SB 217: Integrated Transmission Systems

Presentation to: Senate Resources Committee
March 25th, 2024

Gwen Holdmann
Alaska Center for Energy and Power
University of Alaska Fairbanks

Image: Anchorage Daily News

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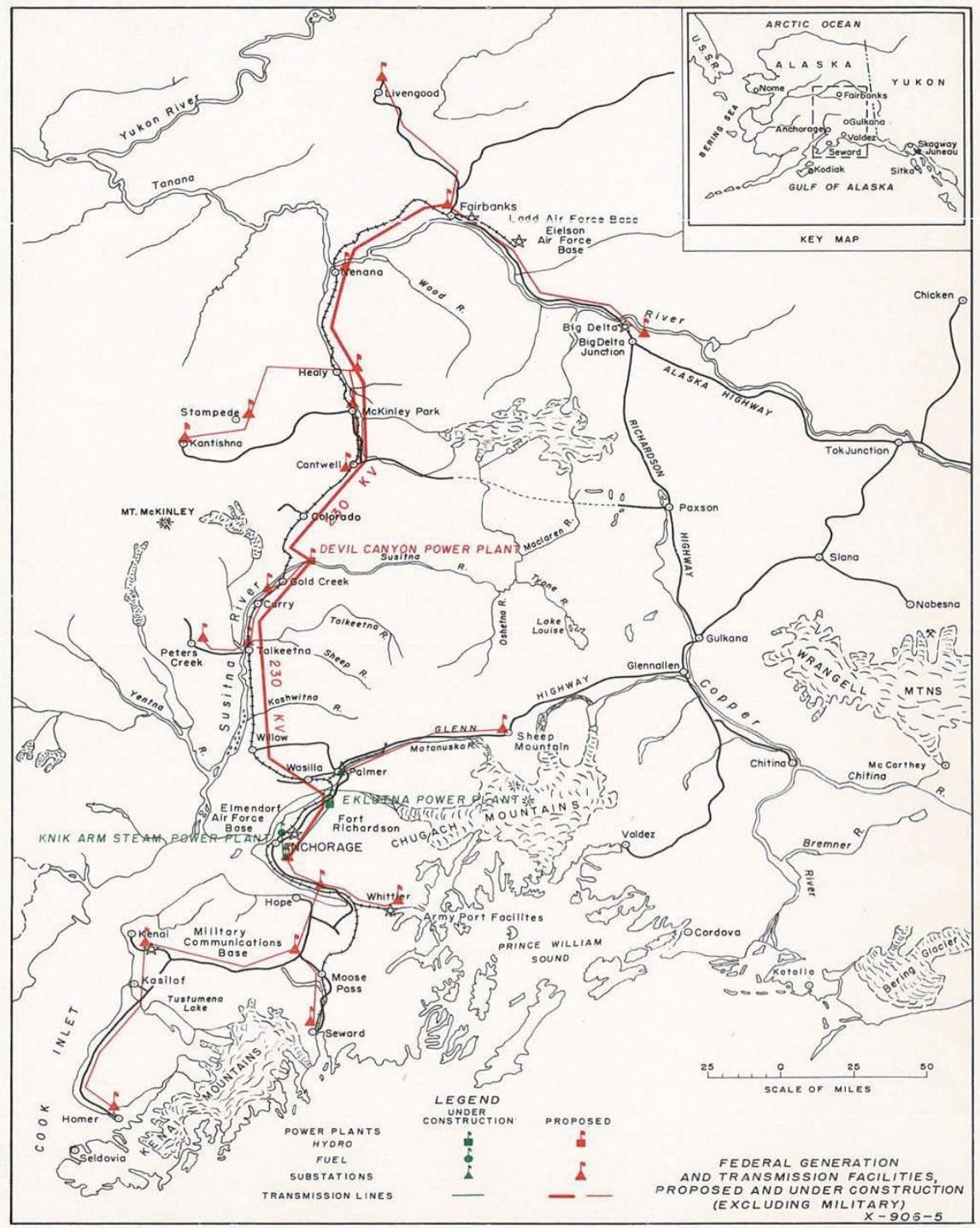
Presentation Outline

- Current systemic challenges of the Railbelt Grid
- How SB 217 addresses issues
- What is not included in SB 217
- How SB 217 might be improved

These are not new issues or ideas



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New company created to unify Alaska Railbelt power transmission faces resistance

By Alex DeMarban
Updated: March 25, 2019
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Four Alaska electric utilities have joined a Wisconsin firm in a move to coordinate power transmission from Fairbanks to the Kenai Peninsula, potentially lowering costs and rates.

But two other utilities, Chugach Electric and Matanuska Electric associations, aren't signing on to the idea in its current form.

They've raised concerns in comments to the Regulatory Commission of Alaska, suggesting the new for-profit company, Alaska Railbelt Transmission, may not be the right entity to manage transmissions for the region's six not-for-profit utilities.

1952 – First map of a proposed integrated Railbelt Grid. Joseph M. Morgan of the Alaska Office of the Bureau of Reclamation/

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Historically, transmission has not been prioritized

Railbelt utilities solved reliability issues with local and regional generation rather than investing in interregional high-voltage transmission due to long distances with few members to pay the cost.

The history of the Railbelt has been compared to an Alaskan “Prisoner’s Dilemma” - prioritizing individual utilities’ needs has resulted in a suboptimal system for everyone.

There has never been single unified operator who was concerned about the grid as a whole.

Prisoners Dilemma:

A paradox in decision analysis in which two individuals acting in their own self interests do not produce the optimal outcome.

