

ALASKA STATE LEGISLATURE
SENATE RESOURCES STANDING COMMITTEE

May 14, 2025

3:31 p.m.

MEMBERS PRESENT

Senator Cathy Giessel, Chair
Senator Bill Wielechowski, Vice Chair
Senator Matt Claman
Senator Forrest Dunbar
Senator Scott Kawasaki
Senator Shelley Hughes
Senator Robert Myers

MEMBERS ABSENT

All members present

COMMITTEE CALENDAR

PRESENTATION(S): RAILBELT RELIABILITY COUNCIL (RRC), SENATE BILL 123, HOUSE BILL 307, AND WHERE WE GO FROM HERE

- HEARD

PREVIOUS COMMITTEE ACTION

No previous action to record

WITNESS REGISTER

GWEN HOLDMANN, Chief Scientist
Alaska Center for Energy and Power
Fairbanks, Alaska

POSITION STATEMENT: Co-presented Railbelt Reliability Council (RRC), SENATE BILL 123, HOUSE BILL 307, And Where We Go from Here.

STEPHEN COLT, Research Professor
Alaska Center for Energy and Power
Fairbanks, Alaska

POSITION STATEMENT: Co-presented Railbelt Reliability Council (RRC), SENATE BILL 123, HOUSE BILL 307, And Where We Go from Here.

ACTION NARRATIVE

[3:31:53 PM](#)

CHAIR GIESSEL called the Senate Resources Standing Committee meeting to order at 3:22 p.m. Present at the call to order were Senators Myers, Kawasaki, Dunbar, Hughes, and Chair Giessel. Senators Claman and Wielechowski arrived thereafter.

PRESENTATION(S): RAILBELT RELIABILITY COUNCIL (RRC), SENATE BILL 123, HOUSE BILL 307, AND WHERE WE GO FROM HERE

[3:32:28 PM](#)

CHAIR GIESSEL announced the presentation, Railbelt Reliability Council (RRC), SENATE BILL 123, HOUSE BILL 307, And Where We Go From Here.

[3:33:13 PM](#)

GWEN HOLDMANN, Chief Scientist, Alaska Center for Energy and Power, Fairbanks, Alaska, introduced herself.

[3:33:34 PM](#)

MS. HOLDMAN advanced to slide 2:

[Original punctuation provided.]

Questions to be addressed

- What do we need for a healthy electric grid ecosystem?
- Railbelt Reliability Council (RRC) - How did we get here?
- What problems was SENATE BILL 123 addressing via the RRC?
- What does the RRC do?
- Why are reliability standards and integrated resource planning (IRP) bundled together?
- What about HOUSE BILL 307 and the Railbelt RTO?

MS. HOLDMAN said the presentation would conclude with an overview of net metering versus net billing.

[3:34:56 PM](#)

MS. HOLDMAN advanced to slide 3:

[Original punctuation provided.]

Q1: Ingredients for a healthy grid ecosystem

These functions work together to enable:

- Efficient, cost-effective investments
- Maximum participation from independent generators and third parties
- System-wide coordination that supports reliability and ratepayer value

Healthy Grid Ecosystem

GOAL: affordable and reliable energy

System-wide Planning

Identifies long-term needs for generation and transmission; process should be transparent, inclusive, and data driven.

System-wide Development (e.g. transmission)

Implements those long-term plans by advancing shared infrastructure projects

Independent Regulator

Ensures fair rates, enforces non-discriminatory access, and protects public interest.

Reliability Standards

Maintains grid stability through technical rules, contingency planning, and enforcement mechanisms.

Economic Dispatch Structure

Optimizes which generators run and when, minimizing total system cost. (e.g., single GT, ISO, Transco, tight power pool)

Real-time Balancing

Maintains second-by-second balance between supply and demand. Supports frequency stability, coordinates reserves, and prevents blackouts across defined areas.

[3:38:01]

MS. HOLDMAN pointed out that, unlike most other US jurisdictions, Alaska is not part of an interconnected grid and is therefore not subject to Federal Energy Regulatory Commission (FERC) and North American Electric Reliability Corporation (NERC) oversight. She commented that, for better or worse, Alaska must create its own institutions and rules to perform

functions that may be more clearly defined at the federal level. She stated that the Railbelt Reliability Council (RRC) and the Railbelt Transmission Organization (RTO) are Alaska's grid oversight institutions. She highlighted that the railbelt is served entirely by public power entities and offered examples.

