

2022-2026 Fairbanks North Star Borough Comprehensive Economic Development Strategy (CEDS)

Energy Cluster Summary – **DRAFT**

Includes: Strengths, Weaknesses, Opportunities, Threats | Targets | Goals | Strategies & Actions | Relevant Plans

Strengths *Internal attributes that contribute to success*

- Connected to the Railbelt power grid
- Progress with natural gas expansion, including line extensions, tank storage, utility consolidation, and long-term cost stability through contracting agreements
- The U.S. Department of Energy recently reopened its Arctic Energy Office at UAF, dedicated to researching, developing, and deploying energy technology
- National Renewable Energy Laboratory joined forces with Cold Climate Housing Research Center, with a focus on future energy systems, bringing expanded staffing, research facilities, and new investment to the region
- Chena Hot Springs annual renewable energy fair
- PetroStar's new asphalt plant
- UAF's new coal-fired power plant

Weaknesses *Internal barriers to success*

- High costs of energy
- Reliance on coal for electricity generation
- High cost to develop renewable energy projects
- Little opportunity for solar or wind energy production
- Local preference for wood for home heating
- Limited natural gas line network and lack of funding for main line extensions; limited liquefaction capacity
- No natural gas transport options except trucking
- Risks of nuclear micro-reactors in rural areas
- Delays to completion of the Titan LNG plant expansion
- Workforce challenges, including high turnover and challenges recruiting a skilled workforce
- Low density and small population mean economies of scale for new infrastructure are not there

Opportunities *External forces that contribute to success*

- Eielson selected as pilot location for the Air Force's first nuclear micro-reactor
- Increased collaboration between neighboring communities (Denali Borough, City of Nenana, Tok)
- Current and potential federal funding opportunities for new infrastructure through the American Rescue Plan Act, COVID-19 relief funds, Infrastructure Investment and Jobs Act, and more
- Electric car charging infrastructure expansion
- Both the Biden and Dunleavy administrations have expressed interest in increasing the deployment of renewables over the next fifty years

Threats *External forces that could be barriers to success*

- Ongoing supply chain disruptions due to the pandemic and workforce shortages
- Federal policies that restrict new resource development
- Ongoing designation as an EPA nonattainment area due to air quality, and potential cuts in federal funding
- Reliance on coal, oil, and gas and negative impacts from market price fluctuations

Where We Are	What measurements can we use to track progress? Where do we want to be in 5 years?	2026 Targets
311 (2021)	New Annual Natural Gas Service Lines – Number of homes being converted or new homes with natural gas connections	300 (annual)
\$5,292 (2018)	Annual Household Cost – Total annual energy cost per household <i>This amount is approx. 1.3 times the statewide average, 2.3 times the national average</i>	\$4,762 (10% reduction)
Need to ID	Renewables – Percentage of Interior Alaska energy that comes from renewable sources – need to identify baseline and target	Need to ID

Sources: Natural gas connections from the Interior Energy Project. Annual energy costs from the 2018 AHFC Statewide Housing Assessment.
Energy Cluster Summary Draft for Interior Alaska Economic Summit Review, February 2022

Energy Goals – long term improvements and changes we want to see in five years or more



1. Interior Alaska has access to affordable, stable energy costs through its diversified, sustainable energy portfolio.



2. Interior Alaska is a hub for piloting innovative solutions to cold climate energy challenges.

Strategies & Actions – the activities we will implement over the next 5 years to accomplish goals & targets and who will lead them	Lead
<p>1. Expand Natural Gas– Help implement more low-cost natural gas in the Interior. <i>(Goal 1)</i></p> <ul style="list-style-type: none"> a. Support continued efforts for homeowners to convert their homes to accept natural gas, including funding FNSB’s Oil to Gas Conversion Program. b. Increase liquefaction capacity by finalizing design and construction of Titan 2. c. Implement Phase 2 of the Interior Gas Utility buildout. d. Continue to build out main line extensions, including to the Pearl Creek area; include natural gas when developing new subdivisions. e. Support long-term planning for a natural gas pipeline. f. Support Alaska Railroad 18-mile extension to Titan so natural gas can be transported by rail. 	
<p>2. Energy Innovation – Promote Interior Alaska as a site for energy innovation. <i>(Goals 1, 2)</i></p> <ul style="list-style-type: none"> a. Support safe installation of the Air Force’s first micro-reactor as a supplemental power source for Eielson Air Force Base. b. Support microgrid research and implementation. c. Support other pilot projects that advance and test new energy technologies in the Interior. 	
<p>3. Plan for Renewables – Explore how to integrate renewables into Interior Alaska’s long-range energy portfolio. <i>(Goals 1, 2)</i></p> <ul style="list-style-type: none"> a. Support geothermal projects near Chena Hot Springs. b. Support wind farms near Delta Junction. c. Advocate for federal funds for a large-scale hydroelectric project. d. Work with other regions of Alaska with greater renewable potential to increase renewable power generation and explore transmission options to the Interior. 	
<p>4. Increase Collaboration – Improve collaboration between energy stakeholders to meet the needs of Interior Alaska more strategically. <i>(Goals 1, 2)</i></p> <ul style="list-style-type: none"> a. Develop an Interior Alaska Energy Plan. b. Encourage greater Department of Defense participation in regional energy planning. c. Encourage regional stakeholder participation in the Alaska Nuclear Energy Working Group. d. Work with education and workforce development providers to expand the availability of training opportunities to support the needs of the energy sector. 	

