A NEW PROJECT FINANCE PARADIGM FOR NUCLEAR

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Contents

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Part I. Introduction

Nuclear power plants are among the most complex infrastructure projects to finance. In fact, all viable financing structures for new nuclear power projects are underpinned by a single fundamental truth: nuclear power is a uniquely governmental undertaking, and governmental involvement is necessary to finance and develop new nuclear power plants. This is true in part because few project sponsors have the balance sheet capacity to raise the tens of billions of dollars of financing that is required to fund a new nuclear project. As a result, governments that want to promote nuclear power will be relied upon to provide financial support for new nuclear projects. However, this can be complicated because any governmental assistance is often heavily scrutinized and political and public backlash to support mechanisms that are perceived as unfair subsidies or as "bail outs" can result in significant setbacks in financing new nuclear projects.

In prior writings we have posed a question as to whether project finance concepts, which originally emerged and were developed to address financing challenges that are not entirely dissimilar to those facing new nuclear projects, can be adapted and tailored to create a new model for financing nuclear power projects which enables governments to provide financial support for nuclear power plants in a manner that is politically acceptable and defensible to stakeholders.[1]

In this article, we will build upon our previous analysis of project finance structures for nuclear power plants and discuss structured credit supports and repayment assurance mechanisms that can be developed based on those paradigms.

Part II. A Possible Project Finance Solution

Legal and financial advisors specializing in project finance transactions typically hold one of two views in relation to project financing new build nuclear projects: project finance transactions for new nuclear plants are either (1) very difficult, or (2) impossible. Those who believe project finance is very difficult to apply to nuclear power plants do so because

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[1] *Project Finance Structures for Nuclear*, 575 Project Finance International 52 (2016). When considering the application of traditional project finance principles to nuclear power projects, there are unique challenges specific to nuclear that require deeper consideration. *Id.* at 52. Namely, nuclear power projects are distinct in that they require an analysis of the role of skilled employees and executive managers with experience in the nuclear business, construction period risks, revenue assurance, nuclear third party liability, project finance remedies and negotiation of financing terms that respect the unique attributes of the nuclear power business. *Id.* at 53-55.

nuclear power projects are unique among infrastructure projects and require a nuanced analysis of, among other things, the attributes of a nuclear power business including nuclear third party liability, construction period risks and nuclear regulatory requirements. Those who say it is impossible do so principally because they believe there are insufficient available project-level remedies for lenders to manage the risks they are asked to take under a project finance model, and because any attempt to exercise project-level remedies would expose a lender to inappropriate risk of "extra-territorial" non-convention nuclear liability.

We believe that project finance for nuclear power plants is a very difficult, but not impossible, endeavor. We further believe that a group of enterprising project sponsors will eventually successfully secure project finance loan commitments to fund the construction, development, operation and maintenance of a new nuclear power plant for which the inaccessibility of other financing sources would otherwise make pursuit of the project itself futile. This Part II of this article sets forth concepts and ideas that may be explored to form the basis of the first successful project financing of a nuclear power plant, and we note that many of these ideas have been informally market-tested in discussions we have had with lenders, sponsors, technology exporters and operators doing business in or considering the nuclear power industry.

A. The cornerstone attribute of project finance is limited recourse to project sponsors. Is a limited recourse nuclear power plant financing possible?

To date, the prospects for limited recourse nuclear power plant project financing remain a largely academic discussion, as no nuclear plant project financings have been successfully concluded on a truly limited recourse basis. However, we believe that as the lending community becomes better educated about nuclear power technology, it will be possible to achieve a limited recourse nuclear power plant financing.

The degree of risk transfer to lenders will be narrower than with other power generation technologies. In addition, even if a limited recourse project finance transaction is achievable, it may come at a cost of large sponsor and/or host country indemnities for nuclear third party liability, it will almost surely entail challenging negotiations about the degree of project covenants and controls that lenders should have over the project, and it will necessarily involve a degree of increased financing premium to entice lenders to take project risk. For those reasons, a project developer and host country must examine the value proposition in exploring a limited recourse transaction and whether it is worthwhile to pursue the complicated exercise of limited recourse options.

