

Southeast Alaska Integrated Resource Plan

SEAPA Board Meeting
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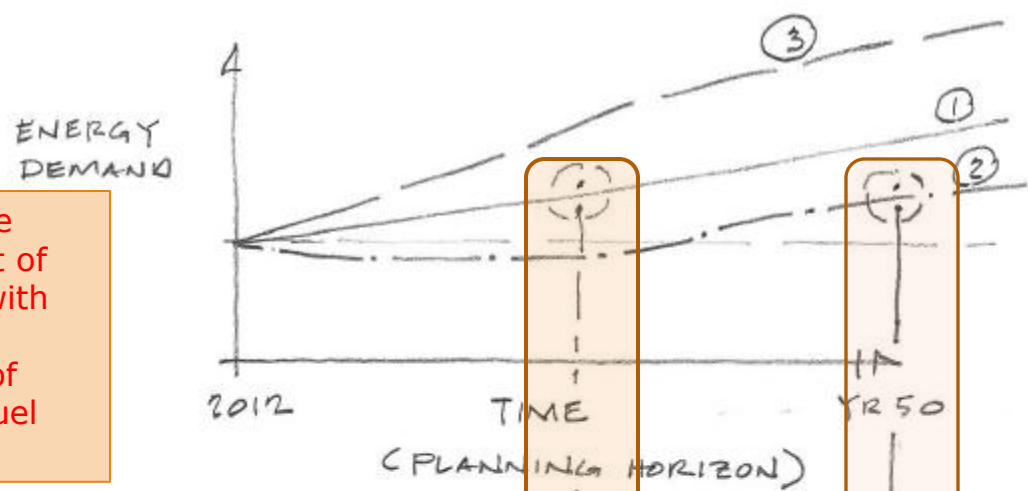


- The list – Which Hydro Electric Power Projects should be developed for Southeast Alaska, and when should they be developed?
 - *Regional Screening Process*
 - *Detailed Analysis at sub-region level*
 - *Action plan recommendations*
 - *Project capital appropriations*
- How should we consider
 - *Demand Side Management/Energy Conservation*
 - *Fuel Conversions*
 - *Load growth*

- SEIRP Output – a *focused integrated plan* that defines DSM/EE, Fuel Conversion/hydro power additions to satisfy future energy needs at least cost to the Rate Payer.
- Capital projects defined in SEIRP
 - Hydro power generation
 - Transmission lines
 - DSM/EE capital needs
 - Fuel conversions

- Task 1 - Screening for short list – approximately 24 hydro power projects for SE Alaska
- Task 2 - Analyze and develop a list of generic projects for use in economic models
 - Economic Model used: Strategist
- Task 3 – Recommend capital projects and action plan

Selection of the next increment of hydro power, with integrated consideration of DSM/EE plus fuel conversions



FORECASTS

- ① REFERENCE CASE [BUSINESS AS USUAL]
- ② ① + DSM/EE + FUEL CONVERSION
- ③ HIGH LOAD FORECAST OPTION

- (A) TIME FOR NEXT INCREMENT OF RENEWABLE ENERGY W/ REFERENCE CASE LOAD FORECAST.
- (B) W/ INTEGRATED ENERGY APPROACH [NEXT HYDRO

AEA Hydropower Project Development Funding Approach

AEA ESTABLISH DEVELOPMENT STANDARDS
FOR NEXT INCREMENTS.

- COORDINATE W/ RENEWABLE ENERGY GRANT PROGRAM
- DIRECT FUNDING THROUGH RISK MATRIX APPROACH
- ALL GRANT FUNDED DEVELOPMENT WORK CONFORM TO STANDARDS SET BY AEA
- BEST LOOKING PROJECTS RECEIVE FUNDING

AEA funding concerns are driving this risk matrix consideration

FUND PROJECTS THROUGH FEASIBILITY TO YIELD MINIMUM LEVEL OF DEPENDABLE PROJECT DATA, W/ ASSURANCES OF NO FATAL FLAWS

AEA Hydropower Project Development Funding Approach

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DEVELOPMENT DECISIONS FOR
NEXT INCREMENT OF HYDRO

- Generic projects to meet future demand, described in terms of cost, power output energy production

List of available resources identified by proposed developers, as well as other projects suggested by B & V, using all available information including developer data

Critical Analysis, done by sub-region, incorporating new generation and transmission infrastructure analysis (Strategist), with Energy Conservation, Demand Side Management, and possible fuel conversions to define the best SE region energy future.

