

TESTIMONY FOR THE RECORD  
NUCLEAR ENERGY INSTITUTE

*Before*  
Committee on Ways and Means  
U.S. House of Representatives

Energy Tax Incentives Driving the Green Jobs Economy

April 14, 2010

The Nuclear Energy Institute (NEI) is pleased to provide this statement for the record in support of the April 16, 2010, hearing on energy tax incentives. NEI is responsible for establishing unified nuclear industry policy on matters affecting the nuclear energy industry, including regulatory, financial, technical and legislative issues. NEI members include all companies licensed to operate commercial nuclear power plants in the United States, nuclear plant designers, major architect/engineering firms, fuel fabrication facilities, materials licensees, and other organizations and individuals involved in the nuclear energy industry.

Committee Chairman Levin has expressed his desire to “further drive job creation, economic growth, and reduce our dependence on foreign oil.” Expanding U.S. reliance on nuclear energy addresses all three objectives. Our statement will explain how nuclear energy meets these objectives, and propose some tax incentives that would accelerate nuclear energy expansion in the United States.

**The Need for Nuclear Energy in the “Green” Energy Portfolio**

As the President stated in February at the announcement of the conditional loan guarantee offered to the Vogtle nuclear project: “To meet our growing energy needs and prevent the worst consequences of climate change, we’ll need to increase our supply of nuclear power. It’s that simple .... [I]nvesting in nuclear energy remains a necessary step .... I hope that this announcement underscores both our seriousness in meeting the energy challenge – and our willingness to look at this challenge not as a partisan issue, but as a matter far more important than politics. Because the choices we make will affect not just the next generation, but generations to come.”

All mainstream analyses of climate change show that reducing carbon emissions will require a portfolio of technologies, that nuclear energy must be part of the portfolio, and that expansion of nuclear generating capacity over the next 30-50 years will be essential.

The Energy Information Administration’s analysis of the Waxman-Markey climate change legislation shows that the U.S. would need to build 96 gigawatts of new nuclear generation by 2030 (69 new nuclear plants). This would result in nuclear energy’s supplying 33 percent of U.S. electricity generation, more than any other source of electric power. To the extent the United States cannot deploy new nuclear power plants in these numbers, the cost of electricity, natural gas and carbon allowances will be higher.

We are confident that new nuclear generating capacity will be competitive – particularly in a carbon-constrained world – and we’re not aware of any credible analysis that shows otherwise. In last year’s National Academies’ report on *America’s Energy Future*, new nuclear capacity competes well against all other baseload options in the carbon-constrained world in which we are likely to be living, in the future. We see similar results in analyses by the Energy Information Administration, the Brattle Group, the Congressional Budget Office, and the Massachusetts Institute of Technology.

## **New Nuclear Power Plant Development in the United States**

The U.S. electric sector is preparing for construction of new nuclear power plants to meet growing demand for clean, carbon-free electricity. The U.S. Nuclear Regulatory Commission is currently reviewing license applications from 13 companies for 22 new nuclear reactors. The first of these new nuclear plants will start construction in 2011-2012 and be ready for commercial operation in 2016-2017. NEI estimates that 4-8 new reactors will be in this first wave of new nuclear plant construction, with others following.

Although other nations have continued to build new nuclear power plants (54 nuclear power plants are currently under construction around the world), most of America's 104 nuclear power plants were built in the 1970s and 1980s. Because of the extended hiatus in new nuclear plant construction, America's nuclear supply chain has contracted and U.S. nuclear plant operators must turn to overseas suppliers for major components that were once available in the United States.

## **Growth in the Nuclear Supply Chain**

The prospect of new nuclear plant construction in the United States represents a major opportunity to expand the U.S. nuclear manufacturing base – to serve both domestic and international markets.