Should a developer or host country desire to pursue a limited recourse transaction, the following minimum parameters will almost certainly enter into negotiations:

> Completion guarantees. The risks associated with completing construction on-time and on-budget must be cabined through various contracting and credit support strategies in order for lenders to accept such risks. Construction risks are exacerbated in a host country developing nuclear power for the first time because regulatory frameworks and licensed operating entities must be developed to international standards on timetables consistent with financing requirements. Consequently, financial guarantees or other credit supports or contingent equity commitments will be required to support payment of overruns and debt service during reasonably foreseeable delays and repayment of all or a portion of the debt should completion not occur by a date certain. The focus of negotiation of the terms of those guarantees will

often center on which sponsors and participating governmental instrumentalities bear which proportionate share of liability to the lenders and on what terms different guarantors may be held liable. Guarantee release criteria may also be an area of complex negotiation, and will frequently include stabilization metrics designed to ensure that the plant is operating profitably and safely for a period long enough to ensure that both the technology is stable and the operating staff can do their job safely and efficiently.

Technology maturity and a track record of buildability are important factors in assessing construction period risks. A demonstrated history of plant delivery within reasonable margins of scheduled completion and budgeted cost should be considered in sizing requisite completion credit support.[2]

Alternatives to "step-in" rights during plant operations. Traditional project finance "step-in" remedies under which lenders (through their security agent) can step into the shoes of the project owner for purposes of taking operational control of a project to remedy project-level failures and apply resulting project revenues to discharge monies owed to them are generally considered controversial in the context of nuclear power plants for two key reasons.

- First, many lenders and their advisors hold a generally skeptical view toward the notion that substitute plant operators would be available to support operations, repair and/or maintain the plant in case of a loan default by the project owner and subsequent exercise by lenders of their rights to "step into" the project owner's operational, contractual and project management rights in respect of the project.

- Second, even assuming that "step-in" remedies are viable, there are nonetheless two fundamental concerns with "step-in" rights that are unique to nuclear power plants: namely that (A) implementing any change in operational management or control would be time consuming and costly due to required nuclear regulatory approvals, and (B) lenders potentially assume an inappropriate level of nuclear liability risk the moment they exercise project-level remedies by stepping in and affecting operational control and management of the plant.

Hundreds if not thousands of highly trained staff, including senior reactor operators that are individually approved by the nuclear regulator, all working together under a management team and management model approved by the nuclear regulator are

[2] When the United Kingdom government developed its financial support package for Hinkley Point C, the financial guarantees were dependent on the satisfaction of "Base Case Conditions" relating to the unproven European Pressurized Reactor (EPR), which Hinkley Point C will use. Oliver Tickell, *Flamanville Nuclear Safety Fail Sounds Death Knell for Hinkley C*, ECOLOGIST (Oct. 2, 2015). Until successful implementation of the same EPR design at another nuclear plant in Flamanville, France, the transaction is underpinned by sponsor credit support sized to repay the lenders. *Id.* In contrast, the Freeport LNG deal, which was structured as a non-recourse construction project financing, closed without requiring a full completion guarantee. Callum O'Reilly, *Update: Freeport LNG Project-Financing*, LNG INDUSTRY (Nov. 26, 2014), http://www.lngindustry.com/liquefaction/26112014/Update-Freeport-LNG-project-financing-1859/.

generally required to operate and maintain a nuclear power plant.[3] Moreover, from a nuclear safety perspective, it is paramount to maintain continuity in plant operations and personnel at all times to ensure proper management of the nuclear reactor, nuclear fuel and waste, and continuous plant safety, maintenance and operation.[4] As a result, it is simply not feasible for a group of lenders stepping into a nuclear power plant to dismiss the existing operating organization and hire a replacement contractor to take over full nuclear plant operations.

