-agreement>]

Atlanta, GA– **Today** President **Obama will sign into law a bill that extends key tax credits** for wind power and averts the ‘fiscal cliff.’ The main federal incentives for wind power – the renewable energy Production Tax Credit (PTC) and the offshore wind Investment Tax Credit (ITC) – expired on December 31, 2012, but with today’s new law will now be available for wind power projects that start construction over the next year, allowing for continued growth of wind power in the U.S. and setting the stage for offshore wind in Georgia. Environment Georgia Policy Advocate, Jennette Gayer, released the following statement: "President Obama and Senators Chambliss and Isakson helped make this a happy holiday for our health and our environment by extending critical tax credits for wind energy. “Wind powers nearly 13 million homes across the country and states like Texas, the number one wind energy producer in the country, generate a little over 30 million MWh/year. This means they avoid over 17 million metric tons of carbon dioxide emissions and save 6.54 billion gallons of water per year or enough water for 130,800 people.” “We applaud our leaders for recognizing these tremendous benefits to our water supply, health and environment, and for acting to ensure the continued development of pollution-free wind energy.”

#### And, truly he is the biggest wind supporter now

AJC, 12 [http://www.ajc.com/news/business/wind-energy-tax-credit-has-bipartisan-support-rove/nQWKc/]

For his part, **Obama has made the** production tax credit one of the five points on his "to-do" list for Congress. "**The president is going to talk about this pretty endlessly until the end of the year**," said Gibbs, saying there's a "slim possibility" that Congress will vote on the measure before the November election. When the time comes, Gibbs said he's expecting at least 280 to 300 members of Congress to vote "yes."

#### Plan is bipartisan

Davidson, 1/2/13 [Reprieve for US Investment Tax Credit, <http://www.windpoweroffshore.com/2013/01/02/reprieve_for_us_investment_tax_credit/#.URMk1fLSMmQ>]

Energy Management Inc.'s Mark Rodgers added: "The support to extend wind incentives by President Obama and Congress will help enable the US wind industry to continue creating jobs and increasing energy independence in an environmentally sustainable way. It is notable that that these wind incentives have considerable bipartisan support".

#### The plan is spun as a jobs issue

Savitz, 11 [Bipartisan House Bill Seeks to Jump Start U.S. Offshore Wind Development [All Press Releases…](http://oceana.org/en/news-media/press-center/press-releases) Provides Renewed Incentive to Stimulate Investment, Create Jobs and Increase Clean Energy Productionhttp://oceana.org/en/news-media/press-center/press-releases/bipartisan-house-bill-seeks-to-jump-start-us-offshore-wind-development]

U.S. House Representatives Pascrell (D-NJ-8) and LoBiondo (R-NJ-2) of New Jersey today proposed an extension of the investment tax credit for offshore wind power, produced in either state or federal waters. The proposal is the heart of a bill entitled the "Incentivizing Offshore Wind Power Act." Passage of this House bill could help get a small, yet promising Fishermen's Energy 25-megawatt offshore wind project installed in Atlantic waters 2.9 miles off New Jersey's coastline as early as 2012, creating clean energy jobs. Offshore wind power development has been strongly supported by New Jersey Governor Chris Christie, who signed the "Offshore Wind Economic Development Act" into law in August 2010. “If passed, this bill would help transition America off fossil fuels, stimulate a new manufacturing sector and put people back to work,” said Oceana senior campaign director Jacqueline Savitz. “Clean energy is something both sides can agree on, so this has a good chance of actually getting done this year, giving the Congress a success story,” Savitz added. Under current law, the investment tax credit for offshore wind expires at the end of 2012. This unrealistic deadline currently makes the financing of offshore wind projects nearly impossible. The “Incentivizing Offshore Wind Power Act” would do away with this deadline and instead provide a 30 percent investment tax credit for the first 3,000 megawatts of offshore wind placed in service. The bipartisan bill, introduced by Reps. Bill Pascrell (D-NJ) and Frank LoBiondo (R-NJ), incentivizes investment in offshore wind projects, while prioritizing those projects that are furthest along in the development process. By doing so, this bill creates tax certainty for the first movers in the budding domestic offshore wind industry. "I am pleased to announce the introduction of the bipartisan Incentivizing Offshore Wind Power Act. Our legislation will help to achieve the twin goals of job creation and increased renewable domestic energy production," said Rep. Pascrell, a member of the Committee on Ways and Means and the House Budget Committee. "The heart of our economic recovery must look towards new technologies and sustainable industries that will assist in the resurrection of domestic manufacturing and bolster a future green jobs economy here at home in the United States. I am pleased that my friend from South Jersey has joined me in introducing this legislation. We know that New Jersey is poised to be a leader in offshore wind production and the supply line that follows," added Pascrell. “For several years, we have looked to the Jersey Shore as a potential source of renewable wind energy,” said Rep. LoBiondo. “In South Jersey, projects continue to move forward with the promise of increased domestic energy and creating jobs. Our legislation will further encourage the nation to follow New Jersey’s lead and move towards renewable energy, thus reducing our reliance on foreign oil,” added LoBiondo, a member of the House Renewable Energy and Energy Efficiency Caucus. Offshore wind development has the potential to create hundreds of thousands of long-term jobs in the U.S. Among the domestic jobs that could be created by a new U.S. offshore wind power sector are component manufacturing jobs, turbine assembly, transport and installation jobs, as well as maintenance and operation jobs. Greater tax certainty for investors in offshore wind projects encourages their development, which in turn will create jobs and sustained domestic economic growth from a clean, infinite energy resource.

