## T

### Violation 2NC

#### The EIA says “energy production” is specific to the type of fuel

EIA – no date (accessed 8/28/12), Glossary: production, <http://www.eia.gov/tools/glossary/index.cfm>

Energy production: See production terms associated with specific energy types.

#### In the context of nuclear power that means the physical process of generating electricity from fission

US EIA (Energy Information Administration) - October 19, 2011, Annual Energy Review 2010, http://www.eia.gov/totalenergy/data/annual/pdf/aer.pdf

Nuclear Electric Power (Nuclear Power): Electricity generated by the use of the thermal energy released from the fission of nuclear fuel in a reactor.

#### \*\*“For” means the incentive must have a direct relation to its object – energy production. The aff’s incentive does not have a DIRECT RELATION to the conversion of nuclear fission to electricity. Incentives for facilities exist whether or not the energy is produced

Ogden et al, researchers at CAP, 8

(Peter Ogden, senior policy analyst at the Center for American Progress, John Podesta, president and CEO at the Center for American Progress, John Deutch, trustee at the Center for American Progress, Institute Professor at MIT, “Ending the Inertia on Energy Policy”, National Academy of Sciences Issues in Science and Technology Brief, http://www.issues.org/24.2/ogden.html)

It is important to note that different measures have different incentives. Production tax credits (such as those for wind power) and guaranteed purchases spend government money on projects that successfully produce some product, whereas loan guarantees are designed to provide protection for the investor even if the project fails.

#### Contextual ev proves the distinction – “production costs” are separate from “capital costs”

Tanaka and Echávarri – IEA/NEA - 2010

Nobuo Tanaka (Exec Dir., International Energy Agency) and Luis Echávarri (Dir. General, Nuclear Energy Agency), Technology Roadmap: Nuclear Energy, <http://www.iea.org/papers/2010/nuclear_roadmap.pdf>

Building a nuclear power plant requires a large capital investment, but once in operation it has relatively low and predictable fuel, operating and maintenance costs. This means that nuclear plants have low marginal costs of production, but take many years to recoup their capital costs. Hence, maximising their lifetime generation makes good economic sense, even where this involves further investment to update systems and components. It will also help reduce cumulative CO2 emissions from the electricity sector.

### Limits 2nc

#### The aff doesn’t incentivize production, it incentivizes people to build more factors of production – that explodes the topic by allowing all varieties of R&D, labor force support, accelerated depreciation, investment tax credits, CWIP and dozens of others – see the chart below

\*\*\*The following will only show up in “web” view or “read” view – not in in “draft”

Doug Koplow - founder of Earth Track, Harvard MBA, Union of Concerned Scientists – Feb 2011

NUCLEAR POWER: Still Not Viable without Subsidies, Union of Concerned Scientists, <http://www.ucsusa.org/assets/documents/nuclear_power/nuclear_subsidies_report.pdf>



## Case

### S

#### Tech changes

Davis, Prof. at Haas School of Business, 2011

[August 2011, Lucas W., Assistant Professor at the Haas School of Business, UC Berkeley, “Prospects for U.S. Nuclear Power After Fukushima,” http://ei.haas.berkeley.edu/pdf/working\_papers/WP218.pdf]

Finally, investments in nuclear power face considerable technology risk. Over the 40+ year lifetime of a nuclear power reactor the available sources of electricity generation could change and there is risk that an alternative, lower-cost technology could come along. This could be a technology that is known today such as wind or solar that quickly becomes more cost-eﬀective or some other technology that is currently unknown. Alternative forms of carbon abatement represent another form of technology risk, including, for example, carbon capture and storage or energy eﬃciency technologies that reduce electricity demand.

