

Alaska runs an island grid on gas that's running out. Your capital plan is the bridge.

The Railbelt has no wire to the Lower 48, most of its power comes from a Cook Inlet gas basin now in decline, and rural Alaska still runs on 50¢-a-kilowatt-hour diesel. Every fuel deal, hydro expansion, and transmission grant reshuffles the projects on your list. Invizion helps electric utilities re-sequence a capital portfolio in a click — and defend every decision.

22.17¢¹ Alaska's average retail electricity price per kWh (2024) — among the highest in the nation.	~50¢² Average cost per kWh of diesel-generated power in AVEC's rural village microgrids.	\$206.5M³ DOE GRIP award to the Alaska Energy Authority for the Railbelt Innovation Resiliency Project.	~75%⁴ Share of Alaskans served by the islanded Railbelt grid — with no connection to the Lower 48.
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THE ALASKA LANDSCAPE

Four forces are moving your project list at once

None of these is theoretical, and none of them waits for your next budget cycle. On an island grid with a shrinking fuel supply, the capital plan you approved last year may already be the wrong plan.

DEMAND — FUEL & LOAD

The load is served on gas that's running out

Natural gas is Alaska's primary source of electricity, and on the Railbelt that gas comes almost entirely from Cook Inlet — a basin now in decline.¹ Recent state and federal lease sales drew almost no bidder interest, and the “energy cliff” has already reached some Railbelt communities.⁵

Chugach has signed a letter of intent to buy gas delivered via the Alaska LNG pipeline — one of several import options utilities are racing to line up.⁶ Even flat demand is now hard to serve, and any new electrification or industrial load only tightens the squeeze.

RELIABILITY — AN ISLAND GRID

No wire to the Lower 48

Alaska is not connected to the North American grid. The Railbelt runs as an island serving about 75% of Alaskans from Homer to Fairbanks,⁴ while hundreds of remote villages run entirely on isolated diesel-and-wind microgrids²

To coordinate an aging, gas-heavy fleet, the new Railbelt Reliability Council now serves as Alaska's electric reliability organization and is leading the region's first coordinated resource plan.⁷

GENERATION — THE SCRAMBLE

Gas out, renewables and hydro in — fast

With gas tightening, utilities are pushing wind, solar, and batteries and leaning harder on hydro. Bradley Lake already supplies about 10% of Railbelt power at roughly 4¢/kWh,⁴ and AEA's proposed Bradley Lake (Dixon Diversion) expansion would add more low-cost hydro at an estimated \$400 million.⁸

The 459 MW Susitna-Watana project could cover more than half the Railbelt's demand but has sat in abeyance since 2017.⁹ Imported LNG is the bridge while those assets are built.⁶

CAPITAL — GRID & TRANSMISSION

One island grid, a generation of upgrades

The Railbelt's transmission is old and lightly meshed. DOE's \$206.5 million GRIP award funds the Railbelt Innovation Resiliency Project — including a high-voltage direct-current intertie and transmission upgrades to move power and renewables across the system.³

Stacked on top are the Bradley Lake expansion⁸ and each utility's own gas-supply and generation capital. New obligations don't replace the backlog — they compete with it for the same limited balance sheet.

WHO RUNS ALASKA'S GRID

Cooperatives, a state authority, and isolated village systems

Alaska has almost no investor-owned electric utilities. The Railbelt is run by member cooperatives and a municipal system, tied together by state-owned assets; beyond it, rural Alaska runs on standalone microgrids.

Railbelt utilities

The interconnected Southcentral–Interior systems, RCA-regulated

Chugach Electric Association ~89,000 members · 113,000+ meters · largest in AK¹⁰

Matanuska Electric Association (MEA) Mat–Su & Eagle River cooperative, since 1941¹¹

Homer Electric Association (HEA) 26,181 members · Kenai Peninsula¹²

Golden Valley Electric Association (GVEA) Fairbanks & Interior cooperative¹³

The Railbelt’s utilities (with Seward’s municipal system) share one islanded grid — and one Cook Inlet gas problem⁵

Rural & state power

Isolated microgrids and state-owned assets — members, boards & the state, not IOU shareholders

Alaska Village Electric Cooperative (AVEC) 59 villages · 160+ diesel gensets · 33 wind turbines²

Alaska Energy Authority (AEA) State; owns Bradley Lake & the Intertie; runs Power Cost Equalization³

Seward Electric System Municipal Railbelt utility

Interior & coastal cooperatives Kodiak, Copper Valley, Cordova and others

Every capital dollar has to clear the RCA — or your board

Alaska's utilities answer to the Regulatory Commission of Alaska, elected cooperative boards, and now a regional reliability body. The question is the same: why this project, why now, why at this cost?