However, there are experienced plant operators that are in the business of selling their management models and making management teams available to support operations.[5] There are also numerous examples of nuclear stations changing operational control through the deployment of new management models and executive teams to the improvement of plant availability, efficiency and overall plant economics.[6]

One way to ensure, then, that lender "step-in" remedies are real and effective would be to pre-arrange those remedies under contractual option agreements with one or more nuclear operating organizations that would be willing, on sufficient advance notice, to deploy a team of suitably qualified and experienced senior managers and

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[3] The United States Nuclear Regulatory Commission licenses and regulates all individuals who either operate or supervise the nuclear power plant. *Operator Licensing*, NUCLEAR REG. COMMISSION (Jan. 14, 2015), http://www.nrc.gov/reactors/operator-licensing.html.

[4] Nuclear safety requires constant oversight and examination throughout the organization. NUCLEAR INDUSTRY ASSOCIATION, THE ESSENTIAL GUIDE FOR THE NUCLEAR NEW BUILD SUPPLY CHAIN 15, *available at* http://namrc.co.uk/wp-content/uploads/2013/03/NIA-essential-guide-2.pdf.

[5] *See e.g.*, BWX Technologies provides nuclear facilities and operations management. Facilities Management, BWX TECHNOLOGIES (last visited Nov. 27, 2015), http://www.bwxt.com/government-services/facilities-management. Moreover, Amec and Exelon Nuclear Partners have formed a partnership "to provide consultancy and support services to nuclear power projects around the world." *Amec, Exelon Team Up on Nuclear*, WORLD NUCLEAR NEWS (Mar. 13, 2014), http://www.world-nuclear-news.org/C-Amec-Exelon-team-up-on-nuclear-1303144.html. Exelon has signed consulting agreements with the Lithuanian Nuclear Authority and the China Nuclear Power Co. Ltd. to train their nuclear management personnel and plant operators on the Exelon Nuclear Management Model. *Exelon Nuclear Partners Signs Consulting Agreement with Lithuanian Nuclear Authority*. PR NEWSWIRE (Dec. 9, 2011), http://www.prnewswire.com/news-releases/exelon-nuclear-partners-signs-consulting-agreement-with-lithuanian-nuclear-authority-135316948.html.

[6] *See* MANAGING ORGANIZATIONAL CHANGE IN NUCLEAR ORGANIZATIONS, IAEA NUCLEAR ENERGY SERIES, No. NG-T-1.1 1 (2014) [hereinafter IAEA REPORT] (noting that organizational changes can also have a major impact on safety and effectiveness). Entergy Nuclear is recognized within the nuclear industry for its replacement operator services. *Entergy, Equagen and Enercon*, WORLD NUCLEAR NEWS (Apr. 8, 2009), http://www.world-nuclear-news.org/C_Entergy_Equagen_and_Enercon_0801091.html. For example, Entergy has provided its services to improve Taiwan Power Co's Kuosheng nuclear power plant's operations. *Entergy Helps Extend Life of Taipower Plant*, WORLD NUCLEAR NEWS (July 29, 2008), http://www.world-nuclear-news.org/C-Entergy_helps_extend_life_of_Taipower_plant-2907084.html. In 2002, Entergy entered into a management contract to improve plant performance at Cooper Nuclear Station in Nebraska, and was so effective that Entergy received a 15-year contract extension. Dave Weaver, *Citing Cooper Station's Performance, NPPD Extends Contract with Entergy Nuclear*, Lincoln Journal Star (Dec. 16, 2009), http://journalstar.com/news/state-and-regional/govt-and-politics/citing-cooper-station-s-performance-nppd-extends-contract-with-entergy/article_bc586874-ea8e-11de-a00c-001cc4c03286.html. In 2007, Entergy acquired Palisades Power Plant in Michigan and took over operational control. *US Nuclear Plant Sold for $380 million*, WORLD NUCLEAR NEWS (Apr. 12, 2007), http://www.world-nuclear-news.org/newsarticle.aspx?id=13232&LangType=2057.

executives and a tested nuclear plant operations management model into a nuclear power plant experiencing operational challenges at the option of project finance lenders. Such an arrangement could be crafted in a manner conducive to the interests of all parties:

- The lenders would benefit from having assurances of effective "step-in" remedies under contract from a designated operational support contractor that has been vetted in advance during pre-closing due diligence review.

