ALASKA STATE LEGISLATURE
SENATE LABOR AND COMMERCE STANDING COMMITTEE
May 5, 2023
1:32 p.m.

MEMBERS PRESENT

Senator Jesse Bjorkman, Chair
Senator Elvi Gray-Jackson
Senator Kelly Merrick
Senator Forrest Dunbar

MEMBERS ABSENT

Senator Click Bishop, Vice Chair

COMMITTEE CALENDAR

SENATE BILL NO. 101
"An Act relating to a renewable portfolio standard; relating to electrical energy transmission; relating to distributed energy systems; relating to power cost equalization; relating to the Alaska Energy Authority; and providing for an effective date."

- HEARD & HELD

PREVIOUS COMMITTEE ACTION

BILL: SB 101
SHORT TITLE: UTILITIES: RENEWABLE PORTFOLIO STANDARD
SPONSOR(s): SENATOR(s) TOBIN

03/15/23	(S)	READ THE FIRST TIME - REFERRALS
03/15/23	(S)	L&C, FIN
05/05/23	(S)	L&C AT 1:30 PM BELTZ 105 (TSBldg)

WITNESS REGISTER

SENATOR LÖKI TOBIN, District I
Alaska State Legislature
Juneau, Alaska
POSITION STATEMENT: Sponsor of SB 101.

MICHAEL MASON, Staff
Senator Löki Tobin
Alaska State Legislature

Juneau, Alaska
POSITION STATEMENT: Presented the sectional analysis for SB 101.

CHRIS ROSE, Founder and Executive Director
Renewable Energy Alaska Project (REAP)
Anchorage, Alaska
POSITION STATEMENT: Gave a presentation pertaining to SB 101 titled, "Why the Railbelt Needs a Renewable Portfolio Standard (RPS)."

MIKE JONES, representing self
Homer, Alaska
POSITION STATEMENT: Testified in opposition to SB 101.

MATTHEW PERKINS, Co-Founder and Vice President
Alaska Renewables
Fairbanks, Alaska
POSITION STATEMENT: Testified in support of SB 101.

BOB BUTERA, representing self
Anchorage, Alaska
POSITION STATEMENT: Testified in support of SB 101.

MIKE CRAFT, representing self
Fairbanks, Alaska
POSITION STATEMENT: Testified in support of SB 101.

ACTION NARRATIVE

1:32:16 PM
CHAIR JESSE BJORKMAN called the Senate Labor and Commerce Standing Committee meeting to order at 1:32 p.m. Present at the call to order were Senators Dunbar, Merrick and Chair Bjorkman. Senator Gray-Jackson arrived shortly thereafter.

SB 101-UTILITIES: RENEWABLE PORTFOLIO STANDARD

1:32:47 PM
CHAIR BJORKMAN announced the consideration of SENATE BILL NO. 101 "An Act relating to a renewable portfolio standard; relating to electrical energy transmission; relating to distributed energy systems; relating to power cost equalization; relating to the Alaska Energy Authority; and providing for an effective date."

He asked Senator Tobin to introduce the legislation.

1:33:15 PM
SENATOR LÖKI TOBIN, District I, Alaska State Legislature, Juneau, Alaska, sponsor of SB 101, stated that she would discuss why the state should have Renewable Portfolio Standards. On March 20, 2023, the United Nations released the "Climate Change 2023 Synthesis Report," focusing on the ongoing impacts of global warming, particularly vulnerable populations and ecosystems worldwide. She noted that Alaska experienced these effects during Typhoon Merbok which caused devastation and communication challenges.

She stated that more than a century of fossil fuel consumption has highlighted the urgency of addressing climate change to mitigate extreme weather events, especially in the Arctic. Implementing a Renewable Portfolio Standard in Alaska is a practical way forward, leveraging evolving and cost-effective renewable energy sources, including wind, solar, tidal, and geothermal energy.

Senate Bill 101 proposes a renewable portfolio standard for Alaska's power companies and utilities. Currently, 85 percent of the energy for the Railbelt is derived from fossil fuels. SB 101 aims to increase renewable energy to 25 percent by 2027, 55 percent by 2035, and 80 percent by 2040. The bill also establishes a March 2025 reporting deadline for Railbelt utilities to track their progress in meeting these standards.

SB 101 encourages compliance by authorizing fines for utilities that fail to meet the standards, but it emphasizes incentives over penalties. It offers an exemption for the first non-compliance fine and allows fines to be satisfied through customer-installed distributed energy systems or energy-efficient projects.

SENATOR TOBIN stated that the bill affects utilities serving Railbelt communities and those under the Electric Reliability Organization (ERO), known in Alaska as the Railbelt Reliability Council (RRC). The RRC must incorporate Renewable Portfolio Standards into its resource plans, and the Regulatory Commission of Alaska (RCA) determines compliance.

SB 101 permits the use of renewable energy credits to support interconnected grid services, enabling the purchase of renewable resources within service areas or from power cost equalization customers.

SENATOR TOBIN stated that SB 101 is a positive step towards reducing pollution and climate impacts. It promotes resilient, reliable, renewable technologies and energy security by diversifying power supply options, making it a valuable initiative for the State of Alaska.

1:39:45 PM
CHAIR BJORKMAN asked Michael Mason to present the sectional analysis for SB 101.

1:39:50 PM
MICHAEL MASON, Staff, Senator Löki Tobin, Alaska State Legislature, Juneau, Alaska, presented the following sectional analysis for SB 101, version R:

Senate Bill 101 – Utilities: Renewable Portfolio Standards

Version R Sectional Analysis

Section 1 – Amends the uncodified law the State of Alaska and clarifies the purpose of this Act is to establish a standard for certain utilities to meet renewable electricity generation goals established under Section 5 of the Act. Nothing in the Act is intended to constitute implementation by the Regulatory Commission of Alaska under the federal Public Utility Regulatory Policy Act of 1979.

