



Beyond Nuclear Fact Sheet

Fred Upton, One of the Nuclear Power Industry's Best Friends in Congress

Introduction

On June 30, 2008 Congressman Fred Upton held a press conference at the twin reactor Cook nuclear power plant in Bridgman, Michigan, on the shoreline of Lake Michigan. It was not the first time he chose that very location to promote nuclear power. This time, Upton unveiled the Clean and Safe Energy (CASEnergy) Coalition's national initiative to construct at least 30 new atomic reactors across the nation.¹ CASEnergy is a nuclear front group, fully funded by the industry's Washington, D.C. lobby and public relations arm, the Nuclear Energy Institute.² In response, Beyond Nuclear is publishing the following report on the longstanding pro-nuclear congressional record of Rep. Fred Upton. This analysis reveals a consistent championing of the nuclear industry's wish list by Congressman Upton, regardless of safety and security issues that could threaten the wellbeing of his constituents.

Congressman Upton (a Republican representing Michigan's 6th District) has earned his place as one of the top cheerleaders for the nuclear power industry in the U.S. House of Representatives. From leading the charge to dump high-level radioactive wastes on Native American land in Nevada, to proposing billions of dollars in additional taxpayer subsidies for new reactor construction to an industry already heavily subsidized, Upton has long done the nuclear establishment's dirty work on Capitol Hill. While ignoring safety and security risks at atomic reactors in southwest Michigan, Upton has marched in lockstep with the Bush administration's nuclear power expansion plans, even to the point of promoting plutonium extraction from radioactive waste. This reversal of a three decades-old policy first set by the Gerald Ford administration risks the spread of nuclear weapons overseas. Representative Upton has received many hundreds of thousands of dollars in campaign contributions from electric utilities and the energy/natural resources sector, including several hundred thousand dollars from the nuclear power industry.

Upton's "Illusion of a Solution" to the Radioactive Waste Problem

Electricity is but the fleeting byproduct from atomic reactors. The actual product is forever deadly radioactive waste. After more than 50 years of commercial nuclear power, the U.S. still has no permanent disposal site for high-level radioactive wastes. Despite this, Rep. Upton has consistently championed nuclear power, thus inviting the generation of yet more radioactive waste for which we have no solution.

Since the mid-1990s, Rep. Upton has led congressional advocacy for one of the nuclear power industry's top priorities: the proposed national dumpsite for high-level radioactive waste at

Yucca Mountain, Nevada. From 1996 to 2000, Upton introduced bills that would have rushed radioactive wastes onto our nation's roads, rails and waterways, long before scientific site suitability studies were completed at Yucca.³ Upton's efforts went down to defeat when President Bill Clinton vetoed the risky "Mobile Chernobyl" bill on April 25, 2000.⁴

Not to be deterred, Upton fully supported the George W. Bush administration's attempt to open the Yucca dumpsite despite its geological unsuitability that risks massive radioactivity releases over time. For the past several congressional sessions, Upton has been lead sponsor of a series of bills that would do away with any remaining environmental protections that stand in the way of opening the Yucca dump.⁵ For example, waste burial casks containing hazardous chromium – the industrial heavy metal poison at the heart of the film *Erin Brockovich* – (as well as catastrophic amounts of radioactivity) would eventually leak in large quantities into the drinking water supply underneath Yucca, posing a serious health risk to a farming community, wildlife refuge, national park, and Native American reservation downstream.⁶ But these "Fix Yucca" bills, as they have been called, would waive hazardous waste laws at Yucca, allowing such toxic chemical releases. Upton announced the reintroduction of his latest "Screw Nevada" bill (H.R. 3358) in August 2007, standing shoulder to shoulder with the Bush administration's Energy Secretary, Sam Bodman, at Cook nuclear power plant in Bridgman.⁷

Congressman Upton has also refused to acknowledge the environmental injustice of his repeated attempts to dump high-level radioactive wastes on the lands of the Western Shoshone Indian Nation. Yucca Mountain belongs to the Western Shoshone, by the "peace and friendship" Treaty of Ruby Valley, signed by the U.S. government in 1863.⁸ Concerned constituents directly informed Rep. Upton about this treaty, Western Shoshone land rights, and the tribe's opposition to the Yucca dump as long ago as 1996.⁹

Upton's "Mobile Chernobyls" and "Dirty Bombs on Wheels"

Neither Bodman nor Upton, during their media event at Cook last year, mentioned the Bush Department of Energy (DOE) proposal to barge 125 shipments of high-level radioactive waste from the Palisades atomic reactor in Covert up the Lake Michigan shoreline to the Port of Muskegon. Another 328 barge shipments could ply the waters of Lake Michigan from reactors in northern Wisconsin southward to the Port of Milwaukee.¹⁰

U.S. Nuclear Regulatory Commission (NRC) regulations require undamaged waste shipping casks to survive submersion at a depth of 50 feet under water.¹¹ Related regulations consider submersions of casks subjected to a puncture test under three feet of water, and undamaged cask submersions under 200 meters (656 feet) of water for one hour.¹² But most parts of Lake Michigan, including those on the proposed shipping routes, are much deeper than that.¹³ What is the chance that a sunken container will remain undamaged? How long would it take for a highly specialized floating crane, capable of lifting the 100+ ton cask, to be brought in?

A single sunken barge, whether due to accident or attack, could spell unprecedented radiological disaster for Lake Michigan and communities downstream. It would risk a disastrous release of radioactive particles, especially considering the pressures at greater depths. It would even risk a nuclear chain reaction within the still-fissile wastes on the bottom of Lake Michigan, if water infiltrated inside a broken waste canister. Water serves as a neutron moderator, and can spark a nuclear reaction in the Uranium-235 and Plutonium-239 still present in the wastes. Such an accidental or intentional sinking could be catastrophic for the drinking water supply for tens of

millions downstream, not to mention the recreation, fishing, and tourism industries on Lake Michigan.

NRC was so concerned about this nuclear criticality risk that it sent dozens of “requests for additional information” to the company responsible for the design and manufacture of the canisters in use at the Palisades and Point Beach, Wisconsin nuclear power plants.¹⁴

Once transferred from barge to train in Muskegon, those waste casks would roll right back through southwest Michigan via the railways. Additional high-level radioactive wastes, emanating from other reactors throughout the state, would also roll through southwest Michigan by road and/or rail under DOE’s plan, for which Upton leads support in Congress.¹⁵

Such shipments on the roads, rails, and waterways risk “Mobile Chernobyls” -- potentially disastrous releases of deadly, cancer-causing radioactivity due to severe accidents. They also represent potential “dirty bombs on wheels” – vulnerable to terrorist attacks.

Radioactive Risks Piling Up on the Lake Michigan Shoreline, or, the Foolishness of Building One’s House on Sand¹⁶

The proposed Yucca Mountain dump looks ever more doubtful of opening. Although George W. Bush’s Energy Dept. still says it can be opened in the early 2020s, and Republican presidential nominee John McCain has consistently supported it, Democratic presidential nominee Barack Obama has vowed to kill the proposed dump if elected. The NRC would have to approve a license at the geologically challenged site over the objections of U.S. Senate Majority Leader Harry Reid (Democrat from Nevada) and a nearly unanimous, bipartisan coalition of Nevadan political leaders. Despite the ongoing lack of a solution, Upton favors ever more radioactive waste generation and storage on the Lake Michigan shoreline.

