# 2AC

## States

#### Perm do both –

#### Not textually competitive – plan doesn’t preclude state funding for nuclear power

#### Not functionally competitive: states can supplement federal incentives

Ben-Moshe’ 09 Financing the Nuclear renaissance: The Benefits and Potential Pitfalls of Federal and State Government Subsidies and the Future of Nuclear Power in California, Sony Ben-Moshe, JOason Crowell, Kelly Gale, Breton Peace, Brett Rosenblatt, Kelly Thomason, Energy Bar Association 2009

7. State Financing of Nuclear Energy¶ In addition to federal subsidies, various states have passed legislation to¶ promote the development of new nuclear power plants that supplement the¶ financial incentives provided by the DOE. The most commonly used incentive¶ for nuclear construction in states with rate-regulated utilities are regulations¶ which allow utilities to recover their capital costs and construction work in¶ progress (CWIP) in rate-bases utilized to determine the regulated rates utilities¶ charge to consumers either during construction or once the plant is either put in¶ service or abandoned. The states that do not permit costs to be recovered during¶ construction have a process by which a state commission can annually approve¶ costs on a non-appealable basis for inclusion in the rate-base at commercial¶ operation or abandonment.¶ Both rate-regulated and restructured states also provide tax credits or¶ exemptions for new nuclear construction. Kansas exempts new nuclear facilities¶ from state property taxes while Texas permits school districts to enter into¶ agreements with developers of new nuclear plants to limit the appraised value of¶ the plants for purposes of assessing school district maintenance and operations¶ property taxes.¶ Florida¶ Georgia¶ Idaho¶ Iowa¶ Kansas¶ Louisiana¶ Michigan¶ Mississippi¶ North¶ Carolina¶ South¶ Carolina¶ Texas¶ Utah¶ Virginia¶ Legislation is also currently pending in Indiana and Oklahoma that would¶ provide cost recovery mechanisms for new nuclear construction.156 Other states¶ have recently implemented legislation or regulations indicating their support for¶ construction of nuclear power plants through programs aside from direct¶ financial incentives. Utah passed a bill establishing a state position of ―energy¶ officer‖ and a policy to promote ―the study of nuclear power generation.‖157¶ Illinois, Kentucky, Minnesota and Wisconsin all currently have legislation¶ pending to overturn state moratoria on the construction of new nuclear plants.158¶ Finally, Georgia and Kentucky have issued general resolutions to support¶ development of new nuclear power plants, while many other state or local¶ governments have issued resolutions to support the construction of particular¶ nuclear plants.159 The many states that have recently implemented financial¶ incentives for construction of new nuclear power plants to supplement federal¶ programs, and the states that have released policies in support of nuclear¶ development signify the increasing and widespread support for new nuclear¶ power.¶ Additionally, certain local municipalities and counties have discussed¶ adding nuclear power to their local clean/sustainable energy initiatives. For¶ example, Calvert County in Maryland entered into an agreement with a nuclear¶ power developer providing for a fifty percent tax credit against property taxes for¶ fifteen years so long as the developer invests at least $2.5 million in¶ improvements or equipment in the county and creates at least twenty-five new¶ jobs with salaries above the county median salary.160 It is interesting to note that¶ the Calvert County action reflects a growing recognition that nuclear energy will¶ boost the number of high paying professional jobs in the markets where new¶ nuclear power plants are located.161¶ Having described a number of state-level policies aimed at spurring new¶ development, arguably the most important of all state-level policy initiatives¶ aimed at promoting development of new nuclear power plants is the same policy¶ initiative that drives renewable projects, the renewable portfolio standard, which¶ we describe in detail in the next section

#### The CP can’t solve the aff:

#### Distancing DA- utilizing the logic of net benefits is an act of neoliberal distancing- the neg is stuck to this risk calculus if its their only justification for a different policy option- they’re trying to remove all of the risk associated with federal action and dumping it onto the states- federal government should take responsibility for the effects of its nuclear policy

#### Enforcement DA- States, especially racist ones, will cheat and only marginally enforce to attract business interests

Graham ’98 (Mary, Brookings Institute, “Environmental Protection & the States: ""Race to the Bottom"" or ""Race to the Bottom Line""?” Winter, <http://www.brookings.edu/research/articles/1998/12/winter-environment-graham>, TGA)

