NRCREP Resource

From: Jim Welke [jwelke@sbcglobal.net]
Sent: Tuesday, January 10, 2012 9:54 AM
To: Fermi3COLEIS Resource
Subject: Enrico Fermi Unit 3 DEIS for COL comments, NUREG-2105
Attachments: Comments (jmw), DEIS for COL for Enrico Fermi Unit 3 (report number, NUREG-2105).pdf

Dear Sir/Madam:

10/28/2011
76FR 66998

Please find attached comments on your:
Draft Environmental Impact
Statement for Combined License (COL)
for Enrico Fermi Unit 3
(report number, NUREG-2105)

(4)

I would be grateful if you could confirm receipt of this e-mail and attachment. Thanks!

Regards,

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SUNSI Review Complete
Template = ADM-013

E-RIDS= ADM-03
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Comment on:

Draft Environmental Impact

Statement for Combined License (COL)

for Enrico Fermi Unit 3

Draft Report for Comment

U.S. Nuclear Regulatory Commission

Report Number: **NUREG-2105**

To:

Office of New Reactors

Washington, DC 20555-0001

and

Regulatory Office

Permit Evaluation, Eastern Branch

U.S. Army Engineer District, Detroit

U.S. Army Corps of Engineers

Detroit, MI 48226

and

Chief, Rules, Announcements, and Directives Branch

Office of Administration

Mail Stop: TWB-05-B01M

U.S. Nuclear Regulatory Commission

Washington, DC 20555-0001

I am opposed to the construction and operation of Fermi III. Due to time constraints, I have restricted my comments to Chapters 6-8 (document: sr2105v1-chp6-chp8.pdf).

The premise of the NRC's environmental impact statement is to assess the environmental effects of building, and operating Fermi III (for up to 60 years). If it were true that the construction and operation of Fermi III were essential to the well being of Southeast Michigan's residents, then the conclusions drawn by the NRC review team might seem plausible, even reasonable. But Fermi III is not an essential future element of Southeast Michigan's electricity supply, and thus any environmental impact of Fermi III, not to mention negative economic impact, is detrimental to the well-being of Southeast Michigan's residents.

The residents of Southeast Michigan would be better off from an environmental perspective, health-perspective, and economic perspective if Fermi III were never built. The cost of nuclear power is exorbitant, cost overruns of several multiples are standard, construction delays are endemic, fuel costs are unpredictable, and waste disposal costs are unknown. It will take decades for ratepayers to repay the loans for Fermi III.

Alternatively, Detroit Edison could invest in efficiency gains and distributed renewable energy, and instead of burdening ratepayers and the environment of Southeast Michigan, benefit ratepayers with long-term, well-paid jobs and clean, non-toxic, terrorism-proof energy, and protect their environment from the inevitable and potentially catastrophic environmental impact Fermi III will impose. Yet, rather than doing well by doing good, Detroit Edison would build an overpriced, toxic, national health and security risk in our backyard, which in the event of catastrophic failure, will force the permanent evacuation of Monroe, the Detroit and Toledo metro areas, and render Lake Erie permanently toxic.

Risk permanent evacuation (for hundreds of years, at least)? Why? Not to provide consumers with essential electricity, because it has been shown in California and other states that demand for the foreseeable future can be met with efficiency improvements and distributed renewables at lower cost and better reliability (http://www.ucsusa.org/clean_energy/solutions/big_picture_solutions/do-we-need-coal-and-nuclear-power.html, http://www.completelybaked.blogspot.com/2009/02/renewables-intermittency-reliability.html).

No, Detroit Edison is not building Fermi III to provide Southeast Michigan with an inexpensive, reliable source of energy -- nuclear power is anything but that -- they are building Fermi III to provide their shareholders with profit. There are two reasons nuclear power offers a good return to shareholders -- neither of which has anything to do with the economics of nuclear power. The first reason is that federal law compels taxpayers to guarantee construction loans ($4 or $5 billion dollars) in the event Detroit Edison defaults, thus indemnifying Detroit Edison's shareholders and executives against loss. The second reason Fermi III benefits shareholders and executives is that while electric utilities are currently de-regulated and subject to competition, utilities petition the state to allow them to add surcharges to their published rates to recoup "power supply" costs via Michigan Power Supply Cost Recovery (PSCR) plans submitted each year for state approval. The 2011 plan: http://efile.mpsc.state.mi.us/efile/docs/16434/0001.pdf; and PSCR is defined here: http://www.michigan.gov/documents/mpsc/electric_residential_bill_charges_final_318312_7.pdf, and its meaning to ratepayers here: http://www.michigan.gov/documents/mpsc/mpsc-ca_understandingyourelectricbilll_329339_7.pdf).

In the future, these surcharges will be used to cover the cost of building and operating Fermi III without impacting Detroit Edison's bottom line or their published, "competitive" rates (which if these surcharges were included in their published rates, their rates would no longer be competitive -- so much for free-markets and de-regulation). Thus, all of the revenue derived from the sale of Fermi III electricity -- less administrative costs -- represents profit to shareholders and executives.

Improved efficiency and distributed renewables, while cheaper and healthier to ratepayers, would most likely be sold by companies other than Detroit Edison in a true free-market, and therefore are less desirable options to Detroit Edison executives and shareholders. Also, efficiency improvements and renewables create more jobs. But, companies other than Detroit Edison will likely provide these jobs, which surely offers Detroit Edison's executives and shareholders no personal benefit. On the other hand, Fermi III is capital intensive, meaning it costs a lot to build, but creates few long-term jobs. This is undoubtedly preferable to Detroit Edison shareholders and executives, as it easier to manage money and add surcharges to customers' bills than it is to manage employees, especially unionized employees fanned out across the state implementing efficiency improvements and distributed renewables, which ultimately cut revenue to Detroit Edison. And that last point is very important to keep in mind when contemplating why Detroit Edison prefers big, toxic, expensive, capital-intensive generating plants over small, distributed, clean, cheap, job-intensive efficiency and distributed renewables -- Detroit Edison will be subject to real competition in the sale of efficiency and renewables, and likely will fail in a true free-market arena. Thus, Detroit Edison sticks ratepayers with a toxic behemoth they don't need, but must pay for.