[3:39:33 PM](#)

MS. HOLDMAN said that the previous slides provided high-level context and the presentation would address the issues in greater detail.

[3:40:13 PM](#)

STEPHEN COLT, Research Professor, Alaska Center for Energy and Power, Fairbanks, Alaska, advanced to slide 4, containing a bar chart illustrating the railbelt winter capability (includes nonfirm wind capacity) from 1952-2019:

[Original punctuation provided.]

Q2: RRC - How did we get here? Timeline Pre-2015:

2010 - 2015: "\$1.5B" of new generation built by Railbelt utilities, while sales declined

May 2014: \$250k capital approp. to RCA to determine "whether creating an independent system operator or similar structure for electrical utilities in the Railbelt area is the best option for effective and efficient electrical transmission"

June 2015: RCA recommendations letter

MR. COLT directed attention to the circle on the bar chart on slide 4 and explained that this shows a significant deployment of new gas and oil-fired generation for the 2010-2015 timeframe. He surmised that this brought coordination issues related to railbelt spending into greater awareness.

[3:40:50 PM](#)

SENATOR CLAMAN joined the meeting.

MR. COLT continued to discuss slide 4, containing a bar chart illustrating the railbelt winter capability (includes nonfirm wind capacity) from 1952-2019:

[Original punctuation provided.]

Q2: RRC - How did we get here? Timeline Pre-2015:

2010 - 2015: "\$1.5B" of new generation built by Railbelt utilities, while sales declined

May 2014: \$250k capital approp. to RCA to determine "whether creating an independent system operator or similar structure for electrical utilities in the Railbelt area is the best option for effective and efficient electrical transmission"

June 2015: RCA recommendations letter

[3:44:02 PM](#)

SENATOR MYERS noted the various forms of energy generation shown on the bar chart on slide 4. He acknowledged that it may be necessary to increase generation capacity to ensure backup energy is available when needed. He asked why utilities would increase generation capacity when sales were declining.

[3:44:39 PM](#)

MR. COLT surmised that this question was the primary reason for the 2014 capital appropriation request. He shared his understanding that, at that time, the utilities built new plants to increase energy efficiency. He added that the Regulatory Commission of Alaska (RCA) held extensive proceedings on this issue.

[3:46:02 PM](#)

SENATOR DUNBAR briefly discussed the history of the George M. Sullivan Plant 2-A, which was built during that timeframe (and owned by Municipal Light & Power (ML&P)). He noted that ML&P was owned by the Municipality of Anchorage and did not have an independent board. He agreed that the plant was built to increase efficiency. He said that, for several years, RCA seized the dividend the Municipality of Anchorage would have received from ML&P and briefly discussed the reasoning behind the actions of RCA.

[3:47:10 PM](#)

SENATOR MYERS expressed appreciation for this additional context related to the Anchorage area. He pointed out that multiple generation systems were added across different areas and expressed confusion as to the reasoning. He indicated that he would seek out additional information related to RCA proceedings during that time.

[3:47:53 PM](#)

CHAIR GIESSEL noted that the presentation would focus on current events and acknowledged that the history is important.

[3:48:05 PM](#)

MR. COLT advanced to slide 5:

[Original punctuation provided.]

Timeline: June 2015 RCA recommendations

Rec 1: Independent transmission company

"An independent transmission company should be created"... [and] RCA should have "siting authority for new generation and transmission" and "explicit authority to regulate integrated resource planning" for the Railbelt.

Rec 2: Promote "system-wide merit order economic dispatch", by voluntary action and/or "specific action steps."

Rec 3: Allow time for voluntary actions [about 1 year for initial filings]

Rec. 4: Reliability standard RCA "strongly encourages [Railbelt utilities] to develop a common Railbelt operating and reliability standard"

Rec 5: Adequate funding for RCA (via Regulatory Cost Charge)

[3:50:04 PM](#)

MR. COLT continued to discuss slide 5. He noted that "system-wide merit order economic dispatch" means to use the cheapest generation available at any given hour of any given day, regardless of who owns it or where it is located.

[3:53:01 PM](#)

MR. COLT advanced to slide 6:

[Original punctuation provided.]

