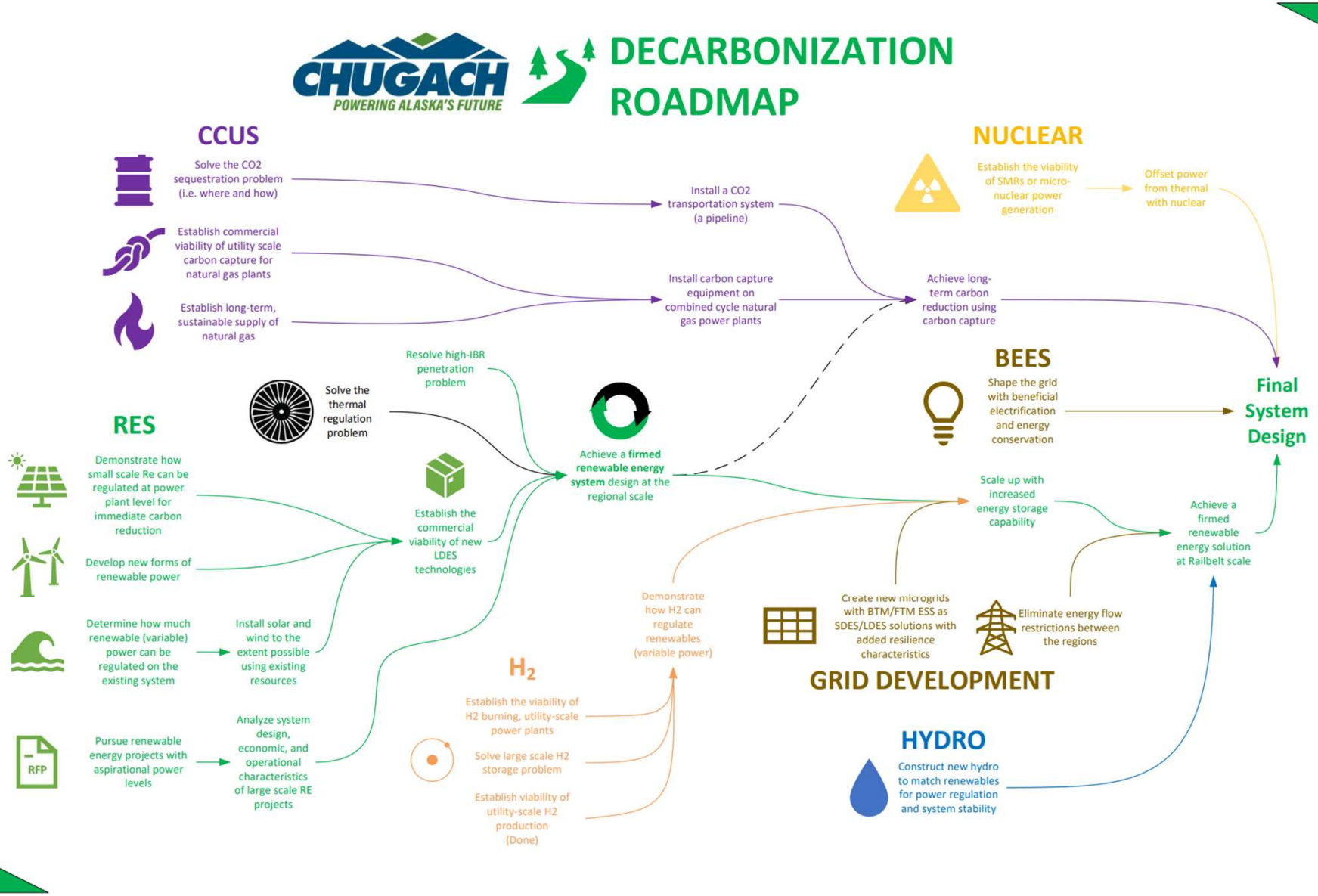
Alaska: Carbon Legislation and Energy Policy