In 2005, Upton cheered on the twenty year license extension at Palisades nuclear power plant near South Haven, despite the fact that its indoor waste storage pool had filled to capacity way back in 1993.¹⁷ Over the past fifteen years, three dozen concrete and steel silos on the beach, some just 150 yards from the waters of Lake Michigan, have been filled with Palisades’ overflowing high-level radioactive wastes.¹⁸ Each silo holds 240 to 360 times the long-lasting radioactivity released by the Hiroshima atomic bomb.¹⁹

In an opinion piece in the *South Bend Tribune* in March 2008, Rep. Upton said “...I applaud the state-of-the-art dry cask technology being employed by plants across the nation, including the Palisades plant in my own backyard, to safely store its spent nuclear fuel on-site for the time being.”²⁰

But these “Ventilated Storage Casks” (VSC-24s, capable of holding 24 irradiated nuclear fuel assemblies) were challenged by Don’t Waste Michigan and Lake Michigan Federation (now Alliance for the Great Lakes) from the very beginning in 1993. Their case, argued by Michigan Attorney General Frank Kelly, went all the way to the U.S. Supreme Court. Unfortunately the effort to block the loading of the casks ultimately failed, due to the courts’ deference to the

Atomic Energy Act and NRC, which most often trumps other laws and authorities, despite the grave radiological risks.

In the end, Palisades chose to store its wastes on loose sand dunes at risk of erosion and earthquake.²¹ Despite assurances that, if needed, the casks could be safely unloaded, a container with defective welds has sat, fully loaded with high-level radioactive waste, for 14 years now on the Lake Michigan shoreline at Palisades.²²

Another VSC-24 suffered a hydrogen gas explosion on the Lake Michigan shore in Wisconsin in late May 1996. Palisades' casks similarly experienced hydrogen gas build-up and "ignition events" in 1999. A suspicious office trailer fire at Palisades destroyed dry cask storage documents shortly thereafter. It was later revealed that Palisades had intentionally transferred radioactive wastes that had not cooled long enough from its pool into dry casks, so that their thermal heat violated NRC technical regulations.²³

Given all the problems, VSC-24s are no longer manufactured. However, Palisades and Point Beach nuclear power plants still use dozens of these dangerously flawed containers – which Upton referred to as "state-of-the-art dry cask technology" -- to store the deadliest substance humankind has ever created near the shore of Lake Michigan.

Risky Relapse into Reprocessing, or, When "Atoms for Peace" Goes Bad

After appearing with Bush's Energy Secretary at Cook nuclear plant in August 2007, Rep. Upton wrote in the *South Bend Tribune* this spring: "I am pleased that Energy Secretary Samuel Bodman and the Bush administration have signaled support for expanding nuclear power, and now Congress has a responsibility to step up to the plate and provide assistance by establishing loan guarantees, streamlining the licensing process and reprocessing spent fuel."²⁴ Upton was expressing support for Bush's "Global Nuclear Energy Partnership" (GNEP) and its attempted revival of commercial radioactive waste reprocessing – the extraction of plutonium for supposed reuse as reactor fuel.²⁵

In 1976, President Gerald Ford banned the export of U.S. reprocessing technology after India exploded its first nuclear weapon two years earlier. India had used U.S. and Canadian technology and training, provided under the ironically named "Atoms for Peace" program, to separate the weapons-usable plutonium from supposedly "civilian" radioactive waste. President Jimmy Carter strengthened the reprocessing ban in 1977, officially ending commercial waste reprocessing in the U.S. This set an important nuclear weapons non-proliferation example for other countries to follow. Argentina, Brazil, South Korea, and Taiwan then abandoned commercial reprocessing, which helped prevent nuclear weapons proliferation to those countries.

Although President Reagan lifted the reprocessing ban, the astronomical costs prevented a reprocessing revival in the 1980s.²⁶ The DOE and National Academy of Sciences have admitted

that taxpayers would likely have to spend many hundreds of billions of dollars in direct subsidies if the Bush and Upton reprocessing revival under GNEP were ever carried out.²⁷

GNEP's reversal of this 32-year old, bipartisan U.S. policy against commercial radioactive waste reprocessing has already reversed past non-proliferation gains. For instance, the Bush administration is encouraging South Korea to reprocess commercial waste, despite the volatility already created by the North Korean nuclear weapons program – itself based on radioactive waste reprocessing. GNEP would risk nuclear weapons proliferation worldwide.²⁸ Despite GNEP's launch in early 2006, North Korea used reprocessing to extract plutonium from a “research” reactor's nuclear waste for the nuclear weapon test explosion it carried out in October of that same year.

Palisades: Poster Child of Nuclear Security Breaches

Post 9/11, national publications have exposed serious security breaches at Palisades atomic reactor. *The New York Times* reported in October 2002 that an armed security guard with unescorted access to vital areas at Palisades suffered an emotional breakdown on the job after having been forced to work 72-hour work weeks for months on end.²⁹ Palisades had avoided paying for new guards to be trained and to receive health benefits by requiring its old guard force to work excessive overtime in the wake of the September 11, 2001 terrorist attacks, a practice typical across the industry, including at Entergy Nuclear (Palisades' current owner) plants such as Indian Point, near New York City.³⁰ In a separate incident at Palisades, on the eve of the first anniversary of the 9/11 attacks, three suspicious cars entered the nuclear plant, only to disappear into the countryside as Palisades' security force botched its response, failing to follow proper procedures, leading to a communications breakdown that required 45 minutes lag time to correct.³¹

In May 2007, *Esquire* magazine broke the story that Palisades' head of security had gotten his job despite bragging at work that he had served as a professional assassin in numerous countries overseas, including Iraq, and that he had killed countless times as a hired sniper. It turned out that such claims were a hoax, revealing that the security chief was a pathological liar. He had also falsified his credentials and security clearances on his job application.³² Despite this, Palisades admitted at the end of 2007 that it had not changed its security personnel hiring practices.³³ NRC downplayed the significance of the breach,³⁴ despite detailed questioning by U.S. Congressman Ed Markey (Democrat from Massachusetts), senior Member of the U.S. House Energy and Commerce Committee, and chairman of the House Select Committee on Global Warming and Energy Independence.³⁵ For his part, Congressman Upton merely stated that he would wait for a report on the incident from Entergy Nuclear, the very company that had retained the fraudulent security chief at Palisades.³⁶ If Entergy ever did report back to Upton, he did not see fit to share that news with his constituents.³⁷

Incredibly, it appears that the security plan at Palisades has not been changed since these breaches came to light.³⁸ In fact, boats routinely anchor immediately offshore from Palisades,

for fishing and swimming.³⁹ However, such boats could conceal high-explosives or a team of attackers. Despite such risks of water-borne and even air-borne attacks at Palisades, Rep. Upton has remained remarkably silent on nuclear power's security risks. In December, 2007, upon attaining ranking member status on the Energy and Air Quality Subcommittee of the House Energy and Commerce Committee, which has direct oversight on nuclear power plant issues, Upton took the opportunity to yet again promote nuclear power, but failed to mention security risks, including the numerous breaches at Palisades.⁴⁰

Upton's Atomic Hypocrisy

While concerned citizen volunteers and a statewide environmental coalition struggled to shut down the dangerously-decrepit, 40-year old Palisades reactor, Upton urged the U.S. Nuclear Regulatory Commission to rubberstamp the old reactor's 20-year license extension.⁴¹

This was a reversal of his 1996 position, communicated to concerned citizens at a face-to-face meeting in Kalamazoo. At that meeting, he had answered concerns about the deteriorated condition of the aged reactor by saying that he "was not there" when the decision to build Palisades had been made in the mid-1960s, and that we should allow it to operate till the 2007 expiration of its original 40 year license.⁴² In 2006, NRC granted Palisades permission to operate for 60 years, till 2031. Upton cheered this decision.⁴³ NRC is now raising the possibility of 80 years of operations at reactors like Palisades, which would mean reactor operations there till 2051.⁴⁴

But NRC's own Office of Inspector General has identified serious shortcomings in the agency's license extension reviews. In September 2007, the Inspector General reported that NRC staff had cut and paste the nuclear utilities' own safety review documents, word for word, and presented the plagiarized material as its own, independent analysis. The NRC Inspector General reported that during the Palisades license extension review, nearly 70% of the samples of NRC staff documents it analyzed "did not describe *any* review methodology for operating experience or provide *any* specific support for the staff's conclusions; or...provided information that was identical or nearly identical to the information provided in the licensee's renewal application."⁴⁵ (emphasis in original)

The Inspector General went on to report in May 2008 that NRC staff had destroyed the documentation upon which its green light for 20-year license extensions was based, including at Palisades.⁴⁶ Thus, there is effectively no safety documentation supporting NRC's decision to grant Palisades sixty years of operations.