And make no mistake, Fermi III is toxic. The NRC draft environmental impact statement makes this clear: look at the list of toxic emissions enumerated in Table 6-1. The NRC often makes comparisons of these emissions to background levels of these toxins, or the quantity of toxins emitted by coal-fired plants of equal capacity to Fermi III. But those are irrational comparisons. It is like a drunk saying, "Well, I'm already drunk, so what's the difference if I have one more drink?" or a gambler saying, "Well, I'm already broke, so why not play another hand." The point is, these emissions are bad, and more of them make things worse, and more people and ecosystems dead, even if by comparison to deadlier coal-fired plants, Fermi III emits less. We are already drunk with toxins, so what's the harm in adding a little more? We are already environmentally impoverished, so what's the harm in taking another gamble? Well, if we absolutely needed this electricity, if we had no other choice, maybe the NRC's comparisons and conclusions would be valid. But we do not need the power that Fermi III will provide (http://www.ucsusa.org/clean_energy/solutions/big_picture_solutions/do-we-need-coal-and-nuclear-power.html). Further, if we did need the electricity, we derive more bang for the buck -- power-wise, job-wise, and safe-wise -- if we choose other alternatives, namely end-use efficiency improvements and distributed renewables (see Amory Lovins: http://www.completelybaked.blogspot.com/search/label/Energy, http://www.rmi.org/). End use efficiency improvements and renewables will also help prevent catastrophic global warming because they install quickly using existing technology. Fermi III -- or any new nuclear power plant -- will do nothing to prevent catastrophic climate change because they take too long to build and will complete too late to do any good -- the catastrophic climate change will already be upon us when Fermi III comes on line (if it ever does) with overpriced, unneeded electricity from unproven technology.

Once we stipulate that the power Fermi III will provide is unnecessary -- and it is -- then it becomes eminently clear that any environmental impact from Fermi III is unacceptable -- it is unacceptable to throw away acres of essential wetlands, unacceptable to pollute our air and groundwater with radionuclides and other shorter-lived, but equally deadly toxins (via mining, processing, plant operation, and waste disposal). And it is unacceptable to draw billions of gallons of water from Lake Erie and kill millions of adult fish, fish eggs, and larvae; amphibian adults, eggs, and larvae; adult insects, insect eggs and larvae that go with that intake water, along with the myriad wildlife that depend on these animals and insects. And it is unacceptable to dump billions of BTU's of heat, and tons of atmosphere-heating water vapor from cooling towers into the air and water. These environmental impacts are not now and never will be benign (http://www.eoearth.org/article/Thermal_pollution?topic=49471).

And there are always longs lists of unintended consequences that come after the fact -- and are irreparable -- when we pollute and tweak environmental systems the way Fermi III will (in conjunction with Fermi II and other thermal power plants along the western shore of Lake Erie). And for no good reason. We don't need the power Fermi III might one day provide -- we can get electricity elsewhere for less cost, with more and better jobs, and with catastrophic global warming mitigation. (http://www.ases.org/climatejobs)

On a personal note, I want to remind the NRC review team that they, to quote a character in the TV drama, The West Wing, "are supposed to be the good guys -- act like it." I know there are a lot of smart, caring, well-meaning folks on the NRC review team. I know that you don't want to turn the Detroit metro area into an uninhabitable wasteland. I also know that many on the NRC team would be willing to concede that not everyone in opposition to this thing is a radical, misinformed, tree-hugging, hippie who wants to send us all back to the Dark Ages. But you folks work for the taxpayers, not the nuclear power industry. Even if you hope one day to work for the nuclear power industry where the pay might be better and respect more forthcoming, you must also be willing to concede the possibility of cognitive capture on the part of at least some of the folks at the NRC. There are better options to nuclear power, I am sure of that, and I am a decent, well-meaning, tree-hugging, hippie -- at least according to some (my wife included). Give alternative views a chance. Consider that the industry might be going in the wrong direction. Remember it is your job to keep the industry from taking the rest of us with them when they do go in the wrong direction.

Thanks for your efforts! You have my respect and admiration for doing a difficult job in the absence of sufficient praise and appreciation.

p. 6-5

-- (Table 6-1): Effluents - thermal 4063 billion BTU's / yr

This is roughly the equivalent of 4638 100K BTUH home heating furnaces running 365 days a year, 24 hours a day for the life of the plant. All of this heat dumps into the atmosphere and Lake Erie in a concentrated area adjacent to the plant. I do not think the NRC can predict the effect of this heat on local plants and wildlife, and I challenge the NRC to prove it can. If nothing else, it spills a lot of contaminated steam and heat-trapping water vapor into the air, and water vapor traps local atmospheric heat in greater quantities than CO_2. It is terrifically wasteful, and if scaled up to include many more plants as the industry intends, the local effects will multiply. Physics demands water vapor manifest itself as cloud cover and rain somewhere. Besides, these plants waste a lot of heat and nature never rewards wastefulness, but inevitably punishes it.

-- See table notes for Radon-222 and Technetium-99, i.e. litigation potential because risks not assessed

11 The following assessment of the environmental impacts of the fuel cycle as related to the
12 operation of the proposed project is based on the values given in Table S-3 (Table 6-1) and the
13 NRC staff's analysis of the radiological impact from radon-222 and technetium-99.

NRC staff's analysis? Is that enough? Why not independent analysis if this research covers new ground? Would that not enhance credibility? Is the NRC analysis published and subject to peer review?

p. 6-6

12 Table 6-1). For simplicity and added conservatism in its review and evaluation of the
13 environmental impacts of the fuel cycle, the NRC staff multiplied the impact values in Table S-3
14 by a factor of 2, rather than 1.79, thus scaling the impacts upward to account for the increased
15 electric generation of the proposed unit.

Isn't that a little hokey? Why not 3, or 4? If they don't know the exact figure for every item, the table is useless?

p. 6-7

1 Recent changes in the fuel cycle may have some bearing on environmental impacts; however,
2 as discussed below, the NRC staff is confident that the contemporary fuel cycle impacts are
3 below those identified in Table S-3. This is especially true in light of the following recent fuel
4 cycle trends in the United States:

And what if those trends reverse? Is past performance not an unreliable indicator of future performance?

21...The NRC staff recognizes that many of
22 the fuel cycle parameters and interactions vary in small ways from the estimates in Table S-3;
23 the staff concludes that these variations would have no impacts on the Table S-3 calculations.

Isn't that a little hokey? How much do they vary? Quantify "small ways," please? Concludes based on what?

p. 6-8

7 Another change supporting the bounding nature of the Table S-3 assumptions is the elimination
8 of U.S. restrictions on the importation of foreign uranium. Until recently, the economic

9 conditions in the uranium market favored utilization of foreign uranium at the expense of
the
10 domestic uranium industry.

Does the US (or Detroit Edison) enforce domestic mining, processing, and environmental standards overseas? (No.) Is it not possible then, that overseas mines consume more land, water, and energy; and produce more pollution? Do we ignore overseas production inefficiencies and pollution because it is out of "scope" of this EIS? Isn't that kind of stupid?

