Introduction

- Provide update on work that has been conducted since last September
- Present updated cost estimates
- Indicate activities that are expected to be conducted over the next few months

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Purpose of Intertie

- Interconnect Kake to SEAPA power grid
- Bring lower cost power to Kake
  - Retail rates as high as 60 cents/kWh
Technical Configuration

- Single pole overhead construction, 69-kV
- Follow existing USFS roads or permanent road where possible
  - Existing utility corridor routes
- Integrate with fiber optic telecommunication system components
- 2-3 year construction, 5 years total development
Kake – Petersburg Intertie: Northern and Center-South Routes

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Kake - Petersburg Intertie Study Update

Typical USFS Road on Kupreanof Island

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Alternative for Northern Route

- Horizontal directional bore under Wrangell Narrows and Petersburg Creek
- Power cable in pipe – about 10 inch diameter
- Overhead or underground line on Kupreanof Island

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Alternative Northern Route Options Through Petersburg
Recent Permitting Activities

- Tetra Tech is conducting this work
- Met with US Forest Service several times
  - Established work plan
- Field investigations last fall
  - Streams, soils and hydrology
- Cultural resource study undertaken this winter

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Upcoming Permitting Activities

- USFS needs to issue another Notice of Intent (NOI)
  - Would like to reference preferred route
- Field work to resume in June
  - Most intensive effort in July
  - Field logistics evaluation underway now
- More meetings with USFS
- Draft EIS in late 2011, Final EIS in 2012
Recent Engineering Work

- Completed preliminary design for northern route
  - Served as basis for field locations last fall
- Continuing discussions with geotechnical specialists regarding underwater crossing issues
- Evaluating alternatives for underwater crossings
  - Directional drilling for Center-South route
- Updated cost estimates

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Upcoming Engineering Work

- Define scope of work for geotechnical studies
  - Undertake first phase of studies
- Conduct field evaluations of preliminary design
  - Update design as needed
- Conduct detailed evaluation of underwater crossing alternatives
  - Directional drilling
  - Submarine cables
- Potentially define preferred route

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Estimated Construction Costs

- Costs of materials continue to rise
  + Metal and oil prices are a significant factor
- Labor costs also increasing
- Submarine cables are very expensive

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## Estimated Total Cost of Construction 69-kV ($000)

<table>
<thead>
<tr>
<th></th>
<th>Northern Route - No Road</th>
<th>With Submarine Cable</th>
<th>With Bore and UG Cable</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Center - South w/Bore</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overhead Line</td>
<td>$17,924</td>
<td>$20,978</td>
<td>$23,484</td>
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<tr>
<td>Clearing and Road Construction</td>
<td>3,991</td>
<td>5,792</td>
<td>6,139</td>
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<tr>
<td>Underground Construction</td>
<td>-</td>
<td>-</td>
<td>3,365</td>
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<tr>
<td>Submarine Cables</td>
<td>4,007</td>
<td>7,892</td>
<td>-</td>
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<tr>
<td>Directional Bore Crossings</td>
<td>2,379</td>
<td>-</td>
<td>1,914</td>
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<tr>
<td>Switchyards and Substations</td>
<td>1,977</td>
<td>1,611</td>
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<td><strong>Subtotal - Direct Costs</strong></td>
<td><strong>$30,279</strong></td>
<td><strong>$36,272</strong></td>
<td><strong>$36,512</strong></td>
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<tr>
<td>Indirect Costs</td>
<td>$2,422</td>
<td>$2,902</td>
<td>$2,921</td>
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<td>Contingency (15%)</td>
<td>4,905</td>
<td>5,876</td>
<td>5,915</td>
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<tr>
<td><strong>Total Costs</strong></td>
<td><strong>$37,606</strong></td>
<td><strong>$45,050</strong></td>
<td><strong>$45,348</strong></td>
</tr>
</tbody>
</table>

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Estimated Construction Costs

- Northern route would cost approximately $6 million less if a DOT road were in place before the intertie is built.
- Northern route would cost about $3 million less if underground construction is not needed in and adjacent to Kupreanof.
- Costs are about $3 million higher for 138-kV.
Primary Benefits of Intertie

- Reduce diesel generation in Kake
- Lower electric rates in Kake
- Allow for economic incentive rate structures
- Extend the current SEAPA grid

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Kake - Petersburg Intertie Study Update

Kake powerplant

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