Shared opportunities create incentives for cooperation

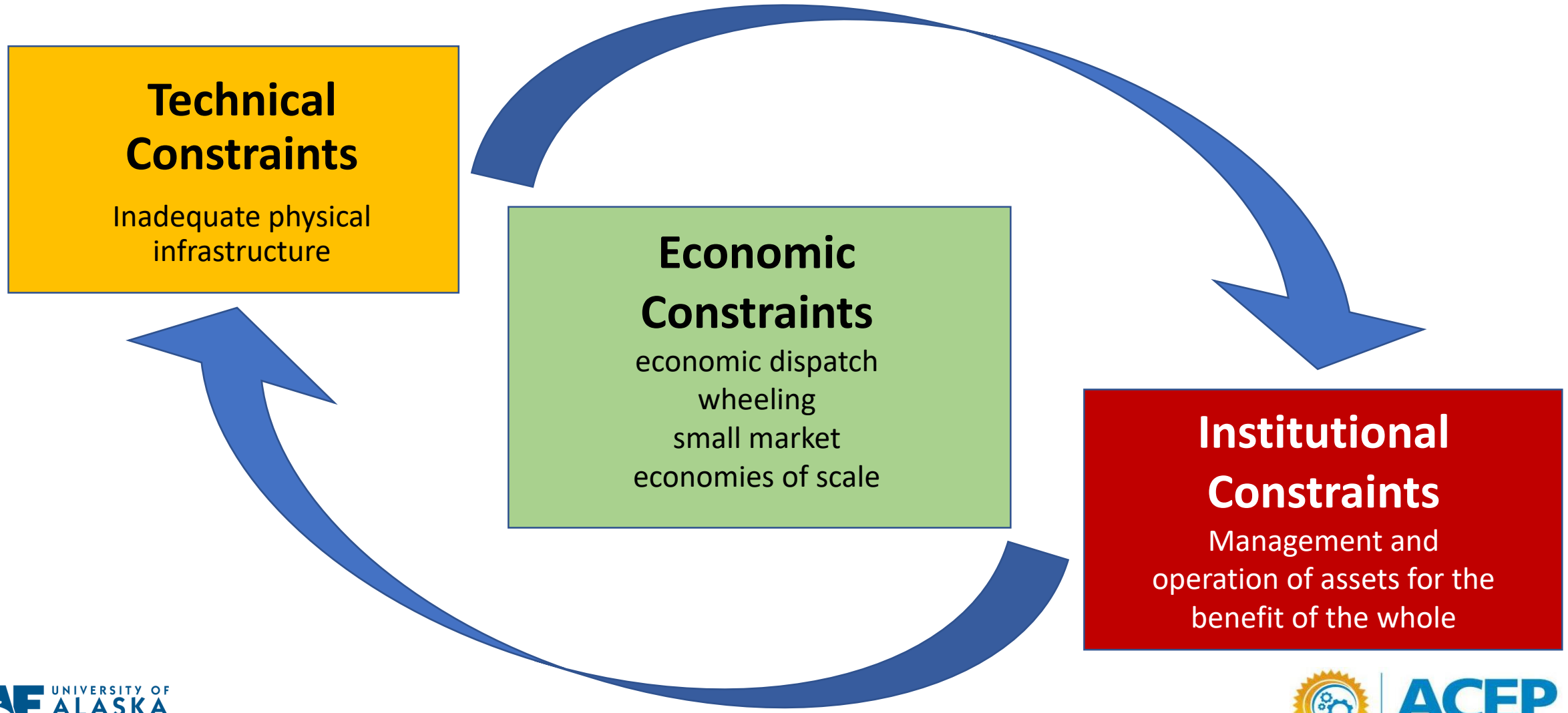
Effective Railbelt cooperation most often occurred when state entities (legislature or AEA) provided capital for generation and transmission (Bradley Lake and Alaska Intertie).

To operate these joint assets, Railbelt utilities had to find a way to work together.

Federal Funding (GRIP) create that incentive today.

Bradley Lake Hydroelectric Project

Constraints on the Railbelt Grid



SB217 – How It Will Help

Objective #1: Tax exemptions for IPP's

- puts IPP's on a level playing field with cooperative utilities.
- Encourages competition and unleashes free market principles.
- Supports development of a power market to increase diversification and reduce costs to consumers.
- Not limited to renewable IPP's, can also be coal, nuclear or other technology.

Objective #2: Improves Transmission Cost Recovery Mechanism

- Eliminates economic constraints of buying and selling power between utilities, and between utilities and IPP's.
- Develops an association similar to low-cost, low-overhead structure that managers existing telecom universal service charge in Alaska.
- Allows free market to act to drive down costs.
- Enables local control of power decisions.

Objective # 2: Improve Cost Recovery Mechanism

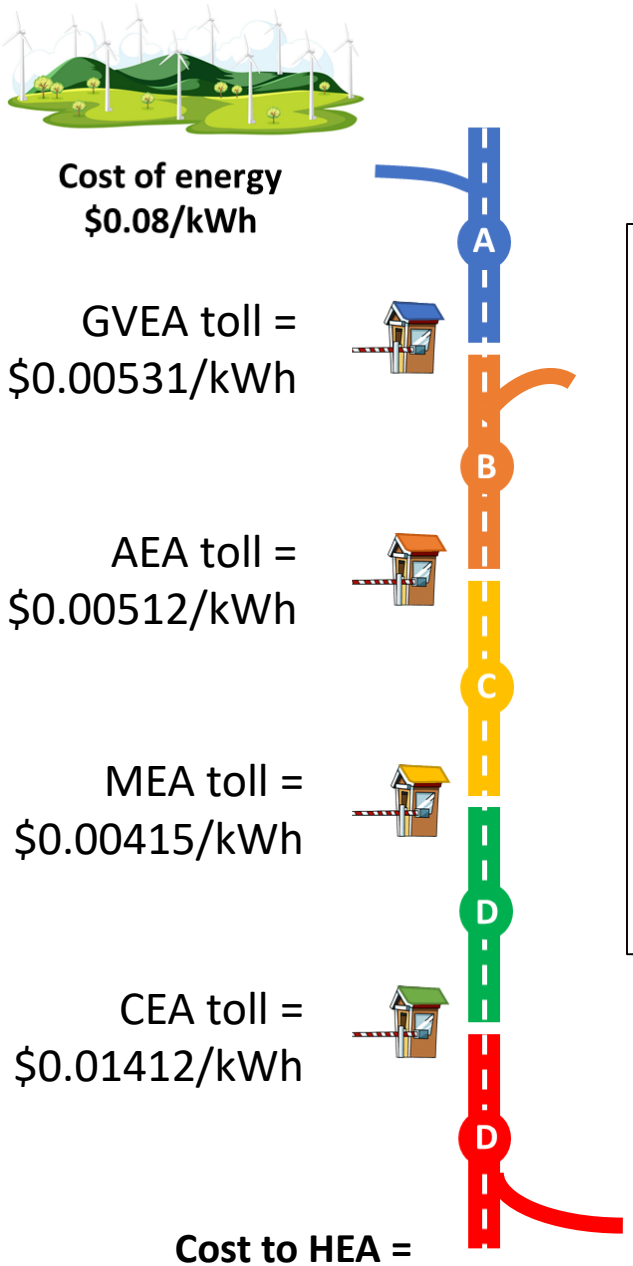
SB 217 intends to accomplish this by:

- Adding up all the transmission system costs.
- Allocating costs annually based on each utilities' proportional load through an "association".
- Uplifting costs *directly* to end-users (note end user pays all costs regardless).

Why does eliminating wheeling matter?

Decisions about investment in projects or economic dispatch should not be inhibited by the cost of transmission, or the need to move power across transmission lines with different ownership

Get rid of the toll road, create an open access highway that does not discriminate in terms of who generates the power, or what form of generation is used



There are discrepancies to the utilities' current system of accounting, and how costs are allocated and recovered.

Bottom line … its complicated!