Section 2 – Amends Sec. 42.05.391 to stipulate that public utilities that offer net metering to customers with installed distributed energy systems are not engaging in rate discrimination. This section references Sec. 42.05.930 which defines a "distributed energy system" as renewable energy resources located on any property owned or leased by a customer within the service territory of the load-serving entity that is interconnected on the customer's side of the utility meter.

Section 3 – Amends Sec. 42.05.780, which governs integrated resource plans for electric reliability organizations, to require integrated resource plans to include options by which each load-serving entity may satisfy the renewable portfolio standard.

Section 4 – Amends Sec. 42.05.785, which governs large energy facility project preapproval, by stipulating

that a public utility which is part of an electric reliability organization may not construct a large energy facility unless the Regulatory Commission of Alaska determines that the facility is not detrimental to a load-serving entity's ability to meet the renewable portfolio standard.

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Section 5 – Adds new article under Sec. 42.05 entitled Article 11A. Renewable Portfolio Standard (RPS). AS 42.05.900 requires a load-serving entity that is subject to the standards of an electric reliability organization comply with the renewable portfolio standard and requires regulated Railbelt electric utilities diversify their current generation portfolio by increasing the proportion of net electricity production from renewable energy sources in three successive steps: 25 percent by 2027, 55 percent by 2035, and 80 percent by 2040.

Sec. 42.05.900 also stipulates that a purchase power agreement entered into between a load-serving entity and a renewable electrical producer will satisfy all or part of the percentages required under the previous subsection if three conditions are met: (1) the effective date of the agreement is before the end of the compliance period, (2) the renewable electrical energy producer delivers the energy to the load serving entity not later than two years after the compliance period, and (3) the purchase power agreement is approved by the Regulatory Commission of Alaska (RCA). Purchase power agreements not approved by the Commission may result in the load-serving entity being subject to a noncompliance fine.

Sec. 42.05.900 governs the qualifications for a load-serving entity's renewable portfolio which stipulate that the renewable energy resources must be located within the load-serving entity's service area, the same interconnected electric energy transmission network, or located within the service area of an electric utility whose customers receive Power Cost Equalization (PCE).

Sec. 42.05.900 also stipulates that load-serving entities may satisfy the RPS with energy produced by distributed energy systems, regardless of whether the

energy is acquired by the load-serving entity or used by the customer. Under this statute, energy produced by customers may count toward the RPS of the load-serving entity.

Article 11A also governs the data needed to determine compliance with the RPS and the accounting system needed to verify compliance.

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The RCA is directed to adopt regulations to develop a proxy system for the energy produced from distributed energy systems which shall be updated every five years.

Sec. 42.05.900 authorizes a load-serving entity to satisfy the RPS through renewable energy credits that are authorized by Sec. 42.05.910 (new statute) and allows a load-serving entity to use energy efficiency investments to satisfy the RPS if the displaced energy consumption is established by the State of Alaska.

Sec. 42.05.905 establishes reporting requirements for load-serving entities subject to the RPS. Beginning March 1, 2025, a load-serving entity must submit an annual report to the RCA documenting the progress toward satisfying the RPS in the preceding calendar year. The annual report must include the entity's total production from distributed energy systems and net electricity sales from renewable energy resources. The annual report must also document the load serving entity's satisfaction of penalties imposed under the noncompliance section of this Act. The RCA must adopt regulations related to reporting and is authorized to investigate and collect information about a load-serving entity's compliance with the RPS.

Sec. 42.05.910 governs the use of renewable energy credits. To qualify as part of a load-serving entity's portfolio, renewable energy credits must be bundled from generation located within the entity's service areas or connected to the same interconnected electric transmission network. Credits can also qualify if they are purchased from renewable sources located within the service area of an electric utility that serves customers who receive PCE.

A renewable energy credit may only be used once, and renewable energy credits must be tracked in compliance with the RPS. Credits may be traded, sold, or otherwise transferred for value and revenue received by a load-serving entity from renewable energy credits is to be credited to the entity's cost of power adjustment to the benefit of the load-serving entity's customers.

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Sec. 42.05.915 establishes a noncompliance fine for a load-serving entity that fails to meet the RPS, set at $20 for every megawatt hour that the entity is below the RPS.

The RCA may waive noncompliance fines if it is determined that a load-serving entity is unable to meet the RPS because of reasons outside the reasonable control of the load-serving entity as set out in subsection (c) of this section or if the entity establishes a good cause for noncompliance as set out in subsection (d) of this section. The RCA may require additional reporting by a load-serving entity if the commission waives all or part of a noncompliance fine and a load-serving entity is prevented from passing along the cost of non-compliance fines directly to customers through rate increases.

A load-serving entity must satisfy a noncompliance fine by paying a customer all or a portion of the costs of installing a distributed energy system or energy efficiency technologies. If the total requests for costs exceed the amount of the noncompliance fine, the load-serving entity shall prioritize customers with mean household incomes at or below 80 percent of the mean annual income where the customer is located.

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Sec. 42.05.920 establishes exemptions for entities related to RPS compliance if the aggregate net electricity sales for all load-serving entities on the interconnected electric energy transmission network meets or exceeds the aggregate renewable portfolio standard for all load-serving entities on the interconnected network.

Additionally, a load-serving entity is exempt from its first RPS noncompliance fine. An exemption under this subsection does not apply for the compliance period ending December 31, 2040.

1:46:12 PM

Sec. 42.05.925 requires a load-serving entity subject to the RPS to credit a retail customer for the number of kilowatt-hours of electric energy supplied by the customer's distributed energy system. The tariff may not limit the aggregate capacity that customers may install unless the RCA finds that capacity limitation is necessary to protect system reliability. This is also known as net metering. A credit under Sec. 42.05.925 which exceeds the customer's monthly bill for service will roll over to the following month and continue to roll over until used. Unused credits expire on March 31 of each year for up to seven years after a customer's distributed energy system is connected to the load-serving entity and generates power.

Sec 42.05.930 provides for definitions used under Article 11A.

