
Nuclear Power in the Age of Decommissioning

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This is the seventh issue of WilmerHale's 10-in-10 Hot Topics in Energy Series. Over the course of 10 weeks, our attorneys will share insights on current and emerging issues affecting the US energy sector. Attorneys from across various practice groups at the firm will offer their take on issues ranging from congressional investigations, to the impact of key regulatory reforms, to emerging trends in domestic litigation and international arbitration.

The United States is home to 60 commercial nuclear power plants which house 98 operating reactors—more than any other country in the world. Nuclear power accounts for approximately 20% of the nation's electrical production. But the existing fleet of nuclear facilities is aging, and no new plants have been built in recent decades. As if on cue, a new business sector is developing to pursue the considerable opportunities presented by those greying plants, and regulators are scrambling to address financial, environmental, and public health issues presented in that rapidly evolving business climate.

I. From Operations to Decommissioning

Although successful relicensing proceedings have extended the operating lives of a number of existing nuclear facilities, more than a dozen plants are expected to be retired from service in the coming years. As a result, many facility owners will soon face new questions that simultaneously present great opportunity while also posing practical and legal challenges. All are associated not with operating the plants, but rather with decommissioning them.

In decommissioning, plant owners face daunting technical obstacles and complex regulatory regimes, made more difficult by the Department of Energy's ongoing breach of its obligation to provide for disposal of spent nuclear fuel and the limited options for disposal of other radioactive material. The associated costs are high: plant-specific estimates range from hundreds of millions into the billions. Decommissionings conducted by plant owner/operators often have run over budget, typically following project delays due to discovery of environmental contamination beyond what was anticipated, or cost increases associated with radioactive waste disposal.

Faced with those challenges, facility owners are proposing creative solutions, including some that shift the burden—and legal liability—for nuclear decommissioning to new entities with expertise in

demolition and facility decommissioning, as opposed to generating electrons. The proposition has the potential to benefit all stakeholders. The prospect of completing decommissioning faster and more cost effectively than could the facility operator is attractive for the new industry entrants, which hope to claim as added profit at least some funds in the decommissioning trust accounts maintained by each plant. And the possibility of more quickly transitioning a nuclear facility site to a new productive use offers significant public benefit.

Recent license transfers in connection with decommissioning plants in Illinois, Wisconsin, and Vermont, as well as a proposal now under review in Massachusetts, serve as useful blueprints for the numerous additional plants that soon will shut down. Those transfers present proponents with potentially significant income potential and regulators with a raft of complex legal, political, and financial security questions. That combination of opportunities and risks must be addressed in parallel, often through a regulatory process that did not anticipate the evolving financial and compliance strategies of these new industry entrants.

II. Regulation of the Decommissioning Process

Nuclear power plant licensees are responsible for safely decommissioning a nuclear facility once it ceases operation; the licensee's obligations include managing spent nuclear fuel which remains at the facility. That process primarily involves safely removing the plant from service, addressing radioactive and other contamination, dismantling plant systems and structures, and reducing residual radioactivity to a level that permits safe release and reuse of the property.

Dual regulatory regimes govern decommissioning. At the federal level, the Nuclear Regulatory Commission ("NRC") has set strict technical and financial requirements. Among other federal obligations, plant licensees must submit reports detailing planned decommissioning activities, a schedule for accomplishing them, and an estimate of anticipated cost. The licensee must demonstrate that the financial resources available for decommissioning are sufficient to execute that plan, and the NRC may require additional financial assurances if it determines that funding may fall short. NRC oversight and inspection continues throughout the decommissioning process, until the licensee is able to demonstrate that the facility site is sufficiently decontaminated as to warrant release of the property for other uses.

Although, as a general proposition, the federal Atomic Energy Act ("AEA") preempts states and other government entities from regulating radiological safety, many issues critical to decommissioning projects remain within the ambit of state law. State regimes differ, but some provide authorities to public utility commissions and environmental and health regulators that are relevant to decommissioning work. Operators will have to navigate state standards for land use, for example. And state governments have an interest in ensuring that plant sites are remediated in accordance with state standards, including those that apply to non-radiological contaminants.

III. Liability Transfers

Against that backdrop, operators and decommissioning specialists have in recent years devised transactions intended to direct ownership of the deactivated facility and the obligation to decommission it to business entities better suited to those tasks than are traditional plant

operators. So far, three operators have obtained approval to transfer their NRC licenses to a third-party decommissioning entity. The ensuing proceedings have analyzed the combination of private financial opportunities and public financial risks presented by such proposals. Those early examples show that, after review, the NRC as well as state regulators may be willing to sign off on creative solutions, and a study of the proceedings provides useful intelligence for the next set of nuclear plants headed toward decommissioning.

The first example of a license transfer for decommissioning involved the two-unit Zion plant in Illinois. Exelon Generating Company LLC (“Exelon”) shut the plant down in 1998. In 2008, Exelon proposed to transfer the license for each unit to a subsidiary of EnergySolutions LLC (“EnergySolutions”), a decommissioning and radioactive waste disposal company. The NRC approved the transfer, which was finalized in 2010. Exelon still owns the property on which the plant sits, and following decommissioning and partial license termination, EnergySolutions will apply to the NRC to transfer back to Exelon the remaining operative license. At that point, the license will be limited to addressing obligations to manage spent nuclear fuel and other highly radioactive waste and the structure that holds it (the independent spent fuel storage installation, or “ISFSI”).