Timeline: Volunteer efforts through 2019

- RCA Order 13 in I-15-001, March 2019, recounts: "Acting on behalf of several Railbelt electric utilities, ARCTEC hired a consultant to provide recommendations on establishing an organization that would act as the entity responsible for establishing and enforcing Railbelt reliability standards and (among other things) performing regional integrated resource planning for the Railbelt."
- The consultant, GDS, recommended a Railbelt Reliability Council (RRC) be created:
 - For reliability standards, a miniature version of federal policy:
 - 2005 Energy Policy Act created the concept of ERO
 - 2006: North American Electric Reliability Corporation (NERC) was designated by FERC as the ERO for the U.S. Grid.
 - For IRP function, GDS apparently followed Rec. 1 of the June 2015 RCA Letter.
- RRC MOU: On December 18, 2019, six Railbelt utilities signed the MOU for the creation of the RRC. [But, for economic dispatch GDS said...study it some more...]

[3:57:15 PM](#)

MR. COLT advanced to slide 7:

[Original punctuation provided.]

Timeline: 2019: RCA proposes legislative language

- June 2019: Alaska Railbelt Transmission Co abandons its application.
- RCA feels statutory authority is needed to implement RRC as an ERO.
- March 2019 Order 13, docket I-15-001: "Attached as an appendix to this order is draft legislative language that provides us with:

- express authority to certificate and regulate an ERO

[and]

- "a legislative grant of siting authority for new generation and transmission in the Railbelt, and explicit authority to regulate integrated resource planning for the Railbelt electric system."

MR. COLT noted that this process began in 2015 when RCA made its recommendations. He surmised that, at the end of 2019, RCA requested statutory authority in an effort to move the process forward more quickly.

[4:01:08 PM](#)

SENATOR MYERS recalled discussions related to coops throughout the railbelt merging. He noted that this caused concern amongst Fairbanks ratepayers and therefore did not occur. He asked if this was a part of the 2019 deliberations.

[4:01:39 PM](#)

MR. COLT briefly directed attention to slide 6, which included mention of the Alaska Railbelt Cooperative Transmission and Electrical Company (ARCTEC) - a cooperative of cooperatives. He explained that ARCTEC was an attempt to merge the generation function.

[4:02:54 PM](#)

MR. COLT advanced to slide 8:

[Original punctuation provided.]

Timeline: 2020: Senate Bill 123

1/15/2020 Letter from RCA to President Giessel and Speaker Edgmon

3/10/2020 CS Senate Bill 123(RBE) passed Senate 19-0.
(RBE is the Special Committee on Railbelt Electric System)

3/19/2020 CS Senate Bill 123(RBE) passed House 33-1
(As amended on H floor)

Note: Amendment 2 broadens the scope of telephone utility cooperatives to include "related telecommunications services", and allows utility coops to use email, zoom, etc. to conduct business and voting.

3/20/2020 Senate concurs in amendment 17-3.

Essentially, Senate Bill 123 passed unanimously, with minor modifications.

And Chugach merged with Anchorage Municipal Light and Power (!)

MR. COLT stated that Senate Bill 123 included the proposed legislative language submitted by RCA to the legislature in 2019.

[4:05:19 PM](#)

MR. COLT advanced to slide 9:

[Original punctuation provided.]

Q3: What problems was SENATE BILL 123 trying to address via RRC?

Going back to the RCA findings in its June 2015 letter:

"Concerns about the fragmented, balkanized and often contentious Railbelt utilities have been raised numerous times over the past 40 years. Several efforts have been made to reform and reorganize the Railbelt electrical system, but none have succeeded."

This preamble led to the RCA's 2015 recommendations and the voluntary actions during 2015-2019, which culminated in RCA's request for legislation.

Along the way, other things fell by the wayside. Thus,

SENATE BILL 123 addressed a surviving, or perhaps a feasible, subset of the 2015 RCA recommendations.

[4:07:13 PM](#)

MR. COLT advanced to slide 10, which highlights the inclusion of siting authority, integrated resource planning, and reliability standard in Senate Bill 123:

[Original punctuation provided.]

Q3, cont. Which 2015 Recommendations survived into SENATE BILL 123?

Rec 1: Independent transmission company "An independent transmission company should be created"... [and] RCA should have "**siting authority** for new generation and transmission" and "explicit authority to regulate **integrated resource planning**" for the Railbelt.

Rec 2: Promote "system-wide merit order economic dispatch", by voluntary action and/or "specific action steps."