17 ... The majority of these applications are
18 expected to be for in situ leach solution mining that does not produce tailings. Factoring in
19 changes to the fuel cycle suggests that the environmental impacts of mining and tail millings
20 could drop to levels below those given in Table S-3; however, Table S-3 estimates remain
21 bounding for the proposed unit.

"Are expected," "could drop;" what if these assumptions are wrong? Despite sticking with Table S-3 estimates, the NRC still draws another favorable conclusion based on vague expectation. Could we have a study to support or deny the probability of such expectations, even if the fuel is imported?

36 ... In comparison, a coal-fired power plant using the same MW(e) output as
37 the LWR-scaled model and using strip-mined coal requires the disturbance of about 360 ac/yr
1 for fuel alone.

Why make the convenient comparison to a coal-fired power plant? Why not compare to distributed renewables? Less convenient comparison? Less favorable comparison? Why not do both?

p. 6-9

13 ... The maximum
14 consumptive water use (assuming that all plants supplying electrical energy to the nuclear fuel
15 cycle use cooling towers) would be about 4 percent of the 1000-MW(e) LWR-scaled model
16 using cooling towers. Under this condition, thermal effluents would be negligible. The NRC staff
17 concludes that the impacts on water use for these combinations of thermal loadings and water
18 consumption would be SMALL.

Again, the assumptions, and "under this condition" -- why make assumptions? Why not calculate various scenarios, and select the worst-case?

The electric energy is usually produced by the combustion of fossil fuel at conventional power plants. Electric energy associated with the fuel cycle represents about 5 percent of the annual electric power production of the reference 1000-MW(e) LWR. Process heat is generated primarily by the combustion of natural gas. This gas consumption, if used to generate electricity, would be less than 0.4 percent of the electrical output from the model plant.

Again, the assumptions, and "is usually produced" -- why make assumptions? Why not calculate various scenarios, and select the worst-case? If process heat comes from natural gas, do we include the environmental impact of sourcing the natural gas? Via what process? Deep hydro-fracking? Do we know the environmental impacts of that? What if process heat comes from hydrogen gas created by electrolysis, or less likely but possible, thermolysis? Where does that process electricity come from? Nuclear power plants? Do we know the impacts of that scenario? (What if fossil fuels become prohibitively expensive due to proposed cap and trade rules, and we use renewable energy to process uranium? Will the cost change? Will the environmental impact change?)

The largest use of electricity in the fuel cycle comes from the enrichment process. It appears that GC technology is likely to eventually replace GD technology for uranium enrichment in the United States. The same amount of enrichment from a GC facility uses less electricity and therefore results in lower amounts of air emissions such as carbon dioxide (CO_2) than a GD facility. Therefore, the NRC staff concludes that the values for electricity use and air emissions in Table S-3 continue to be appropriately bounding values.

Again, the assumptions, and "is likely to eventually replace" -- what if it doesn't? What if the fuel comes from overseas? Do the assumptions hold then? For how long? Under what circumstances?

p. 6-10

... The CO_2 emissions from the fuel cycle are about 5 percent of the CO_2 emissions from an equivalent fossil-fuel-fired plant.

Again, why compare to "equivalent fossil-fuel-fired plant" -- why not compare to distributed renewables or efficiency improvements?

In Appendix L, the NRC staff estimates that the carbon footprint of the fuel cycle to support a reference 1000-MW(e) LWR operating at an 80 percent capacity factor for a 40-year plant life is on the order of 17,000,000 MT of CO2, including a very small contribution from other greenhouse gases (GHG's). Scaling this footprint to the power level of Fermi 3 using the scaling factor of 2 discussed earlier, the NRC staff estimates the carbon footprint for 40 years of fuel cycle emissions to be 34,000,000 MT of CO2 (average annual emissions rate of 850,000 MT, averaged over the period of operation) as compared to a total United States annual emission rate of 5.5 billion MT of CO2 (EPA 2011).

Why compare to a static assumption of "total United States annual emission rate of 5.5 billion MT of CO2 (EPA 2011)?" It is a favorable comparison, but irrelevant. CO2 emissions are additive and cumulative, and more is bad, less is good, period. Why not compare these emissions to those from distributed renewables as a substitute for construction of a nuclear reactor, or to GHG emission reductions from efficiency improvements for the same financial investment?

In the words of Amory Lovins from the Rocky Mountain Institute, in a paper titled "Mighty Mice:" (http://www.rmi.org/cms/Download.aspx?id=1171&file=E05-15_MightyMice.pdf)

> Buying a costlier option, like nuclear power, instead of a cheaper one, like 'negawatts' and micropower, displaces less carbon per dollar spent. This opportunity cost of not following the least-cost investment sequence - the order of economic and environmental priority - complicates climate protection. The indicative costs in Figure 3 (neglecting any differences in the energy embodied in manufacturing and supporting the technologies) imply that we could displace coal-fired electricity's carbon emissions by spending $0.10 to deliver any of the following:
>
> - 1.0kWh of new nuclear electricity at its 2004 US subsidy levels and costs.

- 1.2-1.7kWh of dispatchable windpower at zero to actual 2004 US subsidies and at 2004-2012 costs.
- 0.9-1.7kWh of gas-fired industrial cogeneration or ~2.2-6.5kWh of building-scale trigeneration (both adjusted for their carbon emissions), or 2.4-8.9kWh of waste-heat cogeneration burning no incremental fossil fuel (more if credited for burning less fuel).
- From several to at least 10kWh of end-use efficiency.

The ratio of net carbon savings per dollar to that of nuclear power is the reciprocal of their relative cost, corrected for gas-fired CHP's carbon emissions (assumed here to be threefold lower than those of the coal-fired power plant and fossil-fuelled boiler displaced). As Bill Keepin and Greg Kats put it in Energy Policy (December 1988), based on their still-reasonable estimate that efficient use could save about seven times as much carbon per dollar as nuclear power, "every $100 invested in nuclear power would effectively release an additional tonne of carbon into the atmosphere" - so, counting that opportunity cost, "the effective carbon intensity of nuclear power is nearly six times greater than the direct carbon intensity of coal fired power." Whatever the exact ratio, their finding remains qualitatively robust even if nuclear power becomes far cheaper and its competitors don't.

Speed matters too: if nuclear investments are also inherently slower to deploy, as market behaviour indicates, then they don't only reduce but also retard carbon displacement. If climate matters, we must invest judiciously, not indiscriminately, to procure the most climate solution per dollar and per year. Empirically, on both criteria, nuclear power seems less effective than other abundant options on offer. The case for new nuclear build as a means of climate protection thus requires reexamination.