The NRC approved a second and similar license transfer for the La Crosse plant in Wisconsin in 2016. The La Crosse plant had been shut down in 1987 by Dairyland Power Cooperative. Again, the transferee (also a subsidiary of EnergySolutions) acquired the license to maintain and decommission the plant, but title to the plant remained with the owner. And as with Zion, following partial site release and license termination, the parties anticipate that the NRC will approve a transfer of the remaining license back to the owner, which will maintain the spent nuclear fuel and ISFSI.

In 2018, the NRC approved a more complete and permanent transfer of the Vermont Yankee plant. Upon shutting down in December 2014, the licensees, subsidiaries of Entergy Corporation (“Entergy”), announced plans to decommission the plant through the long-term, safe storage (“SAFSTOR”) method, which would have involved mothballing the plant for decades to allow radioactivity to decay while the decommissioning trust fund grew. Two years later, Entergy proposed, instead, to transfer the plant—and its decommissioning trust—to allow NorthStar Group Services, Inc. (“NorthStar”), a company focused on large-scale demolition and environmental remediation, to perform the decommissioning on an accelerated basis. Federal and state approvals now in hand, NorthStar plans to complete the project in 7-8 years, instead of the 60 years permitted under the SAFSTOR approach. Unlike Zion and La Crosse, there will be no return of the plant license to Entergy after decommissioning.

The industry is reacting to those examples. Holtec International (“Holtec”) has reached agreements to acquire Entergy’s Pilgrim (Massachusetts) and Palisades (Michigan) plants and Exelon’s Oyster Creek (New Jersey) plant when they shut down. Holtec will need to navigate approvals processes similar to the ones pursued by EnergySolutions and NorthStar; that process has already begun with respect to Pilgrim. As the opportunities presented by the aging nuclear fleet become clear, the responding industry is growing. Holtec, for example, has announced a joint venture with SNC-Lavalin Group expressly to pursue decommissioning opportunities, and NorthStar has entered a

joint venture with Orano (formerly Areva).

A. NRC Approval of Alternative Decommissioning Models

In approving each of the three license transfers described above, the NRC showed a willingness to entertain innovative approaches that allocate decommissioning obligations to those potentially better suited to handle them. And with the approval at Vermont Yankee, the NRC permitted for the first time a transaction in which a plant owner permanently transferred its operating license and the corresponding obligations to manage spent nuclear fuel to an acquiring company for the sole purpose of decommissioning.

To secure NRC approval of a license transfer, the acquiring company must demonstrate that it can assume the obligations of the license and execute them without endangering the health and safety of the public and otherwise in accordance with applicable NRC regulations. In applying that standard, the NRC looks, among other inquiries, to the acquiring company's financial wherewithal. Here, too, the NRC has shown flexibility. In approving the Vermont Yankee transfer, the NRC for the first time took into account expected proceeds from an anticipated future settlement (as opposed to an existing agreement) with the Department of Energy as a funding source for spent fuel management activities.

B. States and Stakeholders in License Transfers

In addition to NRC approvals, license transfers may trigger state licensing regimes, requiring approval from state public utility authorities. Such was the case in Vermont, where public utility commission ("PUC") approval was required to transfer the plant's state-level operating license from Entergy to NorthStar.

That approval was secured through a negotiated resolution of concerns identified by State energy, environmental, and health authorities along with other stakeholders—including public interest, governmental, and tribal participants—who had intervened in the PUC proceeding. Those complex negotiations resulted in a Memorandum of Understanding under which NorthStar and Entergy agreed to secure a suite of financial assurance tools and to abide by substantive criteria, all designed to ensure that the project will be adequately funded and protective of human health and the environment.

Public engagement is also an essential aspect associated with license transfer proposals (and of the decommissioning process in general). NRC regulations expressly provide the opportunity for public hearings at various stages, including public meetings prior to a license amendment approving any transfer. State agencies and other local stakeholders are also likely to intervene before the NRC and in any state proceedings. Local stakeholders and host communities, of course, have a significant interest in ensuring successful decommissioning and site remediation.

Proceedings for the proposed Pilgrim, Palisades, and Oyster Creek transfers are just getting or will soon get under way. The formation of new participants for this growing and complex segment suggests additional transfers are likely to be proposed. Whether the transactions proceed will depend on the ability of the participants and reviewers to conduct proceedings that identify and

navigate the corresponding—and sometimes offsetting—combination of risk and benefit.

IV. Conclusion

The challenges and opportunities that operators of U.S. nuclear plants heading towards decommissioning will encounter are distinct from those that arise in connection with constructing or operating those plants. Longstanding regulatory regimes focus on those phases of a facility's life; those programs did not necessarily anticipate the opportunity that is perceived by utilities and new entrants into the decommissioning sector. Operators are increasingly turning to specialists willing to take on decommissioning responsibility in consideration of the associated profit potential. Early examples suggest that regulatory authorities will allow these transfers, and the transfer review process provides opportunities for stakeholders to identify significant interests. Transfer proponents that understand and effectively address the objectives of regulators and other stakeholders stand to earn handsome rewards while making former facility sites available for beneficial re-use years and often decades earlier than anticipated.

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