

Statement of John T. Herron
Transportation and Storage Subcommittee
Blue Ribbon Commission
November 2, 2010

Chairman Meserve, Chairman Sharp and distinguished members of the committee, I am John Herron, President, CEO and Chief Nuclear Officer of Entergy Nuclear. Entergy Corporation is an integrated energy company engaged primarily in electric power production and retail electric distribution operations. Entergy owns and operates power plants with approximately 30,000 megawatts of electric generating capacity, including 11 nuclear generating units in seven states. As the second-largest nuclear generator in the United States, we also provide management services in operating a twelfth nuclear plant in Nebraska and have provided decommissioning and license renewal services to a number of nuclear operators around the country. Entergy has annual revenues of more than \$10 billion and more than 15,000 employees.

Five of our nuclear plants are part of our rate-regulated utility service area in the southern United States. The remaining six are merchant plants in the northeast and Michigan. When we purchased these units from their former owners, we also acquired the Big Rock Point decommissioned plant site in northern Michigan and Indian Point Unit 1 in New York, which ceased operation in 1974.

With this diverse nuclear operations perspective, I have definite views in answer to the question you are tasked with, "Should the U.S. change the way in which it is storing used nuclear fuel and high level waste while one or more final disposal locations are established?" This crucial question impacts each category of Entergy's nuclear assets in a different way.

The simplest answer to your question is, "Yes." The status quo is not acceptable. It is time for the nation to address and solve the challenge of handling used nuclear fuel. The options are clear, and the time is well past.

The most immediate resolution to the current stalemate is to move used fuel from individual plant sites to centralized regional storage locations as research and development and long-term planning for more permanent solutions continues.

Federal litigation has made it clear that the U.S. government is in breach of its legal obligation to take ownership of this national resource under the Nuclear Waste Policy Act. While legal action continues to make utilities and our customers whole according to current law and contracts, we must move forward deliberately in what will lay a critical groundwork for the security of future U.S. energy policy.

I will spend the next few minutes briefly discussing why this is vital followed by a discussion of what we need to consider to move forward and propose a path of implementing a demonstration project at a decommissioned plant site such as the one we own in Michigan.

Why definitive action is vital

A cleaner energy future is a goal of this Administration, one that my company actively embraces. Entergy believes climate change must be addressed, a large part of which means producing energy to meet our nation's demand with less green house gas emissions. Rather than waiting on the government to force corporations to take action, Entergy already has one of the lowest CO₂ emission rates among our peers. As of 2005, we were the fifth lowest among the largest 100 power generators in the United States. In 2006, we made our second five-year commitment to voluntarily stabilize our CO₂ emissions at 20 percent below 2000 levels from 2006 to 2010 after successfully completing our first commitment with emission levels that were 23 percent lower than our target. In other words, we put our money where our mouth is.

This conviction in the face of climate change challenges and our success at achieving these goals is due in part to the large nuclear component of our generation portfolio. The nation's existing nuclear fleet of 104 reactors provides nearly 70 percent of the country's non-emitting generation. Ongoing operation of this fleet is critical to meeting any future clean energy goals.

Additionally significant is nuclear energy's economic profile. While nuclear plants are very capital intensive during construction years, four decades of U.S. operating experience has shown that the ultimate cost of electricity to our nation's consumers is less than any other fuel source. There has never been a period that better amplifies why reliability of electricity, both in terms of availability and cost, is a priority to U.S. economic stability.

In order to provide this clean, affordable and reliable electricity, the industry and its investors, as with any business enterprise, require some degree of business certainty so as to make business plans and decisions. Conversely, the nation's electricity providers currently face a number of uncertainties in terms of federal rulemaking. These include a number of new requirements from the Environmental Protection Agency that could require large investments; we face growing costs stemming from Nuclear Regulatory Commission regulation; we await action from Congress on renewable energy standards, other clean energy legislation or some form of energy policy dictates; and key to this forum, we do not have a long-term plan for used nuclear fuel.