#### Snowe and Collins turn

Bowes, 11 [Offshore Wind is a Wise Investment <http://blog.nwf.org/2011/07/offshore-wind-is-a-wise-investment/>]

[America’s offshore wind resources are immense](http://www.nwf.org/News-and-Magazines/Media-Center/News-by-Topic/Global-Warming/2010/12-01-10-Offshore-Atlantic-Wind-is-Next-Clean-Energy-Wave.aspx), and it is time to get serious about bringing this significant, domestic clean energy source ashore. National Wildlife Federation applauds Senators Carper (D-DE) and Snowe (R-ME) for their leadership in building a bipartisan coalition of support for offshore wind energy. Today’s introduction of the [Incentivizing Offshore Wind Energy Act](http://carper.senate.gov/public/index.cfm/pressreleases?ID=fdef0fd4-8302-488e-aae6-4caf97975ba1), which will provide much-needed incentives for investments in offshore wind projects, demonstrates a bipartisan commitment to advancing job-producing clean energy. NWF has joined over 120 organizations in calling on the Obama Administration ([Letter to Obama 3.7.11](http://blog.nwf.org/wildlifepromise/2011/07/offshore-wind-is-a-wise-investment/offshorewindlettertoobama_3_7_11-5/), [Loan Guarantee Letter 6.10.11](http://blog.nwf.org/wildlifepromise/2011/07/offshore-wind-is-a-wise-investment/osw_lg_letter_6-10-11/)) and Congressional leaders to take positive steps forward to advance offshore wind development in a manner that is protective of our coastal and marine resources. Providing financial incentives such as an investment tax credit is a critical way to support this emerging industry that has the potential to create thousands of jobs while helping revitalize America’s manufacturing and maritime industries. The Incentivizing Offshore Wind Energy Act is an example of exactly the kind of policies we need at this moment in time. Efforts are also underway in the House of Representatives to promote offshore wind, however two recently introduced bills – the Cutting Federal Red Tape to Facilitate Renewable Energy Act (H.R. 2170) and the Advancing Offshore Wind Production Act (H.R. 2173) – completely miss the mark ([NWF letter – HR 2170 and 2173](http://blog.nwf.org/wildlifepromise/2011/07/offshore-wind-is-a-wise-investment/nwf-letter-hr-2170-and-2173/)). The [Bureau of Ocean Energy Management, Regulation, and Enforcement](http://www.boemre.gov/offshore/RenewableEnergy/index.htm) has recently taken significant steps to improve the permitting process for offshore wind, shortening the timeline and reducing costs for developers while still ensuring sufficient environmental review. Unlike the bipartisan bill introduced today in the Senate, the House bills actually would slow down offshore wind development while failing to address the primary obstacle facing the offshore wind industry. NWF is pleased to see interest by both Houses of Congress in offshore wind development, but encourages our Congressional leaders to focus their attention on polices that can generate the critically needed financial investments to truly grow this new industry. NWF applauds Senators Carper and Snowe, and cosponsors Robert Menendez (D-NJ), Susan Collins (R-ME), Chris Coons (D-DE), Sheldon Whitehouse (D-RI), and Sherrod Brown (D-OH), for their much-needed leadership to advance offshore wind energy.

#### Key to the agenda

Harris and Fried, 12 [¶ Maine’s Political Warriors: Senators Snowe and Collins, ¶ Congressional Moderates in a Partisan Era ¶ Douglas B. Harris ¶ Loyola University Maryland ¶ Amy Fried ¶ University of Maine, <http://nepsanet.org/wp-content/uploads/2012/07/Maines_Political_Warriors.pdf>]

**Moderates seem to be** disappearing **in Congress**. Once a mainstay in American politics, ideological **party outliers** such as conservative ―boll weevil‖ Democrats and ―gypsy moth‖ Rockefeller Republicans **are declining in numbers**, imperiled by an **increasingly partisan** political environment. In general elections, moderate districts and states are most often the opposing party‘s prime targets for electoral gains and it is in these districts that national vote party swings are most likely to produce partisan electoral turnover. Somewhat ironically, it is often those officeholders least likely to support a party‘s agenda and exemplify its image who bear the brunt of voters‘ frustrations. At the same time, moderate members must appease their parties‘ base voters, activists, and donors. An increasing worry, moderates also must fend off potential ideologically-driven primary election challenges from the ideological base. ¶ Still, recent parity between the parties and consequent small legislative majorities (the 111th Congress notwithstanding) **have made moderates all the more important on Capitol Hill.** **They often occupy pivotal positions as ―majority makers‖ in the legislative process**. But even that influence comes with a price as congressional moderates frequently are confronted with difficult decisions and thrust into the limelight. Given these competing pressures and vexing problems, maintaining a moderate political career in the current partisan environment is no meager accomplishment. As one The New England Journal of Political Science 96 ¶ Republican party leadership aide put it, congressional moderates are ―warriors … they come off with a soft veneer but they are political warriors.‖1 ¶ Two of the most pivotal ―political warriors‖ in the contemporary Congress are Maine‘s Senators Olympia Snowe and Susan Collins. Maine has a tradition of sending independent types who defy party leaders and challenge party orthodoxies to the United States Senate. Since the 1950s, Maine has had a strong orientation toward ―bipartisan politics, and the political moderation it encouraged‖ (Palmer, Taylor and LiBrizzi 1992, 32). Furthermore, Maine‘s political culture is oriented toward civility and cooperation. Negative advertising and any hint of corruption or dishonesty are quickly criticized in the media and citizen correspondence. With a population that displays strong civic involvement, politicians who do well exhibit calm, rational discourse and respect for other points of view. Besides prizing a particular style and process, this political culture incorporates certain policy tendencies: a libertarian streak when it comes to personal lives and a progressive view that government can serve the public good.2 ―The Maine electorate tends to view itself as independent and pragmatic. They like to believe they reach decisions based on good old Yankee common sense."3 Maine‘s political culture is moralistic (in Elazar‘s analytical scheme) and thus is ―community oriented,‖ with an orientation toward ―the idea of the state as a commonwealth and the government as citizen-run‖ (Palmer, Taylor and LiBrizzi 1992, 9).

#### **Won’t pass---both parties have incentives to prevent a deal**

Koons 2-1 – Andy Koons, writer for the Daily Iowan, February 1st, 2013, "Koons: Immigration reform not done" [www.dailyiowan.com/2013/02/01/Opinions/31576.html](http://www.dailyiowan.com/2013/02/01/Opinions/31576.html)

