Market Design and Energy Policy for Development and Deployment of Advanced Nuclear Reactor

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Introduction

The business environment for nuclear power generation has grown difficult for various reasons. As climate change initiatives have globally gained momentum, however, several countries have positioned nuclear energy as an option to mitigate climate change. At the same time, deployment of new nuclear technologies is currently regarded as a way to survive in such a situation. In Japan, the Fifth Strategic Energy Plan approved by the cabinet in 2018 reads, “The Government of Japan will go forward with the development of new technology that will fundamentally enhance the safety, reliability and efficiency of using nuclear power.” In other countries such as the U.S., Canada and the U.K., research and development of advanced nuclear reactors have already been underway from a long-term perspective. This paper briefly reviews advanced reactor development trends in these foreign countries and analyzes key points for their deployment.

1. Advanced Reactors

Generally, nuclear reactors are classified by generation in line with the periods for their construction and adopted technologies as shown in Figure 1.1. Among them, Generation III+ and later reactors, particularly Generation IV reactors, are called “advanced reactors.” Present mainstream light water reactors (LWRs) which uses water as coolant belong to Generation II. Most of the Generation III and III+ reactors are improved light water reactors. In contrast, Generation IV reactors feature innovative technologies (using molten sodium, helium gas or supercritical water), going beyond the concept of LWR. These reactors, though now under development, are expected to feature greater safety and economic efficiency than conventional reactors. Generation IV reactors also include those that would be available for heat supply, hydrogen production and other purposes in addition to power generation or would be suitable for load following operation to harmonize with the growth in intermittent power sources such as solar photovoltaics and wind power plants.

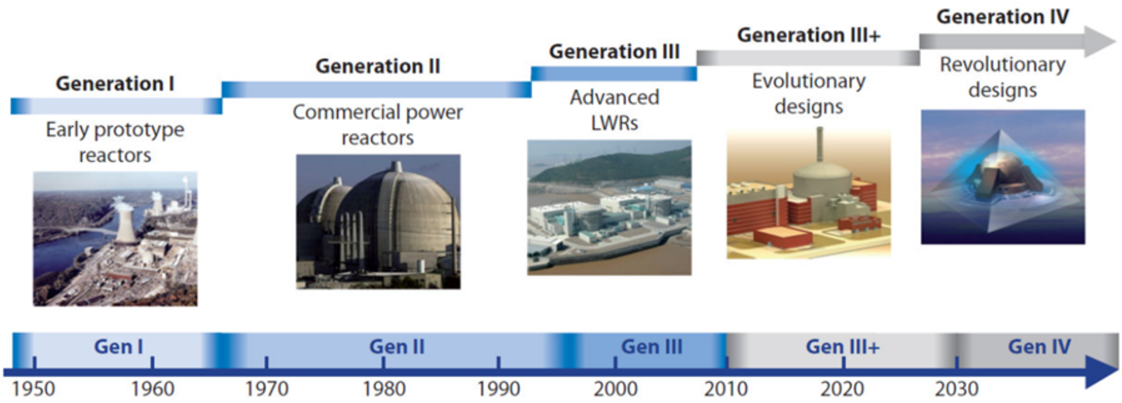

Figure 1.1 Nuclear reactor generations and time scale

Source: GIF (2014), p.7.

In a conceptually different manner from these Generation IV reactors, small modular reactors (SMRs) have also attracted attention as advanced reactors in recent years. SMR is consists of reactor modules (power modules) with capacity at around 50 MW, produced at a plant. The reactor module is small enough to be transported by truck, railway train or ship to a power plant construction site. At the site, a necessary number of SMRs may be installed. This construction process is so simplified that would prevent delays and cost overruns. Furthermore, if an SMR market expands in the future, mass production of modules may lead to cost reduction. The problem is whether such cost reduction would more than cover an efficiency loss due to the small capacity per SMR unit. Even if costs per megawatt for SMRs are higher than for a conventional nuclear reactor, smaller total initial costs may make it easier to make an investment decision. SMRs may be safer than conventional reactors because of their passive safety systems and underground installation that is tolerant of earthquakes or any other shocks. While some SMRs under development adopt conventional LWR technology, others adopt Generation IV reactors such as high-temperature gas and molten-salt reactors.