... Table S-3 states that the fuel cycle for the reference 1000-MW(e) LWR requires 323,000 MW-hr of electricity. The fuel cycle for the 1000-MW(e) LWR-scaled model would therefore require 6.5 × 105 MW-hr of electricity, or 0.016 percent of the 4.1 billion MW-hr of electricity generated in the United States in 2008

(DOE/EIA 2009). Therefore, the gaseous and particulate emissions would add about 0.016 percent to the national gaseous and particulate chemical effluents for electricity generation.

Another pointless comparison. Gaseous and particulate effluents are additive, cumulative, and bad. More is worse, less is better. Why compare to how bad things already are? This is like a nihilist saying, "I'm already deeply and hopeless indebted, so why not borrow a little more?"

Liquid chemical effluents produced in fuel cycle processes are related to fuel enrichment and fabrication and may be released to receiving waters. These effluents are usually present in dilute concentrations, such that only small amounts of dilution water are required to reach levels of concentration that are within established standards.

Same as above: another faulty comparison. Why assume more additive, cumulative emissions are OK because they fall within established standards? Why compare these emissions to those from efficiency improvements or distributed renewables? Or, better scrubbing processes? And what if the fuel comes from overseas? Is there any guarantee the source nation will adhere to US standards? Do we ignore toxic emissions if they occur outside our borders? What if they occur in Canada and pollute the Great Lakes? What if the polluted water is shipped to the US and dumped here under a free trade agreement?

p. 6-11

Currently, the radiological impacts associated with radon-222 and technetium-99 releases are not addressed in Table S-3. Principal radon releases occur during mining and milling operations and as emissions from mill tailings, whereas principal technetium-99 releases occur from GD facilities. Detroit Edison provided an assessment of radon-222 and technetium-99 in its Environmental Review (ER) (Detroit Edison 2011). This evaluation relied on the information discussed in NUREG-1437 (NRC 1996).

I object to relying on Detroit Edison's assessment due to obvious conflict of interest. Could we not have an independent study? Detroit Edison relied on NUREG-1437 [NRC 1996] -- to what extent? What does "relied on" mean?

p. 6-12

The nominal probability coefficient was multiplied by the sum of the estimated whole body population doses from gaseous effluents, liquid effluents, radon-222, and technetium-99 discussed above (approximately 3300 person-rem/yr) to calculate that the U.S. population would incur a total of approximately 1.9 fatal cancers, nonfatal cancers, and severe hereditary effects annually.

This assumes the radiation will distributed evenly, like background radiation, across the entire US population. Is that a fair assumption? Cancer and birth defects are often localized around point sources, aren't they? (http://www.radiation.org/reading/technical.html)

p. 6-12

Radon-222 releases from tailings are indistinguishable from background radiation levels at a few miles distance from the tailings pile (at less than 0.6 mi in some cases) (NRC 1996).

Why assume that no one (of importance?), and no wildlife (that we care about) will approach closer than 0.6 mi? That seems like a specious argument. It's like when you tell the doctor, "It hurts when I do this." And the doctor replies, "Don't do that." The tailings, where they reside, are toxic to both humans and wildlife (some of which may be migratory), and will be for a long time.

p. 6-14

Detroit Edison can currently ship Class A LLW to the Energy Solutions site in Clive, Utah; however, it cannot dispose of Class B and C LLW at the Energy Solutions site in Barnwell, South Carolina. The Waste Control Specialists, LLC, site in Andrews County, Texas, is licensed to accept Class A, B, and C LLW from the Texas Compact (Texas and Vermont). As of May 2011, Waste Control Specialists, LLC, may accept Class A, B, and C LLW from outside the Texas Compact for disposal, subject to established criteria, conditions, and approval processes. Michigan is not currently affiliated with any compact. Other disposal sites may also be available by the time Fermi 3 could become operational.

Detroit Edison has proposed a Solid Waste Management System for Fermi 3 that provides enough storage space to hold the total combined volume of 3 months of packaged Class A and 10 years of packaged Class B and Class C LLW generated during plant operations. If additional storage capacity for Class B and C LLW is required, Detroit Edison could elect to construct additional temporary storage facilities. Detroit Edison could also enter into an agreement with a third-party contractor to process, store, own, and ultimately dispose of LLW from Fermi 3. The NRC staff anticipates that licensees would temporarily store Class B and C LLW on site until offsite storage locations are available. Several operating nuclear power plants have successfully increased onsite storage capacity in the past in accordance with existing NRC regulations. This extended waste storage onsite resulted in no significant increase in dose to the public.

There are a whole lot of "may" and "could" in there. Would it not be worthwhile (and fiscally prudent) to nail waste disposal details down. Will they, or won't they ship waste to Texas? Will it be be Class A, B, or C? Or, all three? How much? When? How? What if a waste carrying truck crashes or hijackers seize and dump it? (I know, section 6.2 "covers" transportation.) What if they dump the waste in a public reservoir, or where it can contaminate ground water? More of this stuff stored somewhere and then shipped means more chances for it to escape the disposal process and create unanticipated disasters. Are such scenarios considered? I bet our Department of Homeland Security does. If not considered by the NRC as potential environmental impacts, shouldn't they be?

p. 6-15

In most circumstances, the NRC's regulations (10 CFR 50.59) allow licensees operating nuclear *power plants to construct and operate additional onsite LLW storage facilities without seeking* approval from the NRC.

Is that meant to reassure? No approval required? So, oversight won't occur until after an accident or theft has occurred. Then, insignificant fines will be levied, but the harm to groundwater and "biota" will be done and irreversible. Right?

p. 6-16

fuel generated in any reactor when necessary." In addition, 10 CFR 51.23(b) applies the generic determination in Section 51.23(a) to provide that "no discussion of any environmental impact of spent fuel storage in reactor facility storage pools or independent spent fuel storage installations (ISFSI) for the period following the term of the [. . .] reactor combined license or amendment [. . .] is required in any [. . .] environmental impact statement [. . .] prepared in connection with [. . .] the issuance or amendment of a combined license for a nuclear power reactors under parts 52 or 54 of this chapter."

That's pretty rich: "reactor facility storage pools or independent spent fuel storage installations" can not be discussed? Because they are most likely to create a permanent environmental disaster if an unforeseen "event" breaches one of these facilities and permits the fuel to overheat and escape into surrounding air and water. (Fukushima?) Why would we want to discuss that in an EIS? (We do. I was being sarcastic, sorry.)