Other Relevant Resources

- **Small Scale Nuclear Power: an option for Alaska?** UAF Alaska Center for Energy and Power. January 2021. [View here.](#)
- **Alaska State Energy Profile.** U.S. Energy Information Administration. 2022. [View here.](#)
- **Interior Energy Project.** Alaska Industrial Development & Export Authority. [Project website here.](#)
- **FNSB CEDS Economic Impact Analysis: Interior Gas Utility Phase 2 Buildout.** Fairbanks North Star Borough, November 2021. [View here.](#)



Interior Alaska Economic Summit, February 22-23, 2022

Energy Breakout: Discussion Summary (02-22-22)

To view results from the other sessions, visit <https://fnsbceds.com/> (results will be posted by March 11th)

This document compiles feedback and notes from the breakout session. The other tools that were used to guide the discussion include:

- An economic cluster/influencer one-pager that identified a preliminary SWOT analysis, goals, strategies, actions, and measures of success
- A worksheet identifying a proposed economic vision statement and guiding questions for each of the activities. The guiding questions have been copied into this document for reference. The feedback on the economic vision statement was compiled separately and will be released by March 11th.

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RSVPs: 44 participants

Feedback on the Strengths, Weaknesses, Opportunities, and Threats (SWOT) Analysis

Guiding Questions:

1. What did we get right?
2. What's missing?
3. What would you change?
4. What's the most important item in each quadrant?

Discussion Notes:

Color Key: Blue = proposed revision | red = proposed deletion | green = proposed addition

Strengths	Weaknesses
<ul style="list-style-type: none"> • Add: Wood kiln • Add: Generation diversity • Add: Aurora energy • Add: Clean wood • Add: Supply of coal • Revise: Move third and fifth to opportunities • Revise: Endless supply of coal is also a weakness • Revise: The first strength is also a weakness • Delete: UAF coal plant seems misplaced. Coal is not positive • Delete: bullets three through five • Delete: bullet four • Delete: bullets three and five and move them to opportunities 	<ul style="list-style-type: none"> • Add: Single provider for power • Add: Fluctuating fuel prices • Add: Wood/AQ dilemma • Add: Workforce development – limited emphasis on STEM • Add: Perception/concerns about nuclear energy • Add: Public perception of coal re: climate change • Add: Little infrastructure for solar • Add: No LNG transport options except trucking • Add: Workforce development • Add: Access/cost of alternative energy • Add: Single utility provider • Add: Environmental concerns of coal-powered electricity • Revise: Fourth bullet limited “infrastructure” • Revise: Replace “risks” with “perception” in reference to nuclear micro-reactors • Revise: More bullet 2, reliance on coal, to strength • Revise: Reword last bullet to delete “are not there” • Revise: What defines “opportunity” for solar and wind? • Revise: Move bullet five to threats • Revise: Move bullet 11 to opportunities • Revise: Change “little opportunities” in bullet 4 to “little infrastructure” • Delete: lack of opportunity for solar and wind • Delete: wood stoves as a weakness • Delete: bullet 5, wood preference is not a weakness • Delete: bullet 11

	<ul style="list-style-type: none"> • Delete: bullet 8
Opportunities	Threats
<ul style="list-style-type: none"> • Add: Workforce development • Add: Opportunity for solar or wind energy • Add: Alaska gasline • Add: Add bullets three through five from strengths • Add: Add: Little risk with nuclear microreactors • Add: Biomass • Add: Recycling • Add: Infrastructure and Jobs Act funding • Refine: Not much about vehicle energy uses throughout the document 	<ul style="list-style-type: none"> • Add: Gas is not subject to market fluctuation • Add: Employment barriers • Add: Reliance on external sources of fuel • Add: Main coal mine outside the borough • Add: Aging coal infrastructure • Add: What is the impact to air quality of heating downtown with coal? • Refine: Remove “new” from second bullet • Refine: Coal is not subject to market change like oil and gas • Delete: Take out “new” under resource development

Goals, Strategies, Actions Discussion Questions

Guiding Questions:

1. What did we get right?
2. What would you change?
3. What’s missing?
4. Who will lead each of the strategies? What do you see as you/your organization’s role?
5. Which of the strategies is most important for us to focus on over the next year?

