Micro-Hydro Feasibility Study

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Hoopa Valley Tribe
The Hoopa Valley Reservation was established in 1868 by executive order of Ulysses S. Grant and contains the aboriginal homeland of the Hupa People. It encompasses approximately 100,000 acres and is 96% owned by the Hoopa Tribe.
Salmon are the life blood of the Hupa and Yurok and Karuk people
There are over 1200 miles of major streams within the Hoopa Valley Reservation many of which support Salmon and Rainbow trout. 50-60 inches of rainfall /year
Why Hydro?

- Most common renewable energy
- Well developed technology
- Most efficient means of producing electricity
- Multiple uses of water resource
- Ideal for distributed generation
- Least expensive power in US
Hydro Efficiency

• Generates between 205-267 times the amount of energy to build and maintain the facility
• Windpower is 37x
• Nuclear is 16x
• Coal is 11x
In FY06 the Hoopa Valley Tribe received a grant from the DOE to conduct a hydro-power feasibility study on 7 major streams of the Reservation.
Concept of Approach

• Road access to streams
  – Intake sites, pipeline construction and turbine sites

• Distance to Valley
  – produce enough power to get down to the valley and still have plenty for the community to use

• Proximity to power lines – connectivity

• Location for turbine
  – relatively flat, close to power lines

• Adequate head and majority of stream flows at intake site
Issue(s)

The Hoopa Valley Tribe has been involved in legal battles with upstream dams for over 10 years. In 2003 the Tribe won its case for 30% more water from the Lewiston dam to support Salmon fisheries in the Trinity and Klamath Rivers.

Lewiston Dam – Trinity River
Lower Supply Creek Discharge Frequency
365 days, Water Year 2005

Discharge (cfs)

Days

- 2.5: 3
- 5: 2
- 10: 41
- 20: 100
- 30: 24
- 40: 26
- 50: 22
- 60: 17
- 70: 11
- 80: 8
- 100: 17
- >100: 94
Upper Campbell Creek Landslide
Off Reservation Impacts
Campbell Creek Sediments
Lower Tish Tang Creek
Hoop a Valley
Problems with Tish Tang

- Very gradual gradient 5-10%
- Unstable slopes
- Timber set asides
- Cultural sites
- Lack of low elevation site for turbine
Pine Creek

- Gross head, 66 feet
- Length of pipe, 4500 feet
- Flow range, 50 cfs
- Duration 50 cfs for 141 days
- Recommended pipe diameter, 48"
- Calculated net head, 62 feet
- Expected power, 220KW
Soctish Creek Hydro Sites
Soctish Creek

- Gross head, 118 feet
- Length of pipe, 2716 feet
- Flow range, 100 cfs
- Flow duration 217 days
- Recommended pipe diameter, 48"
- Calculated net head, 109 feet
- Expected power, 790KW
Supply Creek

- Gross head, 233 feet
- Length of pipe, 4169 feet
- Flow range, 50 cfs
- Flow duration of 170 days
- Recommended pipe diameter, 40"
- Calculated net head, 223 feet
- Expected power, 800KW
Hostler Creek

- Gross head, 39 feet
- Length of pipe, 375 feet
- Flow range, 10 cfs
- Flow duration 317 days
- Recommended pipe diameter, 16"
- Calculated net head, 35 feet
- Expected power, 19KW
Mill Creek Hydro Power Sites
Hoopa Valley
Mill Creek

- Gross head, 72 feet
- Length of pipe, 6350 feet
- Flow range, 100 cfs
- Flow duration 182 days
- Recommended pipe diameter, 60"
- Calculated net head, 65 feet
- Expected power, 470KW
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<thead>
<tr>
<th>Hoopa Tribe Detail</th>
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<tbody>
<tr>
<td><strong>KW Size of Turbine</strong></td>
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<tr>
<td>Lower Pine Creek</td>
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<tr>
<td>Soctish Creek</td>
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<tr>
<td>Supply Creek Option 1</td>
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<tr>
<td>Supply Creek Option 2</td>
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Questions