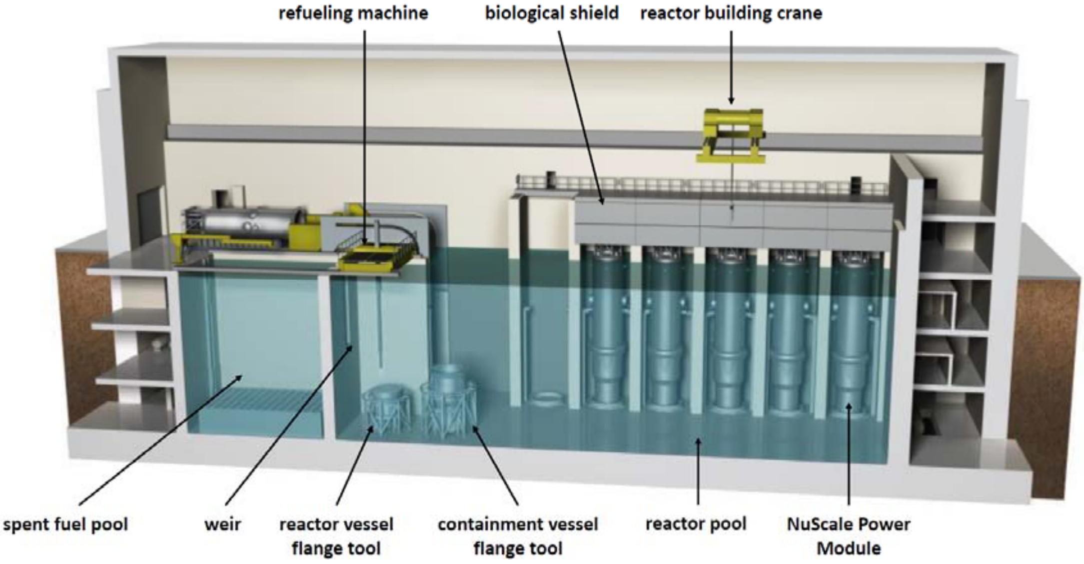

Figure 1.2 SMR design concept
Source: Reyes and Hopkins (2018), p.13.

2. Conditions for Advanced Reactor Deployment

This chapter focuses on the U.S., Canada and the U.K. as front runner countries for research and development on the abovementioned advanced reactors, and analyzes these countries' trends regarding advanced reactor research, development and commercialization. Specifically, this paper (1) assesses power market conditions to consider the feasibility of advanced reactors in the current market mechanism, (2) reviews the policies those are conducted in the countries for motivating the development of advanced reactors and (3) considers approaches to pave the way for the commercialization of advanced reactors (taking up some discussions at international organizations).

2.1 Existing reactors struggling in deregulated markets

As the three countries have liberalized and deregulated power markets, whether advanced reactors could be deployed depends on market conditions. While commercial advanced reactors have yet to be deployed, even existing reactors are struggling in deregulated markets as will be explained later. Given that huge construction costs would be required for advanced reactors to participate in deregulated markets, advanced reactors would be less competitive even than existing reactors (if market designs remain unchanged from the present). In such situation, any incentive for deploying advanced reactors is unlikely to arise.

Particularly, the United States features a remarkable trend in which existing nuclear reactors are losing competitiveness to cheap renewable energy and natural gas in deregulated power markets. For example, Figure 2.1 indicates that all existing nuclear reactors have worsened their profitability in the PJM (Pennsylvania-New Jersey-Maryland) area, Northeastern region in the U.S. Their profitability improved in 2014 as nuclear energy's relative competitiveness increased due to a gas price hike caused by a polar vortex seen in the U.S. in the year[1], indicating that nuclear energy's competitiveness is very sensitive to gas price fluctuations. Several existing nuclear reactors are predicted to suffer losses even from 2019 and on. In fact, the power plant operators believe that it would be economically difficult for these reactors to continue operation. Davis Besse and Perry nuclear power plants would be closed in 2020 and 2021, respectively, unless policy support is provided, according to a preliminary notification[2]. And the Unit 1 reactor of the Three Mile Island nuclear power plant has been decided to be closed by the end of September 2019[3]. Unit 1 has continued operation even in the wake of an accident at Unit 2. The three nuclear reactors would be closed before their respective operation periods authorized by the Nuclear Regulatory Commission (NRC).

The PJM area has introduced a capacity market[4] that has become a revenue source for the operators owning existing nuclear reactors, though with capacity prices varying by year as seen in Figure 2.2. It is also pointed out that the prices have remained below the net cost of the new entry (Net CONE) level at which construction costs for a new power plant can be recovered[5]. In such circumstances, it is uncertain whether the capacity market would be a stable revenue source for advanced reactors, even though they are expected to be more profitable than conventional reactors, over 40 (or more) years of operation, indicating that it would be difficult to make a decision to invest in an advance reactor.