- The host country sponsor or developer of the nuclear power plant would be intimately involved in the negotiation and development of the terms upon which "step-in" rights could be exercised and the identity of the operational support contractor (which may even in certain circumstances potentially be an affiliate). Moreover, with appropriately negotiated terms, the option agreement may even provide a menu of support options that could provide the basis for project owners and borrowers to be afforded long cure periods within which they may exercise certain of the remedies under the option agreement while lenders agree to stand still for specified periods.

- The operational support contractor providing the option agreement would benefit from selling the option for an appropriate fee or other consideration, and would be anchored into the project as a support contractor capable of earning appropriate compensation in case of operational shortfalls and failures that require external support to remedy.

Implementing such an option agreement and prescribed remedial plan is most significantly limited by the availability of substitute operators and the fees they would charge to enter into such an option agreement and/or sell their management model as a precondition to such an option agreement. We believe there is a market and appetite among qualified operating organizations to make such prescribed remedial options available, but the terms of those option agreements would need to be financially remunerative to the optionors.

Moreover, the timeframes required to effectively trigger a change in operational control of a nuclear plant are significant given the requirements for regulatory review and approvals. As a result of this, as discussed in more detail in the section immediately below, debt service reserves of sufficiently significant magnitude would be required to ensure that debt service would be paid during any likely period of regulatory approval required as a condition to exercising "step-in" remedies.

Finally, because lenders will not want to own and have nuclear plants operating under such contractual arrangements with substitute operators for prolonged periods, the kinds of remedies described above would have to be coupled with the ability to take ownership of the equity interests in the plant or the plant economics and would be most effective in jurisdictions where there is a market to sell such equity interests to other potential investors.

Debt services reserves or undertakings. A typical project financing for conventional power generating assets includes a debt service reserve which is calculated as a sum of money sufficient to service regularly scheduled principal and interest payments on the loan for a period of time, very often six months in the case of conventional and

renewable power generating assets. This can be funded by way of cash which is either borrowed or built up over time from project cash flows. Alternatively, sponsors can provide guarantees or letters of credit to support the debt service reserve requirement. The reason for the debt service reserve is to provide lenders assurances that money will be available to service the loan in the event that the plant is shut down or curtailed for any reason.

Because nuclear power stations can be subject to prolonged outages if the circumstances giving rise to shutdown require regulatory review and corrective action, the debt service reserve requirements for a limited recourse nuclear project financing will necessarily be quite large.

In addition, replacing an executive team at a nuclear plant operating organization and deploying a new management model, as discussed above as alternative remedies to traditional "step-in" rights, are events that generally require approval of the nuclear regulator.[7] Those approvals can take as much as 18-24 months or more in cases where a properly qualified replacement management team and a sound management model are identified and appropriately detailed and proper licensing applications are timely made.[8] As a result, project finance lenders relying upon project finance remedies and "step-in" rights, even under a paradigm where those "step-in" rights are pre-defined under an option agreement, will require "super-sized" debt service reserves. Such reserves may come in the form of guarantees, cash reserves or other credit support mechanisms, but in all cases lenders will require assurance that sufficient reserves are available to fund scheduled debt service during the likely period of regulatory review for a new management team and management model, as well as during the likely period of any reasonably foreseeable regulatory outage occurring during normal operations. [9]

We believe the likely outcome of negotiations would result in a debt service reserve requirement measured in years rather than months. On a plant that costs tens of billions of dollars, the quantum of that debt service reserve requirement would be large enough that it may make sense to the project sponsors and/or host country

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7 Nuclear safety regulators will have an oversight role during an organizational change. IAEA REPORT, *supra* note 6, at 24.