Section 6 – Amends Sec. AS 42.45.110 to exclude revenue from the sale of recovered heat, or revenue from the sale of renewable energy credits from calculating PCE.

Section 7 – Amends Sec. 44.83.940 by adding a new subsection requiring the Alaska Energy Authority to submit a report to the Alaska State Legislature identifying the authority's progress in developing renewable energy resources in rural regions of the state, evaluating renewable energy resource development in rural regions, identifying infrastructure necessary for rural renewable energy projects, and evaluating the feasibility and cost of rural renewable energy projects.

Section 8 – Establishes an effective date of July 1, 2023.

1:47:42 PM

CHAIR DUNBAR asked the sponsor whether she would entertain the idea of amending the bill to extend an offsetting credit to the

utilities that are impacted by the restoration of the Eklutna River. He explained that years ago the Eklutna Dam hydropower project was created without consulting the Native village of Eklutna and it destroyed their traditional salmon stream. Current efforts are underway to restore the river but this will reduce the hydropower going to Matanuska Electric and Chugach Electric, perhaps significantly.

1:47:57 PM
SENATOR GRAY-JACKSON joined the meeting.

1:49:28 PM
MR. MASON replied that he and the sponsor are both pro fish so it sounded like a good idea. He suggested that it could be accomplished through an amendment, a committee substitute, or the regulation process.

SENATOR TOBIN added that she didn't believe it would be necessary to reduce the compliance measures because there was ample opportunity to invest in other types of renewable energy generation to help those utilities offset that loss of power generation and meet the requirements.

1:50:24 PM
SENATOR DUNBAR said there are different mitigation options and the governor ultimately makes the decision due to a complicated agreement with the US Fish and Wildlife Service and other things that occurred in 1991 without any input from the Eklutna people. He said his concern is that some of the involved utilities in the project or the Governor's Office will point to this as one of the reasons for choosing a different mitigation option because they cannot reduce the flow of water that goes to the Eklutna Power Project. He would like to work with the sponsor's office to ensure this will not stand in the way of restoring the Eklutna River.

MR. MASON responded that he would be happy to share some of the options he's identified that might achieve that goal.

1:51:55 PM
CHAIR BJORKMAN transitioned to invited testimony and asked Chris Rose to begin his presentation.

1:52:08 PM
CHRIS ROSE, Founder and Executive Director, Renewable Energy Alaska Project (REAP), Anchorage, Alaska, gave a presentation supporting SB 101 titled, "Why the Railbelt Needs a Renewable

Portfolio Standard (RPS)." He advised that the presentation would lay out the economic reason that a Renewable Energy Portfolio Standard is important for the Railbelt. The state of Alaska currently is facing the problem of overreliance on a supply of natural gas that is dwindling and getting more expensive.

MR. ROSE began on slide 2 and described the Renewable Energy Alaska Project:

Renewable Energy Alaska Project (REAP)

Established in 2004, REAP is a statewide, non-profit coalition of over 60 diverse energy stakeholders, including developers, consumer groups, electric utilities, Alaska Native organizations and businesses.

REAP's mission is to increase renewable energy development and promote energy efficiency in Alaska.

REAP runs programs for, and collaborates with, a number of state and federal agencies, national laboratories, universities and other NGOs.

REAP is focused not just on technology, but also the policy and financing, and especially the people, that are necessary for Alaska to transition to local, affordable, stably-priced renewable energy and energy efficiency.

1:55:53 PM
MR. ROSE advanced to slide 3 and spoke to the following points:

Presentation Overview

- Railbelt electricity rates have been rising much faster than in the Lower 48
- Cook Inlet natural gas prices have also been rising quickly
- Alaska DNR says Cook Inlet gas production will see a shortfall as soon as 2027
- If the Railbelt imports LNG to make up for the shortfall:
    - Natural gas costs will dramatically increase, raising rates for Railbelt consumers

    - PCE reimbursements across rural Alaska will take a steep hit
    - The volatility of electricity prices across the state will increase
- Renewable energy costs have fallen precipitously worldwide, making it the cheapest electricity that can be generated in most jurisdictions
- The Railbelt needs a renewable portfolio standard to diversify our sources of electricity, and accelerate the deployment of local renewable energy resources to protect consumers

1:57:55 PM
MR. ROSE displayed the graph on slide 4, Railbelt Residential Electric Rates Have Risen Quickly. He stated that the colored lines show the rates for the four different co-ops from 1/1/2013 to 1/1/2022. The green line running along the bottom is the national average which is about $0.14 per kilowatt hour (kWh). This clearly illustrates that all four Railbelt utilities have much higher electricity prices than the US national average. The ratepayers on the Kenai Peninsula and in the Fairbanks area pay the highest at $0.25- $0.35/kWh. High electrical rates make the area less attractive for investors and as a place to live.

1:58:40 PM
MR. ROSE advanced to slide 5, Cook Inlet and US Natural Gas prices, $/Mcf. He noted that the Henry Hub natural gas spot price is the index in the lower 48; the dotted and solid blue lines show the recent declines in price. The orange lines reflect Cook Inlet prices that have been rising steadily since 2000 from just over $2.00/Mcf to closer to $7.50/Mcf. He said that's really what's been driving up the price of electricity.

1:59:36 PM
MR. ROSE advanced to slide 6, Forecast Proved Developed and Proved Undeveloped. He explained that this Department of Natural Resources (DNR) graph illustrates the impending shortage of natural gas in Cook Inlet. In 2027, a significant shift is apparent; as the graph indicates, natural gas production in Cook Inlet will fall below the level of consumption for the first time. The horizontal blue line that is hovering around 70 billion cubic feet (BCF), represents the annual natural gas usage by the four electric utilities and Enstar for electricity generation and heating purposes. The orange section on the graph, which represents proved undeveloped gas reserves, is highlighted as an area that necessitates substantial investment.

To ensure a steady gas supply until 2027, it is apparent that around 15 wells per year need to be drilled in Cook Inlet.