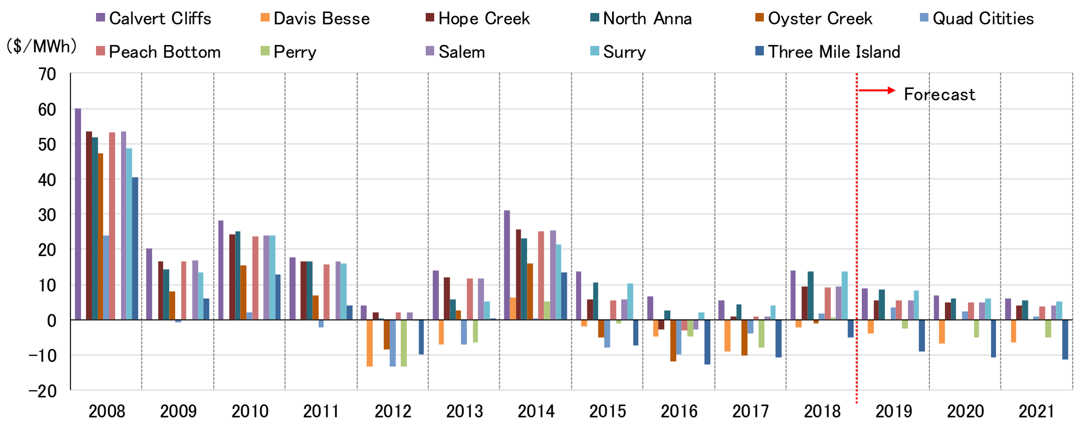

Figure 2.1 Profitability by nuclear power plant in the PJM area

Note 1: Profitability is estimated by the source based on published information.
Note 2: No 2008-2011 data exist for Davis Besse and Perry nuclear power plants.
Source: Monitoring Analytics (2019), p.351, 352.

[1] Monitoring Analytics, *2018 State of the Market Report for PJM*, vol.2, 2019, p.348.
Although this document doesn't say the polar vortex caused the gas price hike, it is conceivable that gas prices rose rapidly as demand for gas for heating expanded dramatically under a great cold wave triggered by the polar vortex.
[2] NRC, Preliminary Notification, PNO-III-18-002, April 4, 2018.
[3] Exelon, Press Release, May 7, 2019.
[4] In the capacity market, capacity (kW) to generate power as necessary is valued instead of electricity sales (kWh).
[5] Toru Hattori "On the Price Determination of Centralized Capacity Market: Implications from Market Design in Japan and Experiences of the U.S. and UK Market," *Review of Electricity Economics, No.66, 2019, p.53-68.*

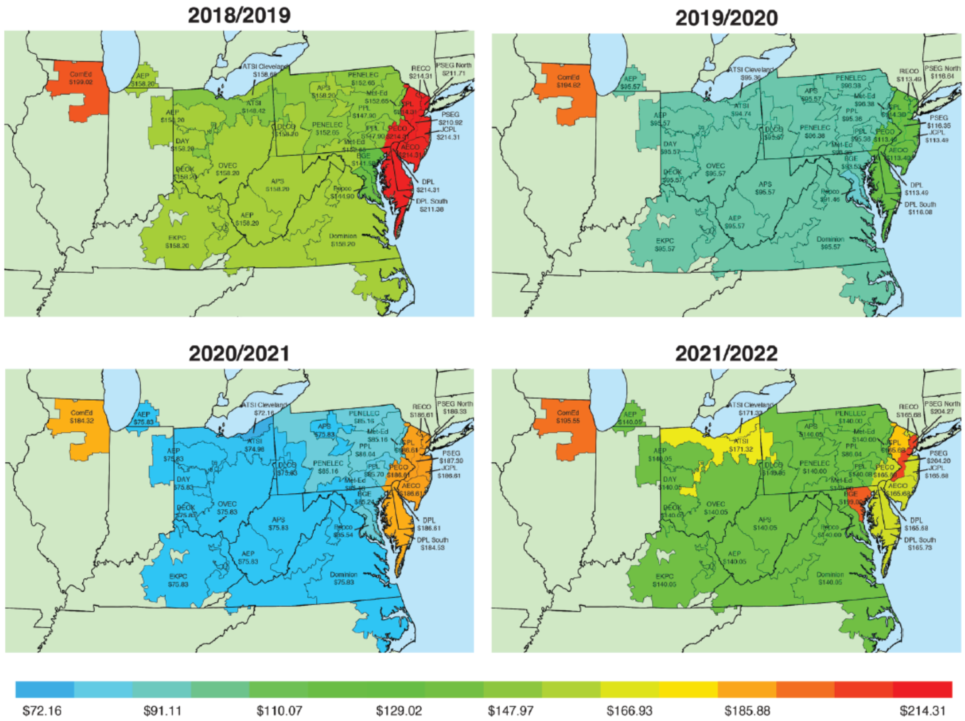

Figure 2.2 Capacity market price in PJM area

Note: In PJM area, supply capacity for three years ahead is auctioned. For example, the component for 2021-2022 in the figure indicates auction results in 2018.

Source: Monitoring Analytics (2019), p.291.

The abovementioned is the U.S. case, and conditions surrounding existing nuclear reactors in the U.K. are similarly severe. Figure 2.3 indicates two large electric utilities' EBIT[6] margins for nuclear power generation as calculated from their consolidated segmental statements (CSS), showing that their margins have been deteriorating. In 2017, five utilities reported their margins for renewable energy power generation as 37-54%, far higher than for power generation with existing nuclear reactors.