Immigration reform is not a done deal, though it should be. America’s immigration system has been a travesty for decades. Despite being a nation of immigrants, needing workers to fill unpopular jobs and needing to remain competitive in a global economy in which education and knowledge are paramount, we haven’t found it in ourselves to move to a more fair pro-economic growth immigration system.¶ Why has it been so difficult? **Powerful forces stand against fixing immigration. Democrats benefit from Latinos refusing to vote for anti-reform Republicans, businesses appreciate low cost under-the-table labor and the conservative base treasures American citizenship and is loath to give it to what they consider “lawbreakers.”**¶ I am concerned that current reform efforts will not be successful because those forces are still present. Reform is being considered now because of a single change in dynamics. National Republican leaders are stinging from Obama’s substantial re-election victory and know that they have a diminishing chance of winning future national elections unless the growing Latino vote is put in play.¶ The Latino vote will never be attainable by the right as long as national Republican nominees are pressured to position themselves against immigration reform. Is that realization by Republican leaders enough to pass reform? The conservative base is very skeptical about reform proposals — will they include enough border protection, be too lenient on undocumented immigrants, contain left-leaning provisions such as allowing foreign same-sex couples a pathway to citizenship — and don’t want to hand Obama another historic win.¶ And make no mistake: Obama will be given credit if immigration reform passes. A big win this early in his second term will strengthen the wind already at his back from his election. Obamacare passed after almost two years of work and sucked the president dry of electoral goodwill. If Republicans don’t use immigration to sap Obama’s political capital, Obama will have enough remaining momentum to take on climate change before the midterms.¶ Don’t discount the intelligence of Republican strategists either — they know that there is a real possibility that the Latino vote may never join the Republican big tent even after reforming immigration. That vote may be religious, generally, but they are also composed of a great deal of low-income workers who may feel more at home with Democrats and be against changing safety-net policies.¶ Republican **House members come from solidly conservative districts in which the only** re-election threats are challenges by people more extreme than themselves**.** Will those members risk their seats **to give party leaders a chance to win the presidency in four years? House Speaker John Boehner hasn’t had much luck leading his members so far.**¶ If we could stop politicking for a moment and let the right thing happen, immigration reform would pass — but **politics never ends**. The best that can be hoped is that the political balance has shifted enough after Obama’s re-election that Republican leaders feel vulnerable without reform and that Republican House members are receptive. I’m afraid that may be asking a lot.

#### Conflict goes nuclear

Kaku 11 – B.S. (summa cum laude) from Harvard University – first in his physics class. went to the Berkeley Radiation Laboratory at the University of California, Berkeley and received a Ph.D, held a lectureship at Princeton University, the author of several scholarly, Ph.D. level textbooks and has had more than 70 articles published in physics journals, Professor of Physics — He holds the Henry Semat Chair and Professorship in theoretical physics at the City College of New York, where he has taught for over 25 years. He has also been a visiting professor at the Institute for Advanced Study at Princeton, as well as New York University (Michio, “Physics of the Future” <http://213.55.83.52/ebooks/physics/Physics%20of%20the%20Future.pdf>) Jacome

In 2003 the Pentagon commissioned a study, done by the Global Business Network, that showed that, in a worst-case scenario, chaos could spread around the world due to global warming. As millions of refugees cross national borders, governments could lose all authority and collapse, so countries could descend into the nightmare of looting, rioting, and chaos. In this desperate situation, nations, when faced with the prospect of the influx of millions of desperate people, may resort to nuclear weapons.

“Envision Pakistan, India, and China—all armed with nuclear weapons—skirmishing at their borders over refugees, access to shared rivers, and arable land,” the report said. Peter Schwartz, founder of the Global Business Network and a principal author of the Pentagon study, confided to me the details of this scenario. He told me that the biggest hot spot would be the border between India and Bangladesh. In a major crisis in Bangladesh, up to 160 million people could be driven out of their homes, sparking one of the greatest migrations in human history. Tensions could rapidly rise as borders collapse, local governments are paralyzed, and mass rioting breaks out. Schwartz sees that nations may use nuclear weapons as a last resort.

#### We have consensus on our side

**Cook 12** – the Climate Communication Fellow for the Global Change Institute at the University of Queensland. He studied physics at the University of Queensland, Australia. After graduating, he majored in solar physics in his post-grad honors year (John, May, 28, “Is there a scientific consensus on global warming?” <http://www.skepticalscience.com/global-warming-scientific-consensus-intermediate.htm>) Jacome

That humans are causing global warming is the position of the Academies of Science from 19 countries plus many scientific organizations that study climate science. More specifically, around 95% of active climate researchers actively publishing climate papers endorse the consensus position.¶ Scientists need to back up their opinions with research and data that survive the peer-review process. A survey of all peer-reviewed abstracts on the subject 'global climate change' published between 1993 and 2003 shows that [not a single paper rejected the consensus position that global warming is man caused](http://www.skepticalscience.com/naomi-oreskes-consensus-on-global-warming.htm) ([Oreskes 2004](http://www.sciencemag.org/cgi/content/full/306/5702/1686)). 75% of the papers agreed with the consensus position while 25% made no comment either way (focused on methods or paleoclimate analysis).¶ Subsequent research has confirmed this result. A survey of 3146 earth scientists asked the question "Do you think human activity is a significant contributing factor in changing mean global temperatures?" ([Doran 2009](http://tigger.uic.edu/~pdoran/012009_Doran_final.pdf)). More than 90% of participants had Ph.D.s, and 7% had master’s degrees. Overall, 82% of the scientists answered yes. However, what are most interesting are responses compared to the level of expertise in climate science. Of scientists who were non-climatologists and didn't publish research, 77% answered yes. In contrast, 97.5% of climatologists who actively publish research on climate change responded yes. As the level of active research and specialization in climate science increases, so does agreement that humans are significantly changing global temperatures.¶ Figure 1: Response to the survey question "Do you think human activity is a significant contributing factor in changing mean global temperatures?" ([Doran 2009](http://tigger.uic.edu/~pdoran/012009_Doran_final.pdf)) General public data come from a [2008 Gallup poll](http://www.gallup.com/poll/1615/Environment.aspx).¶ Most striking is the divide between expert climate scientists (97.4%) and the general public (58%). The paper concludes:¶ "It seems that the debate on the authenticity of global warming and the role played by human activity is largely nonexistent among those who understand the nuances and scientific basis of long-term climate processes. The challenge, rather, appears to be how to effectively communicate this fact to policy makers and to a public that continues to mistakenly perceive debate among scientists."¶ This overwhelming consensus among climate experts is confirmed by an independent study that surveys all climate scientists who have publicly signed declarations supporting or rejecting the consensus. They find between 97% to 98% of climate experts support the consensus ([Anderegg 2010](http://www.pnas.org/content/early/2010/06/04/1003187107.abstract)). Moreover, they examine the number of publications by each scientist as a measure of expertise in climate science. They find the average number of publications by unconvinced scientists (eg - skeptics) is around half the number by scientists convinced by the evidence. Not only is there a vast difference in the number of convinced versus unconvinced scientists, there is also a considerable gap in expertise between the two groups.¶ Figure 2: Distribution of the number of researchers convinced by the evidence of anthropogenic climate change and unconvinced by the evidence with a given number of total climate publications ([Anderegg 2010](http://www.pnas.org/content/early/2010/06/04/1003187107.abstract)).