Presentation to the Kenai Assembly

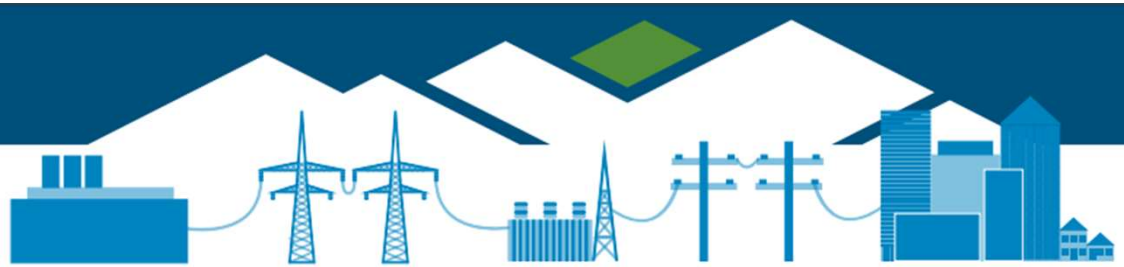
Todd M Lindley, PE

February 27, 2024


CHUGACH
POWERING ALASKA'S FUTURE
DECARBONIZATION ROADMAP
CCUS
Solve the CO2 sequestration problem (i.e. where and how)
Establish commercial viability of utility scale carbon capture for natural gas plants
Establish long-term, sustainable supply of natural gas
Install a CO2 transportation system (a pipeline)
Install carbon capture equipment on combined cycle natural gas power plants
NUCLEAR
Establish the viability of SMRs or micro-nuclear power generation
Offset power from thermal with nuclear
Achieve long-term carbon reduction using carbon capture
BEES
Shape the grid with beneficial electrification and energy conservation
Final System Design
Resolve high-IBR penetration problem
Solve the thermal regulation problem
RES
Demonstrate how small scale Re can be regulated at power plant level for immediate carbon reduction
Develop new forms of renewable power
Determine how much renewable (variable) power can be regulated on the existing system
Install solar and wind to the extent possible using existing resources
Pursue renewable energy projects with aspirational power levels
RFP
Analyze system design, economic, and operational characteristics of large scale RE projects
Establish the commercial viability of new LDES technologies
Achieve a firmed renewable energy system design at the regional scale
Scale up with increased energy storage capability
Achieve a firmed renewable energy solution at Railbelt scale
Demonstrate how H2 can regulate renewables (variable power)
H2
Establish the viability of H2 burning, utility-scale power plants
Solve large scale H2 storage problem
Establish viability of utility-scale H2 production (Done)
Create new microgrids with BTM/FTM ESS as SDES/LDES solutions with added resilience characteristics
Eliminate energy flow restrictions between the regions
GRID DEVELOPMENT
HYDRO
Construct new hydro to match renewables for power regulation and system stability

CHUGACH at a glance

NOT-FOR-PROFIT • MEMBER-OWNED • ELECTRIC COOPERATIVE



790.7 megawatts of installed generation, net

472 miles of transmission line

61 substations

3,304 miles of distribution lines

113,145 service locations & **91,087** cooperative members

Corporate Information

Chugach Electric Association, Inc.
P.O. Box 196300
Anchorage, AK 99519-6300
(907) 762-4489
www.chugachelectric.com

Investor Information

Chugach Electric Association, Inc.
Chief Financial Officer
P.O. Box 196300
Anchorage, AK 99519-6300
(907) 762-4511