#### Takes decades – requires re-orienting the ENTIRE manufacturing industry

Ryan, Masters in Mech. Engineering, 2011

[Dylan, Masters in Mechanical Engineering, expertise in energy, sustainability, Computer Aided Engineering, renewables technology; PhD in solar energy systems, “Part 10 – Small modular reactors and mass production options,” http://daryanenergyblog.wordpress.com/ca/part-10-smallreactors-mass-prod/-http://daryanenergyblog.wordpress.com/ca/part-10-smallreactors-mass-prod/]

So there are a host of practical factors in favour smaller reactors. But what’s the down side? Firstly, economies of scale. With a small reactor, we have all the excess baggage that comes with each power station, all the fixed costs and a much smaller pay-off. As I noted earlier, even thought many smaller reactors are a lot safer than large LWR’s (even a small LWR is somewhat safer!) you would still need to put them under a containment dome. It’s this process of concrete pouring that is often a bottle neck in nuclear reactor construction. We could get around the problem by clustering reactors together, i.e putting 2 or 4 reactors not only on the same site but under the same containment dome. The one downside here is that if one reactor has a problem, it will likely spread to its neighbours. How much of a showstopper this fact is depends on which type of reactors we are discussing. Also, in the shorter term small reactors would be slower to build, especially many of those we’ve been discussing, given that they are often made out of non-standard materials. Only a few facilities in the world could build them as the entire nuclear manufacturing industry is currently geared towards large LWR’s. Turning that juggernaut around would take decades. So by opting for small reactors while we’d get safer more flexible reactors, we be paying for it, as these reactors would be slower to build (initially anyway) and probably more expensive too.

#### No private spillover – expanding the government’s role beyond financial incentives eliminates demonstration value

Deutch and Ansolabehere, Professor of chemistry at MIT and Professor of Political Science at MIT, 03 (The Future of Nuclear Power, <http://web.mit.edu/nuclearpower/>)

The second type of “demonstration” project is a first nuclear project carried out by industry, whose success would demonstrate to other private generators that the risks associated with nuclear power are manageable and the cost of new nuclear power is acceptable. Evidently, this type of demonstration is credible only if the government is not involved in design and construction or involved in an indirect manner. Otherwise the project has no “demonstration” value to practical investors considering future investments. The purpose of this demonstration is not to demonstrate a new technology but rather to demonstrate the cost of practical realization of a technology selected by private investors. But a first project bears a risk that subsequent projects do not bear. Investors in subsequent projects have the knowledge that the first of a kind project has been successful (in which case they proceed with greater confidence) or that it has failed (in which case they do not proceed).3 Yet, if the plant successfully meets its cost targets, a large number of additional plants will be built by the industry, taking advantage of the resolution of risk accomplished by the first project were it to proceed. The initial project backers cannot capture the value of the information they provide to subsequent projects. Clearly there is a value to going second and a rational reason to share the risk of the first plant among an entire industry. Such sharing of risk is a matter of bargaining and difficult to achieve in practice. So it may well be in the government’s interest to step in to assure that the demonstration occurs and the uncertainty is resolved. Given the circumstances of nuclear power today, this government interest in the demonstration of actual cost is justified, even when the technology selected is known and plants have been built in the past (although at a cost that today would be considered unaffordable). There must, of course, be a credible basis for believing that technology and industry practices have changed so that a lower capital cost outcome is a reasonable possibility. If the demonstration project results are to be credible to the private sector, the government’s involvement must not be intrusive. We believe the government should step in and increase the likelihood of practical demonstration of nuclear power by providing financial incentive to first movers. We propose a production tax credit of up to $200 per kWe of the construction cost of up to ten “first mover” plants. This benefit might be paid out at 1.7 cents per kWe-hr, over a year and a half of full-power plant operation, since the annual value of this production credit for a 1000 MWe plant operating at 90% capacity factor is $134 million. The $200 per kWe government subsidy would provide $200 million for a 1000 MWe nuclear plant, about 10% of the historically-based total construction cost estimate; accordingly the total outlay for the program could be up to $2 billion paid out over several years.

### grid

#### Resilient -- cyberattacks won’t wreck tech infrastructure.

Lawson, ‘11

[Sean, Phd in Science and Technology Studies -- Department of Communication at the University of Utah, Associate National Security Analyst with DynCorp Systems & Solutions, WORKING PAPER BEYOND CYBER-DOOM: Cyberattack Scenarios and the Evidence of History January 2011 No. 11-01 Mercatus Center George Mason University]

