Southeast Alaska Integrated Resource Plan (SEIRP)

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Agenda

- Integrated Resource Planning
- Project Objectives and Scope
- Project Team Overview
- Project Approach and Schedule
- Hydropower in SE Alaska
- Questions and Answers
Integrated Resource Planning

• Plan that economically schedules what, when, and where to build, based on available energy supplies
• Long-term time horizon
• Competes generation, transmission, fuel supply and DSM/energy efficiency options
• Includes renewable energy projects (including Hydro)
• Arrives at a plan to build future infrastructure for minimum long-run cost to ratepayers
• Considers risks
• Consideration of financing options
Integrated Resource Planning

Objective Function:

2012 Cumulative Present Value Costs

With consideration of:

• Regional issues and differences
• Energy security
• Risks
Integrated Resource Planning - Limitations

- Does not set State energy policy
- Directional
- Identified/generic/actual projects
- Agnostic to owner/developer of projects
Integrated Resource Planning – Example Results

Energy By Resource Type

- Ocean Tidal
- Wind
- Municipal Solid Waste
- Geothermal
- Hydro
- Purchase Power
- Fuel Oil
- Nuclear
- Coal
- Natural Gas

Energy (GWh)

- 7,000
- 6,000
- 5,000
- 4,000
- 3,000
- 2,000
- 1,000
- 0
Integrated Resource Planning – Example Results

Energy Requirements (MWh)

Without DSM/EE

With DSM/EE

Year

2011
2014
2017
2020
2023
2026
2029
2032
2035
2038
2041
2044
2047
2050
2053
2056
2059

Southeast Alaska IRP
Integrated Resource Planning – Example Issues to be Addressed

- DSM/Energy Efficiency
  - Potential resource - need to gather baseline information
  - Funding alternatives – State, system benefit charge, participants, etc.
  - Delivery mechanisms – AHFC, AEA, regional entity, individual utilities
Integrated Resource Planning – Example Issues to be Addressed

Comparison of Capital Rates for Base Case Scenario and Alternative* Scenario

![Graph showing comparison of capital rates for base case and alternative scenario over time.](image)
Integrated Resource Planning – Example Issues to be Addressed

• Strategies to Lower Capital Cost of SEIRP to Ratepayers
  • Ratepayer benefits charge
  • State financial assistance
    • Repayment flexibility
    • Credit support/risk mitigation
    • Potential interest cost benefit
Energy challenges are significant; SEIRP will provide information required to make regional decisions.
Project Objectives and Scope

- 50-year horizon
- Assessment of regional loads
- Projections of fuel and electricity generation costs
- Analysis of potential generation resources
- Diversify energy supplies
- Comprehensive list of current and future generation, transmission and electric power infrastructure projects
- Long-term plan for capital project additions with emphasis on first three years
Project Team Overview

- **Alaska Energy Authority** – Sponsoring Agency
- **Black & Veatch** – Primary Contractor
- **HDR, Inc.** – Subcontractor
- **Southeast Conference**
- **Advisory Working Group**
- **Regional Utilities**
- **Regional Communities**

Extensive public participation is key element of project.
Project Approach

• **Task 1** – Understand the SE Energy Model: Past, Present and Future

• **Task 2** – Assess Existing and Future Energy Technologies

• **Task 3** – Develop Energy Conservation Program

• **Task 4** – Financing the SE Energy Future

• **Task 5** – Technical Conference and Preliminary Action Plan

• **Task 6** – Develop Region-wide Transmission Plan
Project Approach (continued)

• **Task 7** – Develop Preferred Resource Lists for Existing Interconnected Electrical Grids Excluding SEAPA
• **Task 8** – Develop IRP for SEAPA
• **Task 9** – Planning for Insular Communities
• **Task 10** – Provide Preliminary Capital Budgets for Region-wide IRP
• **Task 11** – Assemble Task Groups 1, 2, and 3 Components Into a Regional Plan
• **Task 12** – Present the Plan
• **Task 13** – Complete the Plan
Hydropower in SE Alaska

• Existing Projects

• 26 projects
  • 13 run-of-river, <= 5 MW
  • 13 storage, 1-80 MW
• 211 MW installed capacity
• 950,000 MWh average annual generation
Hydropower in SE Alaska

- Proposed Projects
  - 20 projects
    - 5 run-of-river, <= 1 MW
    - 15 storage, 5-80 MW
  - 318 MW installed capacity
  - 1,200,000 MWh average annual generation
Hydropower in SE Alaska

• Proposed Projects – General Characteristics
  • Most:
    • in early stages of development
    • require significant transmission lines
    • proposed as IPPs
    • lack established market for energy (existing diesel generation, export)

Notable Exceptions:
- Blue Lake Expansion
- Lake Whitman
- Reynolds Creek Mahoney Lake

Notable Exceptions:
- Small run-of-river projects in Angoon, Hoonah, Tenakee Springs
For more information:

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