Despite Upton's senior position on the House Energy Committee, with jurisdiction over NRC, he has not questioned such apparent violations of basic safety regulation. On the contrary, Upton cheered NRC's extension of Palisades' operating license.

Like a Hot Glass Under Cold Water

To make matters worse, Palisades is dangerously deteriorated. It may very well have the most embrittled reactor pressure vessel of any U.S. nuclear power plant.⁴⁷ Thus it risks a reactor pressure vessel fracture, like a hot glass under cold water, if emergency cooling water is ever

needed in the reactor core during operations. This “pressurized thermal shock” (PTS) fracture would cause a loss of coolant accident, which could lead to a core meltdown and catastrophic radioactivity release into the environment. NRC has weakened its PTS regulations numerous times in order to accommodate Palisades’ brittle reactor.⁴⁸

NRC’s own studies report that around 18,000 people downwind could be killed or injured by a severe accident at the Palisades reactor, and property damages could cost more than \$50 billion.⁴⁹ Since this report was written in 1982, property damages must be adjusted upwards for inflation, to \$118.5 billion in Year 2007 dollars.⁵⁰ Also, southwest Michigan’s population has grown significantly, meaning even larger numbers could be killed or injured downwind.

Palisades also has a severely corroded reactor lid, originally scheduled to be replaced in July 2007.⁵¹ But its brand new replacement lid was defective. Palisades has yet to replace the old lid, continuing to operate with it despite its deteriorated condition. This is very risky, considering the major reactor accident that was narrowly averted at the Davis-Besse nuclear power plant near Toledo in 2002 due to similar corrosion on the reactor pressure vessel lid.⁵²

Radioactive Sword of Damocles

As Palisades cut corners to save money, it narrowly avoided a potentially catastrophic accident of its own in October 2005. A fully loaded high-level radioactive waste cask remained stuck on a crane, dangling over the waste storage pool, for 43 hours. A technician, in a hurry to leave for vacation, had mistakenly set the crane’s emergency brake to kick in at too low a weight. Fortunately, the brake held the 107 ton weight in place without dropping it. But inexperienced Palisades workers, who did not understand the role of the emergency brake, nearly overrode it. This risked dropping the cask into the pool, and sending it crashing into the pool floor. If the extremely heavy cask had damaged the pool, and drained away its cooling water, the decades’ worth of waste stored there could have caught fire in a short period of time.⁵³ A 2001 NRC report on pool fire risks stated that around 25,000 fatal cancers could result downwind, out to a distance of 500 miles.⁵⁴ The entire incident at Palisades could have been avoided if a similar incident years earlier at Palisades’ sister atomic reactor, Big Rock Point near Charlevoix in northern Michigan, had been communicated throughout the company and the industry. Instead, it was kept quiet.⁵⁵

Water Water Everywhere, But Not a Drop to Drink?

In December 2007, Palisades admitted it had leaked radioactive hydrogen (tritium) into groundwater at levels violating the Safe Drinking Water Act.⁵⁶ Palisades’ immediate neighbors are the century-old Palisades Park resort community to the south and Van Buren State Park to the north. The resort community and the state park campground utilize well water for drinking, raising the concern that radioactively contaminated groundwater could be delivering concentrated radiation doses to area residents and visitors. South Haven, less than five miles away from Palisades, draws its drinking water from Lake Michigan, raising concerns about the reactor’s ongoing, “routine” toxic chemical and radioactive discharges into Lake Michigan. Radiation health experts, such as Dr. Arjun Makhijani at Institute for Energy and Environmental Research, have called for federal Safe Drinking Water Act limits on radioactive tritium to be strengthened fifty fold, as the State of California has done, in order to protect the most vulnerable, such as the fetus in the womb from the risks of cancer, genetic damage, and birth defects.⁵⁷

Humpty Dumpty Had a Great Fall

Thirty miles to the south of Palisades, also within Upton's congressional district, the twin reactor Cook nuclear power plant has its own highly troubled safety record. How ironic, then, that Upton chose this location to promote nuclear power, standing alongside the Bush administration's Energy Secretary, Sam Bodman, in August 2007.⁵⁸

In late March, 2006, for example, a 35-ton block of concrete was accidentally dropped from a crane immediately adjacent to one of the reactor cores at Cook.⁵⁹ To this day, the added risk from damage done to the reactor pressure vessel, related equipment and systems from this heavy load drop has not been satisfactorily addressed, nor communicated to the concerned public. Had it not been for an anonymous whistleblower from within Cook's workforce, who relayed the information to the Union of Concerned Scientists (UCS), this accident might never have come to the attention of the public at all.⁶⁰

Both reactors at Cook were also shut down for three years, from 1997 to 2000, due to major safety violations, again revealed by an industry whistleblower working with the Union of Concerned Scientists (UCS).⁶¹ In reality, Cook's core cooling system would not have worked in an emergency, risking full scale meltdown and catastrophic radioactivity releases to the environment. Not only was this one of the longest regulatory safety shutdowns in history, but NRC also levied a record fine of \$500,000 against American Electric Power for the violations.⁶² UCS calculated, however, that given how long the safety violations had persisted before their discovery, placing southwest Michigan at severe risk, NRC could have fined Cook a whopping \$4.3 billion (in year 2000 dollars).⁶³

NRC inspector, Dr. Ross Landsman, warned his agency for years on end that Cook's containment dome has a 'soft spot' that could fail during an emergency pressure build up, resulting in catastrophic radioactivity releases to the environment.⁶⁴ NRC's own studies report that around 100,000 people downwind could be killed or injured by a severe accident at either one of Cook's reactors, and property damages could cost around \$100 billion.⁶⁵ Since this report was written in 1982, property damages must be adjusted upwards for inflation: the damages, expressed in Year 2007 dollars, would be \$207 billion (for Cook Unit 1) and \$227 billion (for Cook Unit 2).⁶⁶ Also, southwest Michigan's population has grown significantly, meaning even larger numbers could be killed or injured downwind. It is unclear whether these large casualty and property damage figures include harm done to Chicago, which is visible to the naked eye across Lake Michigan from Cook on a clear day. Large-scale radioactivity releases from either Cook or Palisades would be catastrophic for Chicago, which draws its drinking water supply from Lake Michigan.

The First Rule of Holes: When You're In One, Stop Digging

Upton's pro-nuclear power position encourages unabated high-level radioactive waste generation and storage on the Lake Michigan shoreline for decades to come. The Cook and Palisades reactors, taken together, have already generated around 2,000 tons of high-level radioactive waste.⁶⁷ Palisades and Cook add another 60 to 90 tons more each year.⁶⁸ Upton has no real or effective proposal for the long-term safe and secure management of these deadly wastes. He is putting Lake Michigan and his constituents downwind and downstream at growing risk of atomic accidents or attacks involving these mounting waste stockpiles. In fact, Upton is

supporting the creation of de facto permanent high-level radioactive waste dumps on the shoreline of Lake Michigan, as the long-delayed and problem-plagued Yucca Mountain dump proposal looks more and more doubtful of ever opening.