6 EBIT stands for earnings before interest and taxes.

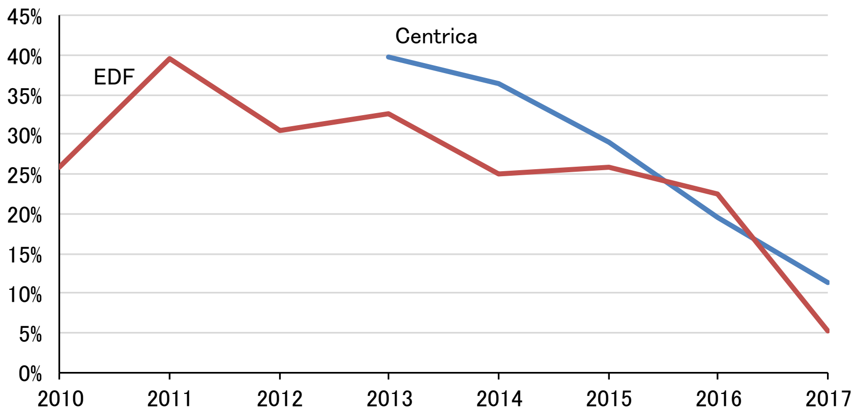

Figure 2.3 Large U.K. electric utilities' EBIT margins for nuclear power generation

Sources: Prepared from consolidated segmental statements (of these companies for each year)

Given the abovementioned cases, advanced reactors are unlikely to be deployed according to market mechanism in regions where power markets have been deregulated. In most provinces in Canada, power market has also been deregulated, endangering the profitability of their wholesale electricity markets. However, Ontario has implemented a system to cover the deterioration of profitability as will be described later.

2.2 Technology development support measures

The U.S. government proactively supports advanced reactor development. Particularly representative among support programs is the Gateway for Accelerated Innovation in Nuclear (GAIN) program that the Department of Energy (DOE) launched in 2015. The GAIN program features government investment in private sector research and development projects at rates according to development stages, as well as the provision of equipment and site of governmental research organizations. The NRC proactively discusses with relevant private companies to conduct efficient, predictable safety reviews.

Among advanced reactor construction projects, NuScale Power's SMR development project has been especially attracting attention in recent years. The project aims to build a power generation facility consisting of 12 modules of 60 MW reactor at a site provided by the Idaho National Laboratory (INL). The first of the 12 reactor modules is planned to start operation by 2026. DOE has invested in the project now in the development stage. After its completion, the facility will be owned by the Utah Associate Municipal Power Systems (UAMPS) in the state neighboring Idaho for transmitting power to Utah. And DOE has concluded an agreement to purchase electricity from the facility for supply within the INL[7]. These agreements may secure the future profitability of the SMR facility.

Furthermore, it is remarkable that the U.S. congress takes legislative actions promoting

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[7] INL website (https://inl.gov/article/frequently-asked-questions/)

advanced nuclear reactor development. Table 2.1 lists relevant legislations that were submitted and/or enacted in recent years. These legislations commonly require DOE to support private sectors' technology development, require NRC to modify their system so that it can effectively review the safety of new technologies and give them budgets to do. These legislative actions for promoting advanced reactor development is conducted by bipartisan groups of lawmakers[8], so such actions might continue even after the current administration.

Table 2.1 U.S. legislations for promoting nuclear technology development

Name	Status	Main contents
Nuclear Energy Innovation Capabilities Act	Enacted in September 2018	• DOE providing sites for constructing demonstration reactors • Subsidizing NRC license application costs • Building a fast neutron source for private business operators' research and development by 2025
Nuclear Energy Innovation and Modernization Act	Enacted in January 2019	• Improving predictability of NRC regulatory guidelines for advanced reactors • Expanding its authority to issue licenses to use domestic research facilities • Funding new NRC operations
Nuclear Energy Leadership Act (bill)	Submitted in Senate in March 2019	• Requiring DOE to implement two or more advanced reactor demonstration projects by 2025 and two to five more such projects by 2035

Sources: Prepared from U.S. congressional website, etc.

In Canada, the Canadian Nuclear Laboratories (CNL) plans to construct a demonstration SMR at its site by 2026[9]. To this end, the CNL invited proposals for demonstration SMR construction and operation projects in 2018 and has revealed its screening of three proposals[10]. While NuScale Power has been developing an SMR of the LWR type in the U.S., the CNL plans to adopt the Integral Molten Salt Reactor (IMSR) for a project proposed by Terrestrial Energy and a High Temperature Gas-cooled Reactor (HTGR) for projects proposed by Star Core Nuclear and Global First Power[11].