While we support and join in the overall goals of the government of keeping safety and security the top priority of our business, these increasing costs and growing uncertainty make it difficult to run a nuclear generation business, especially in the merchant arena. We cannot formulate multi-year business plans based on revenues from sales of electricity or sell forward that power into markets that need supply reliability if we cannot predict the cost imposed by regulation or the *lack* of policy in terms of major costs like used fuel storage. The problem of cost to my business is compounded when I consider requirements causing me to spend additional resources at sites like Big Rock Point, one that no longer even generates electricity.

Recently, I was at Big Rock Point – a beautiful location. Lots of trees, green space and wildlife exist on 585 acres including a mile of waterfront property. In the middle of this natural space is a 100-acre island to house eight casks of used nuclear fuel and waste. This is the only evidence that a nuclear plant was ever located on the site, other than a memorial display at the former plant entrance. That the site can be returned to such a natural condition is a real testament to

our industry's technical capabilities and respect for the environment. Now, we need to take the final step and move the used fuel from the site.

Background on Big Rock Point

Big Rock Point, Michigan's first nuclear power plant, built as part of the Atomic Energy Commission's Power Reactor Demonstration Program, operated from 1963 to 1997. During a 10-year decommissioning process, all plant structures were removed and the plant site was returned to greenfield conditions. The NRC approved the release of 435 acres for unrestricted use on Jan. 8, 2007. Approximately 105 acres remain under license for the independent spent fuel storage installation (or ISFSI) and maintenance and support buildings. Entergy purchased this site from Consumers Energy, along with the Palisades Nuclear Plant, in April 2007. Today at Big Rock Point's ISFSI sit seven Fuel Solutions casks containing 441 fuel assemblies; additionally, one cask contains greater than Class C waste. We maintain an on-site security force and other employees to comply with all NRC licensing requirements and to secure the site.

Looking forward – what must happen

Before I can call my ISFSI manager and relay the word that movement of the material will commence on a day certain, policy, legal and planning matters must be addressed.

First, as mentioned, ongoing lawsuits between utilities and the government must be addressed. These ongoing lawsuits are costing taxpayers money – costs to litigate and the damages paid. In previous meetings you have heard the history of how the government is in breach of contracts with the utilities and is in violation of its statutory obligation to manage this high level waste. The government should own up to this obligation and make the utilities and our customers whole, according to current law and contracts.

But even as this issue of litigation stemming from the government's obligation is resolved, we collectively must move forward on establishing and implementing a national policy to manage used fuel and other high-level waste.

Specific issues that must be considered include:

1. What organization is responsible? The responsible entity must be insulated from changing political winds. The "federal corporation" concept as presented by Senator Voinovich and Congressman Upton and discussed in previous meetings of your Commission has merit and should be fully vetted and investigated.
2. How will these actions be funded? The nuclear waste funds collected from consumers must be dedicated to the purposes for which they were intended. The entity in charge must have control of how dollars are spent.
3. What additional legislation is needed? Nuclear Waste Policy Act Section 148 must be amended to allow for licensing of volunteer centralized storage sites.
4. What transportation barriers exist? Transportation of radiological waste already occurs regularly in the U.S. However, additional transportation study and routes would need to be completed, with input sought from stakeholders and emergency responders along these routes. This is important in dealing with not only actual challenges but also the perceived risks of transporting used nuclear fuel away from its original location.

5. What about long-term storage? As NEI and others have previously mentioned, we still will eventually need a permanent repository. I support the industry position that the Yucca Mountain license application review should continue. Whether Yucca Mountain itself ever opens or not, the application review can provide valuable lessons learned for the permanent repository ultimately identified and licensed.

Looking in more detail at these considerations, a number of logistical and practical issues need to be considered, addressed and answered. I will illustrate a couple of examples.

