Next Steps

Wrangell Narrows looking south from Petersburg.
Introduction

• Study undertaken by Southeast Conference in January 2009 as update to 2005 Kake-Petersburg Intertie study

• Study Participants:
  – D. Hittle & Associates, Inc. - prime contractor
  – Subcontractors: Commonwealth Associates, Tetra Tech

• Draft report completed – review being conducted
Study Objectives

• Provide updated assessment of previous route alternatives
• Evaluate Northern route alternative more extensively
• Update construction and operating cost estimates
• Define power supply requirements and regional generation capability
• Outline permitting and environmental issues
• Perform economic analysis – Do benefits exceed costs?
Kake - Petersburg Intertie Study Update

Power System in Kake

• Kake has an Isolated electric system
• Local generation is diesel fueled
  – 2.6 MW installed capacity currently (3 units)
• Electricity is crucial to economic development
  – Average residential consumption of 366 kWh per year
  – About 1/3 of residential consumption in Ketchikan
• High cost of retail electric service
  – Approximately 60 cents/kWh
  – PCE reduces cost to residential, but not commercial users
Purpose of Intertie

- Interconnect Kake to SEAPA power grid
- Bring lower cost power to Kake
- Extend the Southeast transmission system for eventual connections to Sitka, Angoon and new generation projects
Kake - Petersburg Intertie Study Update

Kake –Petersburg Intertie
Northern and Center-South Routes

September 15, 2009
Proposed System Configuration

• 69-kV, single pole overhead construction
• Bundled three phase submarine cables
• Follow existing USFS roads or permanent road where possible
• Coordinate with regional road development
• Integrate with fiber optic telecommunication system components
• 2-3 year construction, 5 years total development
Alternative for Northern Route

- Horizontal directional bore under Wrangell Narrows and Petersburg Creek
- Power cable in pipe – about 10 inch diameter
- Overhead line on Kupreanof Island
- Could reduce cost by several million
Alternative Northern Route Options Through Petersburg
Alternative Northern Route Options Through Petersburg
Directional boring machine.
## Estimated Total Cost of Construction ($000)

<table>
<thead>
<tr>
<th>Route Alternative</th>
<th>Center - South</th>
<th>Northern w/Sub Cable</th>
<th>Northern w/Dir. Bore</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overhead Line</td>
<td>$16,913</td>
<td>$19,137</td>
<td>$19,389</td>
</tr>
<tr>
<td>Underwater Crossings</td>
<td>8,138</td>
<td>8,850</td>
<td>1,710</td>
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<tr>
<td>Other</td>
<td>12,872</td>
<td>10,550</td>
<td>8,883</td>
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<tr>
<td>Total Estimated Costs</td>
<td>$37,922</td>
<td>$38,537</td>
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<tr>
<td>Clearing and Road Construction</td>
<td>3,615</td>
<td>1,520</td>
<td>1,520</td>
</tr>
<tr>
<td>Submarine Cables</td>
<td>8,138</td>
<td>8,850</td>
<td>-</td>
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<td>-</td>
<td>-</td>
<td>1,710</td>
</tr>
<tr>
<td>Switchyards and Substations</td>
<td>1,868</td>
<td>1,521</td>
<td>1,521</td>
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<tr>
<td><strong>Subtotal - Direct Costs</strong></td>
<td>$30,534</td>
<td>$31,028</td>
<td>$24,140</td>
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<tr>
<td>Indirect Costs</td>
<td>$2,443</td>
<td>$2,482</td>
<td>$1,931</td>
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<tr>
<td>Contingency (15%)</td>
<td>4,946</td>
<td>5,027</td>
<td>3,911</td>
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Intertie Funding

• Initial construction costs to be grant funded
• Operating costs to be paid by Intertie users
  – Inside Passage Electric Cooperative (IPEC)
  – Private developers
  – Others
Estimated Benefits

• $9.9 million net present value savings in Kake power costs over first 20 years of operation

• Benefits could increase to $15.0 million if others pay costs of operation and maintenance on Intertie
Next Steps

• Additional preliminary design
  – Line from SEAPA substation to underwater crossings
  – Geotechnical evaluation of crossing locations
  – Continue to define system configuration
Next Steps

• Initiate NEPA and permitting process
  – Scoping documents and meetings
  – Coordinate with DOT as needed
  – Meet with agencies
  – Begin environmental studies
Next Steps

• Negotiate power sales agreements
• Determine ownership and maintenance arrangements
• Pursue funding
Typical Overhead Line Configuration
Cable laying vessel Sophie with Juneau-Admiralty Island cable on board.