To call attention to these changes is not to deny that state and local governments face tough trade-offs, that businesses often lobby to weaken environmental rules, or that some polluters still try to beat the system. Hiring inspectors to enforce the law or buying land to protect a watershed is expensive and must vie for limited state funds with improving schools, building roads, and paying for Medicaid and welfare. Environmental issues continue to be contentious because they often do pit jobs against cleaner air or more conservation, and sometimes both choices offer economic benefits. When stakes are high, business, labor, homeowners, and other groups will fight for their interests. And, of course, there will always be cheaters.¶ Thirty years ago, the assumption that there was a race to the bottom among the states was important because Congress was debating the need for a national framework of environmental protection. That question is now settled. Mainstream Democrats and Republicans agree that air pollution, water pollution, and other environmental problems that cross state lines should continue to be controlled by federal rules. Because most of our daily attention is drawn to hard-fought battles at the perimeter of government authority, it is easy to forget that we have witnessed an exceptional event in the past three decades: the successful introduction of a new theme in national policy.¶ Today, the question of whether states shortchange environmental protection to attract business is important for different reasons. First, we have reached a turning point in national environmental policy in which some readjustment of federal and state roles is inevitable. Thanks in part to the considerable success of national laws aimed at controlling major sources of pollution and encouraging conservation on large tracts of federal land, public attention is now turning to problems that are harder to solve from Washington. The next generation of environmental policies will tackle widely scattered sources of pollution and conservation opportunities that affect farms and housing developments as well as forests and meadows.

#### That cheating allows injustice to take hold in siting decisions. Don’t view the solvency deficit debate in utilitarian terms – that framework has traditionally been used in policy making decisions to make decisions that render populations invisible.

Gauna ‘98

Eileen Gauna Professor of Law, Southwestern University School of Law. ARTICLE: The Environmental Justice Misfit: Public Participation and the Paradigm Paradox 17 Stan. Envtl. L.J. 3 January, 1998

Consider the difficulties with such an approach. Some writers have argued that our general preferences are closely tied to wealth maximization. [n169](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1348092171717&returnToKey=20_T15567043931&parent=docview&target=results_DocumentContent&tokenKey=rsh-23.583864.2788017498" \l "n169) The implication that follows from this assumption is that environmental justice is not included in a more general mix of aggregated preferences. [n170](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1348092171717&returnToKey=20_T15567043931&parent=docview&target=results_DocumentContent&tokenKey=rsh-23.583864.2788017498" \l "n170) If what we want is environmental protection on the cheap, then the best way to achieve it is through injustice. It is more economical to place environmental risk-generating activities in areas where land is cheaper and where the residents, lacking political influence, are less likely to successfully oppose the siting. [n171](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1348092171717&returnToKey=20_T15567043931&parent=docview&target=results_DocumentContent&tokenKey=rsh-23.583864.2788017498" \l "n171) After siting, fines for noncompliance are likely to be lower in low income communities and communities of  [\*41]  color. [n172](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1348092171717&returnToKey=20_T15567043931&parent=docview&target=results_DocumentContent&tokenKey=rsh-23.583864.2788017498" \l "n172) Moreover, if the area is subsequently contaminated, listing on the National Priorities List (NPL) takes longer and clean-up requirements are likely to be less stringent in poor, racial minority, and ethnic communities. [n173](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1348092171717&returnToKey=20_T15567043931&parent=docview&target=results_DocumentContent&tokenKey=rsh-23.583864.2788017498" \l "n173) It appears, then, that environmental inequity is economically efficient, [n174](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1348092171717&returnToKey=20_T15567043931&parent=docview&target=results_DocumentContent&tokenKey=rsh-23.583864.2788017498" \l "n174) at least over the short run. As such, inequity could be viewed as a preference inherent in utilitarianism.Once this proposition is established, poverty-related environmental inequities might be within the realm of acceptable preferences. [n175](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1348092171717&returnToKey=20_T15567043931&parent=docview&target=results_DocumentContent&tokenKey=rsh-23.583864.2788017498" \l "n175) Race-related environmental inequities receive potential redress only as constitutional or civil rights claims, a shield of rights protecting racial and ethnic minorities from majoritarian preferences. [n176](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1348092171717&returnToKey=20_T15567043931&parent=docview&target=results_DocumentContent&tokenKey=rsh-23.583864.2788017498" \l "n176) Unfortunately, traditional civil rights claims have been unsuccessful because of the inability to prove discriminatory intent and the presence of non-racial (economic) explanations for siting decisions suspected of being racially motivated. [n177](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1348092171717&returnToKey=20_T15567043931&parent=docview&target=results_DocumentContent&tokenKey=rsh-23.583864.2788017498" \l "n177) Consequently, unless legislation is enacted that imposes consideration of environmental justice concerns, [n178](http://www.lexisnexis.com/lnacui2api/frame.do?reloadEntirePage=true&rand=1348092171717&returnToKey=20_T15567043931&parent=docview&target=results_DocumentContent&tokenKey=rsh-23.583864.2788017498" \l "n178) so as to confer on environmental justice the status of a collective preference, environmental justice will not be a legitimate stakeholder interest because it is inconsistent with an economically optimal distribution of benefits and burdens.