Rec 3: Allow time for voluntary actions [about 1 year for initial filings]

Rec. 4: Reliability standard RCA "strongly encourages [Railbelt utilities] to develop a common Railbelt operating and **reliability standard**"

Rec 5: Adequate funding for RCA (via Regulatory Cost Charge)

MR. COLT noted that Senate Bill 123 included process implementation. He added that the next slides would discuss the creation of a transmission organization.

[4:09:10 PM](#)

MS. HOLDMAN advanced to slide 11:

[Original punctuation provided.]

Q4: What does the RRC do? And NOT do?

The RRC promulgates reliability standards and develops integrated resource planning (IRP) (which includes transmission planning)

Reliability standards:

- provide for "reliable operation" of the "interconnected" network.
- RCA may initiate a standard on its own motion

IRP - provide "greatest value" - enables reliability to be traded off against excessive cost

use "full range" of resources: "generation, transmission, battery storage, and conservation or similar improvements in efficiency..."

"regardless of the location or ownership" of resources
[Does this help move us to economic dispatch?....maybe]

Large project pre-approval - linked to IRP process:

- Largely between utilities and RCA - i.e., the RRC does NOT approve large projects
- And yet, Projects included in the "preferred portfolio" of an RCA-approved IRP are deemed preapproved.

RRC does NOT operate a market or dispatch resources. Utilities maintain control over most generation and dispatch decisions within their service territories (exception Southcentral tight power pool).

ERO Rules, created by RCA, are at 3 AAC 46.

MR. COLT added that AS 42.05.762 and AS 42.05.780 direct the ERO to develop the integrated resource plan while explicitly considering transmission. He noted that this is unusual. In addition, ERO is directed to pursue resources regardless of location and/or ownership. He opined that this raises an interesting question related to remote energy resources.

[4:11:03 PM](#)

SENATOR WIELECHOWSKI joined the meeting.

[4:12:26 PM](#)

MS. HOLDMAN advanced to slide 12:

[Original punctuation provided.]

Q5. Why are reliability standards and regional planning (IRP) bundled together as RRC tasks?

This is somewhat unusual. Reliability standards under an ERO mimic U.S. practice, but IRP function in L48 is

done by numerous individual utilities; transmission by RTO or ISO.

Functions and Typical U.S. Practice:

Reliability Handled by NERC or regional entities (e.g. WECC)

Planning (IRP) Done by individual utilities, overseen by state regulators

Transmission Planning Often done by RTO/ISO with utility input

In Alaska (Post-SB123), these functions are all handled by RRC (ERO)

Reliability standards and IRP are the pruned version of the larger tree: Original ideas for RRC included:

- Reliability standards
- Planning
- Interconnection protocols
- Further assessment of economic dispatch

[3) and 4) were deferred/dropped, leaving 1) and 2).]

MS. HOLDMAN noted that RRC does not have the authority to build projects or enforce IRP outcomes, which creates the risk of developing plans but not acting on them.

[4:14:17 PM](#)

MS. HOLDMAN advanced to slide 13:

[Original punctuation provided.]

Key Provisions of AS 44.83.700 (from House Bill 307)

- Establishes the Railbelt Transmission Organization (RTO) within AEA, tasked with managing an open-access transmission tariff for the Railbelt's backbone transmission system.
- The RTO is responsible for pooling and allocating backbone transmission costs among load-serving entities to ensure nondiscriminatory access to the grid.

- Lays the institutional groundwork for future coordination.

[4:15:51 PM](#)

MS. HOLDMAN advanced to slide 14:

[Original punctuation provided.]

Key Provisions of AS 44.83.700 (from House Bill 307)

Establishes the Railbelt Transmission Organization (RTO) within AEA for the purpose of establishing an open access transmission tariff that

- provides for recovery of transmission costs and related ancillary services;
- replaces wholesale charges assessed by unit by each utility in the Railbelt with a new mechanism that fairly recovers and equitably allocates the costs of operating the backbone transmission system

The Alaska RTO, as currently structured, does not make decisions about future transmission investments (planning), implement those decisions (development), or dispatch resources (operations). Its role is focused on managing the open-access transmission tariff and cost allocation for the backbone transmission system.

MS. HOLDMAN noted that the original version of House Bill 307 included planning and implementation, which is consistent with practices in other markets. She recalled discussions that the role of RTO in managing the open-access transmission tariff would remove pancaking wheeling rates as power is wheeled through different utility jurisdictions and transmission assets. She added that the RTO is structured in a way that allows for improved decision-making with respect to building larger assets where the resources are available and moving that power to where it is needed.