Regulatory Commission of Alaska (RCA) regulates electric rates, tariffs, and cost recovery for Alaska's utilities, alongside gas, water, and telecom.¹⁴

Railbelt Reliability Council (RRC) now serves as Alaska's electric reliability organization, setting bulk-system reliability standards and leading the Railbelt's first coordinated Integrated Resource Plan⁷

Imported-gas cost recovery is live at the RCA — Chugach and Enstar are before regulators on competing LNG-import proposals, with ratepayers exposed if duplicate infrastructure is built⁵

Cooperative governance — most Railbelt and rural utilities are member-owned cooperatives whose elected boards approve capital in front of the customers who pay for it¹⁰

Federal and state dollars — if the plan can absorb them

Alaska has more grid capital in play than in decades. The constraint is readiness: which projects qualify, which are shovel-ready, and how the timing lines up on an island grid.

DOE GRIP: \$206.5M to the Alaska Energy Authority for the Railbelt Innovation Resiliency Project — an HVDC intertie and transmission upgrades (2023).³

Bradley Lake (Dixon Diversion) expansion: ~\$400M estimated to add low-cost hydro to the Railbelt⁸

Power Cost Equalization — the state program AEA administers to hold down rural electric rates where diesel generation runs about 50¢/kWh.²

IRA elective-pay (direct-pay) credits put utility-scale wind, solar, and storage within reach for Alaska's cooperatives and state authority — capital that only pays off if it's sequenced against everything else on the list.

ALASKA'S GRID, IN BRIEF

Questions Alaska utility leaders are asking

Short, sourced answers — the same facts we dig into with utilities looking at their capital programs.

Why is electricity so expensive in Alaska?

Alaska's average retail price is about 22.17¢/kWh — well above the U.S. average — and in rural villages on isolated diesel microgrids the cost of generation averages around 50¢/kWh.¹²

What is the Cook Inlet gas shortfall?

The Railbelt generates most of its power from Cook Inlet natural gas, but the basin is in decline; lease sales have drawn almost no interest and the “energy cliff” has already reached some communities, pushing utilities like Chugach and Enstar toward imported LNG.³⁶

Is Alaska's grid connected to the Lower 48?

No. The Railbelt is an islanded grid serving about 75% of Alaskans from Homer to Fairbanks, and hundreds of villages run on standalone diesel-and-wind microgrids.⁴²

What's being done to modernize the Railbelt grid?

A \$206.5 million DOE GRIP award funds the Railbelt Innovation Resiliency Project — an HVDC intertie and transmission upgrades — and the new Railbelt Reliability Council is leading the region's first coordinated resource plan.³⁷

How big a role will hydro and renewables play?

Bradley Lake already supplies about 10% of Railbelt power at ~4¢/kWh; a proposed ~\$400 million expansion would add more, the dormant 459 MW Susitna-Watana project could cover over half of demand, and wind, solar, and storage are expanding across both the Railbelt and rural systems.³⁸⁹

How does Invizion help Alaska electric utilities plan capital?

Invizion is scenario-based capital portfolio optimization for utilities. It lets you model how a gas-supply deal, an LNG-import cost, a GRIP award, or a hydro expansion reshuffles your whole project list, re-sequence the portfolio automatically against your constraints, and keep a defensible record of every decision for the RCA, your board, or the Railbelt Reliability Council.

REFERENCES

Sources

Every figure in this briefing is tied to a primary or authoritative source.

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13. Golden Valley Electric Association — member-owned cooperative serving Fairbanks and Interior Alaska. www.gvea.com
14. Regulatory Commission of Alaska — regulates electric, gas, telephone, water and wastewater utility rates and tariffs statewide. rca.alaska.gov

ABOUT INVIZION

Capital program optimization for utilities

Invizion is a purpose-built capital lifecycle management platform for utilities. It integrates budgeting, CIP, scenario analysis, and funding-source tracking in one system — so utilities can re-sequence a capital portfolio in a click and demonstrate audit-ready, defensible decisions to regulators, boards, and rating agencies.

See how utilities keep capital plans current and defensible with Invizion.

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