



REGA Project Approach and the Unique Alaska Grid

Presented by
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Agenda

- **Introductory Comments**
- Project Overview
- Project Issues
- RTO/ISO Overview and Lessons Learned
- Conclusion

Overview of Black & Veatch

- Utility strategy and planning expertise
- Project management experience
- Core competence in power technology and operations
- Extensive regulatory and utility rates expertise
- Technology solutions and implementation expertise
- Previous Alaska experience
- No. 1 in generation - >120,000 MW built
(No. 1 in coal, No. 1 in gas, No. 4 in hydro)
- No. 2 in transmission and distribution
- No. 4 and 5 in wastewater and water
- 47 U.S. Offices and 8,500+ professionals



Enterprise Management Solutions (EMS)

Strategy Solutions

- Business Strategy
- Energy Procurement/Risk Mgmt.
- Mergers and Acquisitions
- Financial and Business Advisory Services
- Regulatory and Environmental
- Resource Planning



Process Solutions

- Performance and Project Management
- Fuels Management
- Independent Engineering
- Asset Management
- Organizational Strengthening

Technology Solutions

- Generation Options
- Power Delivery
- Carbon Management
- IT Planning and Integration
- Customer Technology
- Operations Technology

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Project Objectives

- Study the management, operation, access rules, ownership, integrated resource planning, and regulatory structures of the Railbelt electrical grid
- Analyze and provide recommendations of possible alternative structures to manage and dispatch electric power in the Railbelt electrical grid
- Provide a final work product for stakeholders and decision makers to consider in planning how to meet the Railbelt's energy needs over the next 30 years