[4:17:23 PM](#)

CHAIR GIESSEL expressed gratitude for Ms. Holdman's work on House Bill 307. She highlighted that the original structure of RTO included transmission planning and implementation. She contrasted this with the tasks of RRC. She asked Ms. Holdman to elaborate further on the backbone transmission system and noted

many discussions about the difference between this and the distribution system.

[4:18:36 PM](#)

MS. HOLDMAN agreed that this is an important distinction. She said it is a question of both asset size and whether the system is moving power north and south between different utility's systems. She described a radial transmission system and said this is not part of the railbelt transmission system. She noted working group research done prior to the passage of House Bill 307 that created a process to distinguish a backbone transmission asset from a radial distribution level asset. She noted an upcoming meeting of the RTO Board to potentially approve that process.

[4:20:08 PM](#)

CHAIR GIESSEL commented that this is significant.

MS. HOLDMAN agreed.

CHAIR GIESSEL asked Ms. Holdman to explain "pancake wheeling" and "postage stamp rates" for those who are not familiar with the terms.

[4:20:33 PM](#)

MS. HOLDMAN said one of the challenges of modernizing the railbelt grid is developing new generation assets (ideally developed by an independent power producer) at scale. This would provide cheaper power to consumers. She explained that this means building assets where the resource is located and offered examples. She emphasized the goal of getting the cheapest power to customers wherever the asset is built. She explained that when transmission assets are owned by many different users, the power must be moved across those different systems while navigating various transmission agreements. Those rates add up and are referred to as "pancaked rates." She offered an example to illustrate pancaking and the challenge this poses. She explained that the costs are bundled into "postage stamp rates" and then allocated to end users across the system.

[4:22:31 PM](#)

CHAIR GIESSEL recalled that this could be illustrated by a toll road example. She shared her understanding that an electron would pay a fee for passing through various transmission assets, which stack up (i.e. pancake). She indicated that an electron could begin as the least expensive but then be subject to many

additional fees as it passed through various transmission system assets.

[4:23:29 PM](#)

MS. HOLDMAN said this is correct.

CHAIR GIESSEL asked for confirmation of her understanding that a key function of the RTO is to level the cost.

[4:24:39 PM](#)

MS. HOLDMAN replied yes. She clarified that it is a reallocation rather than a reduction of costs. Thus, rather than tying the cost to the specific transmission source, the cost is distributed across the users of the transmission system in a way that is equitable and fair.

CHAIR GIESSEL noted that Iceland's model was used as a template for House Bill 307. She asked Ms. Holdman to discuss Iceland's transmission system and how Iceland reduced the cost of electrons.

MS. HOLDMAN explained that Iceland is similar to Alaska in that it is not part of an interconnected grid system. She briefly discussed the history of Iceland's transmission system and transmission organization. She pointed out that Iceland has built out large economies of scale and thus has large-scale industrial loads and a dynamic market. She explained how this allows Iceland to reduce the costs for all users by spreading fixed costs, despite having a small residential population relative to the size of the railbelt.

[4:27:26 PM](#)

CHAIR GIESSEL commented that the goal is to have this level of system integration in Alaska.

[4:27:44 PM](#)

MS. HOLDMAN advanced to slide 15:

[Original punctuation provided.]

Healthy Grid Ecosystem

Goal: affordable and reliable energy

These functions work together to enable:

- Efficient, cost-effective investments

- Maximum participation from independent generators and third parties
- System-wide coordination that supports reliability and ratepayer value

System-wide Planning

Identifies long-term needs for generation and transmission; process should be transparent, inclusive, and data-driven. (RRC)

Reliability Standards

Maintains grid stability through technical rules, contingency planning, and enforcement mechanisms. (RRC)

Independent Regulator

Ensures fair rates, enforces non-discriminatory access, and protects public interest (RCA)

Real-time Balancing

Maintains second-by-second balance between supply and demand. Supports frequency stability, coordinates reserves, and prevents blackouts across defined areas. (RTO, CEA/MEA Tight Pool) [Grey]

Economic Dispatch Structure

Optimizes which generators run and when, minimizing total system cost. (e.g., single GT, ISO, Transco, tight power pool) (RTO, CEA/MEA Tight Pool) [Grey]

System-wide Development (e.g. transmission)

Implements those long-term plans by advancing shared infrastructure projects. (?) [Grey]

Grey areas: progress has been made, but there exist opportunities for additional process improvement/legislative action

MS. HOLDMAN highlighted system-wide development, which is not assigned to any organization. She pointed out that planning is assigned to RRC; however, no organization is responsible for ensuring the enactment of those plans. She surmised that this gap may emerge in the coming years as RRC moves forward with its planning function.