#### 1ar turns CCP Inter Press News Service, 2007

(ECONOMY-CHINA: Global Warming Fuels Inflation. September 5. http://ipsnews.net/news.asp?idnews=39144)

Yet government officials now fear that the combined effects of climate change and inflation pressures could destabilise public mood ahead of the 17th Communist Party Congress -- a five-yearly meeting, designed to chart the party’s policy and seal the legacy of its current leaders. Drought is already affecting 22 of China’s 31 provinces. Meteorological experts say that global warming would exacerbate things as a one-degree rise in temperature could aggravate ground water evaporation by seven percent. Zheng Guogan, head of the State Meteorological Administration forecasts global warming will cut China’s annual grain harvest by up to 10 percent. That would mean about 50 million tonnes less grain in the current tight supply situation and a potential for further inflation. "Given the tightened food supply in the international market, a decline in domestic grain production could lead to more price hikes," Song Tingmin, vice-president of the China National Association of Grain told the China Daily. A surge in food prices saw China’s consumer price index (CPI) rise to a 10-year high of 5.6 percent in July, far above the government’s upper target of 3 percent for the whole year. Economists say the August inflation rose even higher on the back of soaring pork costs. The social dimensions of such leaps in inflation are not lost on a government, which remembers that 1989 pro-democracy movement that saw thousands of students, workers and intellectuals out in street protests was triggered by public anger over inflation.

### warming—ag

#### Prefer our turns – Studies prove that co2 helps to a certain degree until it becomes detrimental

**NRC 11**, National Research Council, Committee on Stabilization Targets for Atmospheric Greenhouse Gas Concentrations; National Research Council [“Climate Stabilization Targets: Emissions, Concentrations, and Impacts over Decades to Millennia,” April, the National Academies Press]

Even in the most highly mechanized agricultural systems, food production is very dependent on weather. Concern about the potential impacts of climate change on food production, and associated effects on food prices and hunger, have existed since the earliest days of climate change research. Although there is still much to learn, several important findings have emerged from more than three decades of research. It is clear, for example, that higher CO2 levels are beneficial for many crop and forage yields, for two reasons. In species with a C3 photosynthetic pathway, including rice and wheat, higher CO2 directly stimulates photosynthetic rates, although this mechanism does not affect C4 crops like maize. Secondly, higher CO2 allows leaf pores, called stomata, to shrink, which results in reduced water stress for all crops. The net effect on yields for C3 crops has been measured as an average increase of 14% for 580 ppm relative to 370 ppm (Ainsworth et al., 2008). For C4 species such as maize and sorghum, very few experiments have been conducted but the observed effect is much smaller and often statistically insignificant (Leakey, 2009). Rivaling the direct CO2 effects are the impacts of climate changes caused by CO2, in particular changes in air temperature and available soil moisture. Many mechanisms of temperature response have been identified, with the relative importance of different mechanisms varying by location, season, and crop. Among the most critical responses are that crops develop more quickly under warmer temperatures, leading to shorter growing periods and lower yields, and that higher temperatures drive faster evaporation of water from soils and transpiration of water from crops. Exposure to extremely high temperatures (e.g., > 35ºC) can also cause damage in photosynthetic, reproductive, and other cells, and recent evidence suggests that even short exposures to high temperatures can be crucial for final yield (Schlenker and Roberts, 2009; Wassmann et al., 2009).

A wide variety of approaches have been used in an attempt to quantify yield losses for different climate scenarios. Some models represent individual processes in detail, while others rely on statistical models that, in theory, should capture all relevant processes that have influenced historical variations in crop production. Figure 5.1 shows model estimates of the combined effect of warming and CO2 on yields for different levels of global temperature rise. It is noteworthy that although yields respond nonlinearly to temperature on a daily time scale, with extremely hot days or cold nights weighing heavily in final yields, the simulated response to seasonal warming is fairly linear at broad scales (Lobell and Field, 2007; Schlenker and Roberts, 2009). Several major crops and regions reveal consistently negative temperature sensitivities, with between 5-10% yield loss per degree warming estimated both by process-based and statistical approaches. Most of the nonlinearity in Figure 5.1 reflects the fact that CO2 benefits for yield saturate at higher CO2 levels. For C3 crops, the negative effects of warming are often balanced by positive CO2 effects up to 2-3ºC local warming in temperate regions, after which negative warming effects dominate. Because temperate land areas will warm faster than the global average (see Section 4.2), this corresponds to roughly 1.25-2ºC in global average temperature. For C4 crops, even modest amounts of warming are detrimental in major growing regions given the small response to CO2 (see Box 5.1 for discussion of maize in the United States). The expected impacts illustrated in Figure 5.1 are useful as a measure of the likely direction and magnitude of average yield changes, but fall short of a complete risk analysis, which would, for instance, estimate the chance of exceeding critical thresholds. The existing literature identifies several prominent sources of uncertainty, including those related to the magnitude of local warming per degree global temperature increase, the sensitivity of crop yields to temperature, the CO2 levels corresponding to each temperature level (see Section 3.2), and the magnitude of CO2 fertilization.

#### No – increased co2 decreases plant’s intake

**Strom 7 –** Professor Emeritus of planetary sciences in the Department of Planetary Sciences at University of Arizona, studied climate change for 15 years, the former Director of the Space Imagery Center, a NASA Regional Planetary Image Facility, [Robert, "Hot House", p. 123]

It has been suggested that the increase in C02 will be at least partly offset by what is termed "C02 fertilization." The concept is that elevated levels of C02 would stimulate plant growth so that plants would take up excess C02 to produce carbohydrates, which are their stored energy source. However, contrary to predictions, increased C02 only accelerates planet growth to about one-third of what was expected. In fact, increased C02 may have a positive feedback in that C02 is absorbed less with increasing C02 levels (Young et al., 2006). The stomata of leaves are the parts of a plant that "breathe" in C02 and "exhale" oxygen. A new study shows that the level of C02 in the atmosphere controls the opening and closing of leaf stomata (Young et al., 2006); the higher the concentration of C02, the smaller the stomata opening and the less C02 intake. The lower the C02 abundance, the larger the opening and the more C02 intake. A doubling of the C02 abundance caused leaf stomata to close by about 20-40% in a variety of plant species, thus reducing the C02 intake. Therefore, the increasing atmospheric abundance of C02 will result in less C02 uptake by plants, not more.

