Evaluation of HB 153: Alaska Renewable Portfolio Standard

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High-Level Conclusions

► An RPS has historically been one of the most prevalent and impactful clean energy policy mechanisms, and individual states have tailored policies to meet their distinct needs.

► The Railbelt is facing an involuntary and complex energy transition. If properly structured, an RPS could align Railbelt utilities in a clear regulatory and technological direction for the crucial decade ahead.

► The passage of an RPS does not guarantee that Alaska will attract private capital and developers to build the next generation of renewable energy projects. However, an RPS is a critical tool for reducing market and regulatory uncertainty that currently stifles private investment.

► Rural electric cooperatives are the powerhouses of the Railbelt. As the certificated utilities which supply 99% of the Railbelt's load, it is necessary for an RPS to apply to these entities.

► There is clear evidence that RPS policies incentivize the construction of renewable energy, but policy alone is insufficient.

► The Railbelt has been powered by 50% renewable electricity before. Utilities have constructed 78-132 MW per year of new generation. Adding 40 MW per year is one half to one third of this historic deployment. We've built big things in the past & can do so again today.

► HB153 would create an internal Alaska REC market to sell and buy power created by renewable energy projects on the Railbelt or in PCE communities. It does not permit non-Alaskan RECs.

► The selling of Bradley Lake RECs should have no impact on meeting the RPS targets.

► Fines are the product of historical experience and are a "best practice" for successfully implementing an RPS. HB153 permits fines imposed beyond the 2035 deadline to be collected in an internal account and used for integrating additional renewables.

► Historical trends suggest that renewable energy will continue to get cheaper and remain competitive with fossil fuels regardless of tax credits, but federal policies may slow or temporarily reverse cost reductions. The elimination of tax credits would result in higher costs for consumers.

What role have RPS policies played in other States?

A renewable portfolio standard (RPS) requires electric utilities to supply a specific percentage or capacity of their electric generation from renewable sources of energy. The first RPS was instituted in Iowa in 1983, and more than half of all U.S. states have enacted portfolio standards. 33 states plus Washington D.C., Guam, and Puerto Rico have renewable or clean portfolio standards—with

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all but three of those being mandatory requirements. It is one of the most prevalent and impactful clean energy policy mechanisms, with 58% of total U.S. retail electricity sales in an RPS jurisdiction. While 24 states have policies committed to 100% clean or renewable electricity, many jurisdictions have set targets for 40-50% of power generation by or before 2050. Some states like Iowa and Texas call for a specific percentage of energy capacity (rather than generation) to come from renewables.

Which energy sources are included in an RPS ranges by jurisdiction, and beyond the traditional resources of wind, solar, and geothermal, and may include: landfill gas, coal-mine methane gas, biomass, combined heat and power, fuel cells, waste-to-energy and batteries. Since most states' RPS is meant to incentivize newer forms of renewable energy generation and hydropower is a well-established technology, many states do not include hydroelectric in their RPS—despite being a low-cost, renewable form of generation. In most states, traditional hydropower growth is limited by geographical, environmental, and political challenges. **Bottom-line: The RPS has historically been one of the most prevalent and impactful clean energy policy mechanisms, and individual states have tailored policies to meet their distinct needs.**

What function could an RPS play in Alaska?

Alaska's electricity system is at an involuntary inflection point. Beginning in 1962, Railbelt utilities have increasingly relied on gas-fired generation—with roughly 70% of load being met by gas in 2024. Since at least 2009, Alaska DNR and Railbelt utilities have consistently warned about shortfalls in Cook Inlet gas production. With Hilcorp's 2022 announcement that they may not be able to meet future contracts, Railbelt utilities face imminent gas shortfalls—as early as 2027. Alaska is therefore undergoing a near-term energy transition—not a simple transition from fossil to renewable resources, but rather a complex transition from domestically-produced cheap gas to a combination of more expensive imported LNG and local renewable energy projects.