8 Generally, the operating license process can take 6 to 36 months. *Licensing and Project Development of New Nuclear Plants*, WORLD NUCLEAR ASS'N 11 (2015), *available at* http://www.world-nuclear.org/uploadedfiles/org/wna/publications/working_group_reports/wna_report_nuclear_licensing.pdf. The review process for a license transfer application can take between 6 and 9 months. *Fact Sheet on Reactor License Transfers*, U.S. NUCLEAR REG. COMM'N (Dec. 12, 2014), http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/fs-transfer.html.

9 The market standard in project finance for a typical debt service reserve account (DSRA) is 6 months. European Commission, Decision of 08.10.2014 on the Aid Measure Which the United Kingdom is Planning to Implement for Support to the Hinkley Point C Nuclear Power Station 12 (2014). Notably, the Commission Decision on the Aid Measure for Support to the Hinkley Point C Nuclear Power Station required a 12-month DSRA. *Id.* Since there are so many risks associated with a nuclear power plant, a new project should have long reserves in case of regulatory shutdowns even without triggering step-in or management changes. *See id.* In Entergy's deal to acquire Palisades Power Plant, Entergy requested approval of a license transfer on August 31, 2006, and the Nuclear Regulatory Commission approved the transfer on April 6, 2007. In re Consumers Energy Co. Nuclear Mgmt. Co., 72 FED. REG. 19057 (Apr. 16, 2007), *available at* https://www.gpo.gov/fdsys/pkg/FR-2007-04-16/pdf/E7-7210.pdf.

government to consider keeping capped debt guarantees in place in lieu of cash reserves, even after completion guarantees have been released.

Nuclear liability issues. Lenders will generally expect protection from nuclear liability claims. The international conventions and many domestic nuclear liability laws go a long way to addressing such concerns in the context of domestic claims brought within a nuclear project's host country. Nuclear liability protection laws provide protection for claims that arise within the host country, and international conventions extend that protection beyond the host country to include territories of the applicable treaties or member states. However, claims in relation to extraterritorial non-convention nuclear liability remain.

To address such concerns, sponsors and/or host government instrumentalities must be prepared to offer some form of financial security, perhaps in the form of insurance and/or indemnities for non-convention claims. Structural mitigants also exist and are helpful in addressing lender concerns.

For instance, by pre-agreeing "step-in" remedies under a structured option agreement with a known operational support contractor, as described above, lenders to a transaction can ensure that the project owner takes primary accountability for the terms of those remedies and operational "step-in" mechanics. This is significant because the exercise of "step-in" rights in this context would involve triggering remedies that were originally structured and negotiated principally by the project owner and original nuclear license holder, rather than making independent assessments and determinations as to the identity of such support contractor and the terms upon which it effects operational change on behalf of the lenders. This may, in turn, introduce an additional element of structural separation of lenders from potential claims for nuclear liability.

Additionally, the allocation of risk in respect of claims for nuclear liability would be a feature of the operational support option contract, as the contractor would be the party taking the greatest degree of nuclear liability risk.[10] Once those risk allocation provisions are fully negotiated with the operational support contractor, it should be a relatively simply drafting exercise and commercial negotiation to extend the same risk protections afforded to the contractor to the lenders under provisions that "spring" into effect once remedies under the option agreement have been triggered.

If it may further be possible in appropriate cases to structure a remedial scheme under which the original project owner is required to trigger the remedial steps under the agreed option agreement, failing which appropriate financial guarantees from credit-worthy parties would kick in. Under this paradigm, the financial guarantees supporting the debt are springing instruments and fully contingent upon the project owner failing to follow prescribed remedial plans which effectively transfer

[10] Nuclear power plant operators are sensitive to nuclear third party liability because, during the operating phase, they have exclusive liability for damages resulting from accidents. *Paris Convention on Nuclear Third Party Liability*, NUCLEAR ENERGY AGENCY (Nov. 7, 2014), https://www.oecd-nea.org/law/paris-convention.html.