Handing Over the Keys of the U.S. Treasury to the Nuclear Power Industry

Upton has seen fit to add financial risks to the radiological risks of nuclear power. The nuclear power industry has already enjoyed lavish subsidies at the expense of U.S. taxpayers and ratepayers for the past fifty years, to the tune of hundreds of billions of dollars in research and development support, liability coverage in the event of catastrophic radiation releases, high-level radioactive waste management costs, and much more.⁶⁹ Amory Lovins of the Rocky Mountain Institute estimated recently that these subsidies have topped \$500 billion.⁷⁰ Over \$13 billion in subsidies and tax breaks for constructing new reactors was included in the 2005 Energy Policy Act (EPACT) alone.⁷¹ This bill grew out of the secretive Bush/Cheney Energy Task Force, which Upton enthusiastically supported and consistently voted for as a senior Republican member of the House Energy and Commerce Committee.⁷² (Ironically, George W. Bush signed the pro-nuclear power EPACT on August 8, 2005 – the very day concerned citizen volunteers and environmental groups from across Michigan launched their effort to block the 20 year license extension at Palisades nuclear power plant.)⁷³

In 2007, Congressman Upton attempted to transfer the huge financial risks associated with building new reactors away from the nuclear power industry and its financial backers, onto the backs of hard-working American taxpayers. Specifically, Upton attempted to secure 50% of all taxpayer-backed, energy-related federal loan guarantees for new atomic reactors, but was blocked in committee.⁷⁴ As a fallback, Upton sought to ensure that new nuclear reactors would remain eligible for federal loan guarantees by inserting a single sentence provision into the U.S. House of Representatives' 2007 Energy Bill.

At the same time, the nuclear power industry's trade association was seeking more than \$50 billion in federal loan guarantees during 2007 to 2009 alone, to launch the construction of more than 30 new reactors across the country.⁷⁵

Federal loan guarantees for new energy plants were approved in Title XVII of the Energy Policy Act of 2005. In the lead up to that Act, the U.S. Congressional Budget Office warned that the risk of new nuclear power plant construction projects defaulting on their loans is "very high – well above 50 percent."⁷⁶ Federal loan guarantees would make American taxpayers liable for those defaulted loan repayments, rather than the atomic projects' private investors from Wall Street or investment banks.⁷⁷

On December 17, 2007, Congress gave the nuclear power industry an early Christmas present, approving \$20.5 billion in loan guarantees for the nuclear power industry -- \$18.5 billion for new reactors, and another \$2 billion for new uranium enrichment to fuel those reactors.⁷⁸ Although opponents were able to block the inclusion of the nuclear loan guarantees in the 2007 energy bill, where Upton had first attempted to insert them, the subsidies were simply shifted over and

attached to the Omnibus Appropriations Act the very next week, thanks to the massive lobbying campaign carried out by the nuclear power industry.⁷⁹ As documented above, Upton led the fight for these subsidies in the U.S. House.

It is feared that the nuclear power industry is currently seeking hundreds of billions of additional dollars in the form of loan guarantees or other subsidies. For example, the nuclear industry recently lobbied hard for subsidies topping \$500 billion to be included in the climate change bill in the U.S. Senate.⁸⁰ A coalition of national environmental groups spoke out strongly against these proposals.⁸¹ This nuclear industry attempted money grab will likely resume with reconsideration of the climate change bill in early 2009.

Campaign Contributions

The Center for Responsive Politics reports at its website, www.opensecrets.org, that Congressman Upton has received \$73,750 in campaign contributions from electric utilities, and a total of \$126,000 from energy and natural resource sector industries, already in his 2007-2008 election cycle bid to be re-elected.⁸²

He received campaign contributions of \$84,451 from energy and natural resource sector companies, and \$57,751 from electric utilities, during the 2005-2006 federal election cycle.⁸³

Since 1989, Upton has received \$254,928 from electric utilities. He has also received \$418,528 from the energy and natural resources sector.⁸⁴

A review of Federal Election Commission records shows that, since 1997, Congressman Upton has received \$289,200 in campaign contributions from nuclear power industry related companies.⁸⁵

These records reveal that 14 companies that have donated to Congressman Upton's election campaigns -- the nuclear utilities that would own and operate the new reactors, and the energy services companies that would build and fuel them -- would directly benefit from the federal nuclear loan guarantees that Upton championed into law.⁸⁶

Conclusion

Is Congressman Upton attempting to pay back his corporate campaign contributors, namely the nuclear power industry, at the expense of U.S. taxpayers? As the old saying goes, is Congress "the best that money can buy"?

It seems that for Upton, the nuclear power industry can do no wrong. Upton has failed to protect public safety and security against failures at Palisades and Cook. Now he wants to give away many billions of taxpayer dollars to help the nuclear industry build more reactors that are vulnerable to accidents and attacks.

Congressman Upton should stop promoting the dead end that is nuclear power, and instead re-direct that federal funding toward safe, secure, reliable, and clean renewable sources of

electricity, such as solar and wind, as well as energy efficiency. According to the Rocky Mountain Institute, end-use electricity efficiency is seven to ten times more cost effective than nuclear power at reducing greenhouse gas emissions.⁸⁷ Michigan has abundant renewable energy resources and energy efficiency improvement opportunities which, if pursued, would provide many thousands of well-paid jobs in the state, while protecting public health, security, the environment, and the climate.

References

¹ “Upton – A Greater Commitment to Nuclear Will Power Millions of Homes & U.S. Economy,” Press Release, June 30, 2008, viewable at <http://www.house.gov/upton/press/press-06-30-08.html>.

² See “Clean and Safe Energy Coalition” at SourceWatch, a Project of the Center for Media and Democracy, at http://www.sourcewatch.org/index.php?title=Clean_and_Safe_Energy_Coalition.

³ Upton sponsored the following versions of the bill in the corresponding years: H.R. 1020 from 1995-6; H.R. 1270 from 1997-8; and H.R. 45 from 1999-2000.

⁴ “Clinton vetoes Yucca bill,” by Tony Batt/Donrey Washington Bureau, *Las Vegas Review Journal*, April 26, 2000, viewable at http://www.reviewjournal.com/cgi-bin/printable.cgi?lvj_home/2000/Apr-26-Wed-2000/news/13454642.html

⁵ The bills, proposed by the Bush administration’s Dept. of Energy (DOE), were sponsored by Upton in the House and Sen. Pete Domenici (Republican, New Mexico) in the Senate. For an analysis of a 2006 version of these bills, see <http://www.citizen.org/documents/YuccaBillSummary.pdf>. The “Fix Yucca” bills have remained largely similar from one congressional session to the next.

⁶ The farming community, Amargosa Valley, is home to several thousand residents, and hosts Nevada’s second largest dairy herd, exporting milk products to tens of millions across the American West. The town draws its drinking and irrigation water from downstream of Yucca’s aquifer, and thus “dose receptors” (DOE’s term for human “maximally exposed individuals”) there would likely suffer the worst radiation doses. The Ash Meadows National Wildlife Refuge is home to a diversity of species, including the highly endangered Devil’s Hole Pupfish, remarkably living in 104 degree Fahrenheit water in a single hot spring. Death Valley is one of the National Park Service’s crown jewels, and home to the Timbisha Band of Western Shoshone Indians, who actively oppose the Yucca dump. Yucca’s groundwater surfaces as springs in Death Valley National Park.

⁷ “Upton Unveils Bill Renewing Nation’s Commitment to Nuclear Power: Rep. is hosting U.S. Energy Secretary Bodman today,” Press Release, August 7, 2007, viewable at <http://www.house.gov/upton/press/press-08-07-07.html>.

⁸ The full text of the treaty can be viewed at http://www.wsdp.org/treaty_ruby_valley_1863.pdf. A map showing the extent of Western Shoshone territories recognized by the treaty can be viewed at <http://www.wsdp.org/images/newemap.gif>.

⁹ The meeting, requested by Don't Waste Michigan, took place at the Blue Dolphin Restaurant in downtown Kalamazoo in early June, 1996.

¹⁰ See <http://www.nirs.org/factsheets/mibargefactsheet92804.pdf> for a breakdown on the numbers of shipments, as well as a map showing the barge routes in Lake Michigan. This proposal first appeared in DOE's Final Environmental Impact Statement (EIS) for Yucca Mountain (Appendix J, Transportation, published Feb. 2002). It was reaffirmed in 2007 in DOE's Draft Supplemental EIS (Appendix G).