Independent Auditor

KPMG LLP
701 W. Eighth Ave., Ste. 600
Anchorage, AK 99501

Follow us on

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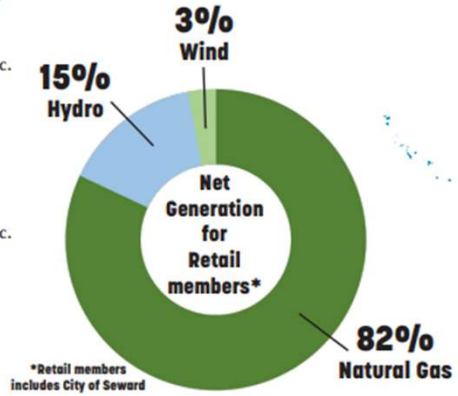
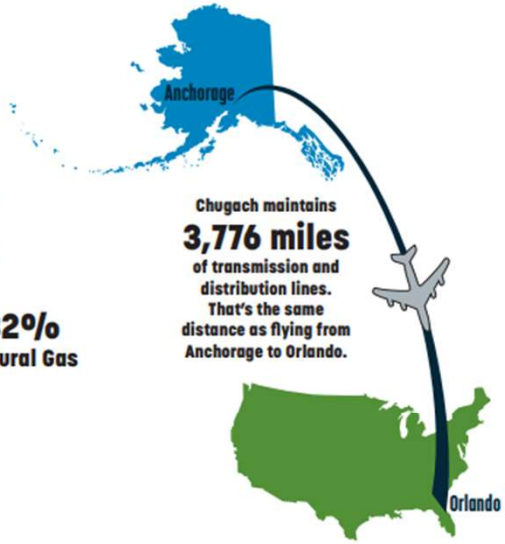
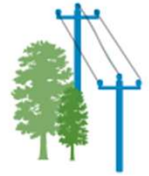




Chugach maintains **3,776 miles** of transmission and distribution lines. That's the same distance as flying from Anchorage to Orlando.

Reliability

2.51 hours
average outage length per customer in 2022, up 0.14 from 2.37 in 2021



224 miles
of line cleared of trees to increase reliability

2.54 hours
5-year average outage length per customer, up 0.21 from 2.33 in 2021

Incorporation

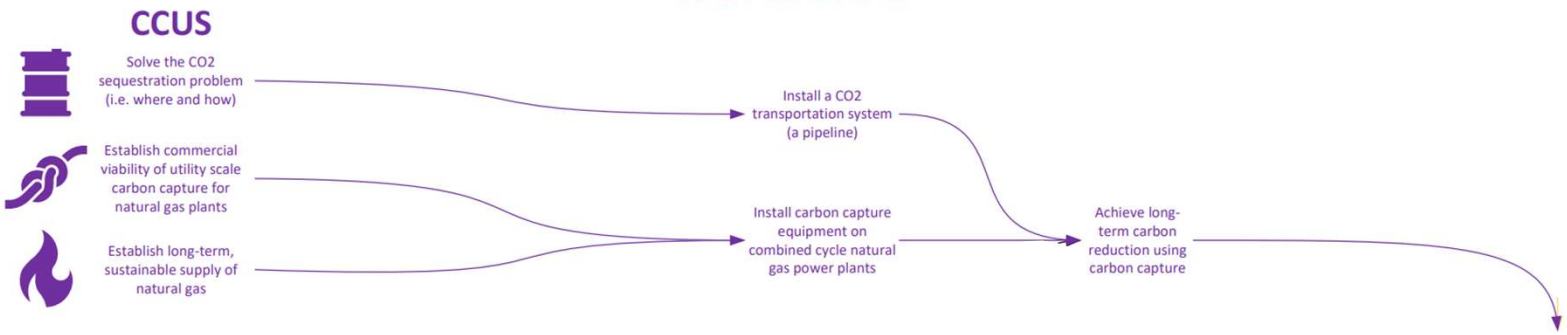
Chugach Electric Association, Inc. was incorporated in Alaska on March 1, 1948, with funding under the Rural Electrification Act of 1936, as amended. In 1991, Chugach refinanced and paid off its federal debt, leaving the Rural Electrification Administration. Chugach remains a cooperative and ranks among the largest of the more than 900 electric cooperatives in the nation.

Equal Employment Opportunity

It is a policy of Chugach Electric Association, Inc. to recruit, hire, train, promote and compensate persons without regard to race, color, religion, national origin, sex, marital status, pregnancy, parenthood, physical or mental disability, veteran's status, age or any other classification protected by applicable federal, state or local law.