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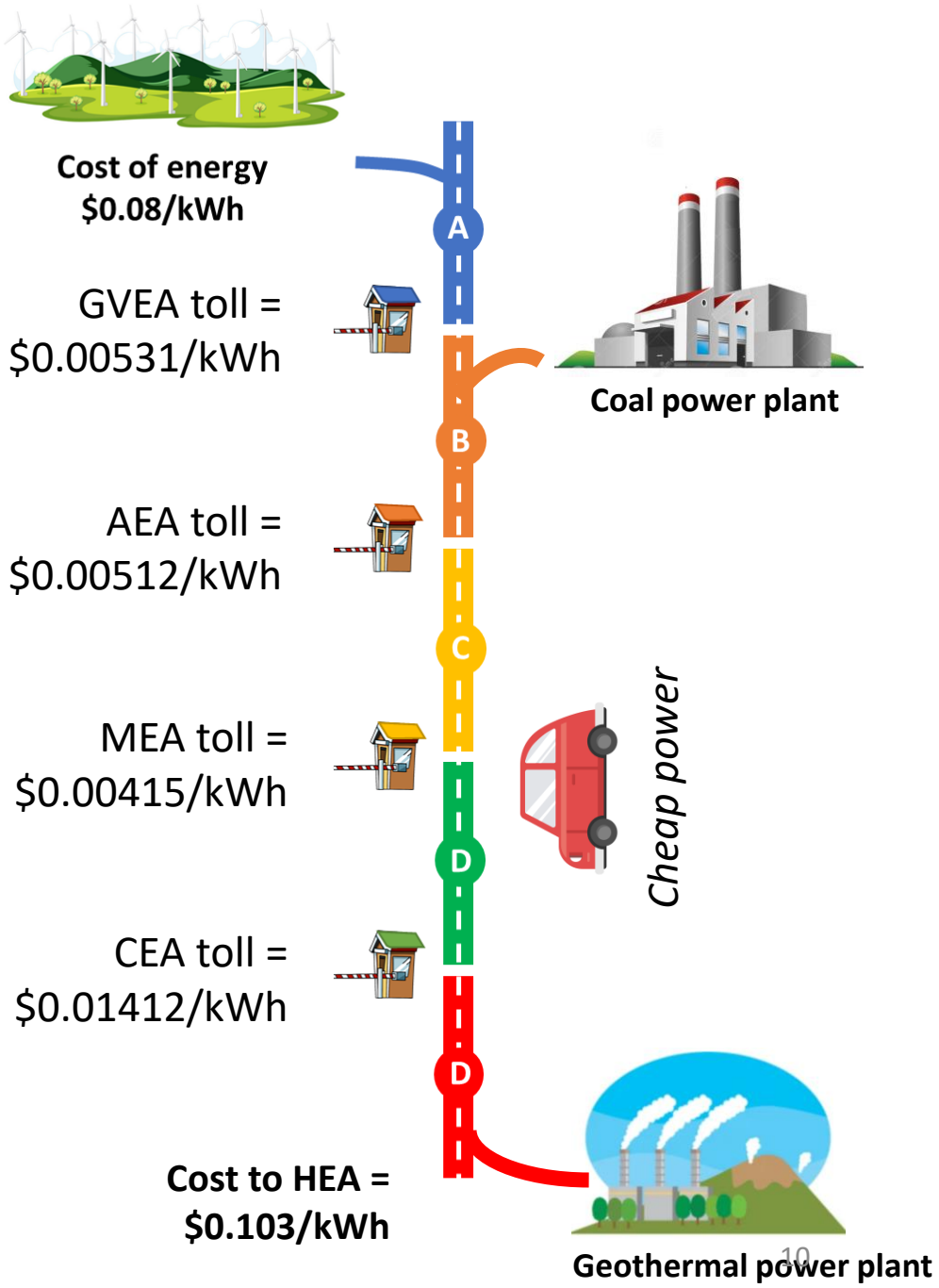
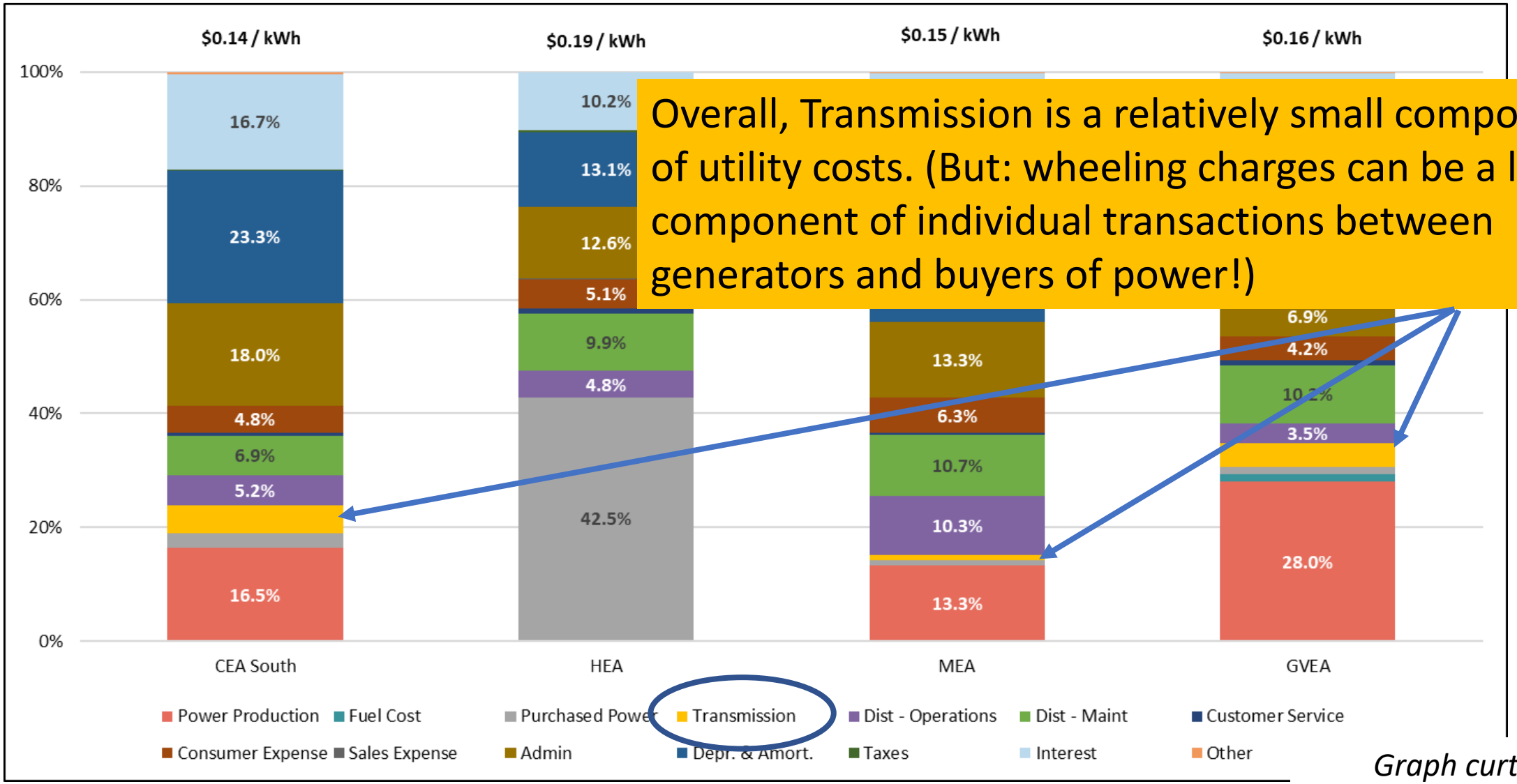