¹¹ Title 10 Code of Federal Regulations Part 71.73, viewable at http://edocket.access.gpo.gov/cfr_2008/janqtr/pdf/10cfr71.73.pdf.

¹² "Everyone Knows That Accidents Happen: Nuclear Waste Transport Casks," Public Citizen, May 2002, viewable at http://www.citizen.org/cmep/energy_enviro_nuclear/nuclear_power_plants/nukewaste/trans/articles.cfm?ID=7722.

¹³ Lake Michigan averages 279 feet deep, but its deepest point is 925 feet deep. See <http://www.great-lakes.net/lakes/michigan.html>.

¹⁴ NRC technical meeting with EnergySolutions regarding VSC-24 canisters in TS125 transport overpacks, hosted by NRC staffperson Meraj Rahimi at NRC Nuclear Materials Safety and Safeguards office, Room E-3B-18, 6003 Executive Blvd., Rockville, Maryland on Sept. 5, 2007.

¹⁵ DOE FEIS for Yucca, Feb. 2002, Appendix J, Transportation, Table J-81, Estimated transportation impacts for the States of Indiana, Michigan, and Ohio, and Figure J-41, Highway and rail routes used to analyze transportation impacts - Indiana, Michigan, and Ohio.

¹⁶ Holy Bible, Matthew 7:24-27 (New International Version): "Therefore everyone who hears these words of mine and puts them into practice is like a wise man who built his house on the rock. The rain came down, the streams rose, and the winds blew and beat against that house; yet it did not fall, because it had its foundation on the rock. But everyone who hears these words of mine and does not put them into practice is like a foolish man who built his house on sand. The rain came down, the streams rose, and the winds blew and beat against that house, and it fell with a great crash."

¹⁷ "Upton Hails Renewal of Palisades Nuke Plant License Through 2031: Rep., a longtime supporter of nuclear power, strongly urged for the plant's license to be extended," Upton press release, Jan. 17, 2006, viewable at <http://www.house.gov/upton/press/press-01-17b-07.html>.

¹⁸ NRC's "Locations of Independent Spent Fuel Storage Installations" map at <http://www.nrc.gov/waste/spent-fuel-storage/locations.html>.

¹⁹ Calculation performed by Dr. Marvin Resnikoff of Radioactive Waste Management Associates in New York City. It is a conservative figure, for it only refers to the volatile radioactive cesium isotopes in the waste, which account for only five of hundreds of radioactive isotopes present.

²⁰“We must renew our commitment to nuclear power,” Opinion-Editorial by Congressman Fred Upton, *South Bend Tribune*, March 7, 2008.

²¹ See “Lake Michigan Dunes and Shoreline Unsafe Location for Stored Waste Containers and Concrete Pads,” in “Halting 20 Extended Years of Risky Reactor Operations and Radioactive Waste Generation and Storage on Lake Michigan at Palisades Nuclear Power Plant: Comments on NUREG-1437, Supplement 27 to the Generic Environmental Impact Statement for License Renewal of the Palisades Nuclear Power Plant,” May 18, 2006, viewable at <http://www.nirs.org/reactorwatch/licensing/cntsnureq1437supplement27.pdf>.

²²February 6, 1997 letter from Dr. Mary Sinclair, Ph.D., co-chair of Don't Waste Michigan, to the five U.S. Nuclear Regulatory Commissioners, highlighting possible perjury – as well as clearly established incompetence – by NRC staff when it assured a federal judge, under oath, that dry storage casks could be safely unloaded at Palisades, viewable at <http://www.nirs.org/reactorwatch/licensing/sinclairltr020697.pdf>.

²³ “Get the Facts on High-Level Atomic Waste Storage Casks,” pages 3-4, July 15, 2004, viewable at <http://www.nirs.org/radwaste/atreactorstorage/drycaskfactsheet07152004.pdf>.

²⁴“We must renew our commitment to nuclear power,” Opinion-Editorial by Congressman Fred Upton, *South Bend Tribune*, March 7, 2008.

²⁵ See the Bush DOE GNEP website at <http://www.gnep.energy.gov/>.

²⁶ Finding No. 9, page 38-39, in “Risky Appropriations: Gambling US Energy Policy on the Global Nuclear Energy Partnership,” by David A. Schlissel, Senior Consultant, Synapse Energy Economics, along with Robert Alvarez and Peter Bradford, January, 2008, viewable at <http://www.nirs.org/radwaste/reprocessing/gnepmarch.pdf>.

²⁷ National Research Council of the National Academy of Sciences, “Nuclear Wastes: Technologies for Separations and Transmutation,” Committee on Separations Technology and Transmutation Systems, Board on Radioactive Waste Management, Commission on Geosciences, Environment, and Resources, Washington, DC: National Academy Press, 1996. See also “Nuclear Alchemy Gamble: An Assessment of Transmutation as a Nuclear Waste Management Strategy,” by Hisham Zerriffi and Annie Makhijani, prepared for the Institute for Energy and Environmental Research, May 2000, viewable at <http://www.ieer.org/reports/transm/summary.html>.

²⁸ “Managing spent fuel in the United States: The illogic of reprocessing,” Frank von Hippel, Princeton University, Co-chair, International Panel on Fissile Material, Congressional Staff Briefing on “The Global Nuclear Energy Partnership (GNEP) & Nuclear Waste Reprocessing:

Finding a Viable Solution for Nuclear Waste,” Rayburn House Office Building, 2362B, April 4, 2008.

²⁹“Guards at Nuclear Plants Feel Swamped By Overtime Deluge in the Wake of 9/11,” by Matthew L. Wald, *New York Times*, October 20, 2002.

³⁰ See the Project on Government Oversight’s “Nuclear Power Plant Security: Voices from Inside the Fences,” September 12, 2002, viewable at <http://pogo.org/p/environment/eo-020901-nukepower.html>. Such problems have persisted to the present day, including sleeping security guards at nuclear power plants. See “Video of Sleeping Guards Shakes Nuclear Industry,” by Steven Mufson, *Washington Post*, Friday, January 4, 2008, page A01, viewable at http://www.washingtonpost.com/wp-dyn/content/article/2008/01/03/AR2008010304442_pf.html.

³¹“Palisades incident leads to reassessment,” *Kalamazoo Gazette*, October 3, 2002. Palisades mistakenly phoned the local police rather than the county 911 system, leading to a 45 minute delay before state police arrived on the scene. By that time, the suspicious cars were long gone.

³² See the full article, entitled “Mercenary,” at <http://www.esquire.com/features/mercenary0607>. See also NIRS May 15, 2007 press release “Major Security Breach at Palisades Nuclear Plant: Critics Call for U.S. Congressional Investigations,” at <http://www.nirs.org/press/05-15-2007/1>. The *Esquire* article was followed by a series of several additional articles on the subject in the *Kalamazoo Gazette* later that month.

³³ Quote from Palisades spokesman Mark Savage in *Kalamazoo Gazette* article on Tuesday, December 18, 2007 by Chris Killian entitled “Fabricated credentials landed job at Palisades.”

³⁴ June 29, 2007 and March 21, 2008 letters from NRC Chairman Dale E. Klein to Congressman Markey.

³⁵ May 16, 2007 press release, “Markey Seeks Answers after Reported Security Breach at Nuclear Plant: Former Employee of Palisades, Seabrook Allegedly Lied about Past, Still Given Sensitive Jobs,” viewable at http://markey.house.gov/index.php?option=com_content&task=view&id=2836&Itemid=141.

³⁶ The *Kalamazoo Gazette* reported in a May 17, 2007 article entitled “Palisades security chief had everyone fooled” by Chris Killian that:

U.S. Rep. Fred Upton, R-St. Joseph, has vowed to look into the matter. “As someone who’s been to Palisades numerous times and appreciates the plant’s importance to our community, Fred is naturally disturbed by the recent revelations,” said Sean Bonyun, a spokesman for Upton. “Security at all of our nation’s nuclear facilities is a matter of utmost national interest, and Fred has been in contact with top officials at Entergy, and they agreed to promptly give him a full report on their findings regarding the security breach.”