Canada's nuclear safety regulator has adopted flexible review arrangements to pave the way for new technologies to be deployed easily. Particularly important is the Canadian Nuclear Safety Commission's (CNSC) pre-licensing vendor design review service for private companies tackling advanced reactor development. The service represents a preliminary reactor design review coming before a safety review for the construction of a new reactor. In the preliminary review, the CNSC

[8] U.S. Congress website (https://www.congress.gov/bill/115th-congress/senate-bill/97/cosponsors, https://www.congress.gov/bill/115th-congress/senate-bill/512/cosponsors, https://www.congress.gov/bill/116th-congress/senate-bill/903/cosponsors)

[9] CNL, *2016-2026 10-Year Integrated Plan Summary*, CRL-502000-PLA-001, Revision 0, 2017, p.6.

[10] The CNL initially announced that it had received four proposals (CNL Press Release, June 12, 2018). However, later developments have been confirmed for the abovementioned three projects alone.

[11] CNL website (http://www.cnl.ca/en/home/facilities-and-expertise/smr/progressupdate.aspx)

conducts interactive discussions with reactor developers or vendors to clarify potential problems and solutions with their reactors[12]. The service enables them to find problems before the licensing review, increasing the predictability for the vendors and the CNSC's understanding about the new reactor technology to conduct an efficient licensing review.

In addition, the CNSC's safety requirements provide performance levels to be attained instead of fixing equipment specifications, meaning that vendors could explain that the required performance levels would be attained with their own measures[13]. This would allow vendors seeking to deploy new technologies to consider various options on materials and technologies to adopt. The regulatory flexibility has made advanced reactor development attractive in Canada.

In the U.K., the Department for Business, Energy and Industrial Strategy (BEIS) is leading a project for developing an advanced modular reactor (AMR) adopting Generation IV technology. Several private companies applied for the selection process. This AMR project consists of two phases: Phase 1 for a feasibility study on reactor designs and Phase 2 for selecting a reactor design for construction. In September 2018, it was announced that eight companies and their reactor designs were selected for Phase 1[14].

The U.K. as well is trying to change its regulation so that it can deploy advanced reactors. The U.K. government has appropriated 7 million pounds for the Office for Nuclear Regulation (ONR) and the Environment Agency to prepare for reviewing future SMR and AMR reactors. ONR and the Environment Agency are considering improving the flexibility of a Generic Design Assessment (GDA) conducted before any reactor construction plant assessment[15].

As explained above, the three countries are positively considering or implementing support measures for the research and development of advanced reactors. This indicates that their governments give priority to the future roles of advanced reactors and are promoting preliminary initiatives for the future deployment of such reactors. The three countries commonly encourage private sectors to take the initiative in developing advanced reactors, and the governments help their activities. It is also very remarkable that regulators in the three countries are preparing for assessing advanced reactors. For private companies, the future commercial viability of advanced reactors that they are to develop is vitally important. Unless safety regulations can be expected to be predictable and flexible, they cannot

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[12] CNSC website (http://nuclearsafety.gc.ca/eng/reactors/power-plants/pre-licensing-vendor-design-review/)

[13] CNSC, *Canadian National Report for the Convention on Nuclear Safety*, Seventh Report, 2016, p.30.
While the CNSC safety regulations indicate a guidance for meeting the requirements, vendors can choose to adopt measures different from those provided in the guidance and explain that their measures would meet the requirements. (http://nuclearsafety.gc.ca/eng/acts-and-regulations/regulatory-framework/index.cfm)

[14] BEIS, *Advanced Modular Reactor Feasibility and Development Project: Abstracts from the Applicant Organisations' Proposals*, 2018.
As of June 2019, whether any business operators entered Phase 2 cannot be confirmed.

[15] BEIS website (https://www.gov.uk/government/publications/advanced-nuclear-technologies/advanced-nuclear-technologies)

make investment decisions on nuclear technology development. Regulatory system reform can also be seem as one of the measures to pave the way for the deployment of advanced reactors.

2.3 Business environment

Technology development alone cannot lead to the deployment of advanced reactors. Sufficient funds must be raised to realize a commercial advanced reactor construction project as is the case with a conventional reactor construction project. Risks accompanying new nuclear power plant construction projects have been considered well and classified as shown in Table 2.2.

Table 2.2 Classification of nuclear business risks

Risk category	Details
Construction and supply chain risks	・ Delays in construction and material supply ・ Greater-than-expected construction and equipment costs
Regulatory risks	・ Delayed issuance or expiration of construction or operation licenses
Political risks	・ Nuclear policy change ・ Compulsory construction suspension or early closure
Natural disaster and other inevitable risks	・ Damage from natural disasters or terrorist attacks
Operation risks	・ Unscheduled repair or maintenance work caused by equipment failures ・ Delay in maintenance work or fuel supply
Market risks	・ Less-than-expected amount of load dispatching instructions ・ Electricity price decline, uncertain profitability
Radioactive waste and decommissioning risks	・ Delay in securing waste disposal sites ・ Unexpected decommissioning cost rise

Sources: OECD/NEA (2009), p.21-38, etc.