#### Warming means plants aren’t a carbon sink

**Chandler and Lepage 7** – David Chandler, is currently Bruce Mahan Professor of Chemistry at the University of California, Berkeley.  He received his S.B. degree in Chemistry from MIT in 1966, and his Ph.D. in Chemical Physics at Harvard in 1969.   He began his academic career as an Assistant Professor in 1970 at the Urbana-Champaign campus of the University of Illinois, rising through the ranks to become a full Professor in 1977. Prior to joining the Berkeley faculty in 1986, Chandler spent two years as Professor of Chemistry at the University of Pennsylvania AND \*Michael Lepage, Master of Science, Atmospheric Science, Texas Tech University, 1981, Bachelor of Science, Mathematics, McGill University, Montreal, 1979 (“Climate myths: Higher CO2 levels will boost plant growth and food production”, <http://environment.newscientist.com/channel/earth/climate-change/dn11655>) Jacome

Some have suggested that the increase in plant growth due to CO2 will be so great that it soaks up much of the extra CO2 from the burning of fossil fuels, significantly slowing climate change. But higher plant growth will only lock away CO2 if there is an accumulation of organic matter. Studies of past climate changes suggest the land and oceans start releasing more CO2 than they absorb as the planet warms. The latest IPCC report concludes that the terrestrial biosphere will become a source rather than a sink of carbon before the end of the century.

#### Warming destroys the environment on an unprecedented order of magnitude

**Coates 9** - former adjunct professor at George Washington University, President of the Kanawha Institute for the Study of the Future and was President of the International Association for Impact Assessment and was President of the Association for Science, Technology and Innovation, M.S., Hon D., FWAAS, FAAAS, (Joseph F., Futures 41, 694-705, "Risks and threats to civilization, humankind, and the earth”, ScienceDirect, WEA)

6.1. Greenhouse warming The most important high-probability risks that the world faces in the next decades and running on indefinitely into the longer-term future, are the consequences of greenhouse warming. Some of the effects of greenhouse warming proposed over the last 15 years, by climatologists, are: a rise in atmospheric temperature; a smearing out of the seasons—that is, an indefinite transition from spring to summer and summer to fall, and so on. A third effect is that the weather will be much spikier, deeper droughts, heavier rainfalls, heavier snow, longer frosts and longer heat waves. The rise of ocean water will occur, just from direct solar heating since warm water is less dense than cold water. The melting of the Greenland icecap and later, the melting of the Antarctic icecap will drastically enhance the effects of ocean rise. The melting could easily raise the ocean level 20 feet within a few decades. That suggests several things: Bangladesh will disappear; the Florida Everglades will be history; and, around the world, low-lying island countries will be submerged or laid low by hurricanes. The coastal areas everywhere will be more severely hit by hurricanes or their regional equivalents. The more frightening anticipation is that **somewhere in the next five decades, the Antarctic icecap will begin to melt on a grand scale. Then the oceans could rise as much as 200–300 feet** when most of the ice in Antarctica is converted into ocean water. Relatively little has been written on the effects on the oceanic biota by enormous dilution and cooling. A specific effect we may be able to see soon is that as Greenland glaciers melt they pour cold water into the ocean. That water gradually moves out from the straits into the Atlantic itself and will intersect the Gulf Stream. To make a fairly complex story straightforward, the Gulf Stream is part of what is called the Conveyor [5]. Warm water, in the tropical zones moves north along the Central American and Florida coasts, as far as Iceland, under the label ‘‘the Gulf Stream.’’ That warm water has for many years been thought to be what gives Europe its generally mild climate. (Recent research challenges that belief.) [6]. As the Greenland glacier melt intersects the Conveyor—that is the Gulf Stream—it will dilute the salt water and also change its temperature and, thereby, interfere with the present process in which as the warm Gulf Stream gradually cools, giving up its heat to the atmosphere, and falls to the bottom of the ocean where it flows back to the tropical zones. Hence the term ‘‘Conveyor.’’ What that new development means for Europe’s climate is difficult to say precisely but it is not likely to be good. A further consequence of global warming will be a large scale shift in agricultural and ecological zones. We already have a great deal of evidence that a shift is occurring. In California, they are monitoring the spontaneous migration of plants and animals. Animals and plants in any particular latitude are moving north exactly as you would expect as their ideal climates move north. The serious implication for humankind is that virtually all the crops in the world—and certainly all the major ones that provide the bulk of our food—are grown as a complex balance in the last 70 years to optimize crop production. Factors in that balancing are gene type, soil type, rainfall, pesticides and other soil and plant treatments. All of that will have to be rebalanced in a timely way as the agricultural belts shift. and other soil and plant treatments. All of that will have to be rebalanced in a timely way as the agricultural belts shift.

### at: too late

#### Temporarily exceeding warming doesn’t matter

**Washington 11** (Haydn and John, An environmental scientist of 35 years’ experience His PhD ‘The Wilderness Knot’ was in social ecology \*\* the Climate Communication Fellow for the Global Change Institute at the University of Queensland. He studied physics at the University of Queensland, Australia. After the graduating, he majored in solar physics in his post-grad honors year and created the website skepticalscience.com, Climate Change Denial: Heads in the Sand, Published in 2011 by Earthscan, Page 30-31)

It has been suggested that warming the world by more than two degrees could push us into the area where we may cause runaway climate change. It may then take thousands of years to get back to current world temperatures. The world has already warmed by .7 degrees Celsius (Houghton, 2008; Pittock, 2009) and another .6 degrees is in the pipeline (Hansen, 2009). Runaway climate change means that human actions would then be unlikely to stop the temperature increase (short of massive government engineering). Hansen et al. (2008) define the ‘tipping point’ as the climate forcing threat that, if maintained for a long time, gives rise to a specific consequence. They define the ‘point of no return’ as a climate state beyond which the consequence is inevitable, even if climate forcings are reduced. A point of no return **can be avoided**, even if the tipping level is **temporarily exceeded**. This has been called an ‘overshoot’ scenario, where one exceeds the ‘safe’ CO2 level but then removes CO2 to return to that level (Pittock, 2009). Ocean and ice sheet inertia permit overshoot ‘provided the climate forcing is returned below the tipping level **before initiating** irreversible dynamic change’ (Hansen et al, 2008). Points of no return are difficult to define. We may be at a tipping level already at 387 ppm CO2, and it will require strong action to reduce CO2 levels so that we don’t pass the point of no return and can return CO2 levels below 350 ppm. Hansen et al (2008) note we may been to drop CO2 below 325 ppm to restore sea ice to the area it had 25 years ago (and so remove this positive feedback).