³⁷ A review of Congressman Upton's news release website revealed no mention whatsoever of the Palisades security breach, including no follow up on any reports back from Entergy or the Nuclear Regulatory Commission. It did reveal, however, a number of press releases and statements promoting nuclear power and the flawed Yucca Mountain radioactive waste dumpsite proposal. See <http://www.house.gov/upton/news.html>.

³⁸ A public workshop at the NRC Regulatory Information Conference in March, 2008 held in Rockville, Maryland revealed that the "Viper Team" plan, described in the *Esquire* article, was still in place under a new name, the "Michigan Rapid Response Tactical Team." When questioned, FBI spokesman Al Dibrito admitted the "Rapid Response Tactical Team" had trained for a full two weeks with the "Mercenary" exposed by *Esquire*, revealing that it was one and the same as the "Viper Team". This workshop is described at <http://www.nrc.gov/public-involve/conference-symposia/ric/program.pdf> as follows, with panelists listed:

"Nuclear Security

Track 5 – Nuclear Security, Emergency Preparedness, Fuel Cycle --

The NRC's licensees have undergone a significant transformation concerning security since the events of September 11, 2001. This transformation started with the issuance of Orders from the NRC requiring increased levels of protection for licensees. The NRC has worked closely with Federal, State, and local agencies to ensure that the response to security events is an integral part of the planning process. The NRC is proceeding with rulemaking to ensure the new levels of security at NRC licensees and the lessons-learned over the last 6 years are integrated into regulations. During this presentation, the panelists will discuss nuclear power plant security, NRC and law enforcement agency interactions, the formation of Michigan's Rapid Response Tactical Team, and the nuclear power industry perspective on nuclear security today.

Session Chair: Dan Dorman, NRC/NSIR and Trish Holahan, NRC/NSIR

Panelists:

- Overview of Nuclear Security, Rich Correia, NRC/NSIR
- Reactor Security Update, Doug Huyck, NRC/NSIR
- Michigan Rapid Response Tactical Team, Mike Moll, Department of Homeland Security; Al Dibrito, Federal Bureau of Investigation; Maj Barry Getzen, Michigan State Police; Lt Steve Bower, Michigan State Police.
- Industry Perspective on Nuclear Security, Chris Kelley, Entergy."

³⁹ This was documented on film by representatives of Don't Waste Michigan on July 22, 2007 at the Van Buren State Park, immediately adjacent to Palisades. DVD copies available upon request from Kevin Kamps at Beyond Nuclear.

⁴⁰ See Upton's press release at <http://www.house.gov/upton/press/press-12-08-07.html>.

⁴¹ See <http://www.nirs.org/reactorwatch/licensing/palisades.htm> for concerned citizen efforts in the last few years to shut down Palisades. See also the Upton's Jan. 17, 2006 press release, "Upton Hails Renewal of Palisades Nuke Plant License Through 2031: Rep., a longtime supporter of nuclear power, strongly urged for the plant's license to be extended," viewable at <http://www.house.gov/upton/press/press-01-17b-07.html>. Note the ironic date of Upton's letter urging NRC to extend Palisades' license – April 26, 2005, the 19th anniversary of the Chernobyl nuclear catastrophe.

⁴² The early June 1996 meeting at the Blue Dolphin Restaurant in downtown Kalamazoo near Rep. Upton's office was attended by the Congressman, his local chief of staff, and concerned citizen volunteers from such organizations as the Bertha Kappan Reynolds (Social Work) Society at Western Michigan University, the Kalamazoo Area Alliance for Peace and Justice, Don't Waste Michigan, and the World Tree Peace Center, including the author.

⁴³ Upton's Jan. 17, 2006 press release, "Upton Hails Renewal of Palisades Nuke Plant License Through 2031: Rep., a longtime supporter of nuclear power, strongly urged for the plant's license to be extended," viewable at <http://www.house.gov/upton/press/press-01-17b-07.html>.

⁴⁴ "80 is the new 60" is a catchphrase at NRC, meaning that license extensions for 80 years of operations are being considered by the agency and industry. The NRC Regulatory Information Conference held in March 2008 in Rockville, Maryland included a workshop entitled "Aging and Life Beyond 60: The Next License Renewal Period(s)," with the following description: "The NRC is investigating areas that may need additional research in order to confirm the ability of currently licensed commercial nuclear power plants to continue safe operation beyond the initial license renewal period (i.e., beyond 60 years). This includes identifying technical issues that may require resolution to support long-term operations of light-water reactors (LWRs); identifying prioritized research areas; and, identifying appropriate roles and responsibilities for industry, the U.S. Department of Energy, and NRC for a potential collaborative research program that will ensure continued safe LWR operation in the second, and subsequent, license renewal periods." Panelists included Session Chair: Jennifer Uhle, NRC/RES and C.E. Gene Carpenter, NRC/RES, Samson Lee, NRC/NRR, Tom Miller, U.S. Department of Energy, and Julie Keys, Nuclear Energy Institute. See <http://www.nrc.gov/public-involve/conference-symposia/ric/program.pdf>. License extensions for 100 years of operations are also being contemplated.

⁴⁵ "Audit of NRC's License Renewal Program," OIG-07-A-15, September 6, 2007, NRC Office of Inspector General, viewable at <http://www.nrc.gov/reading-rm/doc-collections/insp-gen/2007/>.

⁴⁶ See a copy of NRC OIG's May 2, 2008 memo at http://www.beyondnuclear.org/files/beyondnuclear/oig05022008_licrenew_streviews.pdf. A

May 19, 2008 commentary on the significance of this revelation is at <http://www.beyondnuclear.org/nuclearreactors.html>.

⁴⁷ See U.S. Nuclear Regulatory Commission document “Generalization of Plant-Specific Pressurized Thermal Shock (PTS) Risk Results to Additional Plants,” Date Submitted: October 26, 2004 Revised: December 14, 2004, Table 1. Plants with highest RTNDT, viewable at <http://www.nirs.org/reactorwatch/licensing/121404nrc30mostembrittledrps.pdf>, which lists Palisades as one of the five most embrittled reactors in the U.S. See also “Workshop on reports detailing a technical basis for a proposed revision to the Pressurized Thermal Shock Rule (10 CFR 50.61),” NRC Nuclear Regulatory Research, Sept. 8-9, 2006, NRC HQ, Rockville, Maryland (see <http://www.nrc.gov/public-involve/public-meetings/index.cfm?fuseaction=Search.Detail&MC=20060498&NS=1&CFID=218910&CFTOKEN=69074489>, and the associated technical reports and presentations), which identified Palisades as among the three most embrittled reactors in the U.S.

⁴⁸ See also “Pressurized Thermal Shock Potential at Palisades,” prepared by Michael J. Keegan, Coalition for a Nuclear Free Great Lakes, July 8, 1993 (Re-keyed August 3, 2005), viewable at <http://www.nirs.org/reactorwatch/licensing/071805pressurizedthermalshockpotentialpalisades.pdf>, which documents that Palisades first violated NRC embrittlement standards just ten years into operations, in 1981, and that NRC has weakened its regulations numerous times to accommodate Palisades and other embrittled reactors.

⁴⁹ Consequences of Reactor Accident (CRAC-2) Report, NRC and Sandia National Lab, 1982, viewable at <http://www.geocities.com/mothersalert/crac.html>.

⁵⁰ Utilizing the Inflation Calculator at <http://www.westegg.com/inflation/infl.cgi>.

