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Time to Fast-track New Nuclear Reactors

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Nuclear technology can help to meet America's growing demand for reliable, clean, affordable electricity. This has led many politicians, including presidential candidate John McCain, to conclude that the nation needs to start building new nuclear plants now.

The electric power industry has already begun plans to start building new reactors. While approximately 20 applications have been filed or are in preparation to build over 30 new reactors, no permits have been issued and no new plants have begun construction. A primary reason is that the regulatory process remains arduous and unknown. To overcome this, Congress should authorize a fast-track permitting process for a limited number of reactor projects.

A Slow, Arduous Process. The Department of Energy instituted the Nuclear Power 2010 program in 2002 as an effort to address the regulatory and institutional barriers to new reactors' near-term deployment. As its name implies, the original time frame called for new reactor deployment by 2010. Unfortunately, the program has not succeeded in this regard. Most believe that the earliest that a new plant will come on line is the latter half of the next decade.

The problem is not technical or economic—new reactors are being built around the globe, and plans for more are being announced every month. The problem is political. The Nuclear Regulatory Commission (NRC), after so many years with no applications for new reactors, does not have a proven process for efficiently licensing new reactors. The

NRC estimates that it needs a minimum of 42 months to issue the design, site, and construction/operation licenses required for reactor construction to begin. This includes—in addition to the safety assessments that are NRC's primary responsibility—about two years for environmental reviews, a year for design reviews, and a year for public hearings. And even this time frame is contingent on complete applications and minimal opposition from outside interests. This has led for calls to streamline the process.

Streamlining is necessary because the process cannot just be sped up. Specific procedures are in place that the NRC must follow, and that process takes time. Simply adding manpower, as some have suggested, would only provide marginal benefit. Because training regulators can take two years, it would be years before the NRC could hire and train enough people to shorten time schedules.

To speed up the current permitting process, Congress should authorize a fast-track program that is open to new reactor applicants that meet certain conditions. The goal would be to cut by at least 50 percent the amount of time it takes to permit a new plant. This must be done without sacrificing safety standards or security.

This paper, in its entirety, can be found at:
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The lessons learned from the fast-track program could be applied to necessary regulatory overhauls in the future.

The program's objective would be to reduce the permitting schedule from four years down to two or less and should be available for up to two construction permits per reactor design.

The fast-track program would consist of:

- **Focusing NRC Resources.** Per congressional direction, the NRC should focus its resources on permitting designated fast-track applications as quickly as possible without sacrificing safety or quality assurance.
- **Mobilizing National Laboratory Capabilities.** Although the NRC already uses the national labs to support their activities, the national labs should be compelled by Congress to organize themselves to support the fast-track applications.
- **Focus University Funding Around Supporting the Effort.** The Department of Energy funds programs that support nuclear education in the university system. These programs should be focused on supporting the NRC's fast-track program. This would not only provide additional resources to fast-tracking permits but would also develop a workforce with the technical expertise to design and operate America's reactors.
- **Ensuring a Science- and Technical-Based Assessment.** The NRC must have the freedom to pursue a transparent, fact-based process in a non-adversarial environment. While inputs from local stakeholders must be accommodated, the NRC must be allowed to make decisions based on good science and engineering in a timely manner. This requires an efficient process that allows legitimate concerns to be heard and resolved without being hijacked by outside, agenda-driven interests.

Fast-track program applicants would have to meet certain criteria. These would include:

- **NRC Certified or Proven Design.** The NRC has already certified four designs (although one is currently being amended) and reviewing three others. While only reactors with certified designs are licensable, applicants with designs that are nearing completion, especially if those designs

are proven elsewhere, should be eligible for a slightly modified fast-track program that would include design certification.

- **Proven Site with Broad Public Support.** The reactor site must already be licensed for operating reactors, and the applicant must demonstrate that the new reactor is welcome by the local community. Furthermore, the applicant must establish that an additional reactor will be safe and environmentally compatible. Under such conditions, the NRC should be permitted to provide an expedited environmental review, which takes roughly two years under current policy.
- **Proven Reactor Owner/Operator.** The application must be submitted by an operator with extensive experience with nuclear operations and be in good standing with the NRC. This is not to suggest that some current COL applicants are not capable, but fast-track applicants must have extensive nuclear operations experience and credibility with the state and local community. Each applicant would have to demonstrate its competence to the NRC before entering the program.
- **Proven Demand.** The applicant must demonstrate that there is a market for the power to be produced by the reactor.
- **Complete COL (Combined Operations and Construction License) Application.** The applicant must have a full and complete COL application per NRC guidance. One of the current problems slowing the NRC is the lack of completeness of some of the applications. Complete applications are critical to ensuring that the NRC is able to conduct a comprehensive design and safety review without having to go back to the applicant for additional information.
- **Long-Lead Components Commitment.** The applicant must demonstrate both a financial commitment and a preparedness to earnestly move forward by securing a source for timely delivery of long-lead components. Many of the components used to build a nuclear power plant must be ordered years in advance. Applicants seeking fast-track permits should be required to place early orders or deposits as soon as they are granted a fast-track permitting status.

- *Applicant Fees.* Like most other NRC activities, industry should fund most of the activities associated with the fast-track program through the assessment of a program participation fee.

To execute the program, Congress must:

- *Provide Specific Direction to the NRC, National Labs, and Department of Energy.* Congress must explicitly state its intentions for the fast-track program and make funding contingent on the NRC, national labs, and DOE to organizing themselves to achieve the objective of early completion of new reactor construction.
- *Adequately Fund.* If Congress is serious about reducing the time it takes to permit and build new reactors, it must give NRC, the national labs, and the DOE the resources and regulatory flexibility they need to get the job done. Rebuilding America's energy infrastructure is exactly the kind of direction that each of these institutions should be working toward.

Many Benefits, Few Drawbacks. Many in Congress have begun to realize that the nation's energy, economic, security, and environmental objectives cannot be met without nuclear power. This has led to multiple initiatives to restart the industry in the U.S. Unfortunately, many of these plans rely heavily on subsidies and are not sustainable. However, instituting a program to fast-track the notoriously arduous process of permitting new plants would demonstrate Congress' commitment to nuclear power and provide the regulatory stability that investors need to grow the industry. Furthermore, it would provide a common purpose around which America's energy-related institutions could organize. And finally, it would provide the information necessary to bring about comprehensive regulatory reform that the nation needs for a nuclear renaissance to take hold.

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