#### CP can’t solve - federal preemption of the counterplan exists now

Ostrow, associate professor of law at Hofstra Law School, ’11

(Ashira Pelman Ostrow, “Process Preemption in Federal Siting Regimes, Harvard Journal of Law, July 2011, <http://www.harvardjol.com/wp-content/uploads/2011/07/Ostrow_Article.pdf>)

For national security reasons, the federal government has long asserted exclusive authority to manage high-level radioactive waste. 130 The Atomic Energy Act of 1954 131 and the Energy Reorganization Act of 1974 132 granted the Nuclear Regulatory Commission (“NRC”) exclusive regulatory authority over high-level nuclear waste facilities. 133 The statutes left no room for state participation, other than in an advisory capacity for certain transportation issues. 134 Nonetheless, by the late 1970s, the states began to actively regulate, restrict, and even ban the shipment of highly toxic nuclear waste and the establishment of radioactive waste facilities within their borders. 135 To resolve the jurisdictional conflict, Congress enacted the Nuclear Waste Policy Act of 1982 (“NWPA”). 136 The Act was intended to “establish a schedule for the siting, construction, and operation of repositories” to protect the public and the environment “from the hazards posed by high-level radioactive waste.” 137 The NWPA required the Secretary of Energy to nominate five sites for a high-level radioactive waste repository and to recommend three of them to the President for further study by January 1, 1985. 138 The Act further required the Secretary of Energy to develop guidelines by which to evaluate potential repository sites. 139

#### Only the federal government can enforce compliance, create uniform standards, and fund long-term commitments.

Byrne, et al., ‘7

(John, Kristen Hughes, Lado Kurdgelashvili, Wilson Rickerson, all from the Center for Energy and Environmental Policy (CEEP), “American policy conflict in the greenhouse: Divergent trends in federal, regional, state, and local green energy and climate change policy”, 2-19-7, RSR)

Effective global mitigation of climate change will require strong leadership by national governments, including that of the US. More specifically, **national governments remain vital in mandating and enforcing compliance among diverse actors** within their jurisdiction. **Only national governments can promote uniform standards for compliance and related programs, thus ensuring achievement of policy goals with maximum fairness and minimal costs** (Rabe, 2002). **National funding also remains vital to underwrite long-term commitments** needed to meet ever more challenging climate action targets (Rabe, 2002).

#### Federal government best for nuclear power – government action needed to repair past mistakes. This is key to solving the neoliberal distance advantage because the people in charge of making decisions at the federal level have to reconcile themselves to their past mistakes

Karlow, ‘6

(Edwin, PhD Department of Physics at La Sierra University, February, Physics Today, <http://scitation.aip.org/journals/doc/PHTOAD-ft/vol_59/iss_2/11_1.shtml>, accessed 8-1-12, RSR)

The US has substantial precedence and rationale for governmental support of the next generation of nuclear power plants (see "Nuclear Power Needs Government Incentives, Says Task Force," PHYSICS TODAY, May 2005, [page 28](http://scitation.aip.org/journals/doc/PHTOAD-ft/vol_58/iss_5/28_1.shtml)). The early commercial nuclear plants were built with direct federal subsidies and loan guarantees; an example is the Yankee Rowe nuclear power plant built in 1960 under the Atomic Energy Commission's power-demonstration reactor program. The aim of those early demonstration plants was to prove to a fledgling industry that such facilities could be built and operated economically. A significant era for US nuclear funding was the 1970s and 1980s, when nuclear units came in at costs often many times the original estimates. Some plants with billions of dollars invested were never completed. The overspending and stalled projects stemmed from government actions often in response to activists or legal maneuvering. Organizations and individuals with specific agendas took advantage of the Three Mile Island accident to exploit unrelated issues.[1](http://scitation.aip.org/journals/doc/PHTOAD-ft/vol_59/iss_2/11_1.shtml#ref) Plants already under construction were stymied by new requirements that caused tremendous uncertainty both in building and in the actual start-up of power production. The Long Island Lighting Co's Shoreham nuclear plant, for example, was completed at a cost of $5.6 billion, brought briefly to criticality, and then decommissioned, all because of activism and political demagoguery.[2](http://scitation.aip.org/journals/doc/PHTOAD-ft/vol_59/iss_2/11_1.shtml#ref) Today, the reasons for government loan guarantees and other support programs are somewhat different. Vendors having gained experience with overseas projects know how to build advanced nuclear plants, although some of their advanced designs have yet to be implemented. Not surprisingly, any vendor or electric utility, before investing huge amounts, would want some assurance that it would be allowed to complete the plant at a reasonable cost and then operate it. Particularly important is that safety rules and systems requirements not change drastically during construction without very compelling reasons. Given the way governmental entities contributed to the problems of past nuclear power plant construction, it is only fitting that the federal government share substantially in the investment risk. Building nuclear plants is in the nation's interest.