In recent years, many factors - growth in construction costs, loss of know-how to implement construction projects due to the long absence of new reactor construction projects, intensifying competition from other power sources or fuels, unexpected reactor shutdowns and so on - have made LWR construction risks more serious, which means it becomes more difficult to secure the funds in many countries. In fact, the V.C. Summer Units 2, 3 project in the U.S. and the Wylfa Newydd project in the U.K. have plunged into difficulties due to funding problems[16,17]. In the absence of commercial advanced reactors, technological uncertainties are expected to increase the abovementioned risks accompanying advanced reactor construction. Therefore, improving such a business environment by

[16] WNN, August 1, 2017.
[17] Hitachi, Ltd., Press release, January 17, 2019.

policy measures is more important for advanced reactors than for current reactors. And so, this paper collects implicative cases and ongoing discussions for considering such environment improvement.

In the U.K., the Feed-in Tariff Contract for Difference (FIT CfD) scheme designed for offshore wind power generation projects is set to be used for the Hinkley Point C project for constructing a Generation III+ reactor (LWR). The CfD scheme guarantees some income by providing a power plant operator with a difference between a predetermined strike price and market prices of electricity. As far as the operator is planned to receive subsidies according to electricity sales volume (kWh), however, the operator may fail to benefit from the scheme until a power plant is completed to launch electricity sales. Therefore, the CfD scheme is not enough to cover the risk of cost growth caused by a construction delay, which has become the greatest matter of concern regarding recent reactor construction projects. To cover such uncertainties, a strike price would be set at a fairly high level. However, a higher strike price would finally result in greater costs to electricity consumers. While the CfD scheme adopted for the Hinkley Point C project has set the strike price at 92.5 pounds/MWh (or 89.5 pounds/MWh on certain conditions), the National Audit Office has concluded that "The Department did not assess the potential value-for-money implications for bill-payers of using alternative financing models[18]." In response to such criticism, the British government is now considering schemes for subsequent projects[19]. Among them is the Regulated Asset Base (RAB) model that has never been used for any nuclear project.

Under the RAB model, that has been applied to water, airport construction and so on, a regulatory authority[20] assesses an appropriate return on investment in equipment and allows the return to be collected in the form of fees from consumers. This scheme allows a private company to recover investment even in the phase for constructing equipment, contributing to reducing uncertainties for private companies that would fail to benefit from the CfD scheme before power generation starts. Given that the uncertainties have pushed up the strike price for the CfD scheme, the RAB model for reducing the uncertainties would allow the guaranteed income level to be set at lower levels, helping to cut final costs to consumers[21].

For advanced reactors of which the future construction and commercialization must be considered, the global adjustment (GA) system in Canada's Ontario Province is a very important case. Under the GA system, a surcharge is added to electricity bills to cover costs for the construction of new equipment and the maintenance of existing equipment to stably supply electricity for long term. Specifically, such costs' excess over a power generation project's estimated income based on the hourly Ontario energy price (HOEP) would be collected from consumers under the GA system. The

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[18] Comptroller and Auditor General, *Hinkley Point C*, Session 2017-2018, HC 40, National Audit Office, 2017, p.8.
[19] BEIS, *Market Framework for Financing Small Nuclear*, 2018, p.28.
[20] A regulatory authority here is not a safety regulator but an economic regulator. It is the Office of Gas and Electricity Markets (Ofgem) in the U.K.
[21] Helm, Dieter, "The Nuclear RAB Model," Energy Futures Network Paper 27, 2018.

collected GA funds would be used for various purposes including the maintenance and replacement of nuclear, hydro and other power generation plants, the operation of gas-fired power plants and the Feed-in Tariff (FIT) system for renewable energy power generation. While wholesale electricity prices based on marginal costs have almost persistently declined since 2008, the province has substantially raised the GA surcharge to secure funds covering the required costs (Figure 2.4). This means that Ontario has taken advantage of the GA system deviating from market forces to secure the possibility of new construction.