Alaskans have expressed interest in diversifying away from gas for decades, but the Railbelt has moved slowly towards non-hydro renewable energy. This transition has been slowed by several factors, namely: the lack of economic dispatch within a single load balancing area, historic friction between Railbelt cooperatives, the lack of renewable energy developers, insufficient utility staff and expertise, and a lack of regulatory certainty.

An RPS could play a material role in addressing some of these issues. By moving from 15% to 50% renewable energy, an RPS would enable Railbelt utilities to diversify fuel sources and reduce price volatility from required imported LNG. The provisions of HB 153 encourage Railbelt utilities to work cooperatively and sign joint PPAs for large-scale wind power, although there could also be competition between utilities to secure the best deals or contracts. An RPS would also provide regulatory certainty that the Railbelt will be developing roughly 400 MW of renewable energy projects. This would help to attract private developers (see below) and incentivize utilities to hire the additional staff and expertise needed. **Bottom line: Alaska is facing a complex energy transition and an RPS can align Railbelt utilities in a clear regulatory and technological direction for the crucial decade ahead (2025-2035).**

To what extent might an RPS attract additional private investment?

One of the central challenges of Alaska's energy transition is the need for private capital and independent power producers. Alaska's Railbelt utilities often do not have the equity or experience building a 150 megawatt wind farm that might cost $600 million. Renewable energy projects are capital-intensive, long-term investments that require regulatory certainty. Any energy developer has a long lead period of project studies that require significant capital outlays. The unfortunate example of Renewable IPP demonstrates the hazards for renewable energy developers in Alaska. We may be a large state, but we are a small market—and one beset with a history of market failures, geotechnical difficulties, and a lack of political consensus.

A key intention of the RPS is to attract private developers and outside capital, and to create a competitive ecosystem where Railbelt utilities can sign competitive power purchase agreements for the benefit of their member-owners. This requires de-risking Alaska's electricity sector and increasing the probability that firms will be able to build generation and earn a return on their investment. In this regard, an RPS is a prudent policy mechanism to reduce developer risk. **Botton line: the passage of an RPS does not guarantee that Alaska will attract private capital and developers to build the next generation of renewable energy projects. However, an RPS is an important tool for providing regulatory certainty and making Alaska an inviting market for private investment and independent power producers.**

Is it appropriate for an RPS to apply to rural electric cooperatives?

Yes. RPS policies throughout the country are not limited to investor-owned utilities. Even though most rural electric cooperatives and municipal utilities are not economically regulated, many states with that have an RPS mandate their participation. These include: Colorado, Indiana, Michigan, Minnesota, New Hampshire, New Mexico, New York, North Carolina, North Dakota, Oklahoma, Oregon, South Dakota, Utah, Vermont, Washington, and Wisconsin. Including cooperatives as part of a statewide RPS is in line with NREL's guidance that an RPS policy should apply to all load-serving entities, including rural electric cooperates.

Alaska's Railbelt grid is a unique electricity system: it is dominated by four rural electric cooperatives who are economically regulated. In Alaska's case, the inclusion of cooperatives in an RPS makes clear sense. Most of Alaska's electricity is generated and consumed on the Railbelt, which has the bulk of the state's population, carbon emissions, and reliance on gas-fired electricity. **Bottom line: Electric cooperatives are the powerhouses of the Railbelt. As the certificated utilities which supply 99% of the Railbelt's load, it is necessary for an RPS to apply to these entities.**

Do states that pass an RPS build more Renewable Energy?

The evidence suggests yes, but it's complicated. Since 2000, more than half of all non-hydro renewable energy has been built in states with an RPS. When it measured the growth of renewables from 2001-2007, NREL found that 11 of the 15 states that deployed more renewables than the national average had an RPS. Berkely National Laboratory concluded that an RPS is a key driver of

increased renewable energy (mostly wind). The report found that 62% of increased RE generation and 58% of new RE capacity were driven by an RPS.