History & Sociology of Infrastructure Failure Even today, planning for disasters and future military conflicts alike, including planning for future conflicts in cyberspace, often relies upon hypothetical scenarios that begin with the same assumptions about infrastructural and societal fragility found in early 20th-century theories of strategic bombardment. Some have criticized what they see as a reliance in many cases upon hypothetical scenarios over empirical data (Glenn, 2005; Dynes, 2006; Graham & Thrift, 2007: 9–10; Ranum, 2009; Stiennon, 2009). But, there exists a body of historical and sociological data upon which we can draw, which casts serious doubt upon the assumptions underlying cyberdoom scenarios. Work by scholars in various fields of research, including the history of technology, military history, and disaster sociology has shown that both infrastructures and societies are more resilient than often assumed by policy makers. WWII Strategic Bombing Interwar assumptions about the fragility of interdependent industrial societies and their vulnerability to aerial attack proved to be inaccurate. Both the technological infrastructures and social systems of modern cities proved to be more resilient than military planners had assumed. Historian Joseph Konvitz (1990) has noted that “More cities were destroyed during World War II than in any other conflict in history. Yet the cities didn’t die.” Some critical infrastructure systems like power grids even seem to have improved during the war. Historian David Nye (2010: 48) reports that the United Kingdom, Germany, and Italy all “increased electricity generation.” In fact, most wartime blackouts were self-inflicted and in most cases did not fool the enemy or prevent the dropping of bombs (Nye, 2010: 65). Similarly, social systems proved more resilient than predicted. The postwar U.S. Strategic Bombing Survey, as well as U.K. studies of the reaction of British citizens to German bombing, all concluded that though aerial bombardment led to almost unspeakable levels of pain and destruction, “antisocial and looting behaviors . . . [were] not a serious problem in and after massive air bombings” (Quarantelli, 2008: 882) and that “little chaos occurred” (Clarke, 2002: 22). Even in extreme cases, such as the the atomic bombing of Hiroshima, social systems proved remarkably resilient. A pioneering researcher in the field of disaster sociology describes that within minutes [of the Hiroshima blast] survivors engaged in search and rescue, helped one another in whatever ways they could, and withdrew in controlled flight from burning areas. Within a day, apart from the planning undertaken by the government and military organizations that partly survived, other groups partially restored electric power to some areas, a steel company with 20 percent of workers attending began operations again, employees of the 12 banks in Hiroshima assembled in the Hiroshima branch in the city and began making payments, and trolley lines leading into the city were completely cleared with partial traffic restored the following day (Quarantelli, 2008: 899). Even in the most extreme cases of aerial attack, people neither panicked, nor were they paralyzed. Strategic bombardment alone was not able to exploit infrastructure vulnerability and fragility to destroy the will to resist of those that were targeted from the air (Freedman, 2005: 168; Nye, 2010: 43; Clodfelter, 2010). In the aftermath of the war, it became clear that theories about the possible effects of aerial attack had suffered from a number of flaws, including a technological determinist mindset, a lack of empirical evidence, and even willfully ignoring evidence that should have called into question assumptions about the interdependence and fragility of both technological and social systems. In the first case, Konvitz (1990) has argued that “The strategists’ fundamental error all along had been [giving] technology too much credit, and responsibility, for making cities work—and [giving] people too little.” In his study of U.S. bombardment of Germany, Clodfelter (2010) concluded that the will of a nation is determined by multiple factors, both social and technical, and that it therefore takes more than targeting any one technological system or social group to break an enemy’s will to resist. Similarly, Konvitz (1990) concluded that, “Immense levels of physical destruction simply did not lead to proportional or greater levels of social and economic disorganization.” Next, theories of strategic bombardment either suffered from a lack of supporting evidence or even ignored contradictory evidence. Lawrence Freedman (2005: 168) has lamented that interwar theories of strategic bombardment were implemented despite the fact that they lacked specifics about how results would be achieved or empirical evidence about whether those results were achievable at all. Military planners were not able to point to real-world examples of the kind of social or technological collapse that they claimed would result from aerial attack. But they were not deterred by this lack of empirical evidence. Instead, they maintained that “The fact that infrastructure systems had not failed . . . is no proof that they are not susceptible to failure” and instead “emphasized how air raids could exploit the same kind of collapse that might come in peace” (Emphasis added. Konvitz, 1990). Airpower theorists were not even deterred by seemingly contradictory evidence. Instead, such evidence was either ignored or explained away. For example, during the 1930s, New York City suffered a series of blackouts that demonstrated that the social disruption caused by the sudden lack of power was not severe. In response, airpower theorists argued that the results would have been different had the blackouts been the result of intentional attack (Konvitz, 1990). But the airpower theorists missed the mark in that prediction too. Instead of leading to panic or paralysis, intentional aerial bombardment of civilians “angered them and increased their resolution” (Nye, 2010: 43; Freedman, 2005: 170). The social reaction to strategic bombardment is just one example of how efforts both to carry out, but also to defend against, such attacks often led to results that were the opposite of what was predicted or intended. One study of the mental-health effects among victims of strategic bombing found that excessive precautionary measures taken in an attempt to prevent the panic and paralysis predicted by theorists did more to “weaken society’s natural bonds and, in turn, create anxious and avoidant [sic] behavior” than did the actually bombing (Jones et al., 2006: 57). Similarly, in cases of intentional, self-inflicted blackouts, fear of what might happen to society were the power grid to fail led to a self-inflicted lack of power that not only did not have the desired military effect but may also have been an example of excessive, counterproductive precaution (Nye, 2010: 65).