2:01:11 PM
MR. ROSE explained that the graph on slide 7 illustrates the world's LNG spot prices the last two years and reflects a considerable degree of volatility. It particularly focuses on various indices associated with the Asian Pacific region. He noted the Henry Hub (HH) index, in the US where there are pipelines, is relatively low and stable compared to the more volatile Title Transfer Facility (TTF) index that is European. He advised that gas imported to Alaska would not come from Europe. The orange, green, and gold lines represent indices in Asia. They are of significant relevance because they are indicative of the sources from which Alaska would likely import its natural gas. This gas would potentially be redirected from regions like British Columbia, resulting in pricing patterns aligned with what is depicted in the graph. The goldish bar that runs across the graph represents the Japan Organization for Metals and Energy Security (JOGMEC) index, which is comparable to energy indices in the United States, such as the Energy Information Administration (EIA). This provides a reference point for understanding that the expected pricing dynamics of imported natural gas in Alaska is closely tied to the Asian indices.

2:02:38 PM
MR. ROSE reviewed the chart on slide 8, Japanese LNG import spot price versus Cook Inlet average gas prices ($/Mcf). He explained that the graph features a comparison between the blue JOGMEC line and the Cook Inlet average gas price. This visual representation underscores the remarkable stability of Cook Inlet gas prices over an extended period. For a considerable time, they have remained at approximately $7.50 per thousand cubic feet (MCF). However, this is likely to change significantly by 2027, possibly even sooner, particularly for utilities like the Homer Electric Association (HEA), which has contracts with Hilcorp that are set to expire next year.

The context of this shift is that approximately 85 percent of the gas extracted from Cook Inlet is developed and sold by Hilcorp. The catalyst for the ongoing developments can be traced back to Hilcorp's public announcement from a year ago. They indicated uncertainty about their ability to fulfill existing contracts with both Enstar and the four electric utilities in the Railbelt. These contracts are set to expire between 2024 and 2028, and it was clear that Hilcorp was unsure about maintaining

the same volume or price levels. This announcement served as a signal to the utilities that a change in gas prices was imminent.

In essence, the graph highlighted the contrast between the prospective costs of entering the Japanese spot market for LNG and the prevailing stability of Cook Inlet gas prices, which have been consistently around $7.50. The significance of this comparison lay in the fact that all of these contracts are scheduled to conclude between 2024 and 2028.

2:04:11 PM
MR. ROSE advanced to slide 9 Average Imported LNG Price Scenario's (Current Prices to 2028). He stated that this graph illustrates potential future scenarios. The green line represents the stable Cook Inlet gas price, approximately $7.50/MCF, which is the current average price that Matanuska Electric, Chugach Electric, and Seward Electric pay. He directed attention to the colored dotted lines that represent three different price scenarios for LNG: $12, $18, and $25/MCF.

The $25 price aligns with the current spot target price. The $12 and $18 prices were derived from multiple sources, including a report by Chugach staff regarding the Dixon Diversion Project by Bradley Lake and DNR's projections for incentive prices in Cook Inlet for more development to take place. He explained that the relatively small market, with 500,000 to 600,000 natural gas users in Cook Inlet, had limited competition due to the absence of major gas exploration activities. The dominance of one major player, Hilcorp, with an 85 percent share in gas supply, created a situation akin to a monopoly. As a result, the utilities and Enstar have limited market leverage.

2:06:53 PM
MR. ROSE displayed slide 10, "Avoided Cost," and spoke to the following:

- “Avoided Cost” is an electric utility industry term of art.
- It refers to the cost of generation that a utility avoids when it purchases electricity from a third party.
- Avoided cost is composed of fuel and O&M costs attributable to the “last” MWh generated.
- A utility’s “avoided cost” is the most expensive power it would otherwise generate over a given interval of time.

- If the cost of renewable energy is less expensive over the life of a project than the utility's avoided cost, then consumers will be better off with the renewables.
- MEA's Willow solar power purchase agreement (PPA) was justified by the RCA based on the utility's avoided cost at the time the PPA was signed.

2:09:20 PM
MR. ROSE advanced to slide 11, 2028 Railbelt Avoided Cost Scenarios (At Three Different Potential LNG Prices). He directed attention to four different bands of bar graphs. The first band, represented by Chugach Electric in blue, MEA in orange, and HEA in gray, depicts the current situation where these utilities are paying approximately $7.75/MCF, which is their current avoided cost. Today, Chugach's weighted cost is slightly over six cents, making it the benchmark to beat. To surpass Chugach's avoided cost, one needs to go under six cents. Both MEA and HEA already have higher avoided costs.

He turned to the $12 gas scenario, stating that this is a likely best-case scenario for new natural gas prices, but even then, the contract cost is a little over $0.07/KWh in 2028. That cost beats Chugach's new avoided cost and it also beats both Homer and MEA's costs. This means that whenever gas reaches $12/MCF, solar will beat that price. He said the solar price comes from a relatively small six-megawatt solar farm that lacks the economies of scale associated with larger solar developments, but developers are exploring the potential for much larger wind and solar projects in the Railbelt. In such cases, the cost of power is likely to decrease over time. He highlighted that there was already one solar contract close to MEA's avoided cost and poised to beat other avoided costs if natural gas prices increase.

2:11:45 PM
MR. ROSE displayed slide 12, Impact of Three Possible LNG Import Prices on Annual Household PCE Reimbursements, stating that this graph reflects an interesting element because the cost of power in Fairbanks and Anchorage has a statewide impact.

2:11:57 PM
CHAIR BJORKMAN summarized that SB 101 is a government mandate for utilities to generate a certain percentage of their power from renewables. He noted that the presentation thus far had discussed the rising cost of gas and why those same utilities are under market pressure to adopt a portfolio of Renewable

Energy Standards. He further noted that MEA and HEA already were engaged in this process with independent power producers (IPP). He asked why a government mandate is needed if market forces are encouraging utilities to include renewables as part of their power generation and certain utilities are already including renewables to diversify their power generation.