#### Federal government is key to offset major hurdles to construction- investors only trust federal backing due to its control over licensing and regulations.

-Solves government regulations/red tape

NEI 11

Nuclear Energy Institute, Policy Brief Financing New Nuclear Power Plants, May

Loan guarantees are important to financing new nuclear energy projects because of the enormous financial demands facing electric utilities—most of which are relatively small companies—and the business risk associated with licensing the first new nuclear facilities in many years. Nuclear energy projects are very large compared to electric utility companies. The largest electric utility building a nuclear facility has a market value of approximately $34 billion, but most are much smaller. New nuclear energy facilities are expected to cost $6 billion to $8 billion each. The relatively small electric power companies do not have the financing capability to finance nuclear power projects without project partners and limited investment incentives. The loan guarantee program helps offset the disparity in scale between the electric utilities and these large nuclear facility projects. Many regulated electric companies, especially those pursuing multiple power plant and transmission projects at the same time, may be limited in their ability to finance projects without project finance capability because of substantial pressure on credit quality and debt ratings. Electric companies in deregulated markets will be hard-pressed to build nuclear energy facilities and other large capital-intensive baseload projects except on a project finance basis, with the debt financing secured by the federal government. In addition to the magnitude of the investment challenge facing electric utilities, potential investors are concerned that new nuclear facilities could face political and regulatory risks. The risk may be low, but the potential consequences of licensing delays are high. Although the federal government has created a more efficient and predictable licensing process, which should reduce licensing risk, investors remain concerned because of the high cost and long development times for nuclear energy facilities. The industry can build investor confidence by ensuring that licensing and construction of advanced reactor designs is completed on schedule and within budget. However, since the licensing risk is a function of the federal government’s regulatory process, only the federal government—through the loan guarantee program—can offset that risk.

#### Federal funding key:

**Way too expensive for states- Obama has asked for over 100 billion.**

**Mosche 09** (Sony Ben-Mosche, Energy Law Journal, http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&ved=0CCIQFjAA&url=http%3A%2F%2Fwww.lw.com%2FthoughtLeadership%2Ffinancing-the-nuclear-renaissance-in-california&ei=okNwUOfuOarK0AHimYHYDQ&usg=AFQjCNF-TqH\_QJQlbBKg9k1lCAA-EglM9g)

Moreover, the sheer magnitude of debt needed to finance a multi-billion dollar reactor will likely require multiple tranches of debt designed to tap different markets in order to raise sufficient capital.22 Each tranche of debt will price construction and other risks relative to its return and expect sponsor or government support to mitigate any risk in excess of its risk profile. Some studies analyzing projected costs of construction of new nuclear power facilities indicate that due to high capital costs and cost recovery, without federal incentives and with all else remaining equal, nuclear power cannot be economically competitive with other forms of energy such as coal or natural gas.23 These simple facts alone drive an obvious conclusion: the historic single-tranche, simple lockbox project finance model, which has served renewable energy projects in the wind, solar, geothermal, ethanol, biofuel, and related spaces so well, simply will not work for new nuclear power projects without substantial customizing. The incentive structures designed to promote renewables, which are predicated on this simple project finance model and serve as the basis for many of the government subsidies that have been proposed for nuclear power, should also be substantially rethought or customized for nuclear power in order to achieve the greatest efficiency possible.2

## XO

#### Perm, do both

#### CP links to politics – republicans blame Obama for everything, and they’re pissed at him for using a ton of XOs in his first term. Plus, they’re already pissed at him over energy policy because of solyndra. More XOs are only going to make republicans more adamant about not cooperating with ANYTHING just to screw Obama over.

#### Legislative Branch best for nuclear power – government action needed to repair past mistakes. That’s Karlow

## PTX

#### Fiscal issues are top of the agenda – crowd out other fights including domestic energy production

Financial Times 1/2

Fiscal fights threaten US policy goals. 1/2/13. http://www.ft.com/intl/cms/s/0/8f8ef804-5501-11e2-a628-00144feab49a.html?ftcamp=published\_links%2Frss%2Fworld%2Ffeed%2F%2Fproduct#axzz2Gqs9z6FQ.