#### smrs suck at it and you should feel bad

Ryan, Masters in Mech. Engineering, 2011

[Dylan, Masters in Mechanical Engineering, expertise in energy, sustainability, Computer Aided Engineering, renewables technology; PhD in solar energy systems, “Part 10 – Small modular reactors and mass production options,” http://daryanenergyblog.wordpress.com/ca/part-10-smallreactors-mass-prod/-http://daryanenergyblog.wordpress.com/ca/part-10-smallreactors-mass-prod/]

One of the other advantages of small or micro sized reactors, the ability to provide power for micro grids, may not be all its cracked up to be. In many cases a combination of renewables backed up by biomass fuel, or fossil fuels often works out cheaper and more practical. One example often sited for these modular reactors is remote Artic stations and military bases. However, putting a reactor here ignores certain realties, notably that such sites are usually only occupied for part of the year. Artic stations often shut down over the winter with most of the serious scientists going home. The rest of the year a small skeleton crew keeps things running and basically keep digging the place out of the snow. By keeping a reactor on site we greatly increase the size of this skeleton crew (even a turnkey reactor needs someone to look after it!). Once you factor in the increased costs imposed by this, plus the higher capital costs of the nuclear plant to begin with, plus the difficulty of getting it and many tons of concrete (to provide radiation shielding) out to the middle of a wilderness, you realise it would be much cheaper just sticking with a diesel generator and shipping in the fuel. Indeed even the DEW line radar sites which operated from the 1950’s to 1990’s year round deep within the Canadian Artic, were powered by diesel generators. The idea of nuclear power was indeed floated, but dropped as impractical and too costly. As far as active military bases, there is the tactical issue of shipping the reactors in (if I were the enemy I know when I’d chose to attack!) plus the small matter of running or refuelling a nuclear reactor while under fire from incoming artillery!

### China

#### Empirics prove no escalation.

White 08 – Australian National University strategic studies professor (Hugh, “Why War in Asia Remains Thinkable”, 2010, Survival, vol. 50 no. 6, Ebsco)

If we conceive of ‘wars’ the way our parents and grandparents did – as major conflicts among powerful states that disrupt the lives of billions and transform the international order – then war in Asia today seems close to unthinkable. For over 30 years, East Asia has enjoyed peace such as it has probably never known before. In Northeast Asia, the region’s major powers – China, Japan and the United States – have maintained harmonious and cooperative relationships. Moreover, excluding only minor incidents in the Spratly Islands, none of East Asia’s major powers has used significant force against another Asian country since China’s limited war against Vietnam in 1979. For 40 years, the members of ASEAN have largely forsworn the use of force against one another; difficult issues like Taiwan, North Korea and the Spratlys have been effectively managed, and the deep problems of Indochina have been addressed. Minor clashes remain possible in trouble spots such as the Thailand–Myanmar border, and on Asia’s western margin there remains a real risk of major, even nuclear, war between India and Pakistan. But even the risk of an India–Pakistan war does not seem to threaten an outbreak of major war in East Asia.