CHUGACH
POWERING ALASKA'S FUTURE

DECARBONIZATION ROADMAP



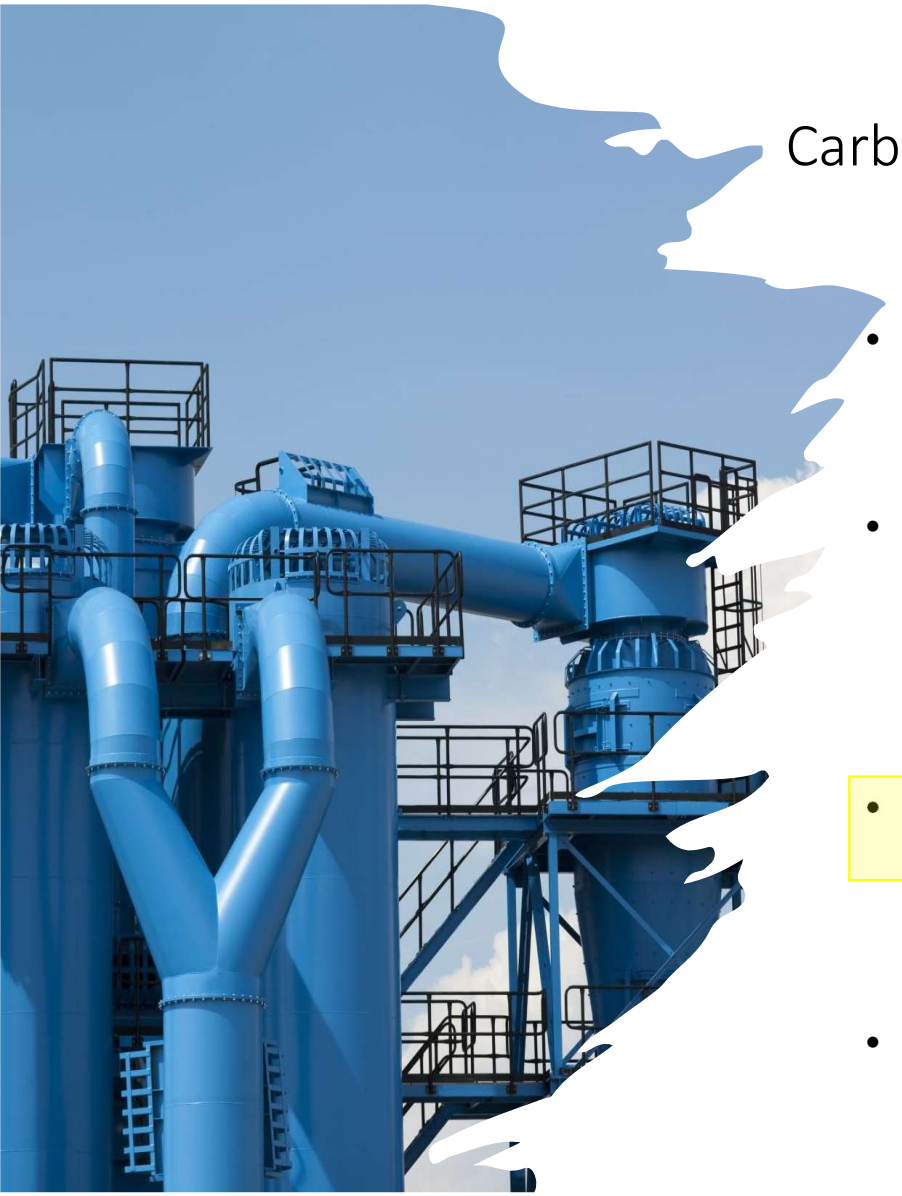
HB50 / SB 49 – Carbon Sequestration

- Sequestration of CO2 underground to reduce emissions

HB 49 / SB 48 – Carbon Offsets ***[PASSED 5/17/23]***

- Lease state land to offset emissions

Risk: Gas supply is replaced, expensive CO2 removal equipment and wells, state land encumbered to maintain offsets



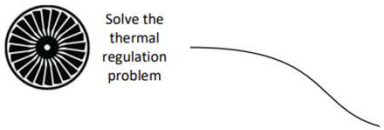
Carbon Capture Utilization and "Storage" (CCUS) (50)

- Driven by the 45Q tax credit only
  - Fed Govt. credit (paid for by the citizens)
  - Not voted in but forced into the national budget
- Pursue Class VI Well Primacy for Geologic Storage
  - CO2 emissions pumped underground, under pressure, for permanent storage
  - This is NOT the same thing as using carbon for Enhanced Oil Recovery (EOR)
- 3rd party exchange to verify **emissions reduction per unit of production** (intensity)
  - $2.5/ton of CO2 injection fee
  - Rental fees
- State take ownership at the end of the lease term
  - Maintain pressure and