MR. ROSE replied that one reason is that there isn't a competitive market. The four utilities are monopolies that each act independent of the others. The Railbelt Reliability Council (RRC) was established, but there isn't an Independent System Operator (ISO) to operate the grid efficiently as one grid. Most jurisdictions in the lower 48 have an ISO. The Regulatory Commission of Alaska (RCA) has ordered both Matanuska Electric (MEA) and Chugach Electric Association (CEA) to start acting in a tight power pool which is moving toward an ISO. This isn't fully fledged, and it doesn't include Homer Electric Association (HEA) or Golden Valley Electric Association (GVEA). To move forward efficiently, the utilities have to address system operation.

MR. ROSE stated that it is also necessary to deal with what is called pancaking transmission tariffs. Each utility owns a part of the transmission and they charge a toll to move the electrons through their separate service areas. These accumulate or pancake one on top of the other potentially making the cost of delivering the power up and down the Railbelt more expensive than the cost to generate it. REAP believes that if there were a mandate, the utilities would be forced to operate more efficiently. This means that each of the utilities would not be charging a toll to move the electrons through their respective service areas.

2:15:06 PM

MR. ROSE said another issue is that there are transmission constraints that make it more difficult to move power between the Anchorage/MatSu area, Fairbanks, and the Kenai Peninsula. These constraints limit transmission to 80 megawatts. The area around Willow has a similar constraint and all the utilities agree that these need to be fixed. The utilities have applied for federal grant money that's available for this but there isn't complete agreement about how much transmission is needed for reliability without "gold plating" the system.

MR. ROSE returned to the first point about not having a competitive market. He explained that the four utilities are able to calculate their avoided costs using different

methodologies so there isn't a target price for the entire Railbelt. Independent power producers (IPP) that want to sell into the market have to deal with each utility separately because transparency and consistency in the market price is lacking.

2:17:20 PM
MR. ROSE returned to slide 12 and explained that the Power Cost Equalization (PPE) program is based on equalizing the cost of power in Anchorage, Fairbanks, and Juneau with the cost of power outside of those areas. As the prices in Anchorage and Fairbanks have increased, it has reduced the amount of the subsidy for people outside the Railbelt. The impact becomes more significant on PCE consumers in a $12, $18, or $25 gas price scenario.

2:18:22 PM
MR. ROSE advanced to slide 13, Importing LNG Should Not be the Answer. He noted that all of the utility executives who were quoted talked about importing natural gas into Alaska. Unfortunately, they did not identify renewables as the answer. The slide read:

> When asked what the option for natural gas would be if the AK LNG project does not go forward, Railbelt Utility Mangers all had the same answer for the Senate Resources Committee:
>
> "I think that option is going to be importing LNG." Arthur Miller, Chugach Electric Association
>
> "LNG import is going to be the answer." Tony Izzo, Matanuska Electric Association
>
> "I think whether I want to say it out loud or not, at some point, imports will be part of the transition plan from everything I've heard so far." Brad Janorschke, Homer Electric Association
>
> "I have been steadfast in looking at my three peers here and saying we are in this together and so if it is imported natural gas, so be it." John Burns, Golden Valley Electric Association

2:19:07 PM
MR. ROSE advanced to the US map on slide 14, Renewable & Clean Energy Standards. He explained that this shows the states that had Renewable Portfolio Standards and those that had Clean

Energy Standards as of November 2022. He noted that eight states now have a Renewable Energy Standard of 100 percent by 2045 or 2050. REAP believes that 80 percent is eminently doable for Alaska and that the state should be following in the footsteps of some of these other states that have established standards.

2:20:07 PM
MR. ROSE advanced to slide 15, Costs of Wind and Solar Electricity Power Purchase Agreements (PPA). He explained that the colored circles on the graph represent contracts in the US for wind and solar that have occurred since 2009. The gold circles represent power purchase agreements (PPA) or contracts for solar power and the blue-gray circles represent wind power contracts. The larger the circle, the larger the contract. The graph shows that by 2022 the price of wind and solar was about $0.03/MWh. He noted that the dashed black line represents what the Energy Information Administration (EIA) has been projecting for natural gas prices in the lower 48. He emphasized the huge activity for renewables in the lower 48 where natural gas costs one third as much as in Cook Inlet.

2:21:32 PM
MR. ROSE advanced to slide 16, Levelized Cost of Energy Comparison - Unsubsidized Analysis. He explained that the chart comes from Lazard, an international consulting firm that annually conducts an unsubsidized comparison of electricity production, providing a clear breakdown between renewable and conventional energy sources.

Lazard's findings reveal that, in today's context, the cost of utility-scale solar photovoltaic (PV) and onshore wind energy lies within a range of roughly $24 to $75/MWh for wind, and $96/MWh for solar. He said it's worth noting that the most competitive options fit squarely within the $26 to $30 range, which can be translated to approximately $0.02 to $0.03/KWh.

Moreover, the chart serves as a window into the world of conventional energy, presenting a price spectrum for combined cycle gas units ranging from $39 to $101/MWh. Freshly harnessed natural gas-fired electricity falls in the ballpark of roughly $0.07 to $0.10/KWh. The chart also shows the prices associated with generating power from a new nuclear plant, which span from $141 to $221/MWh, corresponding to approximately $0.15 to $0.22/KWh. He clarified that these figures specifically represent the foundational costs of electricity generation, not factoring in any additional overhead expenses which allows a closer look at where the costs lie.

2:23:32 PM
MR. ROSE advanced to slide 17, Percentage of Net Generation from Solar in 2022 (Selected States). He said this slide is interesting because it shows that solar already accounts for a large percentage of power generation in many states. This is important to Alaska because rooftop solar could quickly displace the use of natural gas for six to eight months of the year. The gas could instead be used for heating. He pointed to the data for California which has a population of about 40 million. Solar accounts for 25 percent of the power generation for that state. He also pointed out that Massachusetts generates almost 20 percent of its electrical power from solar. He emphasized the untapped potential for Alaska to adopt more solar innovation. He noted that a provision in SB 101 requires utilities to pay new rooftop solar customers a retail rate up to seven years which aligns with net metering. This could increase the number of people who want to take advantage of the 30 percent tax credit and receive the retail rate for any excess generation they sell into the grid.