[4:29:48 PM](#)

MS. HOLDMAN advanced to slide 16:

[Original punctuation provided.]

RTO - Current Status and Future

- RTO has been formally certificated by RCA
- Governance Committee meeting on Friday 5/16 to consider Draft Backbone Transmission System Policy proposed by the Working Group; list of qualifying assets and considerations for revenue mechanism (Open Access Transmission Tariff (OATT)).
- The RTO is expected to assume operational control by July 1, 2026, with ongoing meetings and stakeholder engagements to refine its structure and policies.

RTO also lays the institutional groundwork for greater future coordination.

[4:31:28 PM](#)

CHAIR GIESSEL noted the potential for future legislation to create a more sophisticated system. She invited Ms. Holdman and Mr. Colt to discuss "net metering" and "net billing."

[4:32:20 PM](#)

MR. COLT explained that "net metering" refers to the backward and forward movement of the meter as power is either taken from the grid or injected onto the grid. During this process, kWh produced by a rooftop solar panel are traded with kWh produced at a generation plant. He explained that "net billing" refers to anytime kWh are converted into dollars to complete a transaction to settle the account. Net billing requires a price for kWh, which may be different for buying versus selling kWh.

[4:35:26 PM](#)

MR. COLT advanced to slide 17:

[Original punctuation provided.]

Additional Topics: Net metering versus net billing

Example 1:

During sunny weeks 1-2, you produce 80 more kWh than you draw from the grid. You are 80 kWh ahead. Your

meter has run backwards by 80 kWh, shows -80. You have 80 kWh "in the bank."

During cloudy weeks 3-4, you draw 100 kWh more than you produce. The meter runs forward 100 kWh. End of month, it sits at 20.

Billing time! The meter shows $-80 + 100 = 20$ for the month. The excess production during sunny weeks has been netted against the "excess" consumption during cloudy weeks. You owe the utility $20 \text{ kWh} \times 30 \text{ cents per kWh retail rate} = \6.00

This is monthly "net metering." Within the month, one kWh injected into the grid trades for one kWh drawn from the grid. kWh for kWh. At the end of the month, the net consumption of 20 kWh turns into a net bill. One kWh trades for 30 cents. kWh for \$\$\$. Some people might call this monthly net billing (!)

MR. COLT explained that in example 1, the client consumes more kWh than the amount of kWh produced. He shared a hypothetical scenario to illustrate this. He noted that, in the past, the meter could potentially run backwards on sunny days.

[4:37:12 PM](#)

MR. COLT continued to discuss the hypothetical example shown on slide 17. He explained the process of monthly net metering, which trades kWh produced for kWh consumed. He noted that the utility is not concerned with the specific details of the meter changes over time. Instead, the utility focuses on the net consumption, which is then converted into a net bill. He said the terms "monthly net metering" and "monthly net billing" can become obscured in this case. He opined that this example can be labeled as either and briefly explained his reasoning.

[4:39:29 PM](#)

CHAIR GIESSEL noted that utilities have operational costs (e.g. utility line investment costs and personnel costs) in addition to the cost of generation and electrons. She pointed out that the utility user in example 1 is not billed for the 80-kWh generated during the month - and therefore is not paying any of the associated operational costs. She asked who pays those costs.

[4:40:23 PM](#)

MR. COLT replied that this is an important question in the debate related to establishing net metering and pricing the output of a solar panel. He offered a hypothetical example to illustrate how primary reliance on solar panels may result in an unfair advantage for those individuals, as they are hooked up to the grid but do not pay "fixed cost" grid fees. He added that this problem is not limited to solar panels and explained how this issue extends to energy efficient appliances.

[4:43:13 PM](#)

CHAIR GIESSEL observed that one concern is related to the cost of installing solar panels, which not all users can afford. In this case, the fixed cost grid fees are shifted to those users who cannot afford solar panels. She shared her understanding that net billing allows the fixed cost grid fees to be distributed equally amongst all users.

