

Project Notebook

Makah Indian Nation

“Next Steps to Implement Pilot Power Project for Pacific
Northwest Region”

Project Overview



- Wind Power and Other Generation
 - Wind Resource marginal
 - Other self-generation sources being considered
- Tribal Utility Development
 - Makah Tribal Utility charter in place
 - Tribal Utility business options being evaluated

Self Generation Options



- Summarize Wind Resource Assessment
- Potential sources of self-generation
 - Wave energy
 - Bio-gasification
 - Small wind energy Environmental Impact issues
- Environmental Impact issues



Tribal Utility Charter



- Makah Tribal Utility charter
- Relationship of Makah Tribal Utility to the Makah Tribe
- Business structure for operations

Steps for Utility Formation

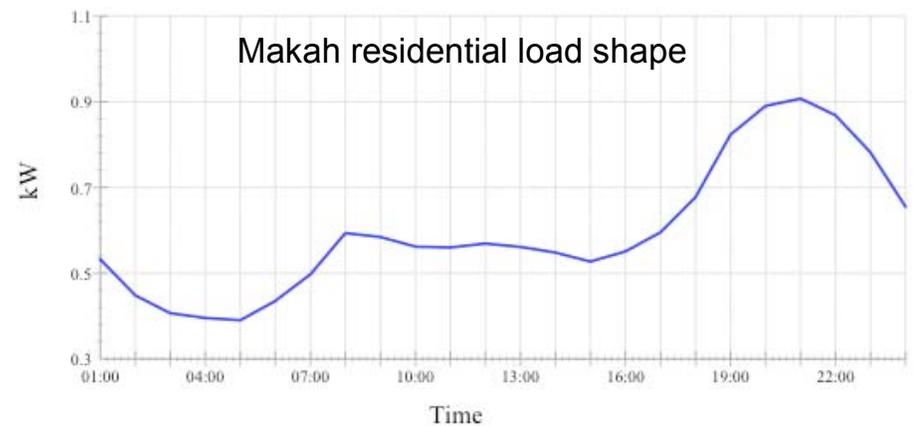
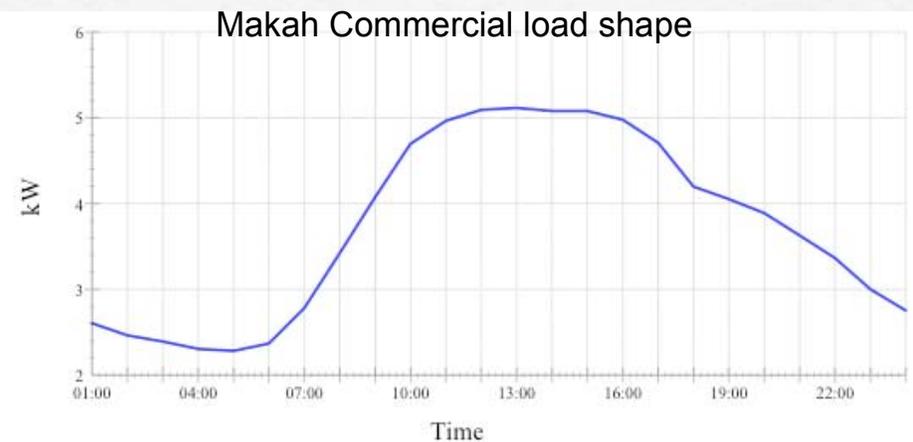


- ❑ Develop load and cost data
- ❑ Determine financial feasibility
- ❑ Negotiate distribution purchase
- ❑ Negotiate power portfolio
- ❑ Execute on minimal necessity

Load Summary



Meters	% of Total	Annual usage kWh
Res 1 phase (579)	45.1	7,543,331
Res 3 phase (1)	0.2	28,801
Comm 1 phase(86)	10.0	1,679,420
Comm 3 phase(26)	5.8	964,217
Comm Large(13)	31.6	5,281,020
Edu 1 phase(5)	0.6	99,471
Edu 3 phase(5)	6.7	1,126,616
715 meters	100%	16,722,876