#### No U.S-China conflict over Africa.

Paul McLeary 07, staff writer for the Columbia Journalism Review, March 2007, Foreign Policy, http://www.foreignpolicy.com/story/cms.php?story\_id=3744&print=1

China’s interests in Africa are overwhelmingly economic. Gone are the days when China’s main interest in African countries was to ensure that they didn’t establish diplomatic relations with Taiwan. For the resource-hungry Chinese, Africa’s oil and mineral deposits are enticing, and the continent has provided a growing market for cheap Chinese textile goods. China’s trade with Africa rose from $10.6 billion in 2000 to about $55 billion in 2006, and Chinese Premier Wen Jiabao says China intends to increase trade with the continent to $100 billion by 2010. A good chunk of this trade has to do with African oil. China has accounted for a full 40 percent of the total growth in global demand for oil over the last four years, and has shot past Japan as the world’s second-largest consumer of oil behind the United States. Just this past January, the Chinese energy company CNOOC Ltd. announced plans to purchase a 45 percent stake in an offshore Nigerian oil field for $2.27 billion. For the United States, the calculus for getting more involved in Africa is vastly different. While the world’s attention has been riveted on Iraq, Afghanistan, and Pakistan for the past six years, countries in the Horn and northern Africa have seen an alarming increase in interstate conflict. There is also the resurgent Salafist Group for Preaching and Combat, a terrorist group in Algeria that has just changed its name to the Al Qaeda Organization in the Islamic Maghreb. AFRICOM’s portfolio will be to monitor these conflicts and groups, train indigenous militaries to confront terrorist threats, and to respond militarily, as in Somalia this past winter, when the situation arises. All that comes on top of the continued humanitarian missions regularly conducted by the Pentagon in various African countries such as Liberia. Washington now believes that the potential threats emanating from Africa are significant enough to warrant a single, coherent command structure devoted to the continent, as opposed to the past system of several combatant commands sharing responsibility and potentially working at cross purposes. But these motivations—a pursuit of energy resources and desire to quell the most dangerous forms of instability—will probably not lead to any direct conflicts between the United States and China any time soon, if ever. Rather, if these two powers are going to come to blows in the near term, it will most likely be in the diplomatic and development arena. Although a geostrategic competition over oil supplies in Africa remains unlikely, a greater concern, according to Alex de Waal, a fellow at the Global Equity Initiative at Harvard University, is the way in which “the peace and security and democracy agenda … has been jeopardized by the Chinese weighing in with large scale uncritical support of Sudan, of Zimbabwe, and Angola.” For years, China has been offering loans, building critical infrastructure, and providing engineering and military advice and hardware to African regimes without extracting any promises that the regimes clean up their human rights records—something Western countries insist upon before aid is shipped. This uncritical support of its African partners has allowed China to make diplomatic inroads on the continent, since it provides aid without strings attached, as opposed to the Western approach of basing aid on human rights and good governance benchmarks that many African regimes are unwilling, or slow, to make. Put simply, an African farmer would rather have a Chinese road built from his village to the market today, rather than wait for an American or World Bank road to be built only after the government makes the required reforms. Thus, it’s on human rights and governance, not oil or strict security matters, that the interests of the United States and China will likely collide. In such a fight, China’s unfettered aid would seem to have the upper hand. But that may not necessarily be so. “In places like South Africa and Nigeria, the flood of textiles has displaced a lot of people in the textile industry,” says Jennifer Cooke, co-director of the Center for Strategic and International Studies’ Africa Program. “And as they get more engaged, they’re going to be pushed to take up issues like worker conditions and employment quotas and corporate social responsibility issues that U.S. companies were pushed to do over the 1970s and 1980s.” Already, there is evidence of demands for more responsibility. Hu’s planned visit to Zambia was marred by the threat of protests. Unsafe working conditions at Chinese-run copper mines and the low wages paid to local workers at Chinese businesses emerged as campaign issues in last fall’s Zambian presidential election. And in late 2006, Gabon forced a Chinese energy company to stop drilling for oil due to environmentally unsafe practices, and South African textile trade unions are loudly pressing their government to curb Chinese apparel and textiles imports. Given their competing approaches to the continent—the humanitarian and military approach favored by the United States, and the purely economic policy favored by China—it’s clear that Africa will be the scene of some major disagreements between the two powers. The United States’ uneven track record in the war on terror doesn’t inspire much confidence, but the fact that Africa will no longer be split among several military commands is cause for some hope. It remains to be seen, however, if African regimes prefer the quick investment that China is willing to provide, or the less tangible, longer-term health and stability that the United States is promising.