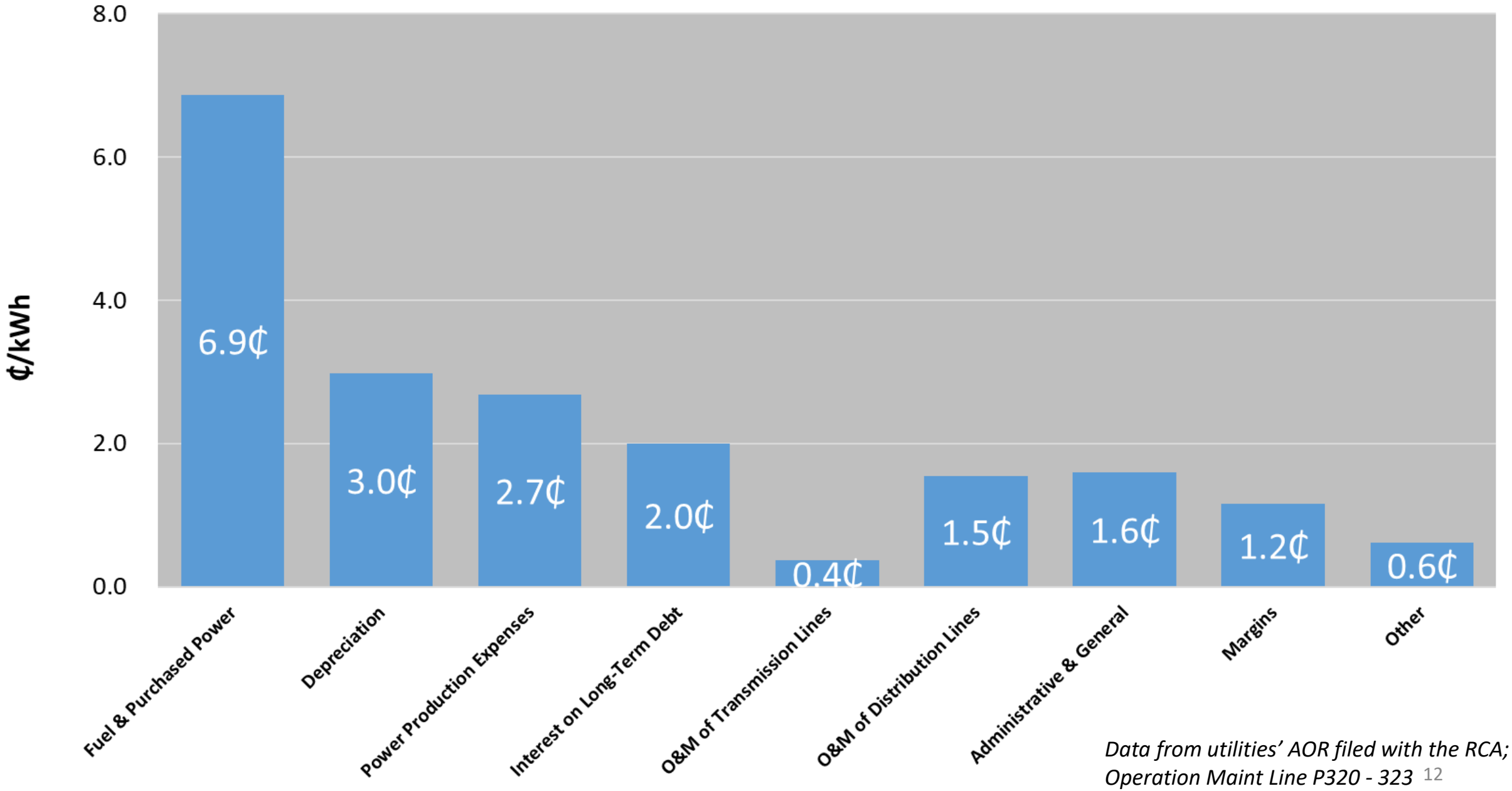
2021 Non-COPA Utility Cost Breakdown



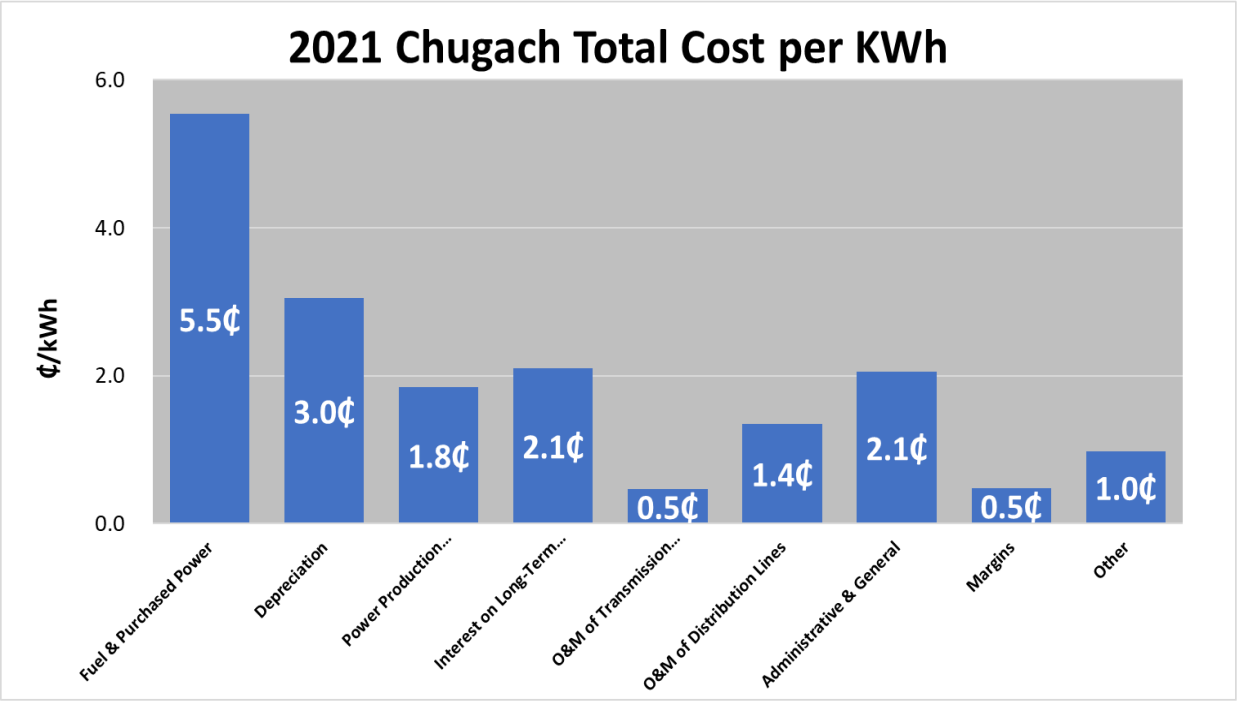
Overall, Transmission is a relatively small component of utility costs. (But: wheeling charges can be a large component of individual transactions between generators and buyers of power!)