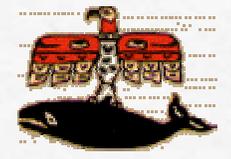
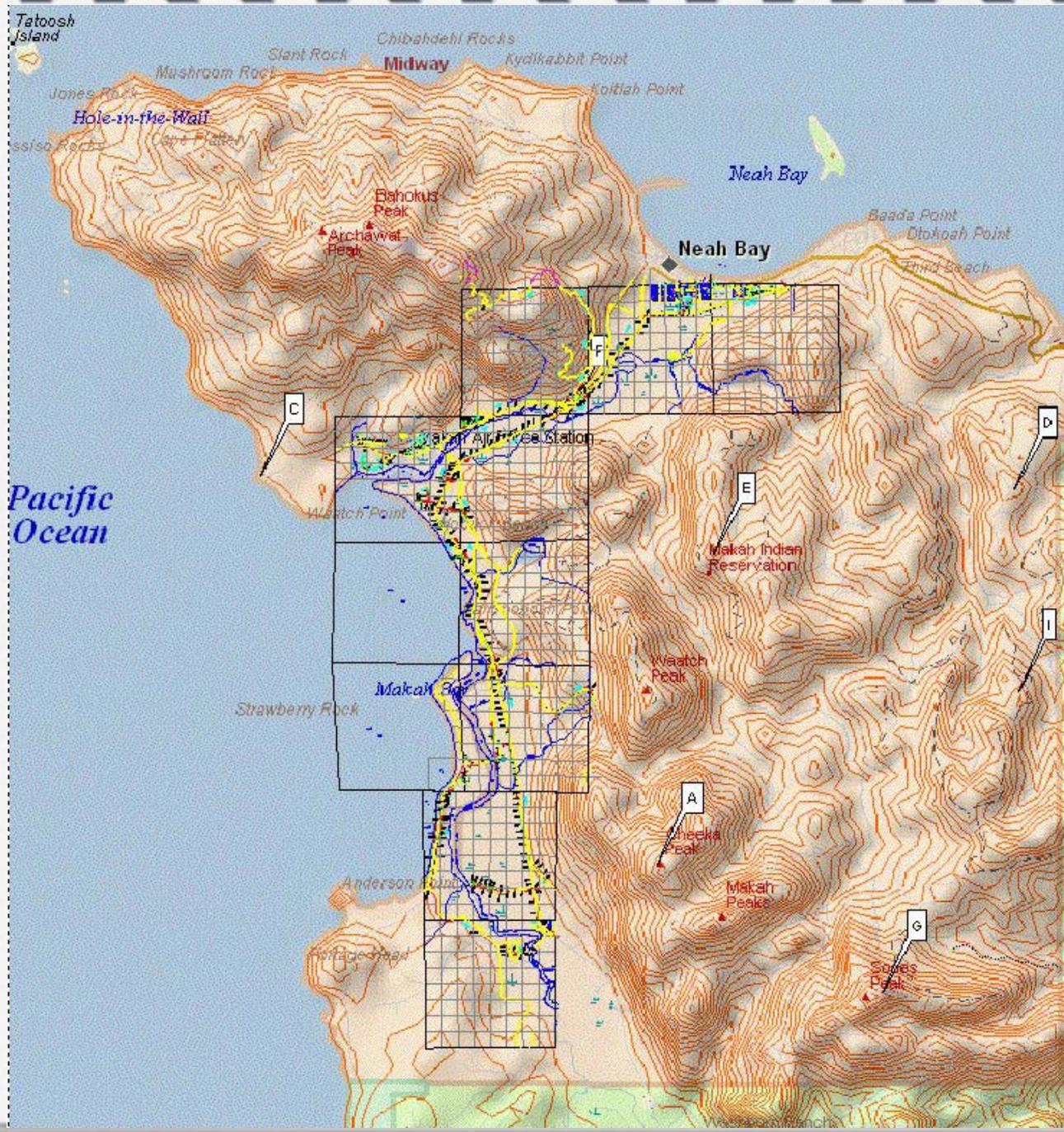


Distribution Assets



- Field survey
(transformer and pole count)
- PUD GIS drawing
- Reconciliation
- Age of plant from PUD

Equipment	# of Units
7.5 MVA transformer 67000/13200/7620	1
333 kVA Regulator	3
Circuit A poles	180
Circuit B poles	33
Circuit C poles	85
Pole mount transformers	178
Pad mount transformers	6
Meters	715



Electric Distribution System

Makah Substation



Makah - Electric Utility

CASE # 1

Cost of Service Analysis (In nominal dollars)

Annual and Five Year Savings Analysis (In nominal dollars)

Capital Cost

Replacement cost less depreciation

\$ 402,625

Load

PUD Supplied

16,722,876

Purchased Power

-

Self Generation

-

16,722,876 kWh

Retail Energy Rate

Oallam County PUD (variable energy)

\$ 0.0652 per kWh

Oallam County PUD (fixed plant)

\$ 0.0056 per kWh

\$ 0.07076

.071

Wholesale Energy Rates BPA PBL

Demand Charge

\$ 0.00640 per kWh

HLH energy rate

\$ 0.00929 per kWh

LLH energy rate

\$ 0.01354 per kWh

Load variance rate

\$ 0.00117 per kWh

Total Wholesale Cost

\$ 0.03040

MUC Delivery Costs

Depreciation @ 2.75%

\$ 0.00066 per kWh

debt @ 5% for 30 years

\$ 0.00155 per kWh

O&M at 150,000 per year

\$ 0.00897 per kWh

Administration at \$250,000 per year

\$ 0.01495 per kWh

Losses are nominal

\$ - per kWh

Cost of Delivery

\$ 0.02613 per kWh

Total Delivered Cost/kWh to End Use

Weighted wholesale plus cost of delivery

\$ 0.05654 per kWh

.057

Total Delivered Cost to End Use - Annual

Current Average Rate

\$ 1,183,275

MTU Rate

\$ 945,442

First Year Savings by TMTU Compared to Staying with Current Supplier

\$ 237,832

Five Year Savings by TMTU Compared to Staying with Current Supplier

\$ 1,189,161

Interim COS



- Difference of 1.4¢
- 1st year savings \$237,832
- 5 year savings \$1,189,161

Power Marketing



- Meet with Clallam County PUD
- BPA non-wires solutions pilot project proposal

Thank You