American firms are planning to expand their capability to manufacture nuclear-grade components, and to build new manufacturing facilities – in the process, contributing substantially to job creation, economic development and reduction of greenhouse gases. A partial list of the expansion under way in the nuclear supply chain includes:

- Shaw Modular Solutions recently completed construction of a 410,000-square-foot nuclear modularization facility at the Port of Lake Charles, La., that assembles structural, piping, equipment and other modules for new nuclear plants using the Westinghouse AP1000 technology. (Between 700 and 1,400 workers at full capacity.)
- A joint venture of AREVA and Northrop Grumman Shipbuilding is building a new manufacturing and engineering facility in Newport News, Va. The 300,000-square-foot facility represents an investment of more than \$360 million, and will manufacture heavy components, such as reactor vessels, steam generators and pressurizers. (More than 500 skilled hourly and salaried jobs.)
- Alstom is building a new manufacturing facility in Chattanooga, Tenn., to manufacture steam turbines for fossil and nuclear plants, gas turbines, generators and related equipment. The project represents an investment of more than \$200 million. (Approximately 350 jobs.)
- Curtiss Wright Flow Control Company's Electro-Mechanical Division recently opened its 48,000-square-foot, multipurpose Large Manufacturing Complex in Cheswick, Pa. The new facility houses a reactor coolant pump test loop, which is complete and operational. (80 jobs from engineering positions to skilled machinists and assemblers; Curtiss Wright currently employs approximately 750 in Cheswick.)

The expansions at Alstom and Shaw Modular Solutions were both awarded §48C manufacturing tax credits provided by the American Recovery and Reinvestment Act of 2009, illustrating nuclear energy's ability to meet the criteria for advanced energy manufacturing.

New nuclear power plants and fuel cycle facilities both require a broad range of components, including:

- Primary containment system: containment structure, refueling equipment
- Reactor coolant system: reactor vessel, steam generator, pressurizer, reactor coolant pumps
- Electrical equipment: transformers, switch gear, power cable

- Mechanical equipment: piping, valves, valve operators, tanks, sumps and drains
- Instrumentation and control: simulator, process instrument detectors, isolation valves and fittings

As noted, NEI estimates that 4-8 new nuclear reactors will be in commercial operation by 2016-2017. Depending on the reactor design, construction of eight new reactors would require between 4,000 and 24,000 nuclear grade valves, 30-150 miles of nuclear grade piping, 1,000-2,000 pumps, 500-1,300 large and small heat exchangers, more than 1,800 miles of cable, more than 3 million cubic yards of concrete, more than 700,000 electrical components, and 500,000 tons of structural & reinforcing steel.

As these lists demonstrate, expansion in the nuclear manufacturing sector provides opportunities for many companies, large and small, manufacturing a broad range of equipment and commodities.

### **Job Creation and Economic Growth Provided by Nuclear Energy**

Nuclear energy is one of the few bright spots in the U.S. economy – expanding rather than contracting, creating thousands of jobs over the past few years. Over the last several years, the nuclear industry has invested over \$4 billion in new nuclear plant development, and plans to invest approximately \$8 billion more to be in a position to start construction in 2011-2012.

The investment to date has already created 15,000 jobs over the last two to three years, some of which are described in the supply chain section. These jobs represent a range of opportunities – from skilled craft employment in component manufacturing and plant construction, to engineering and operation of new facilities. The number of new jobs will expand dramatically early in the next decade when the first wave of new nuclear power projects starts construction. If all 26 reactors currently in licensing by the NRC were built, this would result in over 100,000 new jobs to support plant construction and operations, not including additional jobs created downstream in the supply chain. This would be in addition to the 30,000 new hires in the next 10 years to support operation of the existing fleet of plants through the extended license period of 60 years.

For example, construction and operation of a single new nuclear plant creates:

- 1,400 – 1,800 jobs during construction on average (with peak employment as high as 2,400 jobs at certain times)
- Approximately 700 permanent jobs when the plant is operating: These jobs pay 36% more than average salaries in the local area.
- The 700 permanent jobs at the nuclear plant create an equivalent number of additional jobs in the local area to provide the goods and services necessary to support the nuclear plant workforce (e.g., car dealers, dry cleaners, food service).

The average nuclear plant generates approximately \$430 million a year in total output for the local community, and nearly \$40 million per year in total labor income. These figures include both direct and secondary effects. The direct effects include the plant's spending for goods, services and labor. The secondary effects include the subsequent spending attributable to the plant and its employees, as plant expenditures filter through the local economy. Analysis shows that every dollar spent by the average nuclear plant results in the creation of \$1.07 in the local community.