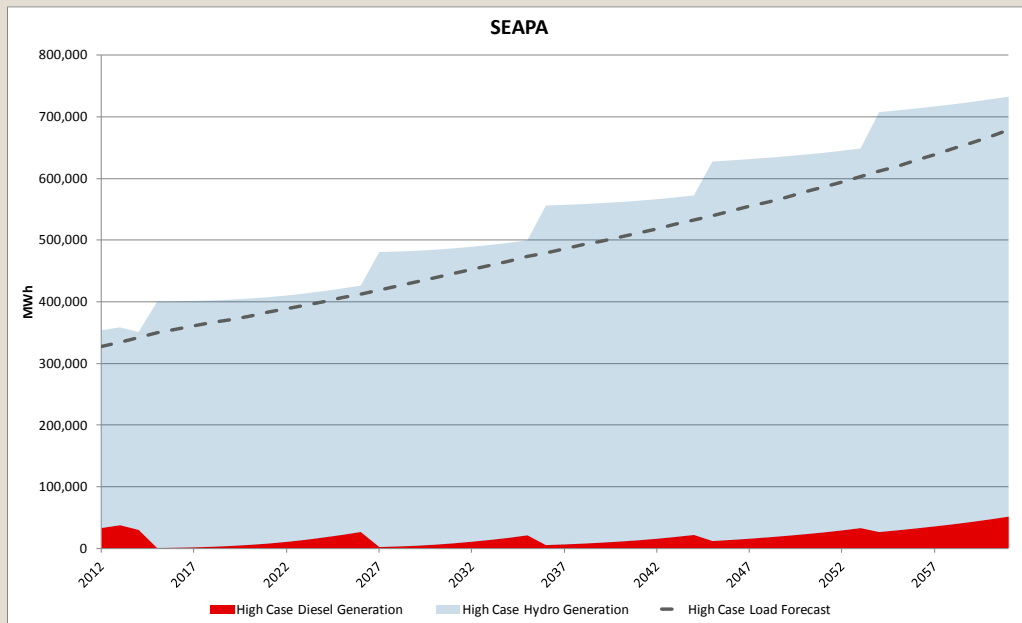
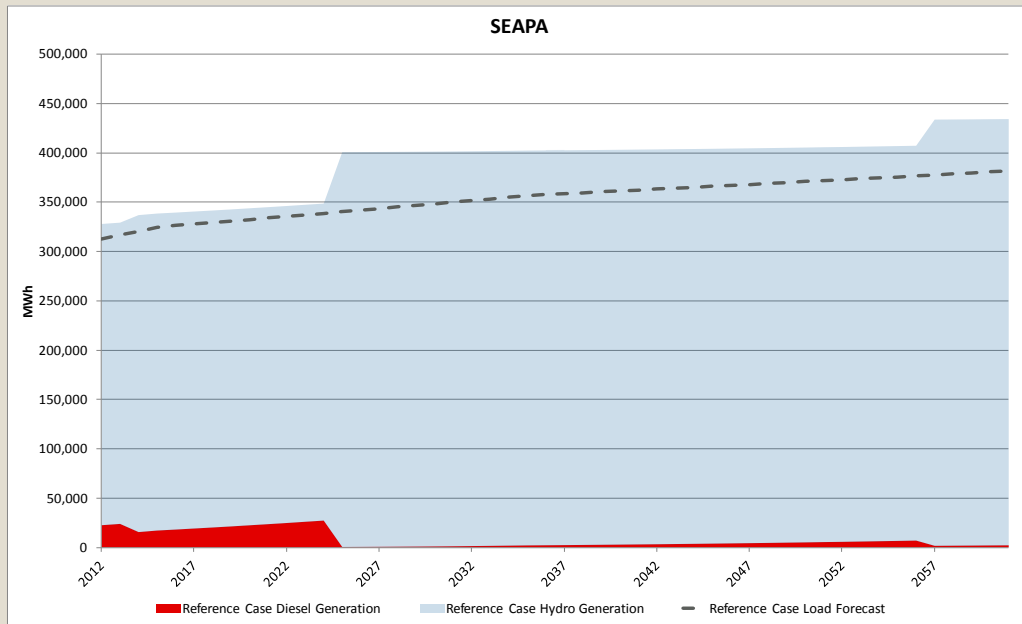
End game – a defined list of capital appropriations to develop energy infrastructure to supply regional energy needs, and an accompanying action plan.