Moments after the fiscal cliff was averted, President Barack Obama strode to the White House podium to thank congressional leaders from both parties and remind them of other policy challenges ripe for bipartisan co-operation.¶ What followed was an ambitious list of second-term priorities: immigration reform, climate change, lifting domestic energy production, and gun control, on top of perhaps the most important issue, finding ways to lift the economy and incomes.¶ “It’s not just possible to do these things, it’s an obligation to ourselves and to future generations, and I look forward to working with every single member of Congress to meet this obligation in the new year,” he said.¶ The measured peace offering from Mr Obama to Republicans in Congress, however, will run up against a much more rancorous reality on Capitol Hill and promises to make any second-term gains painfully difficult.¶ The confrontation over the fiscal cliff has further undermined relations between Mr Obama and his most important negotiating partner in Congress, John Boehner, the Republican House speaker.¶ “I don’t think either of them regards the other as being able to deliver his own troops,” said William Galston, a former Clinton administration official, now at the Brookings Institution.¶ Within Congress, relations between the Democratic and Republican Senate leaders, Harry Reid and Mitch McConnell, two old warhorses who can usually find ways to do business, also foundered in the fiscal cliff talks.¶ In the short term, fiscal fights will dominate politics for months to come and threaten to crowd out serious consideration of other issues, with a large potential downside for the economy in 2013.

#### Hagel thumper- Obama backing out on another nomination crushes PC

Irish Independent 1/1

Obama faces battle to keep word on breaking political deadlock. 1/1/13. Lexis.

At the moment, former Republican senator Chuck Hagel's name is circulating  
 for the next secretary of defence. Opponents from both parties are already questioning the choice, forcing Obama to reconsider Hagel and the battle that might ensue.

#### Other issues thump and no deal until June

Bennett 12/30

Brain, Reporter, Los Angeles Times, “Immigration reform could get overshadowed in Congress”, http://articles.latimes.com/2012/dec/30/nation/la-na-immigration-20121230

WASHINGTON — The window to pass immigration laws next year is narrowing as the effort competes with a renewed debate over gun laws and the lingering fight over taxes and the budget, according to congressional staffers and outside advocates.¶ Key congressional committees are preparing for a package of gun control laws to be negotiated and possibly introduced in Congress during the first few months of next year. The shift would push the debate in Congress over immigration reform into the spring.¶ But as budget negotiations continue to stir tensions between Republicans and Democrats, and as lobbyists take to their corners over gun laws, some are concerned that the heated atmosphere could spoil the early signs of bipartisan cooperation on immigration that emerged after the election.¶ In phone calls over the holidays, White House officials sought to reassure advocates that the push for gun control won't distract President Obama from his promise to stump for new immigration legislation early in the year.¶ The uncertainty is feeding jitters that Obama may be unable to deliver on his long-standing promise to create a path to citizenship for the 11 million people in the U.S. unlawfully.¶ "I am concerned that an issue such as immigration where we can find strong bipartisan consensus will be demagogued and politicized, because that is the environment," said Alfonso Aguilar, a Republican strategist at the Latino Partnership for Conservative Principles, a Washington-based nonprofit.¶ New gun laws would probably have to pass through the Senate Judiciary Committee, the same committee that would work on an immigration bill that could be hundreds of pages long.¶ The tough work of hammering out a compromise over immigration in the committee would best be wrapped up by the end of June, congressional staffers said, in case one of the Supreme Court justices retires, which would set up a high-profile and time-consuming nomination process that could overshadow the immigration issue.

#### Won’t pass – Tea Party

Deutsche-Press 1/1

Deal or no deal, only losers in US fiscal battle. 1/1/13. Lexis.

Obama ¶ has declared that immigration reform and investment in the¶ country's decaying infrastructure are his priorities for 2013. But¶ the Republicans, with their outspoken Tea Party faction, will likely¶ block those initiatives.

#### \*\*\*PC not key – Republicans will cave to win elections

Yahoo News 1/2

How Obama won and lost in 'fiscal cliff' deal. 1/2/13. http://news.yahoo.com/obama-won-lost-fiscal-cliff-deal-182456028.html.

Typically, reelected presidents begin their second terms with a bit of fresh political capital in the bank and about an 18-month window in which to accomplish anything. Fiscal matters could easily deplete Obama’s balance. And with each passing month, Congress becomes increasingly concerned about midterms – particularly House members, who face reelection every two years, and the one-third of the Senate that is up for reelection.¶ Immigration reform could be an exception: Republicans face a crisis in their declining Hispanic support, and the issue has shot to the top of their agenda. That, coupled with Obama’s longstanding pledge to enact comprehensive reform, could mean action, almost regardless.

## Meltdowns

#### Global nuclear power development now

Ferguson 12

Charles D. Ferguson is the president of the Federation of American Scientists. Nuclear Power's Uncertain Future. March 15, 2012. http://nationalinterest.org/commentary/nuclear's-uncertain-future-6643.