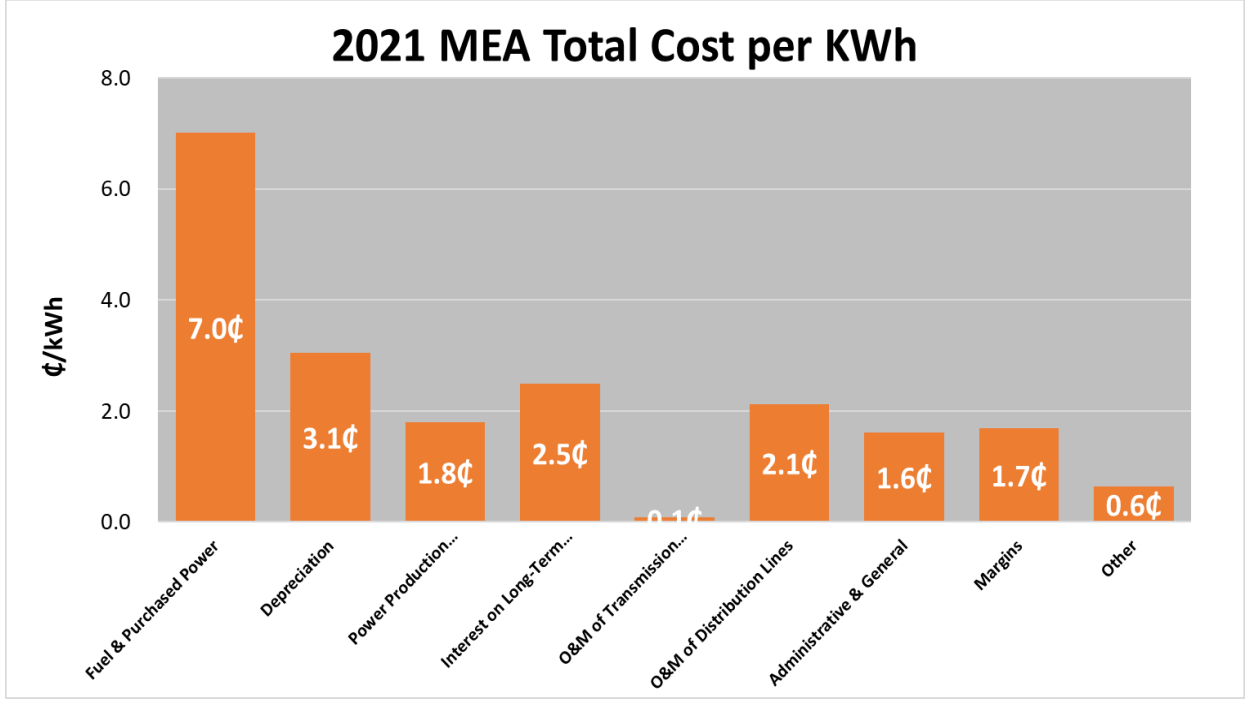
Graph curtesy of EnStar

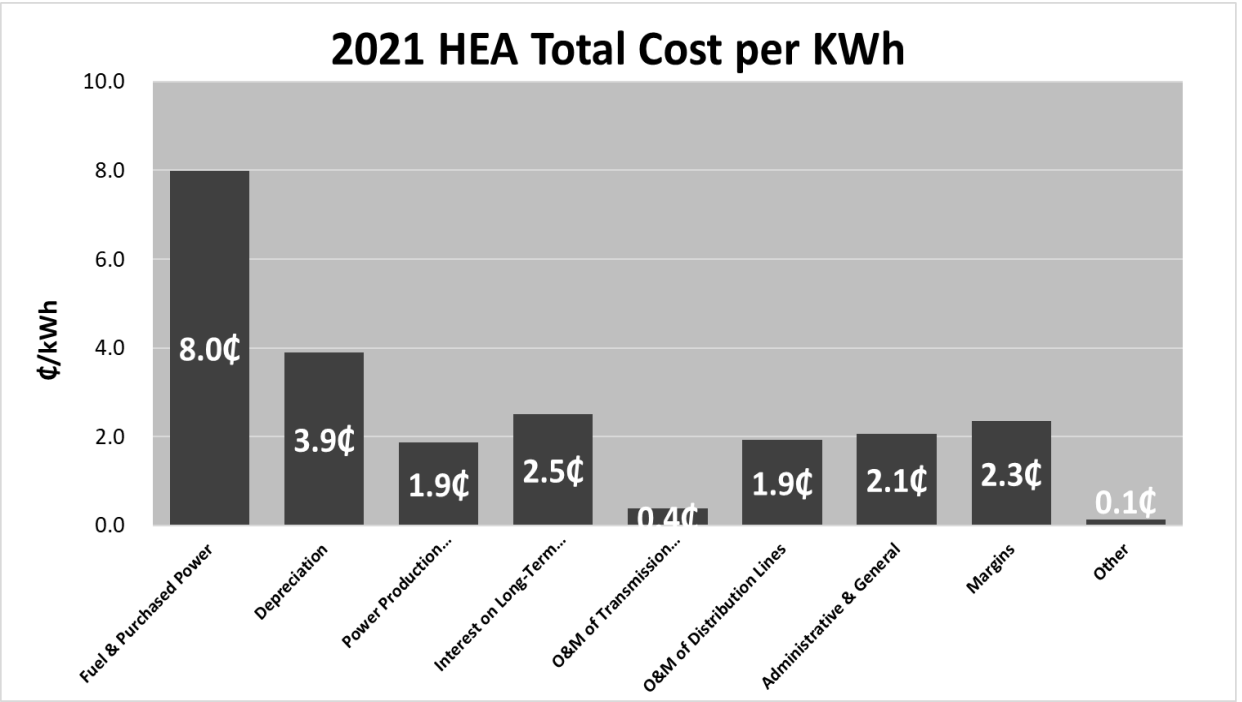
2021 Railbelt Electric Utilities Total Cost per KWh*