#### Reject ev – bias

**Anthony 09 –** a Senior Research Fellow at the Centre for Marine Studies. Ken started his work on coral reef biology at James Cook University in 1995 (Ken, “CO2 non-science journalism is not doing the World a favour” <http://www.climateshifts.org/?p=1043>)

Remember the last time you tried to reason with someone who constantly took your words out of context in an attempt to argue an opposite futile point? If that left you smiling politely while shaking your head, you probably felt like me after reading the article “Coral Reefs and Climate Change: Unproved Assumptions” by the Idso family posted on their website “CO2 Science” at the Center for the Study of Carbon Dioxide and Global Change**. The article is another sad addition to their more than 500 un-reviewed pieces** - all with the obvious agenda of making their readers believe that climate change science is nothing but alarmist propaganda. In their latest anti-science scribble (Vol 12, No 3) the Idso’s attempt to build the case that “it is premature to suggest that widespread reef collapse is a certain consequence of ongoing bleaching” and that “nature is far more resilient [to climate change] than many people give it credit for..” All of their quotes are from a recent paper by a group of young and excellent Australian marine biologists, Maynard, Baird and Pratchett published in Coral Reefs (27:745-749). Contrary to the Idso’s claims, Maynard et al.’s paper does not question that climate change is a threat to coral reefs. The purpose of Maynard et al.’s paper is to provoke debate around some specific assumptions of thermal thresholds and coral reef’s adaptability to climate change and the functional link between reef degradation and fisheries. Rest assured, Maynard et al. will get the debate they have provoked within the scientific community. Critiques and responses are part of the quality control system of the scientific process and add to the foundation on which our knowledge system is built across disciplines from physics and engineering to medicine. However, by running with a few bits of quotes, stitched together in a fabricated “they say” story, the Idso’s are not doing their readers any favours. Instead, the Idso’s demonstrate two points quite clearly: (1) they have very limited understanding of the science, and (2) their agenda is to write journalism that systematically attempts to discredit the best available climate-change science. After reading a number of their smear campaigns, the Center for the Study of Carbon Dioxide and Global Change takes shape of a law firm defending a client’s case (wonder who they could be?) that is up against an overwhelming amount of opposing evidence. Like rookies, they fumble in their exhibits folder, hoping to win the jury over by causing confusion. The danger of their practise is that they generate disinformation about climate change in a time when the public, the media and governments are in urgent need of good information.

### AT: DA

#### No China war

Robert J. **Art**, Fall 20**10** Christian A. Herter Professor of International Relations at Brandeis University and Director of MIT's Seminar XXI Program The United States and the rise of China: implications for the long haul Political Science Quarterly 125.3 (Fall 2010): p359(33)

The workings of these three factors should make us cautiously optimistic about keeping Sino-American relations on the peaceful rather than the warlike track. The peaceful track does not, by any means, imply the absence of political and economic conflicts in Sino-American relations, nor does it foreclose coercive diplomatic gambits by each against the other. What it does mean is that the conditions are in place for war to be a low-probability event, if policymakers are smart in both states (see below), and that an **all-out war is** nearly **impossible** to imagine. By the historical standards of recent dominant-rising state dyads, this is no mean feat. In sum, there will be some security dilemma dynamics at work in the U.S.-China relationship, both over Taiwan and over maritime supremacy in East Asia, should China decide eventually to contest America's maritime hegemony, and there will certainly be political and military conflicts, but nuclear weapons should work to mute their severity because the security of each state's homeland will never be in doubt as long as each maintains a second-strike capability vis-a-vis the other. If two states cannot conquer one another, then the character of their relation and their competition **changes dramatically**. These three benchmarks--China's ambitions will grow as its power grows; the United States cannot successfully wage economic warfare against a China that pursues a smart reassurance (peaceful rise) strategy; and Sino-American relations are not doomed to follow recent past rising-dominant power dyads--are the starting points from which to analyze America's interests in East Asia. I now turn to these interests.

**No impact to the Chinese economy and the response measures check**

Coonan 08 (10/25, Clifford, IrishTimes.com, “China's stalling boom has globe worried,” <http://www.irishtimes.com/newspaper/opinion/2008/1025/1224838827729.html>

All of this downbeat news feeds into a growing suspicion that China has had its cake and eaten for way too long, and that there is simply no precedent for a country growing and growing without some kind of respite. Establishing what that pause will look like and what it means to the rest of the world is the latest challenge facing global analysts. A hangover is considered inevitable and the Olympics, while meaningless economically, are widely considered the psychological trigger for China to face a slowdown. Despite all this gloom, however, writing China off is premature. The Beijing government is well placed to help protect the economy from the worst ravages of a global downturn. It has spent the last two years trying to fight inflation and cool the overheating economy, so it's a lot easier for it to take the foot off the brakes than it is to put them on in the first place. The central bank has lowered its benchmark interest rate twice in the past two months, the first time in six years. The State Council is increasing spending on infrastructure, offering tax rebates for exporters and allowing state-controlled prices for agricultural products to rise. Expect significant measures to kick-start the property market to avoid house prices falling too drastically. China has a lot of plus points to help out. Chinese banks did not issue subprime loans as a rule, and the country's €1.43 trillion in hard-currency reserves is a useful war chest to call on in a downturn*.* The currency is stable and there are high liquidity levels, all of which give China the most flexibility in the world to fend off the impact of the global financial crisis, says JP Morgan economist Frank Gong. China is now a globalised economy, but its domestic market is still massively underexploited, and it is to this market that the government will most likely turn. While it is a globalised economy committed to the WTO, China is also a centralised economy run by the Communist Party, and it has no real political opposition at home to stop it acting however it sees fit to stop sliding growth. Should the economy start to worsen significantly, public anger will increase, but China has been so successful in keeping a tight leash on the internet and the media that it is difficult for opposition to organise itself in a meaningful way. Recent years of surging growth in China have certainly done a lot to keep global economic data looking rosy, but perhaps China's influence has been somewhat oversold*.* It is not a big enough economy by itself to keep the global economy ticking over, accounting for 5 per cent of the world economy, compared to the United States with a muscular 28 per cent. And whatever about slowing growth, 9 per cent is still an admirable rate, one that European leaders gathered this weekend in Beijing for the Asian-Europe Meeting would give their eye teeth to be able to present to their constituencies.