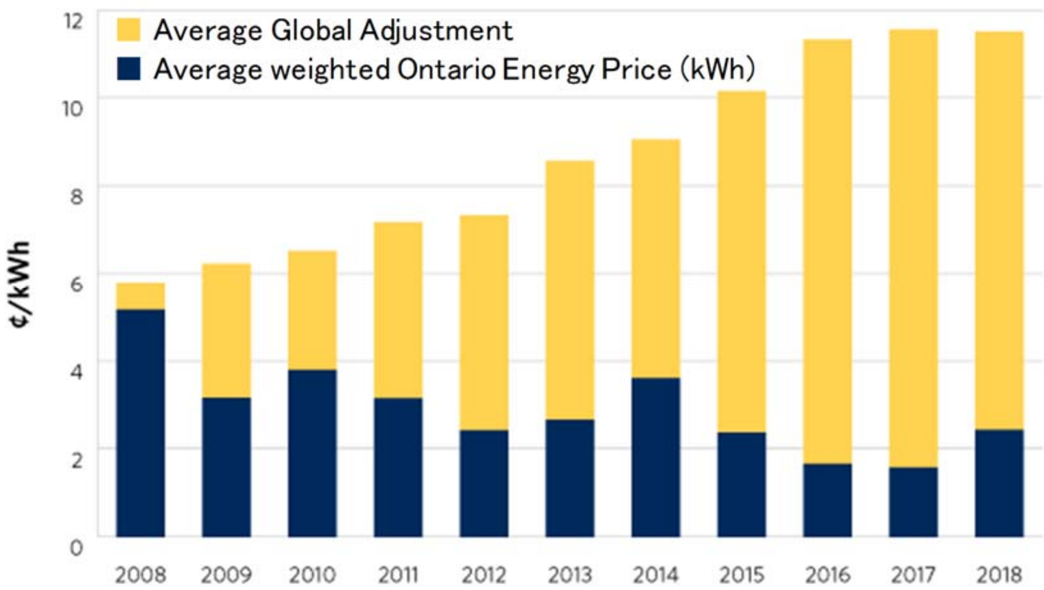

Figure 2.4 Average HOEP plus average GA

Note: The "average weighted Ontario Energy Price" amounts to the wholesale electricity price.
Source: IESO website[22]

When advanced reactor investment risks are considered, it is also important to create an environment in which nuclear energy's value is recognized and reflected in cost assessment. Future advanced reactor construction would depend on such an environment. Policies for considering this point have already been implemented or discussed for current reactors. For example, "A Canadian Roadmap for Small Modular Reactors[23]" states that advanced nuclear reactors' cost competitiveness against natural gas-fired power plants would depend on a carbon tax (of course SMR technology innovation is also important). On the other hand, the Zero Emission Credit (ZEC) system in some states (Illinois, New York, etc.) of the U.S. pays for the low carbon value of nuclear. The system allows

22 http://www.ieso.ca/power-data/price-overview/global-adjustment

23 Canadian Small Modular Reactor Roadmap Steering Committee, *A Call to Action: A Canadian Roadmap for Small Modular Reactors*, 2018.
The roadmap was released in 2018 as a product of discussions among numerous stakeholders including Natural Resources Canada (NRCan). It provides the expected applications, advantages and costs of SMRs. As indicated by the title "A Call to Action," the roadmap also recommends actions that stakeholders should take in the future.

nuclear power plant operators to obtain credits according to their power generation and to acquire credit sales income in addition to electricity sales revenue. Attention must be paid to the fact that ZEC system is now designed for preventing the early retirement of existing reactors facing financial crises and that, similarly to the CfD scheme, power plant operators would not be able to benefit before starting operation. However, it may be very helpful to analyze ZEC system for considering the approaches to improve the environment that would encourage the construction of advanced reactors.

Not only the low-carbon value should be considered. As intermittent renewables such as solar photovoltaics (PV) and wind expand their share of the power mix, growth is seen in grid-level system costs including those for renewables' grid connection and utilization. According to an assessment by the Nuclear Energy Agency of the Organization for Economic Cooperation and Development (OECD/NEA), nuclear has an advantage over renewables in this respect, as shown in Figure 2.5. The advantage increases as intermittent power sources expand their power mix share. Although power generation cost assessment has so far been based simply on the levelized cost of electricity (LCOE), overall grid-level system costs would have to be assessed with a view to renewable energy expansion in the future. Among advanced reactors, those featuring excellent load following capabilities have the potential to further increase the advantage.