Discussion Notes:

- Goals
 - Add: Need to plan to meet the demand of an inevitably increasing demand for electricity for electric vehicles
 - Add: Hydro
 - Add: Energy use decreases through weatherization and energy efficiency
 - Add: In Goal 2, add “clear avenues for individuals to have renewable options”
 - Add: Large scale land management
 - Add: Define “affordable”
 - Add: energy efficiency and weatherization
 - Revise: In Goal 1, remove “affordable” and “cost” and add “low-cost” between “stable” and “energy”
 - Revise: In Goal 1, add “reliable” between “sustainable” and “energy”
 - Revise: Change from past tense to future tense
 - Revise: Change goal one to include “diverse, accessible options for individual households”
 - Revise Goal 1: Change “has” to “will have,” change “affordable” to “low cost,” change “stable” to “reliable”
 - Revise: Goal 2: Change “is” to “will be” and add “unique” between “to” and “cold”
 - Revise: “Stable” and “Sustainable” are redundant
 - Revise: Why are the goals trying to eliminate coal?

- Strategy 1: Expand Natural Gas
 - Add: EPA grants
 - Revise: Replace “natural gas” with “LNG” in last bullet
 - Revise: Expand to include hydro and CO₂ capture
 - Revise: Include all natural resources with carbon reduction technologies
- Strategy 2: Energy Innovation
 - Question: Who manages the land where innovation occurs?
 - What does “implementation” mean in regards to microgrid research?
 - Add: Carbon capture/reduction technologies
 - Add: Carbon reduction
 - Add: Energy efficiency
 - Add: Support microgrid research on university campuses and in villages
 - Add: 2A: Ease access/burdens
 - Add: Emphasis on FNSB energy history with innovative discussions
 - Add: “Diversity of energy resources and community solar”
 - Add: Coal utilization
- Strategy 3: Plan for Renewables
 - Why are they all site specific?
 - Add: more solar and battery storage
 - Add: necessary transmission upgrades
 - Add: statement on carbon reduction
 - Add: Infrastructure development and upgrades specific to railbelt transmission lines
 - Add: Energy efficiency
 - Revise: 3B: Replace “Delta Junction” with “Interior”
 - Revise: A large-scale hydro project is an environmental disaster
 - Remove specific locations
- Strategy 4: Increase Collaboration
 - Add: Increase collaboration between utilities
 - Add: Expand all energy sources
 - Add: More renewable options and energy efficiency
 - Add: Encourage private sector testing of innovative technologies in FNSB
 - Revise: Change “Interior Alaska Energy Plan” to “Interior Alaska Energy Policy”
 - Revise: 4C: multiple, small or medium
 - Revise: 4D: focus on the ability that the training and outreach will lead to jobs
 - Revise: 4D: Add “outreach”
 - Revise: GVEA already has an Interior Alaska Energy Plan
- Other (could go in other chapters)

- Add: carbon reduction to metrics of progress section
- Revise: Why not encourage statewide participation in Alaska Nuclear Energy Working Group?

Measures of Success Discussion Questions

Guiding Questions:

1. What did we get right?
2. What's missing?
3. What would you change?
4. Which of these indicators will be the most effective at measuring our success?

Discussion Notes:

- Add: Support diversity of energy sources in microgrid
- Add: Measure the level of investment toward innovation.
- Add: Add a target for air quality
- Add: Workforce development
- Add: Nix large-scale hydro. Instead, consider small-scale and in-river hydro
- Add: Improve efficiency and weatherization in new homes and existing structures, especially for low- and middle-income residents
- Add: Add innovation investment for new technologies
- Add: Renewables measure of success should be \$ invested in innovation and number of companies that move to Fairbanks to invest in innovation
- Revise: A 10% reduction in annual household cost over five years is not a very ambitious goal. Should be at 33%-50%
- Revise: Increase target for new natural gas service lines
- Revise: The word "affordable" is very subjective
- Revise: Find an appropriate balance between new technologies and innovations to lessen the load on NRG
- Revise: We need to change the dialog. It's not fossil energy or renewables. It's a balance of diversified energy sources.
- Revise: Change the "new Annual Natural Gas Service Lines" target from 300 to 500-600
- Revise: The target for household energy costs should be a larger reduction
- Revise: Change in percentage income used for energy and change in overall household energy costs
- Revise: What is "household energy costs"?
- Revise: Define "household cost"
- Revise: The measures of success don't match the goals and strategies
- Revise: Reduce the household cost target to \$1,944
- Revise: Relate target measures to cost of Anchorage