#### Prices won’t stay down

**Lesser, 13 -** Dr. Jonathan Lesser is the founder and President of Continental Economics, Inc., an economic and litigation consulting firm providing services to utilities, industry, and regulators on a broad array of market, regulatory, investment, and environmental issues affecting all segments of the energy industry in the U.S., Canada, and Latin America (“Wind Generation Patterns and the Economics of Wind Subsidies” The Electricity Journal, Volume 26, Issue 1, January–February 2013, Pages 8–16, Science Direct)

IV. Policy Implications

Our analysis shows that continued subsidies for wind generation represent both bad economics and bad energy policy, for at least three reasons. First and foremost, wind generation's production pattern not only is volatile and unpredictable, but even more significantly, has low economic value. Rather than displacing high-variable-cost fossil generating resources used to meet peak demand, wind generation's observed availability peaks when electricity demand is lowest. As a result, wind generation tends to displace low-variable-cost generation or simply forces baseload generators to pay greater amounts to inject power onto the grid because the units cannot be cycled cost-effectively. The low economic value of wind power is comparable to the government paying farmers to plow under high-value crops in order to plant low-value ones, or even weeds.

Second, as with all subsidies, subsidized wind generation distorts electric markets by artificially lowering electric prices in the short run, but leads to higher prices in the long run. This imposes economic harm on competitive generators and consumers, **thus** reducing economic growth.

Third, because geographic dispersion of wind resources does not address inaccurate forecasts of wind availability, additional fossil generating resources are required to maintain system reliability. Moreover, geographic dispersion requires billions of dollars to be spent on additional transmission lines. These costs, along with most of the system integration costs, are socialized across all grid customers, that is, borne by all generators and, ultimately, consumers. In other words, wind generation imposes external costs on other market participants.

After 35 years of direct and indirect subsidies, there is no economic rationale for continued subsidization of wind generation. At the federal level, direct subsidies, such as the federal **PTC**, **should not be continued**. State-level subsidies, whether feed-in tariffs established by state regulators or statutory RPS mandates, further exacerbate market distortions and raise electricity prices, again to the detriment of consumers.

#### And, that ensures catastrophic price spikes

Maize, 12/1/12 [“Is Shale Gas Shallow or the Real Deal?”, Kennedy, Veteran Journalist¶ Kennedy Maize has spent the past 40 years working as a journalist, analyst, and manager in the private sector and federal government, with over 35 years of that focused on energy and environmental topics. Over that time, he has seen myriad examples of how group think, policy fads, and bad judgment can result in colossal failures, particularly in the field of atomic energy. Maize has seen, up close and personal, the demise of the U.S. Atomic Energy Commission, the arrival of the U.S. Nuclear Regulatory Commission, the birth of the U.S. Department of Energy, the failures of nuclear flight, the hubris of atomic earthmoving, the boom and bust uranium market, the birth and death of breeder reactors, and the 60-year wandering in the wilderness of nuclear waste policy. After graduating from Penn State and graduate study at the University of Maryland, Kennedy Maize worked for newspapers in Pennsylvania, New York, and Virginia and the Associated Press in Baltimore. He then spent five years in management at the National Institute of Health and the U.S. Nuclear Regulatory Commission before taking a job covering energy, environment, and business topics for Editorial Research Reports, a division of Congressional Quarterly, where his work appeared in over 1,000 daily newspapers in the U.S. during the mid-to-late 1970s. Maize became a staff writer and editor at The Energy Daily, a preeminent energy trade paper, on March 28, 1979, the day the Three Mile Island accident began outside Harrisburg, Pa. Over more than 10 years at The Energy Daily, he covered the nuclear and coal industries, including stories involving the Clinch River Breeder Reactor, the U.S. Synthetic Fuels Corp., the Powder River Basin coal leasing scandal, and the Chernobyl explosion. In 1993, he founded The Electricity Daily, where he was the editor for 14 years, writing about changes in the electricity business, the rise and fall of Enron, the stagnation of the nuclear power business, and the arrival of market forces in the utility field. Since 2006, he has been an editor at POWER magazine, and the founder of MANAGING POWER magazine, where he has written about the Fukushima catastrophe, the emergence of shale gas and decline of coal, and the often ill-advised push for renewable electricity technologies¶ http://www.powermag.com/gas/Is-Shale-Gas-Shallow-or-the-Real-Deal\_5188.html]

In an interview with POWER, Berman argued that the boom in drilling shale gas wells has obscured a long-term decline in conventional gas supply. But **a coming rapid decline in shale production**, he said, will soon reveal the overall limits to the gas boom, and volatility and upward pressure could return to natural gas prices. “It’s not a problem for today or tomorrow,” Berman said, “but it is coming. Once we work through the current oversupply, if capital is not forthcoming,” prices will spike. The gas supply bubble will burst.¶ Because of the current gas glut, with long prices in the range of $3 per million cubic feet (mcf), drilling shale gas wells has tanked, noted Berman. Chesapeake Energy, the most bullish of the shale gas players, is selling assets and shifting rigs to drilling for oil because the company just can’t make money on $3 gas. “I can see a time not too many months away when we could see gas supply in rather serious decline,” Berman said, noting that “there is plenty of gas, but it takes a long time to shift momentum back” to gas drilling. At a 2010 meeting in Washington, as low gas prices were resulting in a decline in new drilling, Berman commented, “Shale plays are marginally commercial at best.”¶ Greatly complicating the supply equation, said Berman, is the nature of shale gas wells. “Shale wells decline 30 to 40% per year,” he said. “Conventional wells decline 20 to 25%. What most don’t grasp is how many wells it takes just to keep supply flat.”¶ In the Barnett Shale in Texas, where Berman is most familiar with the geology, he calculates that the annual decline in the gas resource is 1.7 bcf/day. In order to add to the net Barnett production, Berman says, companies would have to drill 3,880 wells, at a cost of $12 billion.¶ “We are setting ourselves up for a potential reduction in supply and price will go up,” said Berman. “I don’t know how much it will go up, and there is a check-and-balance with coal. There will be gas-coal switching if prices do go much higher than now.”