In early 2010, the Secretary of Energy announced the formation of the Blue Ribbon Commission on America's Nuclear Future (BRC). The BRC's charter was to provide recommendations for developing a safe, long-term solution to managing the Nation's used nuclear fuel and nuclear waste. The BRC began releasing draft subcommittee reports in May 2011, and issued a draft report dated July 29, 2011, to the Secretary of Energy. The draft reports acknowledge that the methods of currently storing spent fuel at nuclear power plants are safe, but to ensure safety in the long term, the BRC recommends development of centralized interim spent fuel storage facilities and geologic repositories for ultimate disposal of spent fuel and high-level radioactive waste.

A Blue Ribbon Commission? And they concluded everything is fine, right? That's rich, too. No further comment on that mass hysteria.

In its ER (Detroit Edison 2011), Detroit Edison provided a full description and detailed analyses of transportation impacts. In these analyses, radiological impacts of transporting fuel and waste to and from the Fermi site and alternative sites were calculated by Detroit Edison using the RADTRAN 5.6 computer code (Weiner et al. 2008). For this EIS, the NRC staff estimated the radiological impacts of transporting fuel and waste to and from the Fermi site and alternative sites using the RADTRAN 5.6 computer code. RADTRAN 5.6 is the most commonly used transportation impact analysis computer code in the nuclear industry, and the NRC staff concludes that the code is an acceptable analysis method.

Has RADTRAN 5.6 been verified empirically? I love computers. I write software for a living. But I don't trust models unless they are verified in the real world. Is this too "difficult" or expensive? Tough. Real life will inject all sorts of "anomalies" and unforeseen "events" -- that's why Three Mile Island, Chernobyl, and Fukushima were not minor dust ups. The situations unraveled due to poor planning and poor execution of plans, things that humans are famous for and always will be. Why expect things to operate smoothly, and a according to industry computer models when they never do in the real world? One reason: a lot of industry money is at stake, and models contain all that sloppy reality.

p. 6-28

Table 6-6. Nonradiological Impacts of Transporting Unirradiated Fuel to the Proposed Fermi Site and Alternative Sites, Normalized to Reference LWR

Table 6-6 is informative as far as personal injury is concerned, but what about the environmental impact of these hypothetical truck "impacts?" What is the probability that the casks will survive the crash? What if one ruptures? Is there a chance land or water will be contaminated? How badly? For how long?

p. 6-29

The NRC staff calculated the radiological impacts of transportation of spent fuel using the RADTRAN 5.6 computer code (Weiner et al. 2008). Routing and population data used in RADTRAN 5.6 for truck shipments were obtained from the Transportation Routing Analysis Geographic Information System (TRAGIS) routing code (Johnson and Michelhaugh 2003).

There's that modeling software again.

Shipping casks have not been designed for the spent fuel from advanced reactor designs such as the ESBWR. Information in Early Site Permit Environmental Report Sections and Supporting Documentation (INEEL 2003) indicated that advanced LWR fuel designs would not be significantly different from existing LWR designs; therefore, current shipping cask designs were used for the analysis of ESBWR spent fuel shipments. The NRC staff assumed that the capacity of a truck shipment of ESBWR spent fuel was 0.5 MTU/shipment, the same capacity as that used in WASH-1238 (AEC 1972). In its ER (Detroit Edison 2011), Detroit Edison assumed a shipping cask capacity of 0.5 MTU/shipment.

p. 6-32

route (persons living near the highway). Shipping schedules for spent fuel generated by Fermi 3 have not been determined. The NRC staff concluded it to be reasonable to calculate annual doses assuming the annual number of spent fuel shipments is equivalent to the annual refueling requirements. Each refuel cycle is anticipated to reload 68.2 MTU of fresh fuel (Detroit Edison 2011) every 2 yr. It was assumed that the same corresponding amount of spent fuel was to be removed from the reactor and sent to a spent fuel storage facility or repository.

Cask type is unknown (p. 6-29, line 22, above), shipping schedules are unknown, and thus per shipment quantities of radioactive material are unknown, so all of the information in section 6.2 is academic and irrelevant, right? Why bother with this charade of studying transportation and storage when it is all still subject to a raft of unknowns?

p. 6-34

Subpart B). Most spent fuel would have cooled for much longer than 5 years before being shipped to a possible geologic repository. Shipments from the Fermi site and alternative sites are also expected to be cooled for longer than 5 years. Consequently, the estimated population doses in Table 6-9 could be further reduced if more realistic dose rate projections and shipping cask capacities are used.

Shipments "are also expected to be cooled for longer than 5 years." What if the industry decides it is expedient to ship them sooner? Say, one year? Or, the minimum, 120 days? Then the dosages and risk increase, right? Why not run simulations based on that assumption?

p. 6-37

23 For this assessment, release fractions for current-generation LWR fuel designs
24 (Sprung et al. 2000) were used to approximate the impacts from the ESBWR spent fuel
25 shipments. This assumes that the fuel materials and containment systems (i.e., cladding, fuel
26 coatings) behave similarly to current LWR fuel under applied mechanical and thermal
27 conditions.

More assumptions about the containment systems. Also, the cooling period is assumed here to exceed five years, correct? Too many assumptions. Suspend this study until these precarious assumptions are removed.

p. 6-38

25 ... This risk is
26 very minute compared to the estimated 1.6 × 105 person-rem that the same population along
27 the route from the proposed Fermi site to the proposed geologic HLW repository at Yucca
28 Mountain would incur annually from exposure to natural sources of radiation.

OK, so we evaluate "accidents" using modeling software, and conclude there is no risk from the expected dispersion of radioactive material. What if the dispersion follows an unexpected pattern? What if a cask comes unmoored due to a high speed impact (from another vehicle? a train? a plane?), flies off the truck, lands in the middle of a an oil refinery, starts a high-temperature, gasoline-fed fire that burns for days, and propels -- via explosions of fuel pipes and containers -- radioactive material into a populated shopping mall, hospital, or school? Not so far fetched, I think. What if that happens?

p. 6-40, 41

19 ... For example, if all of the dry active waste,
20 approximately 12,827 ft3 of the 15,859 ft3/yr LLRW projected (GEH 2010) were to be shipped in
21 standard 20-ft Sealand containers (1,000 ft3, 1 container per truck), approximately 50 shipments
22 per year to a disposal site would be required, assuming a shipment capacity of 2.34 m3 of waste

per shipment for the remaining waste as was assumed in WASH-1238. For comparison to the 46 annual shipments of radioactive waste for the reference reactor, the normalized number of shipments required for Fermi 3 radioactive waste would then be 30 shipments rather than the 114 shipments identified in Table 6-13.