On the opposite side of the world, China has about two dozen reactors under construction and many more planned. After the Fukushima accident, Beijing temporarily halted construction and said the right words about making sure safety is a top priority. But the real test will be its follow-through in training the legions of people who can safely operate and inspect these reactors. The toughest challenge will be instilling a safety culture in which everyone at a nuclear plant can report safety violations without fear of retribution. Although China’s rate of nuclear construction is impressive, the pace of its building coal plants as well as installing wind turbines and solar power is even more brisk. India also has grand nuclear-expansion plans, but antinuclear protesters have stymied completion of a Russian-built plant at Kandukulam as well as startup of new projects. In December 2004, the great tsunami that swept through the Indian Ocean raised concerns about the vulnerability of some Indian nuclear plants. In response to Fukushima, South Korea gave its regulatory agency more authority. While also vulnerable to earthquakes and tsunamis, the country has a severe shortage of indigenous sources of fuels, so its national policy has emphasized expanding nuclear power’s capacity to generate more than half of its electricity by 2030. **S**eoul has also developed a successful model for building nuclear plants, paying close attention to costs and project management. Its most recent plant was reportedly built within budget and on time. The Koreans are determined to demonstrate this model in the United Arab Emirates, which in December 2009 ordered four large reactors from South Korea at the price of about $20 billion. If successful, the UAE project could set the stage for competitive nuclear power.

#### Three Mile Island proves safety measures work

Gray ‘9

John Gray. Associate at Perkins Coie. Choosing the nuclear option: the case for a strong regulatory response to encourage nuclear energy development. 41 Ariz. St. L.J. 315-348 (2009).

The United States' "worst nuclear accident," Three Mile Island, actually proves nuclear power plants' safety. n106 "Safety devices worked as designed and prevented any injury from occurring to humans, animals, or the environment. Moreover, the accident directly resulted in improved procedures, instrumentation, and safety systems, and now our nuclear reactor power plants are substantially safer." n107 With today's nuclear power plants even safer, critics' disaster scenarios appear unwarranted.

#### Safety record on nuclear better than other energy- Chernobyl can’t happen in the US.

Westmoreland-12

Lynn congressman from the 3rd district in Georgia), “Nuclear Power Is the Energy of Our Future”, May 31. <http://westmoreland.house.gov/index.php?option=com_content&view=article&id=648&Itemid=363>. Google.7/7/12.

Unfortunately, there are those who continue to fight the expansion of nuclear power, including President Obama. Many opponents of this emissions-free energy source claim safety is their biggest concern. However, the safety record of nuclear power is good when compared with many other energy technologies. In fact, nuclear power has caused far fewer accidental deaths per unit of energy generated than other major forms of power generation. When you combine the total number of nuclear reactors ever used and the number of years they have functioned, you come up with approximately 14,500 cumulative reactor-years of commercial nuclear power. And in that time, there have been only three major accidents. The only one to occur in the United States, Three Mile Island, was contained without harm to anyone. The most harmful of these accidents, Chernobyl, could never happen here in the United States. Take this statement from a New York Times op-ed from 1987 by the co-chairmen of the Select Panel for Post-Chernobyl Safety Review, “Western-type reactors are so totally different from the Soviet RBMK reactor – in principal design, construction and operation – that a Chernobyl-type accident is simply not possible at Indian Point or any other US nuclear power plant. This conclusion has been reaffirmed by a variety of institutions, including the International Atomic Energy Agency.”

#### Minimal impact to meltdowns

Cohen 11

Professor at the University of Pittsburgh <http://www.physics.isu.edu/radinf/np-risk.htm> RISKS OF NUCLEAR POWER Bernard L. Cohen, Sc.D. Professor at the University of Pittsburgh 3/16/2011

Risks from reactor accidents are estimated by the rapidly developing science of "probabilistic risk analysis" (PRA). A PRA must be done separately for each power plant (at a cost of $5 million) but we give typical results here: A fuel melt-down might be expected once in 20,000 years of reactor operation. In 2 out of 3 melt-downs there would be no deaths, in 1 out of 5 there would be over 1000 deaths, and in 1 out of 100,000 there would be 50,000 deaths. The average for all meltdowns would be 400 deaths. Since air pollution from coal burning is estimated to be causing 10,000 deaths per year, there would have to be 25 melt-downs each year for nuclear power to be as dangerous as coal burning. Of course deaths from coal burning air pollution are not noticeable, but the same is true for the cancer deaths from reactor accidents. In the worst accident considered, expected once in 100,000 melt-downs (once in 2 billion years of reactor operation), the cancer deaths would be among 10 million people, increasing their cancer risk typically from 20% (the current U.S. average) to 20.5%. This is much less than the geographical variation--- 22% in New England to 17% in the Rocky Mountain states. Very high radiation doses can destroy body functions and lead to death within 60 days, but such "noticeable" deaths would be expected in only 2% of reactor melt-down accidents; there would be over 100 in 0.2% of meltdowns, and 3500 in 1 out of 100,000 melt-downs. To date, the largest number of noticeable deaths from coal burning was in an air pollution incident (London, 1952) where there were 3500 extra deaths in one week. Of course the nuclear accidents are hypothetical and there are many much worse hypothetical accidents in other electricity generation technologies; e.g., there are hydroelectric dams in California whose sudden failure could cause 200,000 deaths.