- The average nuclear plant generates approximately \$20 million per year in state and local taxes. These tax payments support schools, roads and other state and local infrastructure.
- The average nuclear plant generates approximately \$75 million per year in federal taxes.

### **Reduced Dependence on Foreign Oil**

Nuclear generation is a baseload technology meaning that our units provide electricity around the clock up to 365 days per year. Our average capacity factor for the operating fleet is in the 90% range which is best in class for all electricity generating technologies. The U.S. currently has limited uranium mining

production with much of the world's uranium supplies originating in Canada and Australia. Additionally, through the Megatons to Megawatts program, down-blended weapons grade materials from Russia provide a significant portion of our current nuclear fuel supply, contributing to increased national security. By increasing the use of nuclear energy for electricity generation and for use in electric vehicles, the U.S. can significantly reduce consumption of foreign oil.

### **Proposed Tax Incentives to Accelerate Deployment of Nuclear Energy Manufacturing and Generation**

Federal tax stimulus would serve two purposes – accelerating capital investment in new nuclear power plants and in the critical manpower and infrastructure necessary to build new nuclear power plants in the numbers required to reduce carbon emissions. Tax incentives could refill the pipeline of highly trained personnel needed to build, operate and maintain new nuclear power plants, and restore America's ability to manufacture the components and other equipment that go into nuclear power plants, thereby creating additional jobs.

NEI proposes the following tax incentives for nuclear energy manufacturing and deployment:

1. NEI supports the President's FY 2011 budget proposal for an additional \$5 billion in §48C tax credits for advanced energy projects under the American Reinvestment and Recovery Act. This additional funding will support at least \$15 billion in total capital investment, creating tens of thousands of new construction and manufacturing jobs. Because there is already an existing pipeline of worthy projects and substantial interest, the additional credit could be deployed quickly to create jobs and support economic activity.
2. Provide tax stimulus for investment in new nuclear power plants, new nuclear-related manufacturing and work force development, and expand the existing production tax credit provided by the 2005 Energy Policy Act.
  - Amend the production tax credit authorized by 2005 Energy Policy Act to:
    - a) remove the 6,000-megawatt national megawatt limitation and make the credit available to all reactors placed in service before January 1, 2025
    - b) allow public power entities to transfer credits allocated to them (by virtue of their ownership position in a nuclear power plant) to tax-paying partners in the project, and
    - c) index the credit for inflation.
  - If companies so choose, in lieu of the production tax credit authorized by the 2005 Energy Policy Act, provide a 30 percent investment tax credit for investment in new nuclear power plants on which construction begins on or before January 1, 2025, or upgrades to increase output from existing nuclear power plants, available on an annual basis during construction as investments are made (qualified progress expenditure credits). Allow credits to be used against the alternative minimum tax. Allow companies to elect a grant in lieu of the credit.
3. Provide a tax credit for the expenses of training workers for nuclear power plants and facilities producing components or fuel for such plants. The credit would be graduated and based on a percentage of wages – e.g., 40 percent of the qualified first-year wages of qualified workers, 30 percent of the qualified second-year wages, 20 percent of the qualified third-year wages of qualified workers. The credit would apply to participants in a U.S. Department of Labor Registered Apprenticeship program (or a participant in a State Apprenticeship Program recognized by the U.S. Department of Labor) and participants in an accredited program of the Institute of Nuclear Power Operations' National Academy for Nuclear Training.

4. Amend Section 468A of the Internal Revenue Code to allow non-rate-regulated licensees that may be required by the Nuclear Regulatory Commission (NRC), as part of their operating license requirements, to pre-fund decommissioning costs to obtain a current income tax deduction as such contributions are made. (For example, some taxpayers may be required to pre-fund decommissioning costs in one year and the tax deduction for such costs should correspond to that one-year period.)

In conclusion, tax incentives to support deployment of nuclear energy will benefit the economy with low cost, clean electricity and creation of thousands of jobs. Nuclear energy can play an important role in our economic recovery today and as the President stated, it must play an important role in our clean energy future.