And we assume all of these many, less-guarded shipments arrive at their intended destinations. Has the possibility of hijacking been considered? What if one of these containers is driven into a city and exploded or burned? Would that not have a grave environmental impact? What if the container is dumped into a drinking water reservoir and no one knows it is there until two years later when radiation happens to be detected in someone's drinking/bathing water?

p. 6-42

Because of the conservative approaches and data used to calculate impacts, the actual environmental effects are not likely to exceed those calculated in this EIS. Thus, the NRC staff concludes that the environmental impacts of transportation of fuel and radioactive wastes to and from the Fermi site and alternative sites would be SMALL, and would be consistent with the environmental impacts associated with transportation of fuel and radioactive wastes to and from current-generation reactors presented in Table S-4 of 10 CFR 51.52.

Yet, NRC's conclusion is based on assumptions that will not necessarily apply, so it is MEANINGLESS, no?

...The distance from the Fermi site or any of the alternate sites to any new planned repository in the contiguous United States would be no more than double the distance from the Michigan site to Yucca Mountain. Doubling the environmental impact estimates from the transportation of spent reactor fuel, as presented in this section, would provide a reasonable bounding estimate of the impacts for NEPA purposes. The NRC staff concludes that the environmental impacts of these doubled estimates would still be SMALL.

What if the spent fuel is sent to China, Africa, or Russia? Then the distance is more than doubled, and transportation modes will vary more, right? And could we rely on other nations to adhere to our standards for disposal and security? Or, might they just toss this stuff in a landfill, and let it come back to us in "dirty" bombs?

An applicant for a COL is required to certify that sufficient funds will be available to provide for radiological decommissioning at the end of power operations. As part of its COL application for the Fermi 3 on the Fermi site, Detroit Edison included a Decommissioning Funding Assurance Report in its COL Application Part 1 (Detroit Edison 2010), which stated that Detroit Edison would establish an external sinking funds account to accumulate funds for decommissioning.

Can a corporation, answerable to shareholders be counted on to maintain this fund? What if Detroit Edison goes bankrupt building an unnecessary nuclear reactor? Will taxpayers be on the hook for decommissioning? Will the industry form a separate fund for such bankruptcy scenarios to protect taxpayers? Will corners be cut if there are insufficient funds to decommission properly?

p. 6-43

Based on a DOE study (DOE 2004), it is expected that the ESBWR design would have lower physical plant inventories, less accumulated radioactivity, and fewer disposal and transportation costs than current operating reactors. Therefore, the NRC staff concludes that the impacts discussed in GEIS-DECOM remain bounding for reactors deployed after 2002, including the ESBWR.

What if these expectations are wrong?

6. Ecological impacts of decommissioning are expected to be negligible.

Unless there is an unforeseen mishap, right? "Expected" is nice, but not conclusive.

pg. 7-9

As described in Section 5.2.2.1, the review team determined that the annual consumptive use of surface water from the operation of Fermi 3 would not be significant compared to the relative volume of water in Lake Erie (0.006 percent), and it would also remain a small portion of the average annual consumptive water use of all users in the Lake Erie basin (4.1 percent).

Does it really make sense to compare Fermi's water use to total volume and total consumption? Is it not more important to note the effect these intakes will have on local marine life, such as injesting fish, insect, and amphibian eggs; fish, amphibian, and insect larvae, and adult fish, amphibians, and insects? In addition, it should be noted that water will be discharged to the lake at a much higher temperature than surrounding lake water, which will surely have deleterious local effects on marine life, as well as other animals that depend on marine life for subsistence.

p. 7-11

... A MODERATE impact would be expected under the highest-emissions scenario (CO2 air concentration of 940 ppm by 2100 [about four times pre-industrial levels]), which is expected to produce the highest increases in air and water temperatures. These increases in air and water temperature could noticeably alter water levels but would not do so to the point that the resource and surrounding environment become destabilized.

Really? I believe there are studies that indicate a radical alteration of Michigan's environment if C02 levels reach 940ppm. Might not the shoreline recede substantially? Have studies of shoreline topography been done that examine how much the shoreline will recede as lake levels drop? Will canals need to be dug for water inlet and outlets (or pipelines run, which offer a lot more cost and flow resistance than canals, and so are likely less desirable). Will not the discharge of hot water (and overhead steam and water vapor) have even more deleterious effects in warmer air and lake water (such a higher probability of death for insects, amphibians, and fish; their eggs and larvae; as well as the animals that feed on them)? (See revised predictions of global warming impact: http://www.giss.nasa.gov/research/news/20070509/, http://www.giss.nasa.gov/research/briefs/druyan_07/)

p. 7-12

Given that (1) the proposed Fermi 3 would not use groundwater for operations, (2) there would be no discharges to groundwater from Fermi 3, and (3) temporary dewatering operations during preconstruction and construction activities would have limited spatial effect and would not affect the overall productivity of the Bass Islands Group aquifer, the review team determined that the potential impacts on groundwater use from building and operating Fermi 3 would be minimal. In addition, the review team concluded that the cumulative groundwater use impacts would be SMALL. The incremental impacts from NRC-authorized activities would be SMALL, and no further mitigation would be warranted.

Unless, of course, the reactor containment were to fail during operations, or spent fuel storage pools were to leak, in which case the impact of Fermi III on groundwater would be LARGE and PERMANENT. But that will never happen, right? Unless, maybe, a tsunami caused by an earthquake in Western Pennsylvania rolled across the lake and into Fermi III and lots of unexpected things happened. But that will never happen, right?

p. 7-14,15

Surface water quality impacts include sediment loading, and thermal and chemical discharges from the proposed Fermi 3. Thermal and chemical (i.e., biocides, metal and organic compounds) discharges from Fermi 3 would be required to meet applicable NPDES permit requirements, health standards, regulations, and total maximum daily loads (TMDLs) mandated

...

by MDEQ and EPA (Detroit Edison 2011a). On the basis of its evaluation, the review team concluded that the cumulative impacts on surface water quality would be MODERATE; however, the cumulative impacts of building and operating Fermi 3 would not contribute significantly to the overall cumulative impacts in the geographical area of interest. Therefore, the incremental impacts from NRC-authorized activities would be SMALL, and no further mitigation would be warranted.

Further mitigation? It sounds like no mitigation at all beyond meeting minimum water quality standards. If the impact is moderate, should not the NRC require some mitigation? Why is it acceptable that meeting "applicable NPDES permit requirements, health standards, regulations, and total maximum daily loads (TMDLs) mandated by MDEQ and EPA (Detroit Edison 2011a)" is sufficient, when other energy sources (efficiency and renewables) would have far less impact?

p. 7-18

... Building Fermi 3 would permanently fill approximately 8.3 ac of wetland and temporarily affect 23.7 ac of wetland (Detroit Edison 2011b). The temporarily impacted wetlands would be restored. See Section 4.3.1 for additional discussion of wetlands impacts and mitigation.