operational control of the asset to the operational support contractor's replacement management team acting under a new management model. [11]

Unique nuclear risks that lenders are unlikely to take. Even with completion guarantees, supersized debt service reserve undertakings and other risk mitigants described above, there are risks unique to nuclear power plants that lenders are unlikely to take. These largely turn on reputational matters where bank management teams perceive that their institutions cannot afford to remain in transactions associated with projects that pose excessive radiological safety hazards to the communities in which they are situated. The most obvious of these scenarios are catastrophic nuclear events – i.e., radiological releases measuring high on the International Nuclear Event Scale like the Fukushima catastrophe in 2011.[12] But a variety of additional matters ranging from the failure of host country nuclear regulators to meet minimum international standards to repudiation by host country governments of key international treaties can also give rise to the kinds of reputational concerns that require lenders to have a right, supported by sponsor and/or host country guarantees, to exit the financing.

Some of these risks can be, at least partially, offset by insurance. For instance, a catastrophic nuclear event may, in addition to claims under nuclear liability insurance, give rise to claims under property insurance policies that pay for the physical loss occasioned by certain casualty events. The proceeds of those claims, if properly structured, can be used to offset liabilities under financial guarantees of the debt.

In the case of smaller projects such as small modular reactors, insurance should be explored as a mechanism to provide greater coverage and risk assurance to lenders, thereby narrowing the scope of required sponsor guarantees.

Further challenges to the applicability of a project finance model arise beyond crafting functional "step-in" rights, credit support mechanisms and other unique financing attributes described above. Most notably, the market for investment in operating nuclear assets varies from jurisdiction to jurisdiction.[13] In markets where sale of ownership interests in nuclear plants is precedented, it is feasible for lenders to foreclose on the equity interests in such a plant and, concurrently with or after exercising prescribed "step-in" rights as described

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[11] Similar contingent schemes have been developed for project financings of conventional power plants in the Middle East in an effort to structure credit supports that are palatable for the governments that provide them. James Simpson & Giulia de Michelis, *Part One: What Middle East Lessons Can Be Applied to African Power Projects?*, AFRICAN BUS. REV. (Nov. 26, 2014), http://www.africanbusinessreview.co.za/finance/1787/PART-ONE:-What-Middle-East-lessons-can-be-applied-to-African-power-projects.

[12] The International Nuclear and Radiological Event Scale (INES) is a tool for "communicating to the public the safety significance of events associated with sources of ionizing radiation." INES, INT'L ATOMIC ENERGY AGENCY (Apr. 10, 2015), http://www-ns.iaea.org/tech-areas/emergency/ines.asp. The IAEA rated the accident at the Fukushima Daiichi nuclear power plant a Level 7. *Fukushima Nuclear Accident Update Log*, INTERNATIONAL ATOMIC ENERGY AGENCY (Apr. 12, 2011), https://www.iaea.org/newscenter/news/fukushima-nuclear-accident-update-log-15.

[13] Investors are aware that "the relative competitiveness of nuclear energy varies widely from one major region to another, and even from country to country." J.H. Keppler, *How Competitive is Nuclear Energy?*, NEA NEWS 4 (2010), https://www.oecd-nea.org/nea-news/2010/28-1/NEA-News-28-1-1-how-competitive.pdf.

above, sell those equity interests to third party investors in order to recover all or a portion of their losses in case of a defaulted loan against the plant.[14]

In cases where there is no demonstrated market for the sale of equity interests in a nuclear power plant, relying solely on non-recourse project finance remedies may be impracticable. Models have, however, been developed in project finance transactions facing similar challenges under which host country governments are obligated to facilitate the sale of project interests to third parties and even provide supplemental liquidity to augment perceptions of market inadequacy to support foreclosure remedies.[15] With appropriate effort and creativity, it may be possible to adapt such models to facilitate project finance transactions for nuclear power plants in jurisdictions that do not have established markets for the sale of equity interests in nuclear power assets.