B&V Proposed Risk Evaluation Matrix - draft

PROJECT NAME	LOCATION	PROJECT DEVELOPMENT				OPERATIONAL		
		DEVELOPMENT LEVEL (1-5)	CONSTRUCTABILITY Y/ RELIABILITY ACCESS (1,3,5)	LICENSING/ PERMITTING (1,3,5)	BUSINESS AND FINANCIAL STRUCTURE (1-5)	HYDROLOGY (1,3)	OPERATING FLEXIBILITY (1,3,5)	PROJECT LINE MAINTENANCE (1,3,5)
Baranof Island								
Takatz Lake	Sitka	3	5	3	4	1	1	5
Chichagof Island								
Crooked Creek and Jim's Lake	Elfin Cove	2	1	5	5	1	3	3
Indian River	Tenakee Springs	3	5	5	4	1	5	3
Water Supply Creek	Hoonah	3	1	5	4	1	5	1
Juneau Area								
Lake Dorothy Expansion	Juneau	2	3	5	2	1	1	1
Sweetheart Lake	Juneau	2	5	3	4	1	1	5
Upper Lynn Canal								
Connelly Lake	Haines	3	3	3	2	1	5	3
Schubee Lake	Skagway	5	5	3	2	5	3	5
Walker Lake	Chilkat Valley	4	1	5	5	1	5	3
West Creek	Skagway	5	1	5	4	5	5	3
SEAPA								
Anita - Kunk Lake	Wrangell	4	5	5	5	5	5	5
Cascade Creek	Petersburg	2	5	3	4	1	5	5
Connell Lake	Ketchikan	4	1	3	5	1	5	1
Lake Shelokum	Wrangell	5	5	3	4	1	5	5
Mahoney Lake	Ketchikan	1	1	1	4	1	3	1
Orchard Lake	Meysers Chuck	5	5	5	5	1	5	1
Ruth Lake	Petersburg	4	5	3	4	5	5	5
Scenery Creek	Petersburg	4	5	3	4	5	5	5
Sunrise Lake	Wrangell	3	3	3	5	1	5	3
Thoms Lake	Wrangell	4	3	5	5	1	5	3
Triangle Lake	Metlakatla	3	3	5	4	1	5	3
Tyee New Dam Construction	Wrangell	4	5	5	5	1	1	1
Tyee New Third Turbine	Wrangell	4	5	5	5	1	5	1
Virginia Lake	Wrangell	4	5	5	5	1	5	5

Difficulties Related to Hydro Project Information

- Realistic commercial operation dates (CODs)
- Capital costs
- Storage capacity, if any, and monthly energy output
- Environmental, permitting and licensing issues
- Business structure and agreements, including ownership structure, project development capabilities, power sale and interconnections agreements, and so forth



Approach to Integrated Analysis

- Optimal Hydro/Transmission Case
- Optimal DSM/Biomass/Other Alternatives Case
- Expected results – PNWC and Capital Costs
- Link to Preferred Resource List/Appropriations Request

Preview of Conclusions

- Significant uncertainties exist: loads, resources, potential transmission additions, and level of State financial assistance
- Uncertainties lead to the need to:
 - Develop multiple options
 - Move towards more balanced resource portfolio
 - Maintain flexibility
- Limitations due to quality and inclusiveness of project-specific information
- This led to the need to base analysis on generic hydro projects – inability to make definitive selection

Preview of Conclusions (con't)

- 2 integrated cases:
 - Optimal hydro/transmission case
 - Optimal DSM/EE, biomass, other renewables case
- Comparative results led to near-term resource selection
- Near-term resource portfolio and actions
 - Committed Resources
 - DSM/EE
 - Biomass conversions
 - Project feasibility studies to identify next increment of hydro (AEA developed process and standards, link with REGF)

Preview of Conclusions (con't)

- Long-term decisions based on revised IRP (3 years)
- Transmission planning philosophy (public benefit)
- Do not move forward with AK-BC Intertie unless conditions changes and detailed studies (e.g., SEAPA system improvements) completed
- Types of risks and uncertainties related to each technology
- Need for State financial assistance

Preview of Recommendations

- Resource additions by sub-region
 - Near-term – Committed Resources, DSM/EE, biomass conversions
 - Longer-term – TBD based on better information on potential hydro and other renewable projects, and experience with DSM/EE and biomass conversions
- Other
 - Public outreach – SEIRP, DSM/EE, biomass conversions
 - Governor/Legislature make decisions regarding level of State financial assistance

Preview of Recommendations (con't)

- Appropriate money to start-up/expand regional DSM/EE and biomass program
 - Organizational costs
 - Vendor training
 - Detailed program design
 - Monitoring and evaluation protocols
- Consider regional entity/public-private partnership for start-up and delivery of DSM/EE and biomass program
- Further the development of tidal/wave power technology

Preview of Recommendations (con't)

- Track development of other technologies (e.g., LNG)
- Support efforts to streamline regulatory and permitting processes
- Regional economic potential studies for non-hydro renewable technologies
- Develop standard power sale agreement
- Consider transmission open access policy