Carbon Offset "Tree Bill" (49)

- The premise is to lease state forest land to offset carbon emissions
  - This is for companies to strive for a "net zero" carbon footprint. Doesn't reduce emissions
- Forest land will be assessed as **trees per acre (density)**
  - Payment only on ADDITIONALITY
  - If trees were going to be harvested, and the land was used for Carbon Offsets, Alaska cannot compensate the tree harvest from another area.
- 3rd party exchange company
  - verifies a company's offset potential
  - Is the authoritative power as the "middle man"
  - Testified to charge the state ~20% of revenues
- Insurance required at ~ 18% of revenues
- Minimum of 55 year lock-up – 100 years required on compliance markets.

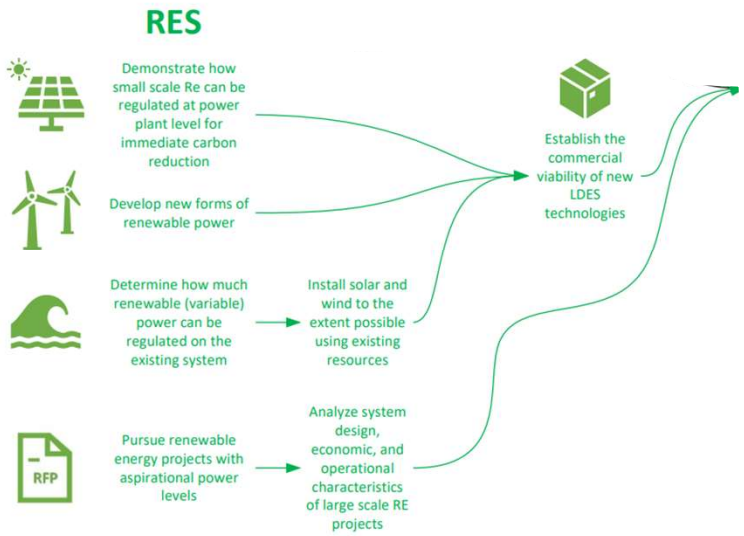
DECARBONIZATION ROADMAP



HB 50 / SB 69 – Geothermal Resources
- Lease land for injection and extraction of geothermal resources

Risk: Unreliable at extreme cold, requires land to be accessed to install the units, still requires electricity for circulation of fluids

DECARBONIZATION ROADMAP



HB 121 / SB 101 – Renewable Portfolio Standard (RPS)
- Originally proposed by Gov. Dunleavy, carried by Rep. Sumner and Sen. Tobin
- Now stalled thanks for Sen. Bjorkman

HB 368 – Renewable and Electrical Energy Portfolio Standards
- Establishes a *Clean Energy Standard* and compliance
  - *35% by 2036*
  - *60% by 2051*
- *Same as RPS, different committee – House Energy*

HB 62 / SB 33 – Renewable Energy Grant Fund
- Makes funds available from the state for renewable projects