However, since the deployment of renewable energy has far outpaced what is required by law, it can be difficult to distinguish the impact of RPS policy. The extraordinary growth in wind, solar and storage in states like Texas and Florida demonstrate that state policy is only one aspect driving RE growth. Other factors clearly play a role in the deployment of renewable energy, including: availability of land for projects, availability of a skilled workforce, permitting and environmental regulations. **Bottom line: there is clear evidence that RPS policies incentivize the construction of renewable energy, but policy alone is insufficient.**

Can Railbelt utilities build enough renewable generation to reach 55% by 2035?

The RPS requires Railbelt utilities to generate 40% of their power from renewable sources by 2030 and 55% by 2035. As other energy analysts have modeled, projects currently on the drawing board would meet the 2030 goals and come close to meeting the 2035 goals. Projects modeled include Little Mount Susitna Wind (150 MW), Shovel Creek Wind (150 MW), Bradley Lake's Dixon Diversion, and Puppy Dog Lake solar (30MW). If one includes Delta Wind (35 MW) and Nenana/ Clear Solar (16 MW), as well as an increase in distributed and community solar, Railbelt utilities would exceed 2035 targets. To achieve these targets, the Railbelt needs to build roughly 400 MW of new generation over the next decade, or an average of 40 MW each year.

While we often highlight Alaska's relatively small load and weak grid, the fact of the matter is that Alaska's Railbelt utilities have constructed significant generation and transmission assets over the past century. Railbelt utilities have experienced three major generation "golden ages" that serve as a useful guide. First, during the pipeline boom, Railbelt utilities experienced extraordinary load growth and built 784 megawatts of new generation capacity between 1975 and 1984, for an average of 78 MW per year. Second, between 2012 and 2016, Railbelt utilities constructed 660 MW, or a record average of 132 MW per year. Third, at the end of one such construction boom between 1952 and 1962, more than 50% of the Railbelt's electricity came from renewable sources, namely hydropower.

While conventional thermal plants vary significantly from large renewable energy projects, this kind of comparison suggests that the targets in HB 153 are achievable. **Bottom line: We have been powered by 50% renewable electricity before. The Railbelt has witnessed periods where we constructed 78-132 MW *per year* of new generation. Adding 40 MW per year is one half to one third of this historic deployment. We've built big things in the past and can do so again today.**

How would Renewable Energy Credits work under HB153?

Utilities get credit for renewable power under HB153 by either owning renewable power assets that generate megawatt hours of clean power, or by buying renewable energy credits (RECs). RECs are a common way for states to structure an RPS, as they create a market for buying and selling extra megawatt hours of renewable energy. HB153 requires that any RECs come from a Railbelt utility or from a PCE community (HB 153 may be amended in the near future to remove PCE RECs) The legislation incentives utilities to be first-movers to construct renewable energy projects and to

produce extra power, thereby allowing them to sell the RECs to utilities that are not in compliance with the RPS. **Bottom line: HB153 would create an internal Alaska REC market to sell and buy power created by renewable energy projects on the Railbelt or in PCE communities. It does not permit non-Alaskan RECs.**

What impact would AEA selling Bradley Lake RECs have?

The vast majority of the Railbelt's renewable electricity is currently supplied by hydropower, namely the AEA's Bradley Lake project. Railbelt utilities have purchased 100 percent of this power since its inception in 1991. AEA has discussed selling the RECs from this existing project, but AEA is not a load-serving entity. If HB 153 were to become law and AEA sold these RECs, it should not have an impact on Railbelt utilities ability to meet the portfolio standards. Railbelt utilities would still be getting credit for the power they were buying from AEA and supplying to their customers.

However, AEA might have an issue selling their RECs beyond the Alaska market, as the underlying renewable energy is already being ascribed to a buyer and RPS. This might create friction beyond the Alaska market, but not within the Alaska market. **Bottom line: The selling of Bradley Lake RECs by AEA should have no impact on meeting the RPS targets.**

What is the intent of the penalties in HB153?

