"Nuclear Regulatory Commission's Licensing and Relicensing Processes for Nuclear Plants"

United States Senate
Committee on Environment and Public Works
Subcommittee on Clean Air and Nuclear Safety

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INTRODUCTION

Mr. Chairman and members of the Committee, Good morning. My name is John Gilbertson. I am a Managing Director of Goldman Sachs. I want to thank the Chairman, and each of the Committee members for making this matter a priority, and for the opportunity to discuss with you financial market perspectives on nuclear power.

Our firm works as an advisor, and a provider of capital, to integrated electric utilities and power generation companies, including most of those who have recently filed, or announced intentions to file, a new COL application. During the past two years, we have also engaged in frequent discussions with Members of Congress, Congressional Staff, the Department of Energy, and the Administration, regarding implementation of the Title 17 Loan Guarantee Program. In the course of this work we have studied the question of how to finance the new construction of nuclear units.

CURRENT U.S. FLEET PERFORMANCE

To begin with, we would observe that the capital markets today look favorably upon the incumbent U.S. nuclear fleet of 104 units now in operation, and upon the companies who operate them. It is well understood by investors and lenders that the existing fleet is safe, reliable, low cost, profitable, and non-emitting. These characteristics have also translated into superior investment performance. An index of the common stocks of nuclear-focused utilities and generators has consistently outperformed the non-nuclear peer group during the current decade.

The story of the U.S. nuclear fleet is one of consistent performance improvement over the past 25 years. There are two statistical measures which illustrate this point. The first is the so-called "capacity factor" which is the percent of generating capacity during a specified period of time that is actually used to generate power. Naturally, higher is better, and the primary causes of lost capacity are downtime required to replace spent fuel assemblies, as well as infrequent or unplanned outages due to a variety of factors including equipment damage or breakdown.

In the 1970s, an era when units in the U.S. fleet were mostly new and immature, the average capacity factor was barely above 50%. However, by the mid 1980s, this average rate began to improve, crossing over the 60% mark in 1988, the 70% mark in 1991, the 80% mark in 1999 and the 90% mark in 2002.

Another important measurement is the average number of days required to refuel each unit, which has followed a similar path of steady improvement. In 1990, the average refueling period was more than 100 days. By 1995 this average had declined to less than 70 days; by 2000, it had declined to less than 50 days, and by 2005, the average time to refuel was less than 40 days.

The performance of the U.S. nuclear industry is, I believe, one of the great turnaround stories in business history. However, this turnaround did not occur spontaneously or by accident. Rather, it was the natural and expected result of economic opportunity, competitive pressures, a natural learning curve, rigorous regulatory scrutiny with strict emphasis on safety requirements, the systematic sharing of best practices, regular process improvements, and consolidation of fleet ownership, all of which have driven the operators of the U.S. fleet to achieve a noteworthy record of continuous improvement.

FUTURE NEED FOR NUCLEAR POWER

For all of these reasons, participants in the financial markets recognize that nuclear needs to become a larger portion of the U.S. fuel mix in the decades ahead. Once they are built, new nuclear units are expected to supply reliable power at all-in, hourly rates that are comparatively high by recent standards, but more than competitive against the expected cost of power in the next 10-15 years. Moreover, this cost advantage is expected to widen during the next decade, as the U.S. implements a climate protection regime through a cap-and-trade system which would impose an explicit cost on emitted carbon.

This need for increased nuclear generation, as a comparatively inexpensive source of non-emitting power, is also completely independent of the expected growth in energy conservation, and in other sources of clean energy such as wind power or solar power. It is well understood in the financial markets that the U.S. will be seriously challenged to reduce its national carbon footprint back down to 20th Century levels, and that we will need every means available to meet this goal. Even in the most ambitious yet plausible growth scenarios for conservation, wind and solar, the U.S. carbon footprint would be further reduced to the extent there is significant growth in nuclear's share of the U.S. fuel mix. And this need would only be amplified to the extent that plug-in electric vehicles reach commercial scale, thus creating the opportunity to use domestically produced electricity as a substitute for imported petroleum. Hence, there is no trade-off between nuclear and wind or conservation. We need all of them to the fullest extent possible.

CONSTRUCTION RISK

The financial markets also recognize that the challenge of new construction is very difficult. The sponsors of new construction projects will be required to put up large amounts of capital for long lead-time procurement, before the project has been licensed by the NRC and before the construction schedule has been set. They must do so in an era when the cost of key components is escalating under the pressure of steep commodity inflation, when the workforce for nuclear construction is significantly smaller and also older than it once was, and when the global demand for construction services has multiplied, due to infrastructure growth in emerging economies such as China, India and the Arabian Gulf. As a result, the project cost estimates provided by suppliers and contractors have risen dramatically in the past year, and are expected to continue rising.

These projects will use technology designs which are clearly superior to earlier generations, but which have, largely, not yet been built. It is realistic to expect some disruptions along the way as sponsors, suppliers and contractors move back up the learning curve. Consequently, in the eyes of lenders and investors, these projects will face the potential risk of serious delay and cost overruns.

UNDERSIZED COMPANIES

In the U.S., the companies who would undertake nuclear new-build are undersized, in comparison to the total size of each project, in comparison to the leading electric utilities in other regions of the world, and in comparison to the leading global energy companies who undertake other, similar-sized projects such as large-scale exploration and development. The U.S. power industry is still highly fragmented, mainly along state and regional lines, which leaves these companies, even the largest ones, constrained to assume the magnitude of risk in such a project.

Left to their own devices, we expect very few of these sponsoring companies would elect to pursue nuclear new-build, because their existing capital structure simply cannot withstand the construction risk. Alternatively, if a sponsor attempted to capitalize such a construction project through a non-recourse structure, we believe that commercial lenders and investors would simply be unwilling to put up the money. In the future, we do expect the commercial markets to become more receptive to nuclear construction finance, but only after several new units have been constructed and begun to operate successfully.

RISK SHARING

In order to move forward today, we believe the construction risk of each project must be shared among several constituencies, including project sponsors, investors, lenders, suppliers, construction contractors, the rate-payers who would be served, and the federal government. In this regard, the Title 17 loan guarantee program is essential to restarting the nuclear build cycle in the United States. We want to commend the DOE staff for their work in launching this program, and adapting it to the complexities of the U.S. power industry. However, we note that this program, too, is undersized in relation to the need and the opportunity. The current size of $18.5 billion in guarantee authority will be enough to support, possibly, 3 new projects. There are quite a few very credible and capable nuclear operators, who are ready to pursue similar projects, but only if they qualify for a Title 17 guarantee.

LICENSING AND OVERSIGHT

Investors and lenders see the NRC as a significant contributor to the industry turnaround described above, especially to the notable improvements in the safety and reliability of the existing fleet. As it relates to new-build, they also see the licensing process as a potential source of timing uncertainty. It has been decades since the NRC has awarded a completely new license to construct and operate a nuclear generating station. Investors are encouraged by the streamlined nature of the COL process. However, this process has not yet been tested in the current new-build cycle, and markets are still wary of the potential for intervention and prolonged delay. The best remedy for this concern will be an actual review experience that is both timely and rigorous. As new licenses are granted, investors will pay close attention to the length of time from start to finish, and to how this timeline improves from one applicant to the next. The markets will expect the NRC to incorporate its own process improvements in order to meet current timing expectations, and if possible to shorten this time period in subsequent applications, while maintaining the rigor of its decisions, with safety as always being the highest priority.

Mr. Chairman, thank you again for the opportunity to participate in this hearing. I look forward to any comments or questions you may have.