## Oil

#### Nuclear power does not compete with oil – they show little overlap with market.

Toth and Rogner, ‘6

(Ferenc (Senior Energy Economist in the IAEA's Planning and Economic Studies Section) and Hans-Holger (Section Head, Planning and Economic Studies Section at the IAEA), “Oil and nuclear power: Past, present, and future”, Energy Economics 28, 2006, pg. 22, RSR)

While the past expansion of nuclear energy occurred to the detriment of oil in the power sector, this is no longer the case today and highly unlikely to reoccur in the future. The respective market structures in which nuclear and oil operate now display little overlap and an expansion of nuclear power would not impinge on oil sales to power generation. Nuclear supplies base load to large grid-integrated markets where oil provides some peak supply, back-up capacity, small-scale and non-grid applications. Oil’s main markets are the low energy demand intensity rural and remote areas usually with little or no grid integration. In an environmentally unconstrained future, nuclear power competes primarily against coal and possibly natural gas, depending on how closely natural gas prices track oil market prices and whether or not gas infrastructures are in place. However, current trends towards electricity market liberalization relying more on private sector shareholder value maximization create economic barriers to the expansion of present-day nuclear plants because of their high up-front capital costs and long amortization periods. In the absence of public policy support and/or the emergence of innovative reactor designs that lower the costs and further improve operating safety, nuclear power’s market share might indeed follow a downward trajectory. Yet there is some evidence to the contrary. The order of the new Olkiluoto reactor in Finland is based on several studies, each confirming that nuclear generation is the best economic option to satisfy increasing demand for electricity (WNA, 2004).

#### No relationship between nuke and oil

Toth 2006 (Ferenc L. Toth, senior energy economist with the Planning and Economic Studies Section in the Department of Nuclear Energy at IAEA, Hans-Holger Rogner, head of Planning and Economic Studies at IAEA, “Oil and nuclear power: Past, present, and future,” IAEA, http://www.iaea.org/OurWork/ST/NE/Pess/assets/oil+np\_toth+rogner0106.pdf)

The current relationship between nuclear power and oil has become distinctly different than it was a few decades ago. At the onset of the 21st century, nuclear and oil for electricity generation are targeting different electricity market segments with little overlap in the longer run. Oil for electricity generation in most industrialized countries serves, where not barred for environmental reasons, more the function of the disposal of residual oil for which no other applications can be found. However, advanced refineries converting larger portions of the barrel into premium products and stringent environmental regulation constrain the use of residual oil for power generation. Other uses of oil products include peak supply, back-up fuel, and dispersed non-grid generation. These markets have been relative captive for oil but this may change in the future with the advent of fuel cells. Since nuclear power has no role to play in these captive markets, growth prospects for oil are unaffected by a nuclear presence in the electricity generating market.

#### No indirect effects

Toth 2006 (Ferenc L. Toth, senior energy economist with the Planning and Economic Studies Section in the Department of Nuclear Energy at IAEA, Hans-Holger Rogner, head of Planning and Economic Studies at IAEA, “Oil and nuclear power: Past, present, and future,” IAEA, http://www.iaea.org/OurWork/ST/NE/Pess/assets/oil+np\_toth+rogner0106.pdf)

The second dimension of the oil–nuclear competition is indirect: nuclear electricity versus oil products at the level of end-use. It involves many factors including economics, productivity, convenience, regulation, availability, product quality, and social preferences. These factors limit the room for competition between electricity and oil products (and vice versa) in the residential, commercial, industrial, feedstock and transportation markets. Here the characteristics of fuels and associated conversion technologies can be an advantage or disadvantage in meeting a particular energy service demand. As we have witnessed over recent decades, transportation services have remained the domain of oil products despite many government policies targeted at the introduction of non-oil based transportation fuels including electric cars. Likewise, many energy services are exclusively a domain of electricity (information/communication, lighting, control, etc.) where oil products are essentially excluded. Electricity is an end-use energy technology without any emissions, highly efficient, versatile, and convenient to use. No wonder then that it has been the fastest growing end-use energy carrier worldwide. Oil use outside the transportation and chemical sectors (feedstock) and non-energy use has declined in the residential, commercial, and industrial sectors of the OECD countries (1973: 707 Mtoe; 2002: 403 Mtoe) in large part as a result of increased use of electricity and natural gas. In developing countries, oil use in these sectors has been increasing from 124 Mtoe to 354 Mtoe over the 1973–2002 period (IEA, 2004). Globally, however, oil use in these sectors has declined from 960 Mtoe to 811 Mtoe over this period.

