



Alaska State Energy Security Plan

→ Public Meeting

March 7, 2023





Today's Agenda

- Roll call for In-Person and Virtual Attendees
- AEA Welcome and Introduction
- ICF Overview of Project Status To Date
 - Completed work
 - Work in progress
- ICF Introduction to the Risk Assessment
- ICF Next Steps and Wrap Up
- AEA and ICF Q&A



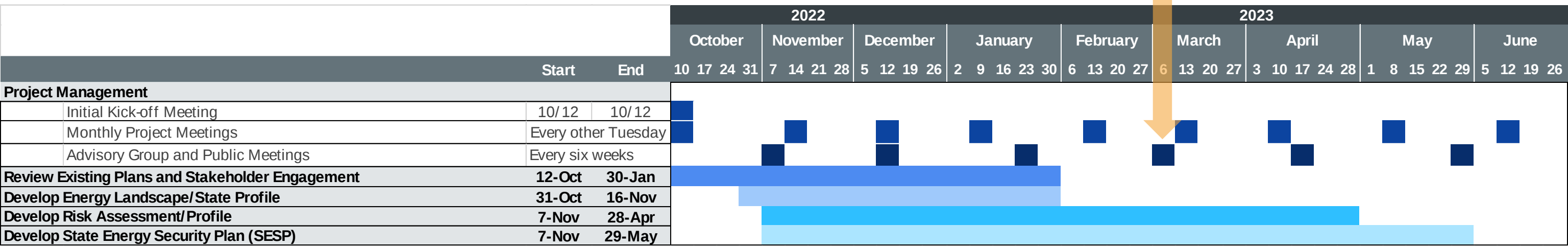
➔ Overview of State Energy Security Plan Status



Project Timeline

Timeline

We are here



State Energy Security Plan Progress

- **Energy Landscape and Risk Profiles**

- ★ Summary of Electricity, Liquid Fuel, and Natural Gas Energy Systems in the State
- ★ Threats to Energy Infrastructure
- ★ Risk Assessment

- **Energy Security and Emergency Response Authorities**

- ★ Key State Authorities and Statutes

- **Energy Security Planning and Preparedness**

- ★ State Energy Office Roles and Responsibilities
- ★ Other State Agency Roles and Responsibilities
- ★ Other Stakeholder Roles
- ★ Regional Coordination

- **Energy Emergency Response**

- ★ Operational Playbook of state response actions during:
 - ★ Matrices for power outages/electricity events
 - ★ Matrices for liquid fuel events
 - ★ Matrices for natural gas events

- **Energy Resiliency and Hazard Mitigation**

★ Section complete

★ Section drafted

★ Work on section underway

Energy Landscape

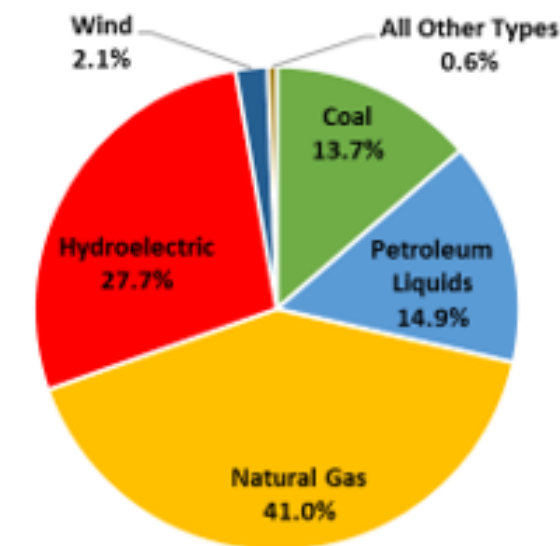
- Completed February 1
- Reviewed by AEA and Advisory Group
- Provides an overview of energy supply and demand in the state

Excerpt from Energy Landscape

Electric Generation

In 2021, Alaska power plants generated approximately 5,950 GWh of electricity. Due to the lack of connection with other major grids in the U.S. Lower 48 and Canada, all generated electricity was consumed within the state. Alaska has a diverse generation mix, relying primarily on natural gas, hydroelectric, petroleum liquids, and coal, as shown in Exhibit 7.