Why is this acceptable when improved end-use efficiency, and renewable generating sources would have no such impact (and lower cost to ratepayers)? Wetlands can never be restored to their original state -- it is a conceit to think they will be.

p. 7-20, 21

... The wetland impacts described in Section 4.3.1 would be mitigated by restoration of temporarily disturbed wetlands, restoration and enhancement of approximately 82 ac of wetlands in the coastal zone of western Lake Erie, and restoration of approximately 21 ac of wetlands located

...

onsite (Detroit Edison 2011b). The review team assumes that it is unlikely that the USACE and MDEQ would issue permits allowing extensive disturbance of coastal wetlands along western Lake Erie.

What do "restoration" and "enhancement" mean, exactly? Does anyone believe that wetlands can be restored to a primordial state? How can they be enhanced? Is it really sensible to allow such alteration of wetlands (essential to fisheries and wildlife), when other less costly options exist (improved electricity end-use efficiency and distributed renewable energy sources [http://www.ucsusa.org/clean_energy/solutions/big_picture_solutions/do-we-need-coal-and-nuclear-power.html])?

p. 7-23, 24, 25

As described for Fermi 3 in Section 5.3.2, withdrawing cooling water has a potential to affect aquatic organisms through impingement and entrainment. If the organisms being entrained or impinged at different power plants are members of the same populations, the impacts on those populations would be cumulative. Because the water intakes for Fermi 2 and Fermi 3 would be located in close proximity within the intake bay, it is estimated that the combined operation of

...

the Fermi 2 and Fermi 3 facilities would effectively double the water intake and would likely increase entrainment and impingement rates of aquatic organisms in the immediate vicinity of the intake bay as compared to the operation of Fermi 2 alone (Detroit Edison 2011a). The mean daily entrainment of the larvae of four species of fish that are common in Lake Erie's western basin - gizzard shad (Dorsoma cepedianum), white bass (Morone chrysops), walleye (Sander vitreus), and freshwater drum (Aplodinotus grunniens) - at four power plants (i.e., the once-through Bayshore, Monroe, Acme [no longer operational], and Whiting) averaged over three seasons of production (1975-1977) ranged from nearly zero to approximately 8 percent of the larvae present within nearshore areas (Patterson 1987) and is considered to be detectable. The study suggested that the numbers of larvae surviving to reach older life stages for these species would increase substantially if the effects of power plant entrainment were removed (Patterson and Smith 1982; Patterson 1987). Cooling water intake rates for each of the four facilities (Patterson and Smith 1982; Patterson 1987) were estimated to be 4 to 15 times higher than the cooling water intake rates for the Fermi 2 facility and for the proposed Fermi 3 facility (Detroit Edison 2011a). The larval fish entrainment rates for these facilities are expected to be higher than for Fermi 3. Therefore, even though the estimated impingement and entrainment rates for Fermi 3 would be considerably lower than that reported for most of the other power stations within the western basin (Detroit Edison 2011a, Section 5.3.1.2.3.2) and individually would represent a minor incremental impact to aquatic resources (as described in Section 5.3.2 of this EIS), the cumulative impacts of impingement and entrainment from all power stations on fish populations within the western basin could have a significant impact on some aquatic species.

In addition to mortality of fish from impingement and entrainment at power plants, millions of pounds of fish are harvested annually from the western basin through recreational and commercial fishing activities (see Section 2.4.2.3), thereby contributing to cumulative mortality impacts on fish populations. The status of fish populations in the western basin are monitored by the MDNR, the Ohio Department of Natural Resources, and the Ontario Ministry of Natural Resources, and regulations and annual harvest limits for important target species are periodically adjusted by those agencies to prevent overfishing and to maintain suitable population levels. The Great Lakes Fisheries Commission, which coordinates fisheries research and facilitates cooperative fishery management among the State, Provincial, Tribal, and Federal agencies that manage fishery resources within the Great Lakes, has established a Lake Erie Committee that considers issues pertinent to Lake Erie. Therefore, the management and control of cumulative impacts on populations of harvested fish species are partially addressed through the actions of these agencies.

As described in Section 5.3.2, discharge of heated cooling water from other power plants also has the potential to affect survival and growth of organisms by altering ambient water temperatures. In most cases, thermal plumes from power plants discharging into Lake Erie would be expected to affect relatively small areas, and the plumes from Fermi 3 and the existing

...

power plants in the western basin are not expected to overlap. Although many of the aquatic species that could be affected by the thermal plumes from different power plants are likely to belong to the same populations, the numbers of individuals that could be affected by cold shock or heat stress are expected to be small relative to the overall numbers of individuals within populations. As a consequence, the cumulative effect of thermal discharges from existing power plants and the proposed Fermi 3 on aquatic resources within the western basin of Lake Erie would be minor, and the incremental contribution of Fermi 3 would be insignificant.

Impingement of aquatic species will have "a significant impact", as stated above, and I suspect the impact of the heat plumes, at best, is unknown. The NRC seems to assume that fish are distributed uniformly across the lake, and since the thermal plumes cover a small section of the lake, they will have minimal impact. What if the section of the lake covered by the plumes overlaps an essential migratory or breeding zone? Is the NRC review team sure this is not the case now, and never will be? If it were true that the plume intersected essential migratory or breeding zones, then the impact of Fermi III could be much more substantial. Should we not find out for sure?

p. 7-31

... The environmental justice impacts from NRC-authorized activities would be SMALL, and no further mitigation would be warranted.

Electricity from Fermi III will cost substantially more than it would if obtained from improved end-use efficiency, or distributed renewable energy sources (http://www.rmi.org/cms/Download.aspx?id=1171&file=E05-15_MightyMice.pdf, http://www.rmi.org/images/PDFs/Energy/E08-01_AmbioNucIllusion.pdf). Since electricity costs affect the poor as a greater percentage of their income, and since minorities are disproportionately subject to poverty, it seems that Fermi III presents a social justice issue if not an environmental justice issue. And since the environmental burdens of Fermi III will be borne equally by minorities, it seems unreasonable to also expect them to pay a larger portion of their incomes for the electricity provided by Fermi III, especially in light of the fact that improved end-use efficiency, and distributed renewable energy sources would provide electricity to them at lower cost, and provide minorities and the impoverished more and better job opportunities than Fermi III.

p. 7-32

Historic and cultural resources are nonrenewable; therefore, the impacts on historic and cultural resources within the APEs are cumulative. Section 4.6 described how building activities for Fermi 3 would result in the demolition of one onsite property (Fermi 1) that is eligible for listing in the National Register of Historic Places (NRHP) and located within the associated APEs.

