GAIN

Gateway for Accelerated Innovation in Nuclear

Trends in State-Level Energy Markets and Policy: **Washington**

Prepared by

ENVOY PUBLIC LABS

National Strategy for Establishing Relationships with Utilities/End-Users

Washington

Prepared by Envoy Public Labs

December 2020

Executive Summary

Introduction

Since July 2018, the Gateway for Accelerated Innovation in Nuclear (GAIN) has supported the *National Strategy for Establishing Relationships with Utilities/End Users*. Direct engagement, in targeted states, with the electric utility industry (EUI) and a broad set of stakeholders has yielded a detailed picture of the ecosystem in which generation planning takes place. From this picture, GAIN has begun to build an understanding of what information utilities need to assess advanced nuclear technologies, and how to provide that information. Broad deployment of advanced reactors into the US market will require well-informed customers who can see value in the technology as part of a clean, resilient resource portfolio. Doubt about whether the US customer base was well-enough informed about advanced reactor technologies was first raised at the March 8-9, 2018 symposium, *Enabling Advanced Reactors for the Market,* sponsored by GAIN in partnership with the Nuclear Energy Institute (NEI) and the Electric Power Research Institute (EPRI). A subsequent pilot study in Minnesota and follow up study in Arizona both found that most utilities and key energy stakeholders, including environmental and ratepayer advocates, state regulators, and legislators, did not have sufficient information to properly evaluate advanced reactor technologies. GAIN is well-positioned to serve as a conduit for resources from the US national laboratories to potential customers of advanced reactor technologies; a more informed US customer base will better enable the US market for commercial deployment of advanced reactors.

To support GAIN's role in fostering awareness and knowledge of advanced reactor technologies amongst potential customers, four additional states were selected for direct engagement: Colorado, North Dakota, Washington, and Wyoming. Washington was chosen primarily to understand the effects of the May 2019 passage of the Clean Energy Transition Act (CETA), a 100% clean energy standard. Aggressive adoption of renewable generation in Washington has contributed to increasingly volatile electricity prices and concerns about resource adequacy in the state and regionally; CETA could further increase pressure on utilities and power producers to rely on intermittent resources and storage in the absence of non-emitting baseload resources, exacerbating electricity price volatility and increasing regional loss of load probability (LOLP). In addition to favorable market characteristics, the headquarters and offices of several advanced nuclear developers, Pacific Northwest National Laboratory, and Columbia Generating Station and its operator, Energy Northwest, contribute to an environment rich in intellectual and supply chain resources. The study included 13 respondents from across Washington, including various utilities, NGOs, and state officials. As with previous studies, respondents were asked questions regarding their power procurement and communications habits, as well as their policy interests. Questions were also asked to gauge respondents' knowledge and sentiments regarding advanced nuclear energy; questions were included to specifically understand the impacts of two separate legacy nuclear issues involving weapons waste and a default on public financing to construct commercial nuclear power facilities. The ultimate goal of the preliminary engagement completed by this study was to better understand the circumstances and challenges facing the

EUI and its stakeholders in Washington, while identifying opportunities for GAIN and positioning it as a resource for utility planners and state-level utility stakeholders.

Key Findings

- **The perceived high cost and construction risk of advanced nuclear technology is the prevailing concern amongst all stakeholders, rather than environmental or safety concerns. Latent, legacy anti-nuclear biases must also be overcome, but are not insurmountable.** Key energy policy and planning stakeholders believe the general public cannot effectively parse legacy waste issues from commercial nuclear power generation; concerns regarding commercial nuclear power stem from the legacy of WPPSS (colloquially known as “Whoops!”), the second largest municipal bond default in US history, and are compounded by concern over perceived difficulties with the Vogtle and VC Summer projects.

- **The positive outcomes for nuclear energy in CETA are a result of forward-thinking coalition building; key regulatory decisions remain that could impact the business case for advanced nuclear technology.** Energy Northwest, with support from NEI, strategically positioned Columbia Generating Station (CGS) as a vital carbon-free resource amongst key energy policy stakeholders. Subsequent regulatory and implementation decisions related to CETA will result from governmental rulemaking processes that could last one to two years.

- **With forward-thinking DOE leadership, AR technology could help meet long-term challenges to reliable grid supply resulting from a nexus of ambitious clean energy policies, increasing occurrences of extreme weather events, and growing demand for firm capacity.** Given the peaking characteristics of the region’s load, Washington’s wind, hydro, and solar generation resources alone cannot guarantee reliable power supply during low-water periods and temperature inversions. The passage of CETA, as well as the growth of the technology and agricultural industries has created a need for a clean, firm capacity resource to maintain grid reliability; demonstration and deployment of small modular reactors could position advanced nuclear technology to fill that need.

Results

Washington offers several contrasts to the states previously examined by this study, Minnesota and Arizona. Washington’s relatively decentralized EUI, and the outsized role of its multitude of Public Utility Districts (PUDs), stands in stark contrast to the structure of Arizona’s electricity market with just a few very large power producers. Like Minnesota’s legacy nuclear issues surrounding Prairie Island and the 1994 Moratorium, Washington’s nuclear energy present and future are impacted by its past; the 80s-era default on municipal bonds by the Washington Public Power Supply System (WPPSS, now Energy Northwest) remains the second largest

default on public bonds in US history. Moreover, with Columbia Generating Station (CGS) situated within the footprint of the Hanford Site, the history of commercial nuclear power in Washington is inextricably linked to weapons-related waste. Washington also offers a relatively unique perspective on the immediate impact of an aggressive carbon policy on generation planning at the state-level following the May 2019 passage of the Clean Energy Transition Act (CETA). The reports on Minnesota and Arizona both suggested that the need for engagement on behalf of advanced nuclear technologies was urgent to ensure key stakeholders could make future energy planning and policy decisions in an informed manner; in Washington, some of those decisions have already been made - and many important decisions are being made presently.

An opportunity exists to make a claim for advanced nuclear energy's role in decarbonizing Washington's EUI. The state's vast hydropower resources make rapid decarbonization of the electricity sector feasible, but critical questions remain regarding long-term resource adequacy and how to fill an already-apparent technology gap in a carbon-constrained future. Substantial concern exists about whether solar and wind generation alone can reliably supplement Washington's hydropower capacity to meet peak demand given the challenges of the state's current (and changing) climate. The emergence of data centers and infrastructure for electric vehicles (EVs), who figure to grow demand for capacity that is both clean and firm in increments starting at 50MW, will contribute to major challenges for Washington's grid that advanced nuclear technologies are poised to meet. If US advanced nuclear technologies are to be deployed domestically in this decade, developers and advocates of these reactors should consider Washington an important potential early mover on the technology and find avenues for meaningful engagement. The collective actions taken in the early part of this decade to meet the challenges that could thwart the deployment of an advanced reactor will be critical. Regulatory and rulemaking processes stemming from CETA will impact the electricity market; further legislation aimed at deeper decarbonization of Washington's transportation and industrial sectors could be introduced in the state's 2020 legislative session. Uncertainty around the potential cost of advanced nuclear energy remains a prohibitive concern for utility planners, particularly as recent challenges at VC Summer and Vogtle harken to the state's own legacy of default on nuclear projects. Respondents indicated that public awareness of CGS as a nuclear energy asset was low, and that its waste and safety-related issues are not discernable from the legacy of the Hanford Site to the general public. Understanding both the present and historical context of atomic fission in the state of Washington will be critical to positioning advanced nuclear technologies to overcome the challenges of its critics. The DOE will continue to play an important supporting role in the future of nuclear energy in Washington, given the Hanford Site's impact; additional opportunities for DOE leadership may exist.