⁵¹ Consumers Energy’s May, 2006 briefing to State of Michigan regulators regarding its intention to sell the Palisades reactor as quickly as possible, revealing important problems afflicting the plant, including the corroded lid, viewable at <http://www.nirs.org/reactorwatch/licensing/kampsconsbrifeinf051806.htm>; also, NRC-Palisades technical meeting on Dec. 21, 2005 at NRC Region III HQ in Illinois regarding the Palisades reactor vessel head replacement, attended by representatives of NIRS, Don’t Waste Michigan, and Coalition for a Nuclear-Free Great Lakes, including author.

⁵² See Davis-Besse entries at <http://www.nirs.org/reactorwatch/aging/aginghome.htm>, as well as extensive coverage in the *Toledo Blade* and *Cleveland Plain Dealer* beginning in early March, 2002. See also UCS’s “Davis-Besse: One Year Later,” viewable at http://www.ucsusa.org/assets/documents/clean_energy/Davis-Besse_Retrospective_030303db.pdf.

⁵³ See March 18, 2006 *Detroit Free Press* front page article entitled “Nuclear safety left hanging as crane dangled fuel rods: Michigan incident got warning but no fine,” by Hugh McDiarmid, Jr.,

Free Press Staff Writer. See also NIRS press release on March 20, 2006 “High-Level Atomic Waste Mishap at Palisades Nuclear Reactor Risks Radioactive Inferno with Casualty Potential of Thousands of Deaths Downwind,” viewable at <http://www.nirs.org/press/03-20-2006/1>. See also “Summary Report: High-Level Atomic Waste Mishap at Palisades Nuclear Reactor Risks Radioactive Inferno with Casualty Potential of Thousands of Deaths Downwind, Based Upon U.S. Nuclear Regulatory Commission Freedom of Information Act (FOIA) Response Documents,” April 4, 2006, viewable at <http://www.nirs.org/reactorwatch/licensing/caskdanglesummaryreport4406.pdf>.

⁵⁴ NRC NUREG-1738, “Technical Study of Spent Fuel Pool Accident Risk at Decommissioning Nuclear Power Plants,” published February, 2001.

⁵⁵ See “Summary Report: High-Level Atomic Waste Mishap at Palisades Nuclear Reactor Risks Radioactive Inferno with Casualty Potential of Thousands of Deaths Downwind, Based Upon U.S. Nuclear Regulatory Commission Freedom of Information Act (FOIA) Response Documents,” April 4, 2006.

⁵⁶ “Radiation in test well jolts mayor,” by Chris Killian, *Kalamazoo Gazette*, Dec. 13, 2007

⁵⁷ “Health Risks of Tritium: The Case for Strengthened Standards,” by Arjun Makhi jani , Brice Smith and Michael C . Thorne, *Science for Democratic Action*, Vol. 14, No. 4, Institute for Energy and Environmental Research, Takoma Park, Maryland, Feb. 2007, viewable at <http://www.ieer.org/sdfiles/14-4.pdf>.

⁵⁸Upton press release, August 7, 2007, “Upton Unveils Bill Renewing Nation’s Commitment to Nuclear Power: Rep. is hosting U.S. Energy Secretary Bodman today to showcase southwest Michigan’s work to fulfill the nation’s energy needs of tomorrow; The final stop of today’s tour was the Cook Nuclear Plant,” viewable at <http://www.house.gov/upton/press/press-08-07-07.html>.

⁵⁹“Concrete Shield Falls in Nuclear Plant Mishap,” *Detroit Free Press*, March 31, 2006.

⁶⁰ Open email to NRC by Dave Lochbaum, Nuclear Safety Engineer, shared with author, late March, 2006.

⁶¹ See the Donald C. Cook Nuclear Power Plant sections of “Walking a Nuclear Tightrope: Unlearned Lessons of Year-plus Reactor Outages,” by David Lochbaum, Director, Nuclear Safety Project, Union of Concerned Scientists, viewable at http://www.ucsusa.org/assets/documents/clean_energy/D-C-Cook-1.pdf and http://www.ucsusa.org/assets/documents/clean_energy/D-C-Cook-2.pdf.

⁶²“NRC concludes its review of D.C. Cook plant restart,” *St. Joe (Michigan) Herald Palladium*, June 9, 2001.

⁶³Calculation performed by Dave Lochbaum at UCS, shared with author.

⁶⁴ “NRC employee fighting restart of Cook Unit 2: Expert in structural engineering finds weaknesses in containment,” by Matthew S. Galbraith, *South Bend Tribune*, Nov. 27, 2000.

⁶⁵ “Consequences of Reactor Accident Report” (CRAC-2), NRC and Sandia National Lab, 1982, viewable at <http://www.geocities.com/mothersalert/crac.html>.

⁶⁶ Utilizing the “Inflation Calculator” at <http://www.westegg.com/inflation/inf.cgi>.

⁶⁷ Table A-7, Proposed Action spent nuclear fuel inventory, and Table A-8, Inventory Modules 1 and 2 spent nuclear fuel inventory, Appendix A, Inventory and Characteristics of Spent Nuclear Fuel, High-Level Radioactive Waste, and Other Materials, Final Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada, U.S. Dept. of Energy, Feb. 2002, available online at www.ymp.gov, under Information Library.

⁶⁸ U.S. nuclear power reactors generate, on average, 20 to 30 tons of irradiated nuclear fuel per year. Given the single reactor at Palisades, and the two reactors at Cook, this amounts to 60 to 90 tons of newly generated irradiated nuclear fuel annually in southwest Michigan. Such figures are generally consistent with the actual, specific waste generation rates at Palisades and Cook, as revealed in DOE’s FEIS for Yucca (Feb. 2002), Appendix A, Tables A-7 and A-8.

⁶⁹ Research and development support for the nuclear industry at the federal level in the U.S. has amounted to over \$145 billion (as compared to around \$5 billion for wind and solar power combined, a 30 to 1 ration in favor of nuclear power) from 1948 to 1998, as reported in “FEDERAL ENERGY SUBSIDIES: NOT ALL TECHNOLOGIES ARE CREATED EQUAL,” by Marshall Goldberg of the Renewable Energy Policy Project, REPP Research Report No. 11, July 2000, viewable online at http://www.repp.org/repp_pubs/pdf/subsidies.pdf.

Several sources, including the DOE’s own Energy Information Administration, have estimated the Price-Anderson nuclear liability act’s subsidy to be worth around \$3 billion per year (or more, when adjusted upwards for inflation, given the dated nature of these estimates) to the nuclear power industry, in the form of insurance premiums it does not have to pay. The U.S. taxpayer would pay for any and all damages resulting from a catastrophic nuclear accident which surmount about ten billion dollars. As noted above, NRC’s own CRAC-2 report estimated potential damages from major radiation releases to climb into the hundreds of billions of dollars. See “SAFE ENERGY COMMUNICATION COUNCIL FACTSHEET: IS THE PRICE-ANDERSON ACT A SUBSIDY? GOVERNMENT STUDIES DETERMINED IT IS,” 2003, at <http://www.nirs.org/reactorwatch/paa/priceandersonsubsidyseccfctsht.pdf>, and NIRS Fact Sheet: Price Anderson Act Unnecessary and Irresponsible,” Oct. 2001, at <http://www.nirs.org/factsheets/priceandersonactfactsheet1001.htm>.

DOE’s most recent estimate for the price tag on the proposed Yucca Mountain dump for high-level radioactive waste is \$80 billion, although critics such as the State of Nevada assert this is a significant underestimate; see “DOE files to build Yucca,” *Las Vegas Review Journal*, June 4, 2008, viewable at <http://www.lvrj.com/news/19521549.html>. Additional radioactive waste subsidies flowing from the U.S. Treasury to the nuclear utilities include regular damage awards

ordered by the federal courts for DOE's failure to begin taking away high-level radioactive wastes from nuclear power plants by the arbitrary 1998 deadline established in the Nuclear Waste Policy Act of 1983, as amended. Many hundreds of millions of dollars have already been awarded, with about \$1 billion per year expected beginning in 2010, according to DOE. See, for instance, "Company awarded millions in nuclear storage lawsuit: Delays opening Yucca Mountain cited," *Las Vegas Review-Journal*, Oct. 1, 2007, <http://www.lvrj.com/news/10151061.html>.