HB 153 mandates fines of $45 (increasing annually with the consumer price index) per megawatt hour for noncompliance. Utilities can avoid fines if they enter into a power purchase agreement for sufficient renewable power, demonstrate that transmission constraints prevented the delivery of renewable electricity, or obtain a waiver for "reasons outside of the reasonable control" of the utility. The clear intent of the fines is to encourage utility compliance and to build more renewable energy, and these fines are especially meaningful within historical context. The State of Alaska created a voluntary renewable energy goal in 2009-2010 with the passage of HB 306. The goal of 50% renewable energy by 2025 was not achieved, arguably because the legislation was nonbinding and did not include any fines or penalties.

Not every state with an RPS has a penalty or fine system, but the vast majority do. These fines apply not only to rural electric cooperatives, but also to municipal utilities. NREL recommends that when establishing an RPS, a program should be "mandatory and impose noncompliance penalties on those entities which fail to meet requirements." **Bottom line: fines are the product of historical experience and are a best practice for successfully implementing an RPS.**

What could any collected noncompliance fines be used for?

HB 153 allows any load serving entity whose portfolio includes at least 40% renewable power generation to put any noncompliance fines in an account to "defray the costs of future renewable electricity projects or purchases," instead of paying a fine to the commission. This payment is intended for utilities who do not meet the second benchmark of 50% renewable electricity by 2035. Each utility who does not meet the second benchmark and who elects to pay the fines into such an account would create their own internal account, within their own books, recognized by the RCA. While it is unclear from the language of the legislation what specifically these funds can be used for, it is reasonable to assume that "defray the costs" would include integration and interconnection

studies, capital expenditures for new transmission assets, the hiring of necessary personal related to integrating new generation, and a wide variety of related costs. **Bottom line: HB153 permits fines imposed beyond the 2035 deadline to be collected in an internal account and used for integrating additional renewables.**

Are renewable energy projects economic without federal tax credits?

Federal incentives and tax credits have been a feature of the renewable energy landscape for decades. The passage of the Inflation Reduction Act in 2022 created the most robust and far-sighted framework for clean energy tax policy in U.S. History, with clear guidance through 2032 for rural electric cooperatives and developers. Following the 2024 election, it is unclear which aspects of this tax framework for renewable energy will endure. Yet three megatrends suggest that renewable energy will remain competitive, regardless of the status of tax credits.

1) Learning Curves (also known as "Wright's Law") refer to the regular cost reductions that occur as part of the cumulative deployment of certain technologies, namely solar, wind, and batteries. Every doubling of deployment results in a certain reduction in the cost of these technologies. This is why wind power costs declined by a factor of three over 20 years, solar is now the cheapest source of installed power in human history, and batteries are remaking stationary power storage and mobility. Put simply, the more renewable energy that is deployed, the cheaper it becomes (both in local and global markets).
2) Global capital inflows and expenditures for renewable energy is now double that of oil, gas, and coal. These calculations include electric vehicles, heat pumps, nuclear power and other low-emissions fuels. In just the power sector, the combined investment in nuclear and renewables was double that of fossil fuels in 2015 and was ten times as high in 2024. For every dollar invested in fossil-generation, ten were invested in renewables.
3) There is nothing "alternative" about renewable energy in 2025. New electricity additions to the U.S. grid demonstrate the dominance of renewable power: 93% of all new additions were solar, wind, or batteries in 2024. In the face of rising load growth, constrained gas turbine availability, and the need to fortify the grid amidst a rapidly warming natural environment, the U.S. has no choice but to continue its historic deployment of RE.

The 2024 election introduces significant headwinds for renewable energy. Regulatory uncertainty surrounding tariffs, tax credits, and permitting impose significant barriers for new projects. Alaska Renewables LLC states that they do not need tax credits for their projects to be economic, although they are lobbying to ensure these tax credits remain in place. **Bottom line: Historical trends suggest that renewable energy will continue to get cheaper and remain competitive with fossil fuels regardless of tax credits, but federal policies may slow or temporarily reverse cost reductions. The elimination of tax credits would result in higher costs for Alaskans and possibly less market participation by private developers.**