In addition, due to the size and monetary value of nuclear power plants and the quantum of finance required to develop them, it is unlikely that insurance will be commercially available in a sufficient magnitude to provide payment of amounts as large as the total debt in case of casualty events that result in a total loss at a plant.[16] Therefore, unlike conventional power and renewable power technologies, where insurance proceeds are generally available in sufficient amounts to give lenders assurance of substantial repayment in case of a total loss casualty event, lenders to a nuclear power plant will likely be unable to rely on insurance proceeds as a source of full repayment.

Political risk protection in case of changes in law, or even abandonment of nuclear power as a policy matter, is another area requiring considerable attention and must be addressed and accounted for in structuring financing for nuclear power stations.

Debt tenors can also raise tricky issues in the case of nuclear power projects. While nuclear projects have useful lives often reaching 60 years or more, project finance lenders rarely offer amortization periods in excess of 18 years, and in fact the consensus guidelines of the Organization for Economic Co-operation and Development for nuclear financing limit repayment of loans provided by export credit agencies to a maximum of 18 years.[17] This can result in higher electricity tariffs than would otherwise be required if the cost of the nuclear project could be fully amortized over its entire useful life.

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[14] For example, any sale of ownership interests in the United States will be subject to the U.S. Nuclear Regulatory Commission's criteria regarding foreign ownership, control or domination (FOCD) of U.S. nuclear energy facilities. *NRC to Use Graded Approach on Foreign Ownership*, NUCLEAR ENERGY INST. (May 7, 2015). As an example of a sale of ownership interest in a nuclear plant, in 2007, there was a private equity buyout of TXU Corporation, which operated two nuclear reactors. *Power Plant Purchases*, WORLD NUCLEAR ASS'N (Feb. 2016), http://www.world-nuclear.org/information-library/country-profiles/countries-t-z/appendices/nuclear-power-in-the-usa-appendix-2-power-plant-pu.aspx.

[15] *See* SUMAN BABBAR & JOHN SCHUSTER, POWER PROJECT FINANCE: EXPERIENCE IN DEVELOPING COUNTRIES 28 (1998) (explaining that there is significant variation in the scope and strength of guarantees provided by governments, including examples of "guaranteed repayment of debt and some equity upon termination").

[16] Sufficient insurance may not be available for nuclear power plants. NUCLEAR ENERGY AGENCY, THE FINANCING OF NUCLEAR POWER PLANTS 31 (2009).

[17] ORGANIZATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT, ARRANGEMENT ON OFFICIALLY SUPPORTED EXPORT CREDITS 43 (2014), *available at* http://www.oecd.org/officialdocuments/publicdisplay documentpdf/?doclanguage=en&cote=tad/pg(2014)1.

For all these reasons, among others, there are significant practical limits and challenges to applying a project finance model to nuclear power generating assets. However, coming back to the fundamental philosophy underpinning project finance, if this model can be adapted in a way which allows nuclear power plants to be financed based on the credit of electricity offtakers and/or the strength of the market for the sale of electricity from nuclear power plants rather than placing all risk on project sponsor balance sheets, it will be possible for the industry as a whole to pursue the development of many more new nuclear power plants than would otherwise be the case.

B. Project finance, if properly adapted, can be an effective financing vehicle for nuclear power plants.

For all the reasons described above, among many others, project finance paradigms must be adapted to fit the unique attributes of the nuclear power business in order to achieve a successful financing. While differences in technology and scale are often obvious to project finance practitioners, the challengers of interposing project finance norms on the nuclear power business and the people who run nuclear power plants can be elusive, and yet are often far more fundamental.

Constructive frameworks for approaching nuclear project financing can only be developed by bearing in mind the key unique attributes of nuclear power plants and looking foremost to confidence in the licensed entities and their nuclear regulator as a basis for extending credit. Approaching nuclear financing in this manner may even provide a path to achieving the first truly limited recourse nuclear plant financing at some point in the future.