2:25:28 PM
MR. ROSE advanced to slide 18, Renewable Portfolio Standards (RPS) with Solar or Distributed Generation Provisions. He explained that the US map shows the states that have carved out certain technologies. Specifically, the states colored blue-gray have special solar provisions in their Renewable Portfolio Standard. He highlighted that the special solar provision that SB 101 proposes is consistent with the states that have done this successfully.

2:25:57 PM
MR. ROSE advanced to slide 19, U.S. Net Capacity Additions by Source (Gigawatts). He explained that the color-coded graph shows new power generation in the lower 48 since 2010. The green/bronze represents wind, the gray represents solar, and the orange represents fossil fuels. Since 2010, the power generated from wind and solar has increased and the power generated from fossil fuels has decreased to below zero. He described this as net negative fossil fuel generation capacity which means that more fossil fuel plants in the lower 48 are being retired than are being built. Most new generation in the lower 48 comes from wind and solar.

2:27:19 PM

MR. ROSE advanced to slide 20, An RPS Bill Similar to [Senate Bill] 121 Was Introduced by Governor Dunleavy in 2022. He spoke to the following:

> HB 301 passed out of both the House Energy and House Labor & Commerce Committees before the 32nd Legislature ended.

He stated that REAP is pleased that this bill was reintroduced this year.

2:27:49 PM
MR. ROSE advanced to slide 21, which the National Renewable Energy Lab (NREL) provided upon request from Governor Dunleavy. He spoke to the following:

> **Renewable Portfolio Standard Assessment for Alaska's Railbelt**
>
> **Overall Finding 1**: Multiple pathways exist for achieving an 80% RPS while balancing supply and demand under major outage conditions with appropriate system engineering.
>
> **Overall Finding 2**: An 80% RPS achieves a substantial reduction in fuel costs, which could be compared to capital cost expenditures for a comprehensive impact assessment.

MR. ROSE conveyed that in the time NREL had to conduct the study, they were not able to do a detailed analysis of the capital cost to get enough wind, solar, and batteries to achieve an 80 percent RPS. He highlighted that the lab is currently working on an updated report that includes the cost analysis.

2:29:02 PM
SENATOR MERRICK asked for confirmation that slide 20 misidentified the companion bill to HB 301. It was Senate Bill 121, not House Bill 121.

MR. ROSE replied that's correct; he neglected to correct the slide to show it was a Senate bill.

SENATOR MERRICK said she wonders why SB 101 didn't reflect the changes that were made in those bills.

MR. ROSE said he didn't know the respective sponsors' thought process, but REAP supported moving back to a real Renewable

Portfolio Standard (RPS) that is focused on renewable technologies like 29 other states. By the end of the session in 2022, House Bill 301 had moved from an RPS that measures megawatt hours generated to a clean energy standard that measures the reduction in carbon emissions. REAP believes that megawatt hours generated is a much cleaner way to measure compliance. REAP is also concerned that measuring the reduction of carbon emissions is more difficult to control and more easily "gamed." He opined that more people are interested in renewable energy than carbon emissions. REAP wanted to focus on an RPS like other states have done.

2:31:51 PM
MR. ROSE advanced to slide 22, Preliminary Benefit/Cost Analysis of 80% by 2040 RPS (NREL Scenario #3). He explained that absent a cost analysis from NRES, Alan Mitchell with Analysis North did an analysis in February 2022. He looked at how much it would cost to purchase and install the amount of solar, wind, hydro, and batteries to achieve 80 percent renewable generation in the Railbelt. The costs and benefits of RPS Scenario 3 are summarized as follows:

- Capital Cost of implementing RPS Scenario #3 (predominantly wind + solar) is $3.2 billion, relative to the Base Case.
- Present Value Benefits (fuel savings, with small offset from renewable operating costs) are $6.7 billion.
- Capital costs could more than double and Scenario #3 would still be cost effective.
- This analysis was done before federal tax credits for renewable energy were extended for 10 years.

He described the analysis as very conservative.

2:33:37 PM
MR. ROSE advanced to slide 23 and spoke to the following points:

Analysis Assumptions

- Renewable capacity and fuel savings were used without modification from NREL RPS Study Scenario #3.
    - NREL fuel savings are based on an AEA Fuel Price Forecast
    - Capital cost includes addition of hydro, biomass, wind and solar

- All necessary transmission upgrades and battery energy storage are included in all of NREL's five scenarios, including the Base Case.
- Wind capital costs were estimated at $2,912/kW, a conservatively high estimate of 1.94 times the Lower 48 average in 2020, based on the ratio of the costs of the Eva Creek Wind Project built in 2012 to the national costs for wind in that same year.
- Solar capital costs were estimated from existing and proposed Railbelt projects at $1,750/kW, roughly 1.46 times the average cost in the Lower 48.
- A 3% inflation adjusted discount rate was used for calculating present value.

2:34:47 PM
MR. ROSE advanced to slide 24 and spoke to the following points:

Additional Benefits That Were Not Considered in the 2022 Analysis

No federal Production Tax Credit (PTC) or other types of federal support. Those 30% tax credits were extended by Congress for 10 years in August 2022.

Higher LNG prices. The AEA gas price forecast projected $11 Mcf gas in 2030.

No further decline in wind and solar costs between 2020 and 2035

No increase in fuel prices beyond general inflation after 2040

No carbon tax avoided

2:36:29 PM
MR. ROSE reviewed the chart on slide 25, U.S. 2023 Planned Capacity Additions (gigawatts). He reported that EIA estimates that 54 percent of the new electrical generation in the US this year will come from solar, 11 percent will be from wind, and 17 percent will be from battery storage.