⁷⁰ "Forget Nuclear" by Amory B. Lovins, Imran Sheikh, and Alex Markevich, Rocky Mountain Institute, April 28, 2008 viewable at <http://www.rmi.org/sitepages/pid467.php>. As Lovins et al. concluded, "Isn't it time we forgot about nuclear power? Informed capitalists have. Politicians and pundits should too. After more than half a century of devoted effort and a half-trillion dollars of public subsidies, nuclear power still can't make its way in the market. If we accept that unequivocal verdict, we can at last get on with the best buys first: proven and ample ways to save more carbon per dollar, faster, more surely, more securely, and with wider consensus. As often before, the biggest key to a sound climate and security strategy is to take market economics seriously."

⁷¹ "Nuclear Giveaways in the Energy Bill Conference Report," Public Citizen, July 27, 2005, viewable at http://www.citizen.org/cmep/energy_enviro_nuclear/electricity/energybill/2005/articles.cfm?ID=13779.

⁷² See Upton's "yea" votes documented at http://en.wikipedia.org/wiki/Energy_Policy_Act_of_2005#cite_note-16.

⁷³ See the Aug. 8, 2005 entries at NIRS's chronologically arranged listing of resistance to the Palisades nuclear power plant at <http://www.nirs.org/reactorwatch/licensing/palisades.htm>.

⁷⁴ In June, 2007, Upton led the nuclear power industry's attempt in the U.S. House to secure a full 50% of all federal energy loan guarantees for the nuclear power industry. See http://frwebgate.access.gpo.gov/cgi-bin/getpage.cgi?position=all&page=H6713&dbname=2007_record. Addressing the \$50 billion in nuclear loan guarantees sought by the industry's lobby arm, the Nuclear Energy Institute, Rep. Pete Visclosky (D-IN, House Appropriations Subcommittee on Energy and Water chairman) commented on the House floor:

"The request for guaranteed loans from the Nuclear Energy [Institute], subsidized by the Federal Government, is very large. It overwhelms what the [Energy & Water Appropriations] bill provides for the entire energy community. The administration had asked for a total of \$4 billion for the nuclear energy industry and the coal industry. This does not come close to what the Nuclear Energy [Institute] has indicated they need. The Nuclear Energy [Institute] indicates a need for \$25 billion in Federal guaranteed loans for fiscal year 2008 and more than that in fiscal year 2009."

⁷⁵See: Public Citizen's analysis of the nuclear loan guarantees, "Summary of Loan Guarantee Provisions in House and Senate Energy Bills," at <http://www.citizen.org/documents/SummaryLoanGuaranteeProvisions.pdf>; Public Citizen's July 31, 2007 media release "Congress Should Not Bow to Nuclear Industry Demands for More Than \$50 Billion in Loan Guarantees to Build New Nuclear Reactors" at <http://www.citizen.org/pressroom/release.cfm?ID=2488>; the July 31, 2007 *New York Times* front page article, "Energy Bill Aids Expansion of Atomic Power" by EDMUND L. ANDREWS and MATTHEW L. WALD; and Beyond Nuclear August 6, 2007 media release "Rep. Upton Seeks Taxpayer-Backed Loans for New Nuclear Reactors: Atomic Industry Wants Over \$50 Billion in Next Two Years" (available upon request).

⁷⁶ Congressional Budget Office analysis of the 2003 energy bill's federal loan guarantee proposals. The 2003 energy bill evolved into the 2005 Energy Policy Act, which passed Title XVII energy loan guarantees into law. See also "Controversial Loan Guarantee Provisions in Energy Bill Undermine Congressional Oversight and Put America's Taxpayers at Risk," viewable at <http://www.nirs.org/factsheets/loanguaranteecontrovers.pdf>.

⁷⁷ See "Why Wall Street Wants America's Taxpayers to Finance Nuclear Power" at <http://www.nirs.org/factsheets/wallstreet.pdf>.

⁷⁸ Associated Press article "Congress expands nuclear-loan guarantee program, includes \$20.5 billion over two years," by DAN CATERINICCHIA, AP Business Writer, Tuesday, December 18, 2007, viewable at <http://climate.weather.com/articles/nuclear121807.html>.

⁷⁹ November 15, 2007 Co-op America media release, "14 TOP ENERGY COMPANY BENEFICIARIES OF NUCLEAR LOAN GUARANTEES SPENT \$48 MILLION ON LOBBYING: Co-op America Urges Citizens To Oppose Waste Of Taxpayer Dollars On Nuke Reactor Loan Guarantees to Companies with \$34 billion in Profits," viewable at <http://www.nirs.org/neconomics/coopamericarelease111407.pdf>.

⁸⁰ See Friends of the Earth's analysis "Windfalls in Lieberman-Warner Global Warming Bill: Quantifying the Fossil Fuel and Potential Nuclear Industry Giveaways," Feb. 25, 2008, viewable at http://www.foe.org/pdf/Lieberman_Warner_2-1_Update.pdf.

⁸¹ "Environment Groups to Senate: Reject Amendments Promoting More Subsidies for Nuclear Power In Proposed Climate Bill," Media Release, June 4, 2008, viewable at http://www.ucsusa.org/news/press_release/environment-groups-to-senate-0121.html. These groups included Beyond Nuclear, Clean Water Action, Environment America, Environmental Working Group, Natural Resources Defense Council, Nuclear Information and Resource Service, Physicians for Social Responsibility, Public Citizen, Sierra Club, and Union of Concerned Scientists.

⁸² See <http://www.opensecrets.org/politicians/summary.php?cid=N00004133&cycle=2008#ind> and <http://www.opensecrets.org/politicians/industries.php?cycle=2008&cid=N00004133>.

⁸³ See <http://www.opensecrets.org/politicians/industries.php?cycle=2006&cid=N00004133>.

⁸⁴ See <http://www.opensecrets.org/politicians/industries.php?cycle=Career&cid=N00004133>.

⁸⁵ “Campaign Contributions to Congressman Fred Upton by Political Action Committees and Individuals Associated with the Nuclear Power Industry,” by Kevin Kamps, Beyond Nuclear, June 10, 2008, based upon Federal Election Commission data as of May 26, 2008. Figures taken from www.fec.gov on May 26, 2008. Report available upon request.

⁸⁶ These companies and their political action committees and trade association (the Nuclear Energy Institute, NEI) include: BECHTEL PAC COMMITTEE, CH2M HILL COMPANIES LTD PAC, CONSTELLATION ENERGY GROUP INC., DOMINION POLITICAL ACTION COMMITTEE, DTE ENERGY CO. PAC - FEDERAL, DUKE ENERGY CORPORATION PAC, ENTERGY CORPORATION POLITICAL ACTION COMMITTEE 'ENPAC', EXELON CORPORATION POLITICAL ACTION COMMITTEE (EXELONPAC), FPL PAC FLORIDA POWER & LIGHT CO EMPLOYEES POLITICAL ACTION, GENERAL ELECTRIC COMPANY POLITICAL ACTION COMMITTEE (GEPAC), NRG ENERGY INC POLITICAL ACTION COMMITTEE, NUCLEAR ENERGY INSTITUTE FEDERAL POLITICAL ACTION COMMITTEE, PROGRESS ENERGY EMPLOYEES' FEDERAL PAC, SIEMENS CORPORATION POLITICAL ACTION COMMITTEE, SOUTHERN COMPANY - SOUTHERN NUCLEAR OPERATING COMPANY INC. PAC.

⁸⁷ “Forget Nuclear” by Amory B. Lovins, Imran Sheikh, and Alex Markevich, Rocky Mountain Institute, April 28, 2008 viewable at <http://www.rmi.org/sitepages/pid467.php>.

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