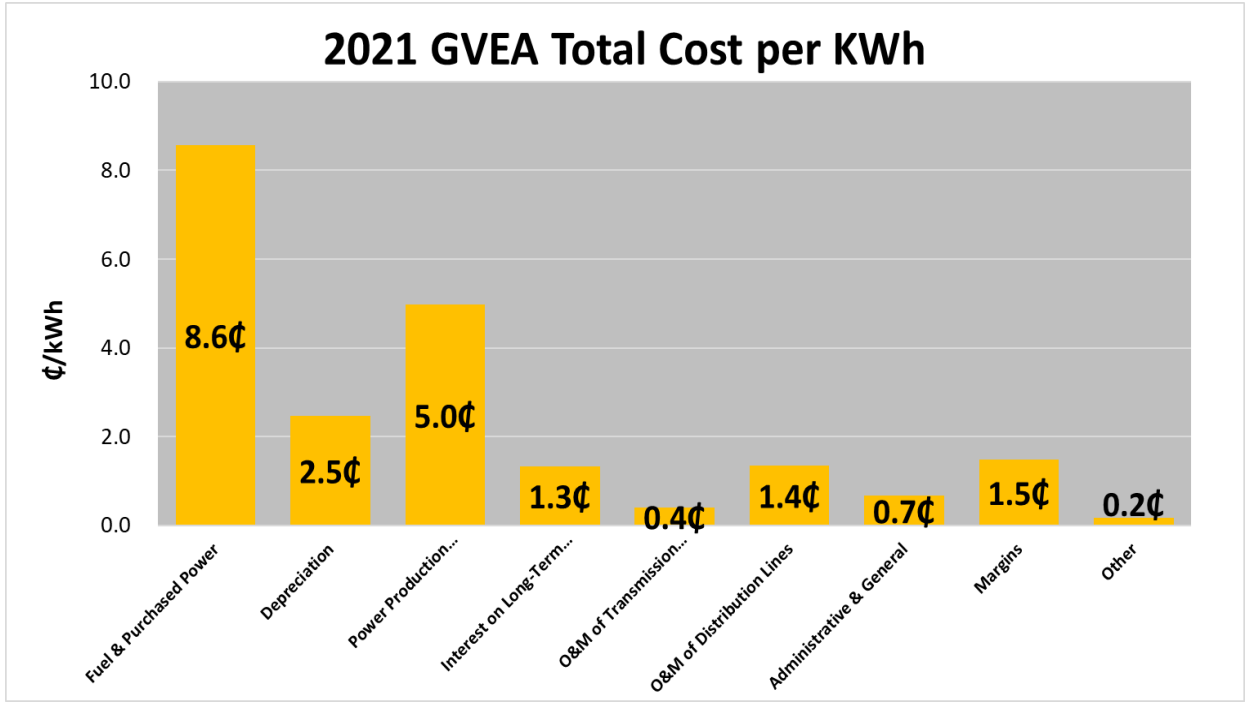


Data from utilities' AOR filed with the RCA; Operation Maint Line P320 - 323

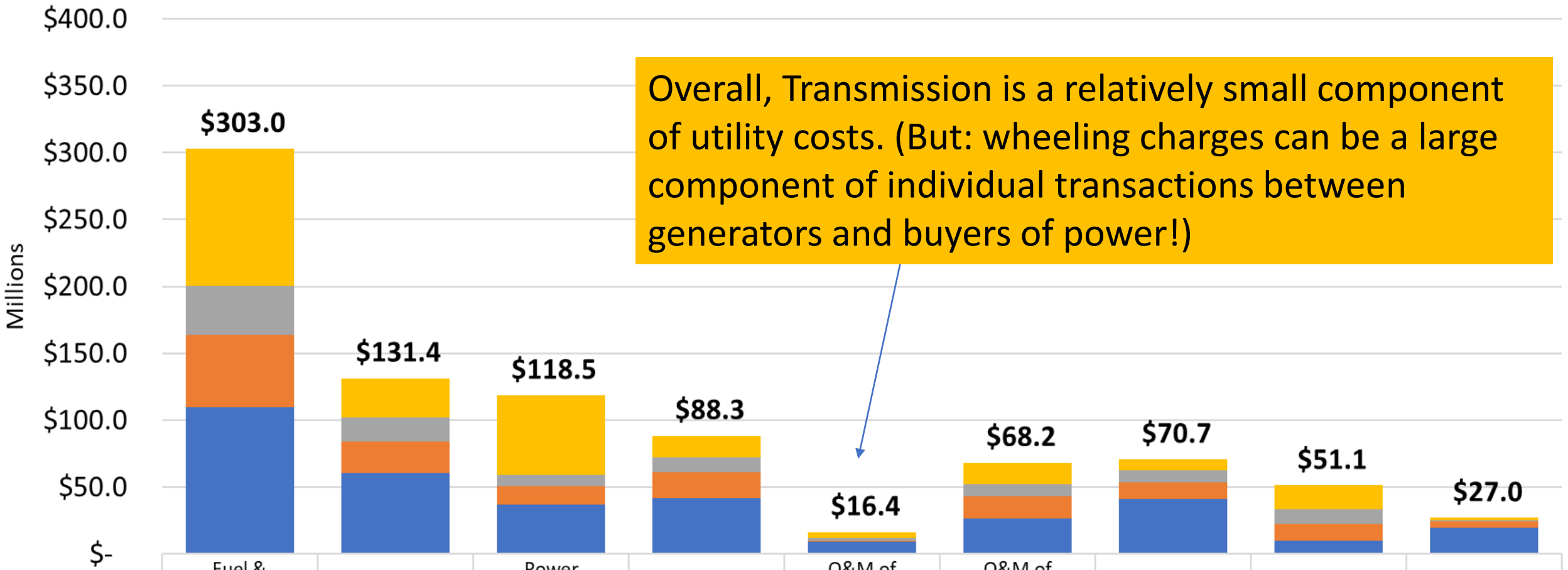

2021 Chugach Total Cost per KWh
¢/kWh
6.0
4.0
2.0
0.0
5.5¢
3.0¢
1.8¢
2.1¢
0.5¢
1.4¢
2.1¢
0.5¢
1.0¢
Fuel & Purchased Power
Depreciation
Power Production...
Interest on Long-Term...
O&M of Transmission...
O&M of Distribution Lines
Administrative & General
Margins
Other


2021 MEA Total Cost per KWh
¢/kWh
8.0
6.0
4.0
2.0
0.0
7.0¢
3.1¢
1.8¢
2.5¢
2.1¢
1.6¢
1.7¢
0.6¢
Fuel & Purchased Power
Depreciation
Power Production...
Interest on Long-Term...
O&M of Transmission...
O&M of Distribution Lines
Administrative & General
Margins
Other


2021 HEA Total Cost per KWh
¢/kWh
10.0
8.0
6.0
4.0
2.0
0.0
8.0¢
3.9¢
1.9¢
2.5¢
0.4¢
1.9¢
2.1¢
2.3¢
0.1¢
Fuel & Purchased Power
Depreciation
Power Production...
Interest on Long-Term...
O&M of Transmission...
O&M of Distribution Lines
Administrative & General
Margins
Other


2021 GVEA Total Cost per KWh
¢/kWh
10.0
8.0
6.0
4.0
2.0
0.0
8.6¢
2.5¢
5.0¢
1.3¢
0.4¢
1.4¢
0.7¢
1.5¢
0.2¢
Fuel & Purchased Power
Depreciation
Power Production...
Interest on Long-Term...
O&M of Transmission...
O&M of Distribution Lines
Administrative & General
Margins
Other