**Tuerck, 11** - Executive Director of the Beacon Hill Institute for Public Policy Research at Suffolk University where he also serves as Chairman and Professor of Economics. He holds a Ph.D. in economics from the University of Virginia (David, “The Cost and Economic Impact of New Jersey’s Offshore Wind Initiative” June, <http://americansforprosperity.org/new-jersey/files/2012/07/NJWINDREPORT1.pdf>

Electricity generated by offshore wind resources is much more costly and unreliable than conventional energy sources such as coal and natural gas, and stands little chance of commercial success in a competitive market. In response, producers of renewable energy seek to guarantee a market through legislation similar to the New Jersey law and through the heavy use of federal and state subsidies. But whatever the market offers in terms of renewable energy, it will always be limited. In order to keep the electricity grid in equilibrium, intermittent resources such as wind and solar power need reliable back-up sources. If the wind dies down, or blows too hard (which trips a shutdown mechanism in commercial windmills), another power source must be ramped up instantly.

#### Still needs natural gas

**Bell, 12** – writes about climate, energy, environmental and space policy issues for Forbes (Larry, “Tax-Blowing Boondoggle: Don't Give Wind Energy More Credit Than It Deserves” 12/11

<http://www.forbes.com/sites/larrybell/2012/12/11/tax-blowing-boondoggle-dont-give-wind-energy-more-credit-than-it-deserves/>

Construction costs for offshore wind power projects runs about $5,000 per kilowatt, or about the same as a nuclear plant which will provide at least three times as much capacity with continuous rather than intermittent output. Even worse, an offshore wind installation costs about five times as much as a natural gas-fired generator to construct per kilowatt, plus also requires a backup power source (typically natural gas) to balance out the power grid during much of the time when the wind isn’t blowing.

### ccp defense

#### No CCP collapse

**Yuan, 11** – associate professor and acting director of the Center for International Security Studies at the University of Sydney (12/20, Jingdong, “The Arab Spring and China's Evolving Middle East Policy,” World Politics Review, http://www.worldpoliticsreview.com/articles/10992/the-arab-spring-and-chinas-evolving-middle-east-policy?page=1)

While Beijing has its concerns over the Arab Spring and its potentially infectious impacts on social and economic stability in China, there are strong reasons to believe that any imminent threat to Communist Party rule remains minimal and manageable. First, in most Middle Eastern countries, the autocratic ruler has personally reigned for decades and has instilled a political order that is typically repressive and nonrepresentative. The lack of any meaningful political participation provides ample frustration and is one of the principal reasons behind the various uprisings. By contrast, although China remains under one-party rule, managed term limits and an institutionalized leadership succession have been put in place. Second, there is a major difference between the Chinese economy and those of the Arab world. Chinese reforms over the past three decades have opened the country’s economy to the world, lifting hundreds of millions of Chinese people out of poverty and creating a sizable middle class that is more interested in gains in personal welfare than in politics. By contrast, the stagnation in many Middle Eastern economies, despite plentiful resources and oil revenues, has infuriated ordinary citizens, especially the restless young, who find employment elusive. However, perhaps the most critical difference is that Beijing retains **total control over the military**, the paramilitary and the police forces, on whose loyalty it can count. Having learned the lessons of the 1989 Tiananmen student uprising, the Chinese authorities quickly introduced and enforced censorship of social media after the initial Arab unrest and were resolute in stopping any organized protests from growing into massive social movements. These actions contrast sharply with the militaries and security forces in countries such as Egypt and Libya, which either split or abandoned the regimes they were supposed to protect, leading to the fall of Mubarak and Gadhafi.

#### No CCP impact

**Feng 2010** [5/10, Zhu, PhD, Professor of School of International Studies and Director of the Center for International & Strategic Studies @ Peking University, has served as research fellow @ Washington based CSIS & Fairbank Center for East Asian Studies @ Harvard University, visiting scholar @ Durham University in UK, “An Emerging Trend in East Asia: Military Budget Increases and Their Impact”, May 10, 2010, http://www.fpif.org/articles/an\_emerging\_trend\_in\_east\_asia]

Many China watchers in the West contend that the weak legitimacy of the Chinese Communist Party (CCP) has spurred its military buildup. But this is mostly an attribution error. Despite a great number of challenges from home and abroad, the CCP’s ruling legitimacy has not suffered from any shock. **The Chinese people do not believe that a change of ruling party** or the party’s relinquishing of power **will resolve their complaints**. Even if domestic unrest flares up, China would likely turn inward rather than outward, even at the cost of effectively muting an assertive foreign policy.

#### They don’t solve—if the CCP is capable of collapsing then other flaws will do it

**Bleicher, 8** – Chief Strategist for New Initiatives in the Overseas Buildings Operations Bureau of the U.S. State Department (Samuel Bleicher “China: Superpower or Basket Case?” May 8. Foreign Policy in Focus. http://www.fpif.org/fpiftxt/5210)

It may not make such interesting reading to say that China is slowly emerging out of feudalism and desperately hopes to use the fruits of Western technology to pull its people away from the edge of starvation, at least for a few decades. And it is extraordinarily difficult to quantify the real economic limitations imposed by China’s environmental and natural resource deficiencies. But these concerns are rarely given serious consideration as real constraints on China’s future development. Equally important, the international policy consequences of a faltering China are not being seriously discussed or explored. The reality is that the Chinese “Communist” central government and Chinese economic, social, political, and legal institutions are quite weak. China is ineffectually governed. It will be struggling for decades to get and stay beyond subsistence. It has built an export-dependent economy ill-suited to meeting its domestic needs, and it will shortly face insurmountable environmental and natural resource obstacles to its rapid growth. The central government has succeeded in unleashing the entrepreneurial, profit-driven economic engine, but it is unable to apply any brakes–that is, to address effectively any of the adverse effects of the single-minded focus on profit. The leadership claims that it recognizes the corrosive economic and social consequences of the current situation and is taking remedial actions. Even if it were seriously committed to these policies as a high priority, the government lacks the mechanisms to rein in the runaway horse.