Exhibit 8: Utility Scale Generation Mix in Alaska (GWh), 2021



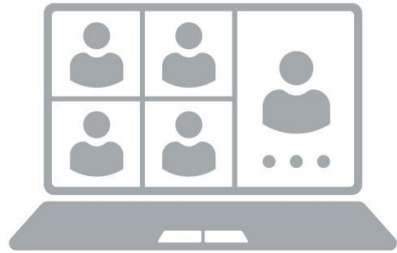
Source: [EIA Electricity Data Browser](#) Net Generation 2021

Natural gas is the largest generation source in Alaska, accounting for over 40% of the state's power production in 2021. Natural gas supply in the state is described in the Natural Gas section. Hydroelectric power was the second largest source of generation, providing nearly 28% of the electricity produced in the state, from a collection of over 30 dams, mostly located in Southeast Alaska, other than Bradley Lake Hydroelectric plant on the Kenai Peninsula. Alaska also generated approximately 15% of electricity from petroleum liquids, the second most of any U.S. state behind Hawaii. Rural communities who lack grid access contribute to this amount, as many providers use diesel-fueled generators for supply in these areas.

Stakeholder Input

- Have received feedback from over a dozen stakeholders and counting

Feedback Methods:



Advisory Group Meetings



Virtual calls



Questionnaire responses



In-person meetings

Stakeholder Categories:



Electricity



Natural Gas



Petroleum Fuels



Transportation



High-Level Themes from Stakeholder Input

- More than other states, Alaska has a wide variety of threats with the impact for extreme impacts
- Lack of redundancy in infrastructure + dependence on many single assets
- Potential for loss of communications
- Rural vs. Railbelt infrastructure – both are vital
- Logistics of external support – No shared state borders for power, fuel trucking, etc.
- Stakeholders have good contact plans in the event of a disruption

Incorporation of Stakeholder Feedback

- Feedback being used to inform multiple Plan sections

- ★ Energy Landscape and Risk Profiles
 - ★ Summary of Electricity, Liquid Fuel, and Natural Gas Energy Systems
 - ★ Threats to Energy Infrastructure
 - ★ Risk Assessment
- Energy Security and Emergency Response Authorities
 - Key State Authorities and Statutes
- Energy Security Planning and Preparedness
 - ★ State Energy Office Roles and Responsibilities
 - ★ Other State Agency Roles and Responsibilities
 - ★ Other Stakeholder Roles
 - ★ Regional Coordination
- ★ Energy Emergency Response
 - Energy Resiliency and Hazard Mitigation



→ Introduction to Risk Assessment and Project Next Steps



Risk Assessment Section

- **Required by IIJA**
- **Methodology:** NREL guidance [Energy Resilience Assessment Methodology](#) (2019)
- **Informed by:** Stakeholder feedback and ICF work in other states
- **Output:** Risk “score” for each given infrastructure element against each specific threat
- **Ultimate goal:** Inform mitigation actions



Baseline Activities for Risk Assessment

1.

Identify key infrastructure elements to be assessed

Will include electricity, natural gas, and liquid fuels assets, plus supporting infrastructure

2.

Identify threat and hazards to infrastructure

Will include natural hazards in core assessment

Preliminary List of Asset Categories

Electricity Infrastructure	Petroleum Infrastructure	Natural Gas Infrastructure
• Railbelt transmission infrastructure • Power plants (including rural generators)	• Production fields • Crude pipelines/TAPS • Refineries • Petroleum terminals • Product pipelines • Ports	• Production fields • Natural gas pipelines • Natural gas underground storage

Threats for Risk Assessment



Earthquake



Flooding



Winter
storm



Typhoon



Wildfire



Tsunami



Volcano

Additional Threats



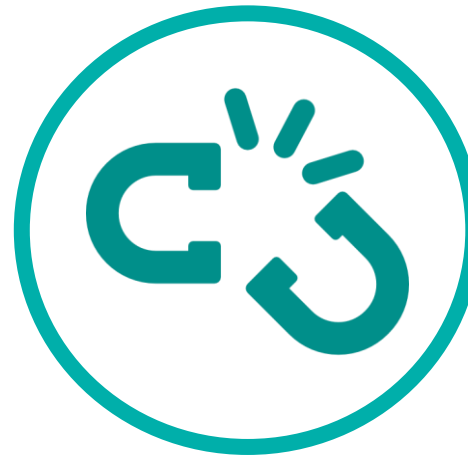
**Physical
attack**



**Cyber
attack**



**Human
error**



**Equipment
failure**



Pandemic



**Long-term
threats**

Risk Score Composition



Threat exposure

Likelihood of event occurring
in the location where the asset is location



Vulnerability

If an event impacts the asset, **potential impact to asset operations**



Consequence

If asset is disabled, **impact to energy delivery**, given redundancies and alternative supply options



Progress and Next Steps

- Preliminary list of threats and assets
- Considering regional differences in asset criticality
- Following up with stakeholders about risk and mitigation



→ Q&A