2:37:00 PM
MR. ROSE advanced to slide 26 and spoke to the following points:

How Much Renewable Capacity Gets Us to 80 Percent

- In 2021 Railbelt generated 4,685,898 MWh
- Equivalent to 535 MW capacity, operating at 100% capacity factor (24 hours/day, 365 days)
- Renewables are currently 15% of total energy
- 80% RPS ◊ Need an additional 348 MW
- One case with only wind and solar (roughly emulating NREL Scenario 3):
    - 535 MW of installed solar @ 12% capacity factor = 64 MW fossil equivalent
    - 860 MW of installed wind @ 33% capacity factor = 284 MW fossil equivalent

2:39:35 PM
MR. ROSE advanced to slide 27, and reviewed the following:

The Railbelt Reliability Council Would Implement an RPS

For decades, there was no mandate for the Railbelt utilities to plan together or adhere to regional interconnection and reliability standards.

In 2020, the passage of SB 123 required the Railbelt to establish an Electric Reliability Organization (ERO) to develop and enforce standards and execute regional planning for generation and transmission.

The Railbelt Reliability Council (RRC), made up of 13 utility and non-utility stakeholders, was certificated in September 2022 as the Railbelt Reliability Council (RRC)

New generation and transmission portfolios will be developed by the RRC through an integrated resource plan (IRP). The first regional IRP for the Railbelt will be a public process that will analyze the technical and economic feasibility of a range of options, select a preferred portfolio and develop an action plan before submitting the IRP package to the RCA for final approval.

2:40:45 PM
MR. ROSE advanced to slide 28 and spoke to the following:

The $2.5 Billion Utility Transmission Ask

The Railbelt Utilities are asking the State for:

- $250 million for five years running – the equivalent of $400/year for each of 625,000 PFD recipients
- $125 million per year for another 10 years – the equivalent of $200/year for each of 625,000 PFD recipients

How other states do it: plan transmission corridor requirements around where renewable resources are, and rely more on storage

Instead of waiting for silver bullets and federal grants we need to make incremental progress now

We can do more than one thing at a time!

2:43:00 PM
MR. ROSE advanced to slide 29 and spoke to the following:

A Railbelt RPS Would:

- Diversify the region's generation portfolio and protect consumers from rising rates.
- Displace high-priced natural gas fuel used for electricity and help reserve Cook Inlet gas for the region's heating needs.
- Utilize local, renewable resources like wind and solar that have no fuel costs.
- Stabilize Cook Inlet energy costs.
- Increase the region's energy independence and keep Alaska competitive in a fast changing world.
- Create jobs, spur statewide innovation and keep hundreds of millions of precious energy dollars circulating in the state's economy.
- Establish a standard that triggers action before we import LNG.

2:44:10 PM
MR. ROSE advanced to slide 30 and spoke to the following points:

Time is of the Essence

The Railbelt utilities and Enstar are meeting regularly to discuss importing LNG

The next NREL study will come out in late May

The Governor's Energy Security Task Force will not report until the Fall

The Railbelt Reliability Council is about to start getting staffed up

The Legislature will reconvene in January

REAP respectfully suggests ongoing RPS hearings over the interim

2:45:22 PM
SENATOR TOBIN stated that SB 101 is a policy call about the plan going forward to ensure that Alaskans have stable and reliable energy generation after fossil fuels expire. She cited examples of standards that have been implemented into law. To the question about why SB 101 doesn't look like the bills that were heard in previous years, she said the decision was to focus on Renewable Portfolio Standards because wind and solar technology is proven, reliable, and affordable. It is ready today so SB 101 is narrowly focused on renewables.

2:47:21 PM
SENATOR DUNBAR said wind are solar are clearly renewable but he wanted assurance that the expansion of Bradley Lake fits into the model. He also wondered whether the hydropower project he mentioned earlier would be considered renewable under the standards of the bill.

2:48:33 PM
MR. MASON answered that the definition of a renewable energy resource is found on page 9. He confirmed that the Bradley Lake hydro project and the Dixon Diversion would fall under the Renewable Portfolio Standard legislation. The sponsor has looked at language that would provide exemptions to some of the compliance that could be used in the Eklutna example. To Senator Merrick's question about House Bill 301, he said there was discussion about whether to add nuclear energy to the bill and it was eventually added. After considerable discussion, the sponsor chose not to include nuclear in SB 101. He cited three examples to explain why: Fukushima, Chernobyl, and Three Mile Island. He reiterated that the bill includes non-compliance waivers which would allow additional technologies without making them part of a true Renewable Portfolio Standard.

SENATOR DUNBAR said he appreciates that there's a waiver process. He added that he supports nuclear power but doesn't believe it pencils out in Alaska.

2:51:43 PM
CHAIR BJORKMAN opened public testimony on SB 101.

2:52:13 PM
MICHAEL JONES, representing self, Homer, Alaska, voiced opposition to the creation of the Renewable Portfolio Standard outlined in SB 101, citing several concerns. His stance was substantiated by the testimony he had submitted online. He argued that the RPS approach imposed artificial renewable targets and deadlines, potentially leading to a suboptimal generation mix. Instead, he advocated for supporting a robust generation planning effort that considers a wide range of potential solutions without restricting choices or favoring certain options based on arbitrary criteria.

MR. JONES contended that the RPS provided a one-size-fits-all solution that hindered the thoughtful, science-based generation resource planning efforts the Railbelt utilities had undertaken. He believes that a state-mandated RPS removes local decision making from those who would bear long-term financial consequences. Such mandates, in his view, demand too much too quickly, resulting in high electricity costs that could be mitigated with a more gradual, bottom-up approach.

MR. JONES also raised concerns about special interests, particularly the solar lobby, influencing net metering requirements for their profit. He saw this as a costly, long-term investment plan, with the burden falling on electric customers for decades.