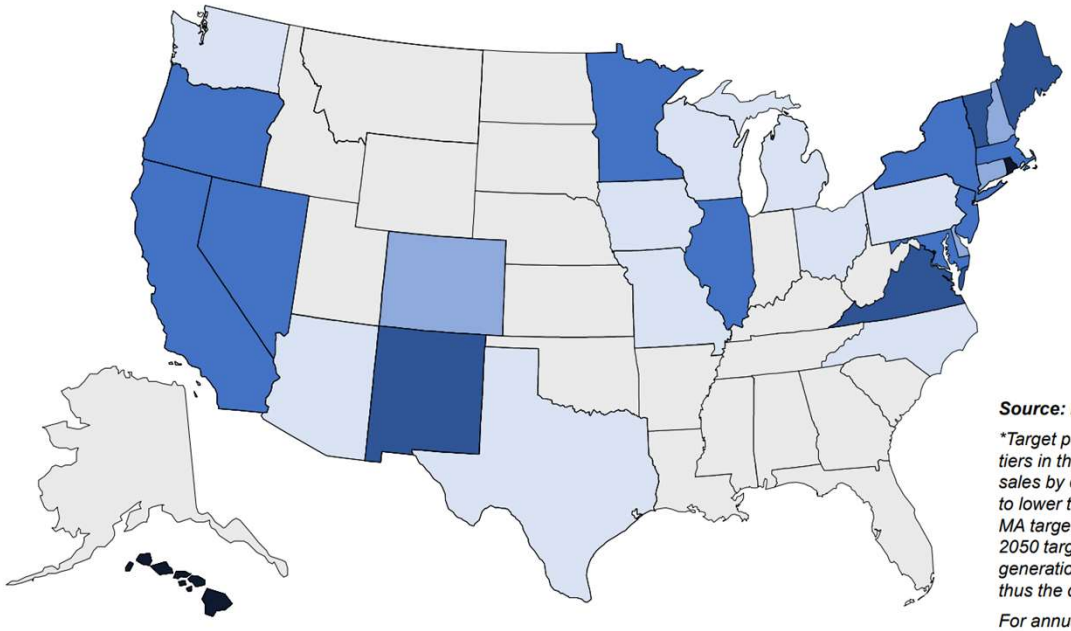
HB 154 / SB 125 – AFHC Sustainable Energy
- Provides financial assistance for sustainable energy projects in community and low income areas

Risks: Penalties for not meeting targets, unreliable sources at peak demand

In Good Company

RPS Policies Exist in 29 States and DC

Apply to 58% of total U.S. retail electricity sales



Source: Berkeley Lab *(June 2023)*

**Target percentages represent the sum total of all RPS resource tiers in the final target year, expressed as a percentage of retail sales by obligated LSEs. Some LSEs in each state may be subject to lower target percentages or exempt from the RPS altogether. The MA target escalates at 1% per year; the shading shown reflects the 2050 target level. The HI RPS is denominated as a percent of generation, and will ultimately rise to above 100% of retail sales; thus the darkest shade refers to 100%+.*

For annual RPS targets by state, see http://rps.lbl.gov

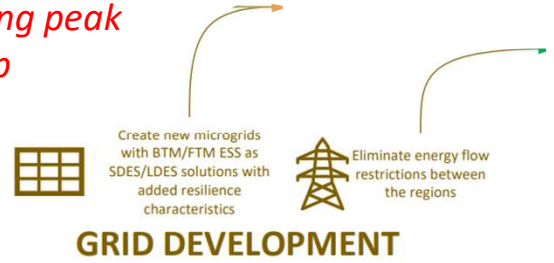
BERKELEY LAB

DECARBONIZATION ROADMAP

HB 307 / HB 217 – Integrated Transmission Systems
- Includes Independent Power Producers (IPPs) to pay tax of kWhs for wholesale electricity to coops or municipal electrical utilities

HB 256 – Electric Utility Plant/Facility Closures
- If a utility uses state funding, before they close
  - they have to offer a sale to another utility
  - and the legislature has to approve it

Risk: Unreliable supply of electricity on the transmission system during peak and high demand periods, loss of coop or municipal utility ownership

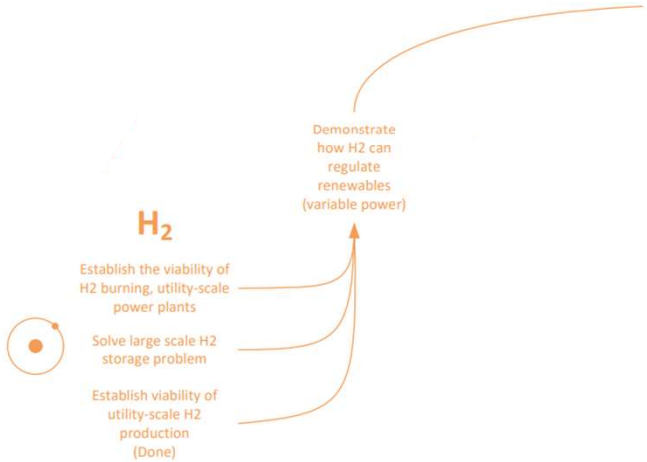


DECARBONIZATION ROADMAP

Department of Energy Hydrogen Hub ($7B in Funding)