2021 Railbelt Electric Utilities Total Cost *



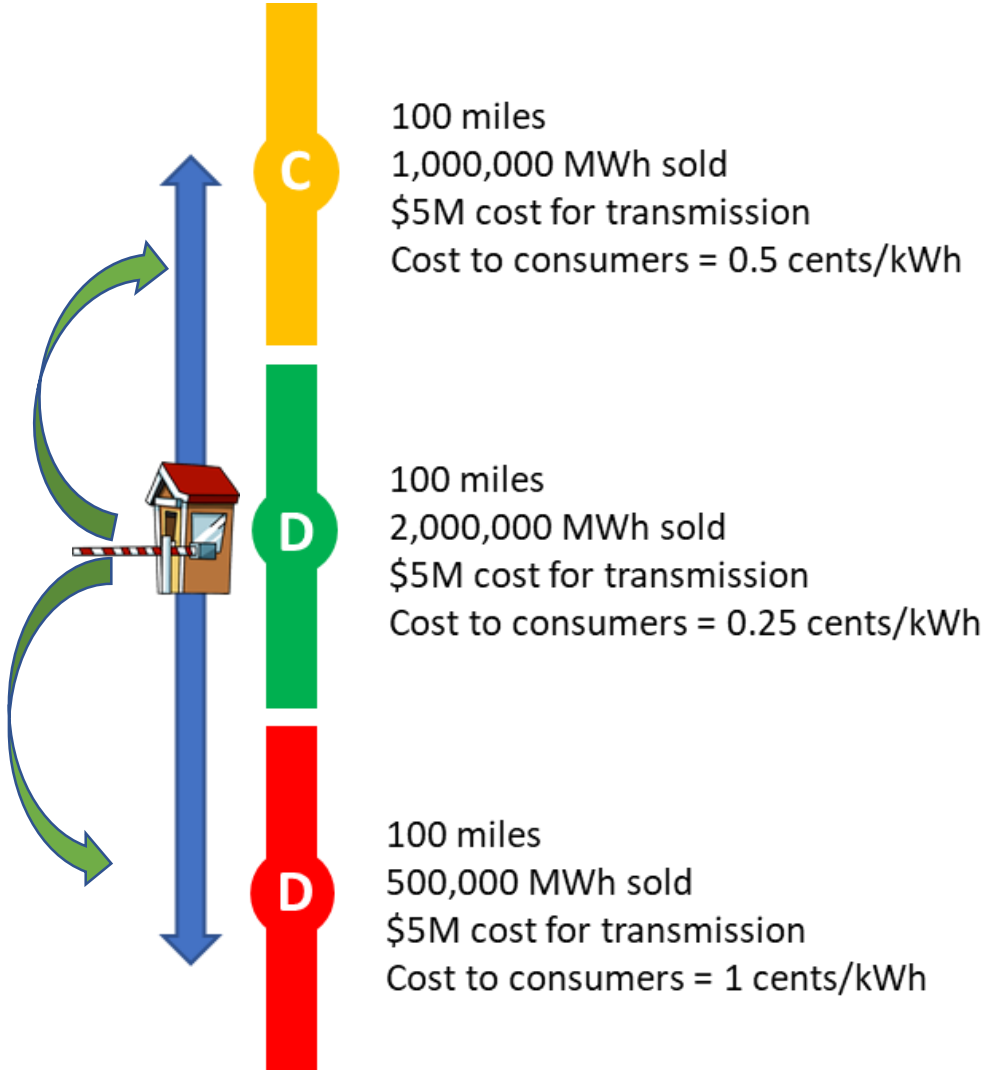
	Fuel & Purchased Power	Depreciation	Power Production Expenses	Interest on Long-Term Debt	O&M of Transmission Lines	O&M of Distribution Lines	Administrative & General	Margins	Other
Utilities Total	$303.0	$131.4	$118.5	$88.3	$16.4	$68.2	$70.7	$51.1	$27.0
GVEA	$102.4	$29.5	$59.4	$16.0	$4.8	$16.2	$8.0	$17.7	$2.0
HEA	$36.9	$17.9	$8.6	$11.5	$1.7	$8.9	$9.6	$10.8	$0.6
MEA	$53.9	$23.5	$13.8	$19.1	$0.7	$16.3	$12.4	$13.0	$4.9
Chugach	$109.8	$60.5	$36.7	$41.7	$9.2	$26.8	$40.8	$9.6	$19.5

How SB 217 Handles Cost Recovery

SB 217 makes 2 big changes from how this occurs today:

1. Pool transmission costs across all utilities.
2. Decouple those costs from bulk movement of electricity around the system by charging ratepayers directly for the pooled costs.

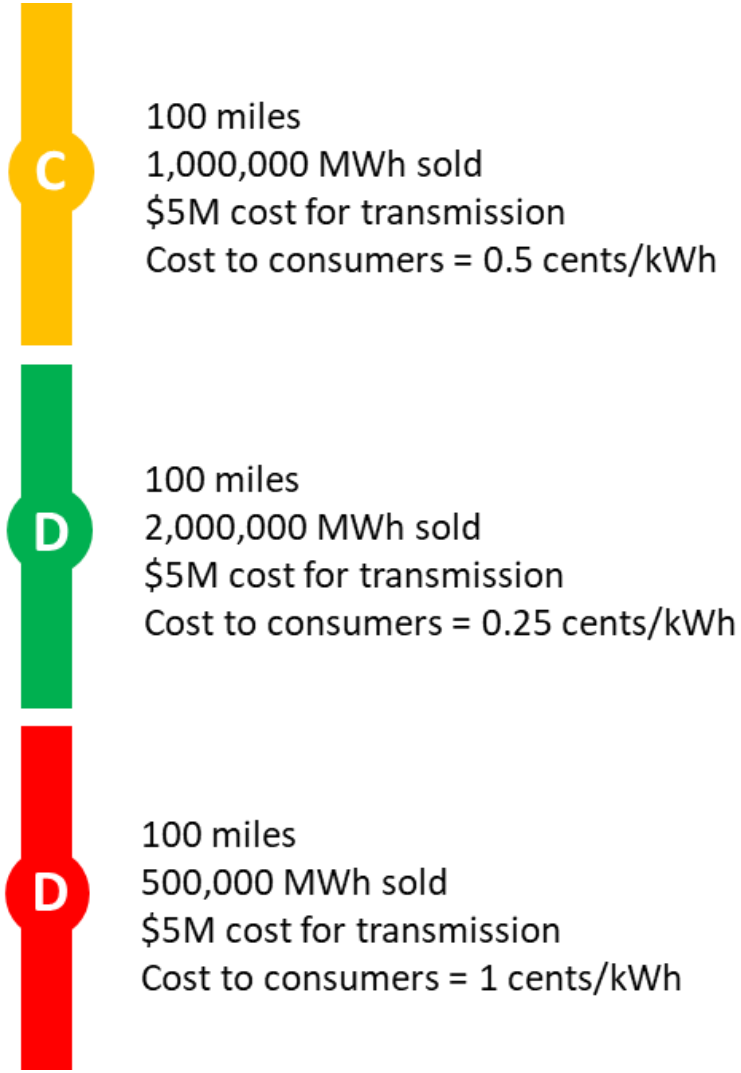
Cost recovery under current model



Currently, each utility is responsible for the capital and O&M costs of its transmission assets, but some of the cost burden can be shifted to the members of other utilities when power is transferred (wheeled) across their system.

Note: this is illustrative only and is not based on actually metrics from any of the Railbelt utilities

Cost Recovery under SB 217



Under SB217
3,500,000 MWh sold
$15M cost for transmission

The $15M is then allocated to each utility according to “each load-serving entity's load in comparison to the total load on the integrated transmission system.” (RCA determines exact mechanism).

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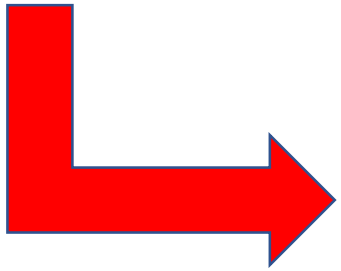
How SB 217 Handles Elimination of Wheeling

Directs utilities to create an “association” for the purpose of calculating total transmission system costs.

Directs the RCA to establish a transmission cost recovery mechanism taking into account each utility’s proportion of the “total load on the integrated transmission system.”



How is this fair? Members pay for all transmission costs now just in a different way.

Assuming that “total load” is interpreted as coincident peak demand on the system, it best aligns with the cost causer = cost payer principle.

How SB 217 Handles Elimination of Wheeling

The “Association” calculates the total annual cost of an “integrated transmission system” and allocates a share of this lump-sum cost to each utility (LSE).