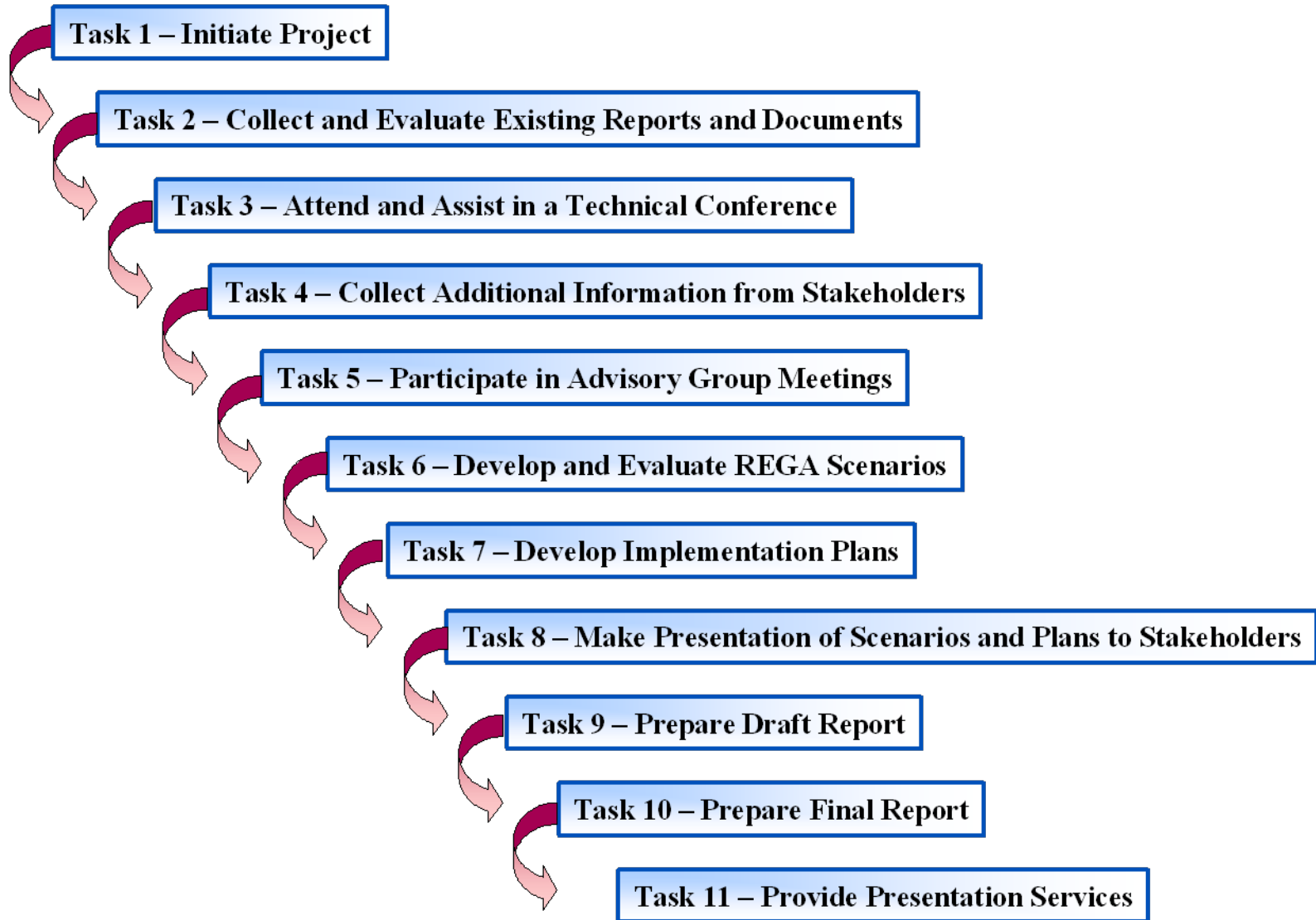
Project Scope

- Review existing reports and available grid data
- Conduct interviews and discussions with utilities and stakeholders
- Provide additional modeling necessary to provide a range of options
- Analyze a range of scenarios
- Develop recommendations on whether and how the Railbelt grid should be reconfigured
- Assess whether a REGA can be implemented cooperatively or whether a separate business entity is required

Project Scope (con't)

- Consider existing power sales agreements and fuel supply contracts
- Consider all aspects of grid operations
- Rank scenarios on the basis of a feasibility analysis and suggest up to three potential paths
- Develop implementation plans and budgets for feasible scenarios
- Provide a final report and presentations

Project Work Plan



Project Schedule

Task

1. Initiate Project
2. Collect and Evaluate Existing Reports and Documents
3. Attend and Assist in a Technical Conference
4. Collect Additional Information From Stakeholders
5. Participate in Advisory Group Meetings
6. Develop and Evaluate REGA Scenarios
7. Develop Implementation Plans
8. Make Presentation of Scenarios and Plans to Stakeholders
9. Prepare Draft Report
10. Prepare Final Report
11. Provide Presentation Services

	November	December	January	February	March	April	May
1. Initiate Project	■						
2. Collect and Evaluate Existing Reports and Documents	■						
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4. Collect Additional Information From Stakeholders		■	■	■	■	■	
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6. Develop and Evaluate REGA Scenarios			■	■	■	■	
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“Big Ten Strategic Issues” For Power Industry



- Aging Infrastructure
- Aging Workforce
- Adequate Security
- Reliability
- Environment
- Long-term Investment
- Technology
- Fuel Policy
- Market Structure
- Regulation

Project Issues

- Uniqueness of Railbelt
 - Size
 - Limited interconnections
 - Limited redundancies
 - State vs. Federal regulation

Project Issues (con't)

- Changed conditions
- Limited renewables and DSM programs
- Addressing climate change
- Reliability
- Aging infrastructure
- Fuel supply uncertainties
- Best means of achieving benefits

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What is Happening to Transmission?

- Historically, transmission owned by vertically integrated utilities
- From a “deregulated wholesale market perspective,” many feel there are major issues with this ownership profile
 - Who controls pricing?
 - How do you ensure fair (comparable) pricing?
 - Who controls scheduling access to the wires?
 - How do you guarantee a focus on reliability?
- The consequence
 - Wholesale deregulation has targeted the separation of transmission operations – functionally, operationally or physically – from the rest of the utility
 - Creation of independent organizations such as ISOs and RTOs to maintain a vigil on the use and pricing of the transmission systems

Current Transmission Perspectives

- Energy Act has passed, impact is starting to be implemented
- Perceived mixed financial benefits of deregulation in the U.S.
- Existing ISO/RTOs now focusing on reducing operational cost and demonstrating value to justify existence
- Most markets still evolving and maturing