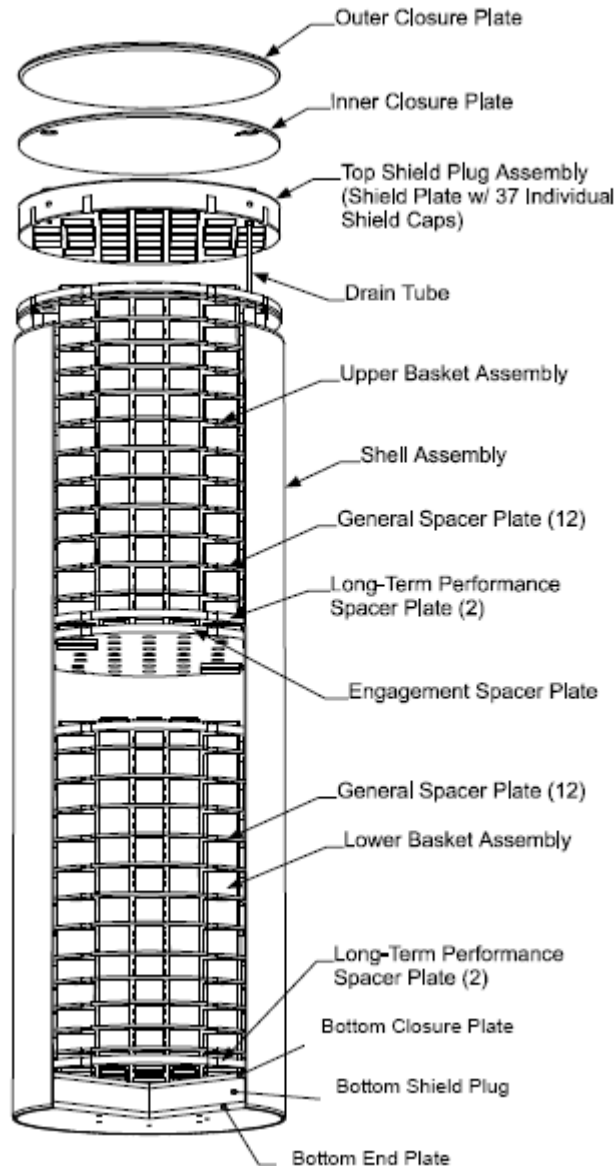
1. On-site and near-site transportation factors – Going back to Big Rock Point, it is proof that large, heavy parts can be moved from the site safely, securely and without community concern. I understand people sat outside to watch the reactor vessel (a 565,000-pound load) move down the road when the plant was decommissioned.

As the DOE or responsible organization considers which means and path to move fuel, it must be aware of any changes to the routes previously used to move large loads. The vessel was moved via heavy haul trailer to the railroad spur in Gaylord, approximately 50 miles from the site. However, the heavy haul roadway no longer exists on the site; the road from the ISFSI to the highway (approximately one-quarter mile) was not built to support heavy haul transfers. This roadway may need to be rebuilt or enhanced. A fuel transport package may weigh up to 285,000 pounds.

In addition, during transport of the vessel from the site to Gaylord, three bridges required additional temporary reinforcement. If this same route were to be used to move the fuel, any necessary reinforcement must be considered along with relocation of overhead wires or other infrastructure. According to the standard contract, transportation of the fuel is wholly DOE's responsibility. Thus, the department or successor organization must identify and address such issues.

2. Transportation casks – There are several types of dry fuel storage casks used in the industry. At Entergy, we use some casks licensed by the NRC for storage only (under 10 CFR Part 72) and we have newer casks licensed for both storage (under 10 CFR Part 72) and transport (pursuant to 10 CFR Part 71). As fuel storage canisters continue to be developed, they will have different attributes. Any DOE plan for package and transport must consider canister variations.

Again using the example of Big Rock Point, the fuel canisters are Fuel Solutions casks. These canisters are licensed for off-site spent fuel transportation when coupled with a licensed transportation overpack. These fuel canisters are somewhat unusual in that they store fuel in two layers, in an upper and lower fuel basket. This configuration supports the Big Rock Point fuel, which was much shorter than most fuel assemblies used in the industry today.



The Fuel Solutions transport cask is licensed by the NRC, a license that is renewed every five years. It is next up for renewal on Oct. 31, 2012; however, this cask has never been manufactured. The equipment needed to transfer fuel from the storage canisters to a transportation cask is in place at Big Rock Point; it is tested on a periodic basis and preventative maintenance is performed.