- Does not distinguish ‘backbone’ transmission for power N-S, or radial lines to connect loads specific to an LSE (means all consumers need to pay for transmission that only benefits one LSE)
- Calculation is open to RCA’s interpretation as to what “total load on the integrated transmission system” means. (by contrast, a utility’s contribution to coincident peak demand is a less ambiguous metric.)

Implications & Benefits of Eliminating Wheeling

- Members still pay costs, but economic transactions are not distorted. Free market operates unencumbered.
- More local choice over resource mix/diversity.
- Allows the cheapest existing power to reach consumers.
- Encourages the cheapest power to be built regardless of location
- Incentivizes economies of scale in project development.
- Increased transparency to the consumer.

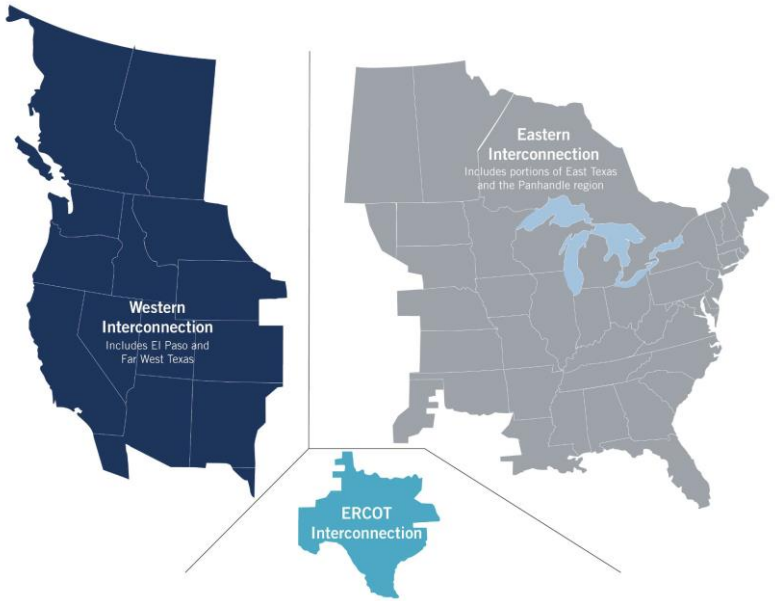
Best practice framework for elimination of wheeling

Transmission lines (like highways) are typically built for peak demand, not how much energy (traffic) flows through the system.

"…pool backbone transmission system costs and allocate those costs based on a coincident peak or load share ratio basis"

- Adapted from Texas Substantive Rule 25.192

Coincident peak demand - period when electricity usage (demand) is at its highest across the entire system
Load share ratio - considers users' overall energy consumption over a specific period



Texas operates as an electrical "island" and because power generated in Texas is not sent outside of the state, Texas is exempt from federal FERC regulation (like Alaska and Hawaii)

SB 217 Does Not Address Bigger Questions

SB 217 does not address AEA (state) – owned assets. These currently include about 30% of all Railbelt "backbone" transmission assets, and this will increase with GRIP-funded projects.

Questions:

- *How will new AEA-owned assets be managed?*
- *Will the Bradley Lake regulatory exemption extend to these new assets? (presumably, yes)*
- *What is the long-term strategy for asset management and ownership?*

Future of the Railbelt Transmission Grid

STEP 0: Establish reliability standards ✓SB 123 (2020), now RRC

STEP 1: Eliminate wheeling ✓SB 217, SB 257

STEP 2: Create a centralized transmission authority ✓SB 257

STEP 3: Seize the resulting opportunities to develop, transmit, and use low-cost power

Upgrade transmission assets - GRIP

Upgrading transmission is not limited to upgrading physical infrastructure.

"Transmission systems operators serve an important role in making sure electricity remains a competitive choice in the energy market, and that the market remain as transparent as possible …. TSOs (like Landsnet) are striving to remove all barriers between the consumers and producers of energy, and to construct their systems in such a way as to not limit competition."

- *Guðmundur Ingi Ásmundsson (CEO, Landsnet)*

SB 217 Press Release February 2nd, 2024

"Currently, there are electrical tariffs on the Railbelt system that stand in the way of transmitting the lowest-cost power," **said Governor Dunleavy**. "This legislation would eliminate these tariffs and transform the system into a public highway rather than a series of toll roads. This would lower costs for ratepayers and create new opportunities for independent power producers."

HB307 (SB217) improves how electricity transmission costs are managed in Alaska. These regulatory measures would eliminate the current method of charging per-unit wholesale transmission fees and instead would require the Regulatory Commission of Alaska (RCA) to create a system that will allow for the economic dispatch of the lowest-cost power at all times. It will also provide fair and reasonable cost recovery for the utility companies and clarifies which electric utility transmission assets are subject to this system.

?

This is exactly what we aspire to do …
but needs to be clarified in SB 217

SB 217 Press Release February 2nd, 2024

Stated Goals in the Governor's Press Release:

- Increases the efficiency of transmission system charges by eliminating wheeling
- Prioritizes low-cost power
- Encourages development of new power generation, regardless of type
- Develops a 'public highway rather than a series of toll roads'
- Level playing field for IPP in tax exemptions

SB217 – What it Doesn't Do

- Does enable Gov's goal of a 'public highway' for transmission, but does not indicate how it will be managed for the greater good. (SB257)
- Does not require or subsidize renewable generation (or any new generation) but enables it.
- Does not require any new transmission to be built to be effective – important regardless of GRIP funding, but does enable GRIP investments to be maximized.
- Does not limit utility/state ability to recover costs.
- Does not change who pays for transmission – rate payers now pay for transmission through wheeling and will continue to, but eliminates the cost from distorting the economic decision of assessing generation options.

SB 217 – what can be improved

- Clarify what transmission is included (radial vs. backbone).
- Create legislative clarity on the cost recovery mechanism in section 42.05.905 so benefits can be realized (are we just creating one big pancake that still distorts economics and creates uncertainty and costs for IPP's); on what basis are we allocating costs?
- Clarify or adjust the purpose of the integrated transmission system association. (Currently limited to cost recovery).
- Consider whether this would be a good time to establish a Transmission System Operator assuming this will be needed in the future (SB 217 association is only focused on *one* specific problem – elimination of wheeling).
- Address state-owned assets, which are becoming a bigger proportion of the system as a whole.
- Clarify role of the Electric Reliability Organization (ERO) who has legislative and regulatory mandate to determine the transmission recovery mechanism (along with generation/transmission planning and reliability standards).

Other (broader) considerations:

- If GRIP funds are matched, what expectations should the ratepayers have of the state to ensure the transmission investments are properly managed for the greater good?
- How can the state reinforce the individual local cooperatives efforts to work for the benefit of the entire state vs individual service territories?
- How can Alaska demonstrate to energy developers that we are open for business and have a consistent, reliable economic platform to operate within.
- With energy as a priority, what commonalities can we find among current legislative vehicles to streamline action at this point in the legislative session?

A Vision for our Railbelt

We want a system that:

- Allows cheapest cost power to get to end-users wherever it is produced, whatever the source is, and wherever that generation is located.
- Facilitates innovative energy projects at scale for energy security and diversification.