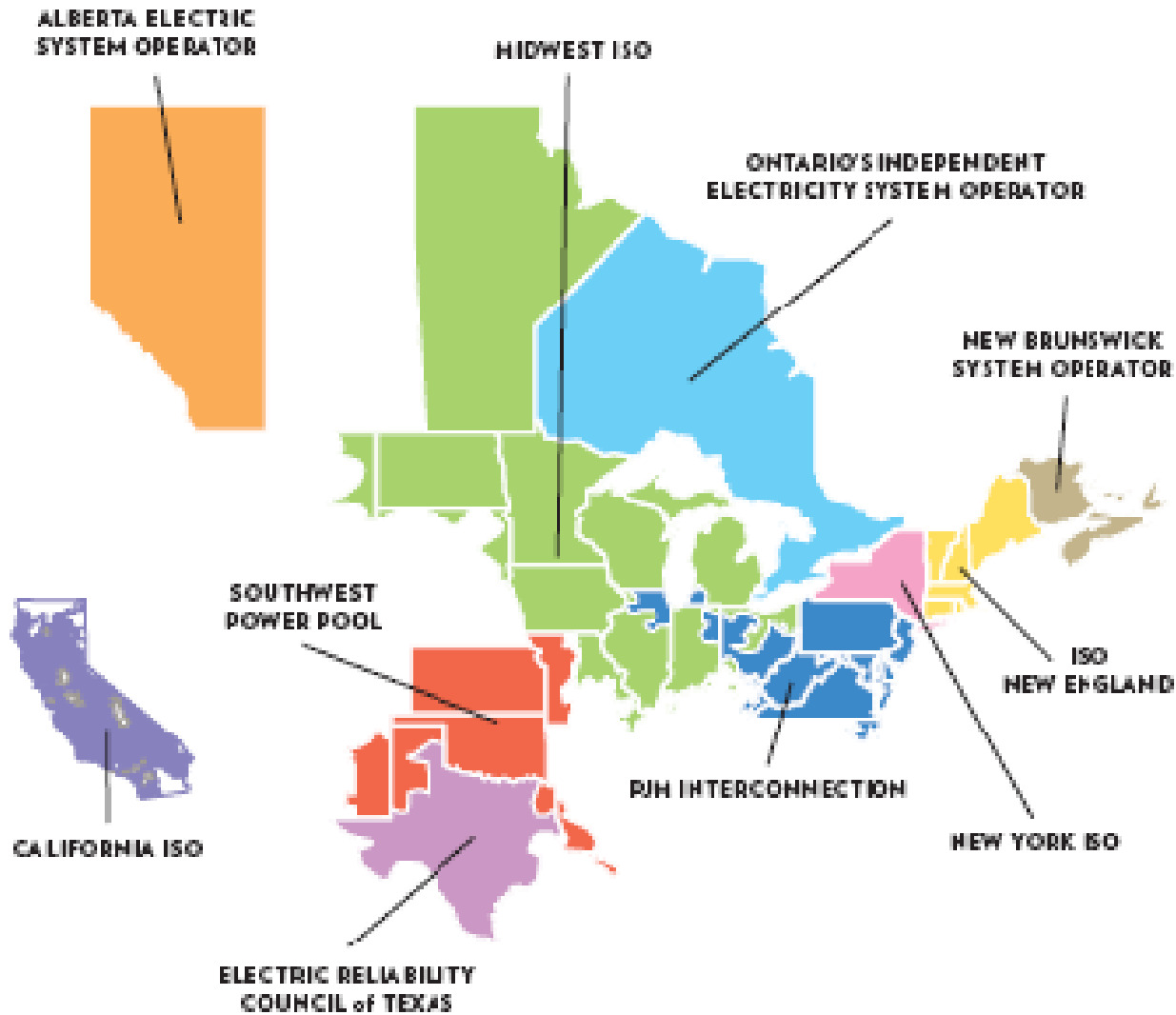
Ten Stated Reasons to Create ISO/RTOs

1. Enhanced reliability
2. Efficient grid dispatch
3. Significantly better price transparency
4. Ease of entry and private investment
5. Green power added to grid

Ten Stated Reasons to Create ISO/RTOs (con't)

6. Market monitoring benefits
7. Market flexibility
8. Market liquidity
9. Market diversity
10. Demand response development

Footprint of the North American ISOs and RTOs



Lessons Learned

- Initial set-up costs greater than predicted
- Operating costs greater than predicted
- Evolution slower than predicted
- Scope creep
- What is optimal size?
- Continued market rule changes
- Significant investments in generation and transmission have occurred

New Generation Investment

Region	2006 Installed Generation	New Generation 2001–2006	% of 2006 Generation from New Sources
AESO ^(a)	11,501	3,056	26.6%
CAISO	54,500	15,986	29.3%
ERCOT	80,141	21,883	27.3%
MISO	137,016	25,114	18.3%
IESO	31,214	2,624	8.4%
ISO-NE	30,825	8,304	26.9%
NBSO	4,302	102	2.4%
NYISO	40,536	4,754	11.7%
PJM	162,143	19,465	12.0%
SPP	45,950	10,883	23.7%

(a) Winter ratings are indicated for Alberta because that region is a winter-peaking system.

Source: ISO/RTO Council.

New Transmission Investments

- PJM - over \$7 billion approved
- MISO - nearly \$1 billion on-line; \$2.1 billion committed
- ISO-NE - \$833 million on-line; \$4.4 billion planned
- CAISO - \$8.2 billion approved
- ERCOT - \$3.5 billion invested
- AESO - \$1.5 billion invested

Source: ISO/RTO Council.

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Conclusion

- Options both significant and limited
- Lessons from lower 48 of limited value due to uniqueness of Railbelt
- Objective assessment
- Frame future uncertainties
- Stakeholder involvement
- Leveraging assets and circumstances