The responsible organization must designate the appropriate casks for transport, then the time for manufacturing or obtaining such casks and other questions must be addressed.

3. Community/stakeholder input – While there is no way to make everyone happy, all stakeholders in this process should have a chance to be heard. You are doing a critical part of that by hosting these meetings as part of your deliberations and recommendations.

As final plans and preparations are made for actual fuel movement, engaging at the local, state and regional level with residents and emergency responders will ensure the plan to move materials addresses actual risks through setting and communicating schedules, conducting training and a host of similar details. But providing ample information to a broad contingent also reduces perceived risks that can stand in the way of stakeholder buy-in and cooperation.

Again drawing from lessons at Big Rock Point, a Citizens Advisory Board exists and continues to meet even after decommissioning. This group was helpful in identifying and addressing community concerns. They continue to be interested in learning when the fuel will move. However, attendance has been decreasing since plant operations ceased. If substantive government activity aimed at moving used fuel begins, this group would need to be re-engaged to garner local support.

A National, Federally-Funded Demonstration Project

As the above discussion indicates, there are specific questions and issues that must be answered and addressed before moving forward, issues for which the experiences of the decommissioned sites can provide insight and which a demonstration project could further help identify and address. A national demonstration project or projects are needed to assess planning, technical, economic, logistics, regulatory and public acceptance issues associated with transportation and storage of used fuel. Such a program could:

- Build public and regulatory confidence in the ability of government and the industry to manage used nuclear fuel by demonstrating transportation and storage arrangements
- Provide for additional technical insights on cask design, performance, and management as the department develops its plan for packaging and transportation
- Allow for better understanding of the real logistic challenges and economics associated with the large scale, away-from-reactor interim storage program.

A demonstration program could be independent of the current contractual and legal issues. Also, the demonstration program would be federally-funded, since the information to be gained would have national significance, and the federal government is responsible for the costs associated with removing high level waste from these sites.

A Demonstration at Big Rock Point

Entergy's Big Rock Point would provide an excellent opportunity for a federally-sponsored and funded demonstration program for the transportation and centralized storage of used nuclear fuel. This plant was decommissioned beginning in 1997, and the NRC approved the release of 435 acres of the site for unrestricted use on Jan. 8, 2007. In the middle of this now Greenfield site, sits 105-acres for the spent fuel storage

installation and its support buildings. Eight casks remain on site: Seven casks of fuel and one of greater than class C waste.

Utilizing the Big Rock Point nuclear fuel facility as a demonstration project would be ideal, from a number of perspectives:

- Big Rock was conceived as part of the Atomic Energy Commission's Power Reactor Demonstration Program so that a demonstration project is in keeping with its initial mission
- The removal of spent nuclear fuel from the site would allow this property to be returned to natural state or productive use.
- The project could bring much needed jobs and help reinvigorate supply chain industries in the state of Michigan, which currently has one of the highest unemployment rates in the country.
- The quantity of spent fuel at the site is relatively small, which would minimize the cost of the demonstration project;
- The fuel has gone through extensive cooling, minimizing occupational and environmental risk.
- The model and precedent for community involvement exists locally as a citizens' advisory board provided input through the decommissioning of this plant and has continued to meet periodically.

While the movement of used fuel certainly brings additional planning factors into play, I stress that there has been and continues to be movement of high-level waste across this country and around the world in a safe and secure manner. Bringing experienced resources to bear makes successful outcomes attainable.

In conclusion and in answer to your original question, yes, a new plan for temporary storage of used nuclear fuel needs to be created. High-level waste needs to be moved to centralized regional storage locations. The technology and the experience are there. Now is the time to make it happen. The nation's decommissioned sites can be returned to natural space or productive use once the government upholds its responsibility. Operating units will have certainty allowing for planning and investment in required storage equipment. And bolstered public confidence in nuclear energy as a clean, reliable and affordable energy source will foster our country's ability to build a new generation of nuclear plants as a solution to energy demands that will only grow in coming years.