[4:44:06 PM](#)

MR. COLT confirmed this understanding about the potential for allocating and distributing the fixed costs of the network so that those who utilize solar panels also pay those costs. He pointed out that Senate Bill 123 includes a customer charge. He explained that one way to address the distribution of fees is to increase the customer charge and relabel it to the "network charge" - which is the label used in other jurisdictions and countries. He briefly explained that this would ensure that all users connected to the network pay the associated fixed cost grid fees - regardless of whether they use the network. He commented that this is a very simple solution but opined that it is politically nearly impossible to implement.

MR. COLT noted that slide 18 contains an infographic to illustrate net metering versus net billing (example 1). He stated that this was discussed previously (slide 17), and he would continue to slide 19.

[4:45:59 PM](#)

MR. COLT advanced to slide 19:

[Original punctuation provided.]

Net Metering versus net billing:

Example 2

During sunny weeks 1-2, you produce 1,000 more kWh than you draw from the grid; meter runs backward to reach -1000.

During cloudy weeks 3-4, you draw 100 kWh more than you produce; meter runs forward by 100 kWh to reach -900.

Billing time! The meter shows minus 900 for the month. The sunny injection of 1,000 has been netted against the cloudy draw of 100. The utility pays you for 900 kWh, but at the avoided cost rate of 6 cents per kWh. $900 \times 6 \text{ cents} = \54.00 .

Again, the monthly net kWh turns into a monthly net bill.

[4:48:06 PM](#)

MR. COLT noted that utilities compensate users who produce kWh for the grid at a rate much lower than retail. He opined that this is one solution to the problem of solar panel users not paying fixed cost grid fees and briefly explained his reasoning. He emphasized the difference in the price received by those who sell kWh to the utility versus those who buy kWh from the utility. He acknowledged that this is only a partial solution, as those who buy less power continue to contribute less to the fixed costs. He emphasized that, for net metering, the meter may run backwards; however, this can have a very different value when it comes to net billing.

[4:50:27 PM](#)

MR. COLT advanced to slide 21:

[Original punctuation provided.]

Net Metering versus net billing:

Example 3

What about Annual "Net Metering"

During June sunny weeks 1-2, you produce 1,000 more kWh than you draw from the grid. You are 1,000 kWh ahead. Your meter has run backwards by 1,000 kWh. You have 1,000 kWh "in the bank."

During June cloudy weeks 3-4, you draw 100 kWh more than you produce. Your meter runs forward 100 kWh. It sits at minus 900.

Under Annual "net metering", you Roll Forward the credit into July. If you pile up more excess production, you roll the cumulative credit into August...and...

Repeat, while the sun shines...

[4:52:32 PM](#)

MR. COLT advanced to slide 22:

[Original punctuation provided.]

Net Metering versus net billing:

Act 3: Annual "Net Metering"

During winter, the meter runs forward and the credit drops, but it continues to roll forward from month to month. Just like eating a stored harvest of sunshine.

Settlement time occurs in March (say). Read the meter:

- If it has run forward over the entire previous year, you pay for the net consumption, at the retail rate.
- If it has run backward, the utility likely pays you for your net production, at the avoided cost rate.
- But the settlement could also occur in other ways. For example, any accrued credit could simply expire.
- Some people would call this annual net billing(!)

Hybrid arrangements are possible...e.g. bank the July kWh injections as dollars using the summer retail rate; withdraw banked dollars as kWh using the winter retail rate.

[4:55:55 PM](#)

SENATOR MYERS surmised that annual billing could result in an unexpected, expensive bill for users if the weather is cloudy for prolonged periods. He asked for confirmation of his understanding.

[4:56:31 PM](#)

MR. COLT agreed. He clarified that users would continue to receive monthly bills for the customer charge. He surmised that users would also receive a monthly bill for any kWh usage. The surplus from excess kWh produced during sunny periods would be converted into dollars at the retail rate. He explained that this would result in a stock of kWh (converted to dollars) that could then be applied to future billing. He clarified his earlier answer and reiterated that, under annual billing, users would continue to pay monthly for any energy usage and would therefore not be subject to large, unexpected bills.

CHAIR GIESSEL thanked the presenters.

[4:59:16 PM](#)

There being no further business to come before the committee, Chair Giessel adjourned the Senate Resources Standing Committee meeting at 4:59 p.m.