- Establish Alaska as a hydrogen hub
- Key to AK LNG development plan

Risk: Costly upgrades to power generating equipment in the form of blue and green hydrogen



DECARBONIZATION ROADMAP

Eklutna Dam

- Current consideration is that the dam should be removed
- Decision will be made *by the Governor* in October 2024
  - *Native Village of Eklutna and REAP support a Pump Energy Storage (PES) System*
  - *Project owners did not include in alternatives analysis due to cost*
  - *The Governor is studying this independent of the 1991 USFW Agreement*

Risk: Removes source of power and alternatives range from $57M to $800M

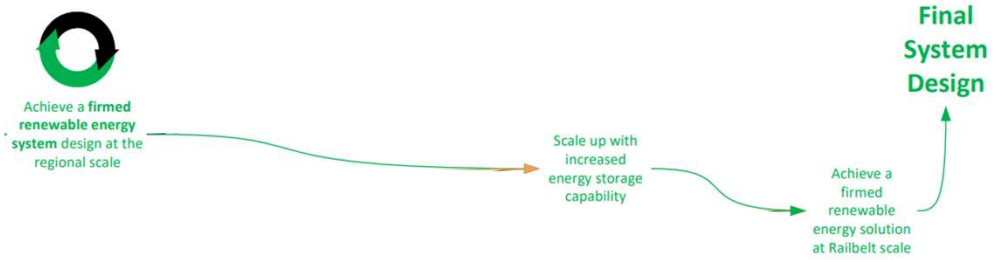
Final System Design … Carbon Fascism

- Cook Inlet Gas displaced to be a CO2 Storage Basin
- Unachievable RPS Goals leading to immediate penalties on the utility
- Pump Energy Storage will be the outcome of Eklutna decision
- IPPs tie-in to grid with no accountability for capacity or reliability
- Railbelt propped up by IRA credits for residential and commercial
- Coop bankruptcy leads to sale and approved by legislature to Lower 48 investors
- Lower 48 Investors purchase assets and electricity costs are traded on an open market

- Net zero is achieved but it didn't reduce carbon … it reduced your income, forever

DECARBONIZATION ROADMAP

This may be the roadmap for Chugach but ultimately it's the plan for all electrical utilities in Alaska …



Bill	Title	Key Point	Sponsor
HB 49 / SB 48	Carbon Offsets	Lease trees to to offset emissions	Gov. Dunleavy
HB 50 / SB 49	Carbon Storage	Inject CO2 underground to reduce emissions	Gov. Dunleavy
HB 62 / SB 33	Renewable Energy Grant Fund	Grant funds for projects in the state	Rep. Edgmon / Sen. Kaufman
HB 74 / SB 69	Geothermal Resources	Wells used for recovering geothermal heat	Gov. Dunleavy
HB 121 / SB 101	Utilities: Renewable Portfolio Standards	Establishing renewable energy standards and penalties	Rep. Sumner / Sen. Tobin
HB 154 / SB 125	AFHC: Sustaintable Energy	Financial assistance for sustainable energy projects	Gov. Dunleavy
HB 223 / SB 254	Tax and Royalty for Certain Gas	5% royalty and zero production tax	Rep. Rauscher / Sen. Bjorkman
HB 256	Electric Utility Plant/Facility Closures	Utility can't close unless offer to sell and the legislature approves it	Rep. McCabe
HB 257	Cook Inlet Seismic Data	Make data available unless confidential or on private land	Rep. McKay
HB 276 / SB194	Reduce Royalty on Cook Inlet Oil and Gas	5% over 10yrs; 5% royalty rate not applicabel to lease without royalty share reserved to state	Gov. Dunleavy
HB 307 / SB 217	Integrated Transimissions Systems	Includes IPPs selling power to coop or municipal utilities a tax on the kWh	Gov. Dunleavy
HB 368	Electrical Energy and Energy Portfolio Standards	Defines clean energy standard; defines clean energy portfolio; defines timeframes	House Energy

What Can You Do

- Oppose every one of the listed bills
- Go to your utility board meetings and demand transparency
- Recall your legislators

- Do not participate in the lie that CO2 and carbon need to be reduced

- Share this information

Take Back Your Power

https://www.votechugachstability.org/