Finally, he questioned the necessity of the legislation, noting that if wind and solar generation were genuinely more cost-effective than gas-fired alternatives, market forces should determine the best technical and economic solutions without legislative intervention.

2:54:45 PM
MATTHEW PERKINS, Co-Founder and Vice President, Alaska Renewables (AR), Fairbanks Alaska, expressed appreciation for the previous speaker's comments and highlighted the importance of a bottom-up approach to technology, emphasizing that regulatory clarity was crucial for the investment community. He stated that the economists at Alaska Renewables (AR) who are

involved in multiple wind projects across the state have stressed that clarity in regulations is vital. This is particularly important for renewables because investing in such projects is a long-term commitment, and investors seek certainty that aligns with their energy policies.

MR. PERKINS acknowledged that no policy was perfect but underlined the overdue nature of a Renewable Portfolio Standard (RPS). AR's engineers and economists recognize the challenges of energy transitions and believe that regulatory clarity would benefit both utilities and the investment community. It would provide guidelines and stability for those involved in project development, ensuring that the rules of the game wouldn't suddenly change.

MR. PERKINS acknowledged the importance of a thorough environmental review in the U.S. for renewable energy projects. He affirmed AR's support for the RPS policy in Alaska, considering it long overdue and expressing eagerness to continue assisting the state in its energy transition efforts.

2:57:14 PM
BOB BUTERA, representing self, Anchorage, Alaska, testified in support of SB 101. He voiced his support for adopting Renewable Portfolio Standards in Alaska. He pointed out that similar standards had been suggested by both Governor Palin and Governor Dunleavy in the past and now was the time to formalize them in state law.

MR. BUTERA highlighted the concerning trend in the Railbelt, where Cook Inlet gas production was rapidly decreasing, causing gas prices to rise. He raised the issue that within four years, there might not be enough gas to meet the demand, as indicated by Hilcorp's announcement that they couldn't guarantee gas delivery for future contracts. He emphasized the limited options for quickly changing the way buildings are heated but noted the potential to transition rapidly to renewable electricity generation, extending the availability of gas for heating homes and businesses.

In addition to enshrining renewable standards in statute, Mr. Butera stressed the significance of an amendment that would require integrated resource plans to include options for meeting renewable standards. These plans, especially in the Railbelt, would shape the future of the region's electricity generation. To ensure a decisive and cost-effective approach, he believed that updating the plans with renewable standards was crucial. He

expressed concern that without a renewable mandate, conservative utilities might continue to downplay the impending crisis, opting for a slow and cautious path, ultimately resulting in high energy costs. He encouraged the committee to advance these critical components of SB 101.

2:59:20 PM
MIKE CRAFT, representing self, Fairbanks, Alaska, expressed support for SB 101 and provided some background. He owns the Delta Wind Farm and recalled setting up the first wind farm on the Railbelt grid in 2008, driven by the economic opportunities renewable energy offered. He highlighted the economic benefits of renewables and the growing awareness of the health and environmental impact of hydrocarbons on their community in Fairbanks. He and his partner shared their 17-year commitment to renewable energy in Alaska and urged those listening to consider whether they wanted to be part of a national plan that had proven to be reasonable, effective, and economically viable.

MR. CRAFT emphasized the positive changes that renewable energy could bring, both in terms of health and cost savings. He urged everyone to be part of the plan for Alaska's energy future, expressing a sense of disappointment about Alaska falling behind in various aspects and a determination to make a difference, particularly for future generations.

MR. CRAFT stressed his commitment as a developer to environmental responsibility and mitigating the environmental impacts of various projects.

3:01:58 PM
CHAIR BJORKMAN closed public testimony on SB 101.

CHAIR BJORKMAN applauded the sponsor for introducing the bill and complemented the Railbelt utilities for their efforts to improve the grid and diversify power generation adhering to local goals to generate power from renewable sources. He said the existing utilities have two responsibilities to the Alaskan people: to keep the lights on in a reliable way and to do so at the cheapest cost possible. When utilities face rising natural gas prices, it makes sense for them to pursue cheaper methods to generate power. The presentation made it clear and it's been demonstrated that there is space for renewables to sell electricity to the local co-ops.

CHAIR BJORKMAN described the mandate outlined in SB 101 as an aspirational goal. He articulated his preference that local

utilities fulfill their mission of ensuring reliable electricity and cost efficiency, relying on the specific conditions in their respective regions. He voiced support for infrastructure buildouts through the intertie and improving transmission without passing the costs along to ratepayers.

3:05:32 PM
SENATOR DUNBAR concurred with much of Senator Bjorkman's viewpoint but stressed the importance of acknowledging that change requires time. The state has, whether deliberately or unintentionally, implemented policies that, in some instances, explicitly favor hydrocarbons. An illustrative case is the provision of cashable credits for gas production in Cook Inlet, involving the allocation of hundreds of millions of dollars as direct subsidies to the hydrocarbon industry. He clarified that this is not a critique of such a decision, as ensuring affordable gas is crucial. However, had a similar approach been applied to renewable projects, the outcome might have been different. He expressed a willingness to explore this as part of an energy diversification strategy and expressed optimism for further examination of this issue during the interim.

3:06:53 PM
SENATOR MERRICK asked which stakeholders participated and whether the RRC participated or would be included going forward.

MR. MASON stated that he had worked on this matter for several years and was pleased when Senator Tobin was similarly passionate. He worked with Mike Craft and Chris Rose who is part of the Railbelt Reliability Council. He relayed that he had already pledged to work with the utilities and stakeholders through the interim to craft a piece of legislation that both Senator Bjorkman and Senator Tobin could support.

SENATOR MERRICK asked whether her constituents, who are Matanuska Electric ratepayers, were consulted when SB 101 was drafted.

MR. MASON answered no.

CHAIR BJORKMAN held SB 101 in committee.

3:09:24 PM
There being no further business to come before the committee, Chair Bjorkman adjourned the Senate Labor and Commerce Standing Committee meeting at 3:10 p.m.