#### SMRs key to chemical industry

Solan 2010 (David Solan, Director, Energy Policy Institute, Associate Director, Center for Advanced Energy Studies, Assistant Professor of Public Policy and Administration at Boise State University, June 2010, “ECONOMIC AND EMPLOYMENT IMPACTS OF SMALL MODULAR NUCLEAR REACTORS,” Energy Policy Institute, http://www.nuclearcompetitiveness.org/images/EPI\_SMR\_ReportJune2010.pdf)

Process Heat for Industrial Applications and District Heating. SMRs can be used to provide heat over temperature ranges from 100 to 200 degrees centigrade to over 800 degrees centigrade, depending on the design of the SMR and the technology used in it. During the production of electricity, more than half of the heat generated is rejected at low temperature. This residual heat is usable for various industrial applications. Higher temperature process heat can be used for a variety of industrial applications, such as the production of glass, plastics, steel, and ammonia (Office of Nuclear Energy, 2009). In addition concepts for producing carbon-neutral synthetic fuels and chemicals, often propose the coupling of systems, including nuclear, for a source of carbon-free heat and hydrogen needed in their processes (Los Alamos National Laboratory, 2008). Given the modularity of SMRs, these reactors offer advantages in areas or applications where heat is needed but where the large heat output and expense of a large nuclear reactor makes its application impractical.

#### Extinction

CEN 1999 (Chemical and Engineering News, December 6, 1999, “Millennium Special Report,” Vol. 77, No. 49, online)

The pace of change in today's world is truly incomprehensible. Science is advancing on all fronts, particularly chemistry and biology working together as they never have before to understand life in general and human beings in particular at a breathtaking pace. Technology ranging from computers and the Internet to medical devices to genetic engineering to nanotechnology is transforming our world and our existence in it. It is, in fact, a fool's mission to predict where science and technology will take us in the coming decade, let alone the coming century. We can say with finality only this: We don't know. We do know, however, that we face enormous challenges, we 6 billion humans who now inhabit Earth. In its 1998 revision of world population estimates and projections, the United Nations anticipates a world population in 2050 of 7.3 billion to 10.7 billion, with a "medium-fertility projection," considered the most likely, indicating a world population of 8.9 billion people in 2050. According to the UN, fertility now stands at 2.7 births per woman, down from 5 births per woman in the early 1950s. And fertility rates are declining in all regions of the world. That's good news. But people are living a lot longer. That is certainly good news for the individuals who are living longer, but it also poses challenges for health care and social services the world over. The 1998 UN report estimates for the first time the number of octogenarians, nonagenarians, and centenarians living today and projected for 2050. The numbers are startling. In 1998, 66 million people were aged 80 or older, about one of every 100 persons. That number is expected to increase sixfold by 2050 to reach 370 million people, or one in every 24 persons. By 2050, more than 2.2 million people will be 100 years old or older! Here is the fundamental challenge we face: The world's growing and aging population must be fed and clothed and housed and transported in ways that do not perpetuate the environmental devastation wrought by the first waves of industrialization of the 19th and 20th centuries. As we increase our output of goods and services, as we increase our consumption of energy, as we meet the imperative of raising the standard of living for the poorest among us, we must learn to carry out our economic activities sustainably. There are optimists out there, C&EN readers among them, who believe that the history of civilization is a long string of technological triumphs of humans over the limits of nature. In this view, the idea of a "carrying capacity" for Earth—a limit to the number of humans Earth's resources can support—is a fiction because technological advances will continuously obviate previously perceived limits. This view has historical merit. Dire predictions made in the 1960s about the exhaustion of resources ranging from petroleum to chromium to fresh water by the end of the 1980s or 1990s have proven utterly wrong. While I do not count myself as one of the technological pessimists who see technology as a mixed blessing at best and an unmitigated evil at worst, I do not count myself among the technological optimists either. There are environmental challenges of transcendent complexity that I fear may overcome us and our Earth before technological progress can come to our rescue. Global climate change, the accelerating destruction of terrestrial and oceanic habitats, the catastrophic loss of species across the plant and animal kingdoms—these are problems that are not obviously amenable to straightforward technological solutions. But I know this, too: Science and technology have brought us to where we are, and only science and technology, coupled with innovative social and economic thinking, can take us to where we need to be in the coming millennium. Chemists, chemistry, and the chemical industry—what we at C&EN call the chemical enterprise—will play central roles in addressing these challenges. The first section of this Special Report is a series called "Millennial Musings" in which a wide variety of representatives from the chemical enterprise share their thoughts about the future of our science and industry. The five essays that follow explore the contributions the chemical enterprise is making right now to ensure that we will successfully meet the challenges of the 21st century. The essays do not attempt to predict the future. Taken as a whole, they do not pretend to be a comprehensive examination of the efforts of our science and our industry to tackle the challenges I've outlined above. Rather, they paint, in broad brush strokes, a portrait of scientists, engineers, and business managers struggling to make a vital contribution to humanity's future.