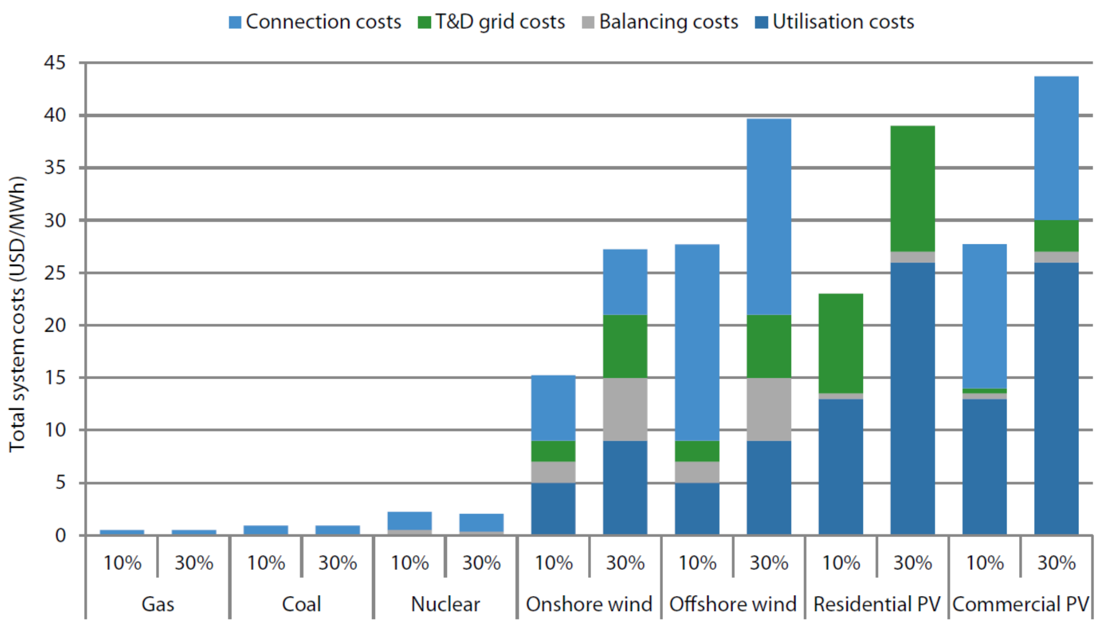

Figure 2.5 Grid-level system costs of selected generation technologies

Note: Figures (10% and 30%) for the horizontal axis indicate the share of intermittent power sources (solar PV and wind) in total power generation.

Source: OECD/NEA (2018), p.18.

Given the above, it is crucial for advanced reactor construction projects to improve the business environment so that nuclear power's value that has not been perceived would be accepted more clearly and to implement support policies to reduce private companies' risks. The role of government is very important for both of them. Although advanced reactors are expected to have a cost advantage over conventional reactors in the future[24], the advantage would depend on cost cuts through mass production and learning effects. A certain number of construction projects would have to be implemented to realize the advantage. Initial advanced reactors would naturally have risks regarding uncertainties. If the risks are reduced through policy measures to induce investment, mass production effects and know-how may be accumulated to lower risks and costs and induce further investment. This is theoretically the same process as that for promoting renewable energy such as solar PV and wind. Although costs for renewable power generation had been assessed as high, FIT scheme and other support policies have vitalized investment in renewables, allowing costs to rapidly decline. Europe, pioneer of renewable energy deployment, has transitioned from FIT scheme to auction and feed-in premium (FIP) systems based on market mechanism and competition. In recent years, even subsidy-free renewable energy projects have emerged[25]. In the U.S., research on the potential application of renewable energy support measures to SMRs has been conducted, resulting in a finding that the production tax credit (PTC) for wind power generation and other incentives could cut the SMR costs by 22% on an LCOE basis[26].

3. Conclusion

This paper focused on advanced nuclear reactor development trends and key points for the deployment of such reactors in the U.S., Canada and the U.K. As mentioned above, it is difficult to deploy advanced reactors depending only on their simple economic competitiveness in deregulated markets. However, the three countries are proactively taking advanced reactor development support measures to benefit from nuclear energy in the future. Challenges toward the commercialization of advanced reactors may include cost reduction through mass production, support schemes to reduce risks for private companies and improvement of market environment so that the value of nuclear energy is recognized. In addition to these challenges, there are many matters for consideration, including how to give value to non-electricity energy supply such as heat and hydrogen produced through nuclear power generation and the relationship with the local communities for locating advanced reactors, etc. Nevertheless, the three countries are steadily making ambitious and concrete policies for nuclear innovation, leading the world's advanced reactor development.

Japan has also launched discussions on advanced reactor development policies, and the "Nuclear Energy X Innovation Promotion (NEXIP)" initiative is proposed[27]. Projects to deploy

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[24] Energy Innovation Reform Project (EIRP), *What Will Advanced Nuclear Power Plants Cost?: A Standardized Cost Analysis of Advanced Nuclear Technologies in Commercial Development*, 2017, p.2.

[25] Huebler, Dominik, Radov, Daniel and Wieshammer, Lorenz, "Method or Madness: Insights from Germany's Record-Breaking Offshore Wind Auction and Its Implications for Future Auctions," NERA Economic Consulting, 2017, p.1-3.

[26] Scully Capital and Kutak Rock, *Examination of Federal Financial Assistance in the Renewable Energy Market: Implications and Opportunities for Commercial Deployment of Small Modular Reactors*, 2018, p.54.

[27] Agency for Natural Resources and Energy "Nuclear Energy Innovation Policies," 18th meeting of the Nuclear

advanced reactors in 2030 or 2050 would take a long time for research and development. If Japan were to seriously regard advanced reactors as one of the future energy options, they should immediately have further discussions to consider the new policy design and regulatory framework.

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U.S. Congress website (https://www.congress.gov/)

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