It is nice to see the NRC acknowledge that historic and cultural resources are "nonrenewable" -- unlike wetlands, which can be restored and enhanced. The part about Fermi I being eligible for listing in the National Register of Historic Places is just funny. Nice to see the NRC review team has a sense of humor (and irony, and perspective).

p. 7-36

... The national and worldwide cumulative impacts of GHG emissions are noticeable but not destabilizing. The review team concludes that the cumulative impacts would be noticeable but not destabilizing with or without the GHG emissions from Fermi 3. The review team concludes that cumulative impacts from other past, present, and reasonably foreseeable future actions on air quality resources in the geographic areas of interest would be SMALL for criteria pollutants and MODERATE for GHGs.

The NRC review team states that the effects of global warming will be "noticeable but not destabilizing." I guess I would like to see their definition of destabilizing. If you live on Tuvalu, or Manhattan for that matter, then a sea level rise of couple of feet will be quite "destabilizing" -- to the extent that your home might well be washed away forever (for sure in Tuvalu, possibly, but more likely, in Manhattan via storm surge). If the American farming bread basket becomes a dust bowl due to drought, I bet local residents would call that "destabilizing." So, this is a question of semantics, I guess. How about defining destabilizing? (impacts of global warming: http://www.ipcc.ch/publications_and_data/ar4/wg2/en/ch6.html, http://www.epa.gov/climatechange/science/futuretc.html)

p. 7-38

...The review team concludes that cumulative impacts on the nonradiological health of the public and workers would be SMALL, and that mitigation beyond what is discussed in Sections 4.8 and 5.8 would not be warranted.

If the review team were willing to stipulate that Fermi III is overpriced and unnecessary, then they might concede that the misuse of ratepayers' resources presents an opportunity-cost that would quite likely affect both the quality of life, and the health of those ratepayers. If ratepayers miss the opportunity to hold well-paid jobs in the efficiency improvement and distributed renewable energy sector, then those ratepayers might well have to make do with minimum wage, service sector jobs that do not offer health insurance. A lack of health insurance will, in turn, impose grave impacts on the health of Detroit Edison's ratepayers.

p. 7-39

... As described in Section 2.11, sporadic and variable trace quantities of tritium were detected in a few shallow groundwater wells downwind from the Fermi 2 stack as a result of the recapturing of tritium in precipitation from the plant's gaseous effluent.

And we should overlook that? The health effects are unknown, right? But it was just a "few" wells...

p. 7-41

... Each reactor at the Fermi site is

expected to produce about 0.5 m3 per year of mixed waste. Detroit Edison anticipates that the Fermi 3 would claim a low-level mixed waste exemption from the State of Michigan (Fermi 2 currently operates under this exemption).

So, the exemption from Michigan renders this stuff (waste that has both hazardous and radioactive characteristics) harmless? Only half a cubic meter, right? But does the low volume make this stuff safe? What if we build 500 more nuclear power plants? Is it still safe? What does that exemption from Michigan mean? Exempt from regulation? Is that a good idea? If they dumped this stuff in my driveway, I would not be happy or amused, nor I think would anyone on the NRC review team. So why act like it is meaningless?

p. 7-42

The estimated population dose risk for the proposed ESBWR at the Fermi site is well below the mean and median values for current generation reactors. In addition, as discussed in Section 5.11.2, estimates of average individual early fatality and latent cancer fatality risks are well below the Commission's safety goals (51 FR 30028). For existing plants within the geographic area of interest (i.e., Fermi 2 and Davis-Besse), the Commission has determined that the probability-weighted consequences of severe accidents are small (10 CFR Part 51, Appendix B, Table B-1). It is expected that risks for any new reactors at any other locations within the geographic area of interest of the Fermi site would be well below risks for current-generation reactors and meet the Commission's safety goals. The risk of severe accident attributable to any particular nuclear power plant becomes smaller as the distance from that plant increases. However, the combined risk at any location within 50 mi of the Fermi site would be bounded by the sum of risks for all these operating nuclear power plants. Even though two or more nuclear power plants could be included in the combined risk, it would still be low.

OK. This is just nuts. Especially post-Fukushima. All this language does is obfuscate facts and ignore reality. If there is a severe accident at one of these plants, past events have proven that everything that can go wrong will, and no reactor design will protect surrounding populations from radiation exposure, or the environment from loss of vital habitat. We'll have firemen carrying buckets of water to dump on the spent fuel pile, and sacrificing their lives -- for no good reason. It is pure arrogance to think humans can indefinitely manage all of these reactors (especially the old, rusty ones with irresponsibly extended licenses), distributed around the country, without ever having a severe accident. It will happen, and all sorts of embarrassing and deadly "unforeseen" events will occur -- I refer you the Three Mile Island, Chernobyl, Fukushima -- or, Fermi I and Davis Besse which both had serious near-misses.

p. 7-45

The NRC review team makes numerous assertions that current improvements to reactor design render existing tables and standards obsolete. In that case, why not re-write those tables and standards based on the new designs rather than making bland statement that things will be much better (without any real indication of how much better).

p. 8-9

Data used as inputs to the planning process were provided by the Michigan utilities whose representatives also comprised the members of the Plan's various working groups. Strategist, a proprietary computer software program developed by NewEnergy Associates, LLC, was used in data processing.

OK. So, we're back to modeling. That's fine. But you know the old adage, garbage-in, garbage-out? Perhaps not. At any rate, it is mentioned above that the data for the model came from Michigan utilities. And they intend to profit from Fermi III, right? Is that not a conflict of interest? Or do we just trust them? Like self-regulation in the derivatives industry? Better if an independent analysis were done, and things like the cost-effectiveness of improved end-use efficiency and distributed renewables (not to mention the job opportunities for these options) were factored in. With these two components it is likely that baseload consumption could be reduced 50%, and the need for new power plants would be obviated -- we could even shut several coal plant down. This approach has worked in California and several other states, where new power plants have not been built in decades. Here's a link to a model run by the Union of Concerned Scientists that supports my efficiency and renewable energy claims:
http://www.ucsusa.org/clean_energy/solutions/big_picture_solutions/do-we-need-coal-and-nuclear-power.html

p. 8-15

If pursued and successfully executed, energy efficiency and energy conservation programs would result in meaningful energy savings and reductions in electricity demand. However, even if comprehensively structured and aggressively implemented and enforced, energy efficiency programs would have only a limited influence on the rate of growth of Michigan's need for power.

That is a fairly broad assertion, and one that is incorrect. I know I am guilty of broad assertions too, but I'm pretty sure I can cite reliable sources (see above hyperlink to UCS). Could you, please?