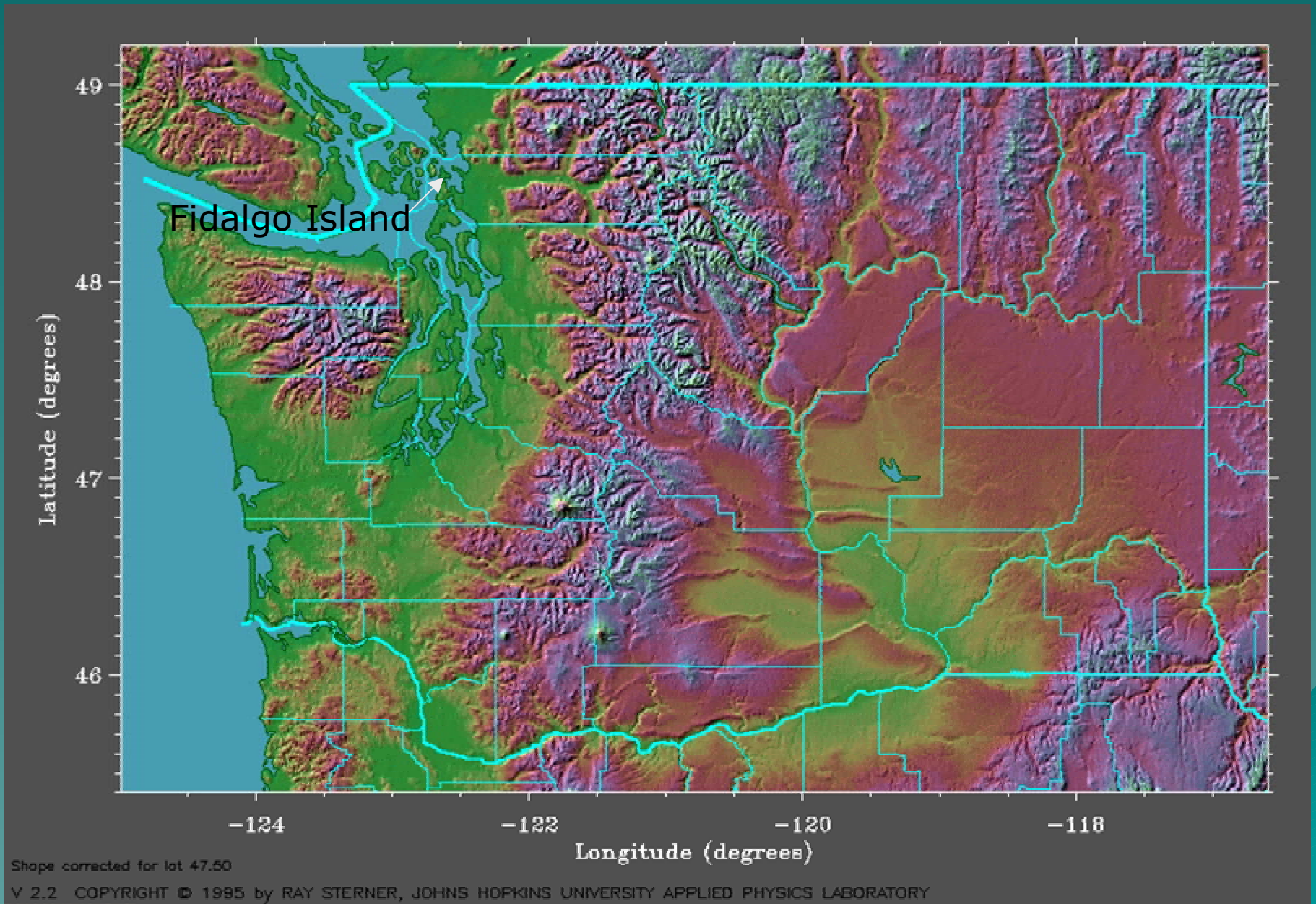
The Samish Indian Nation

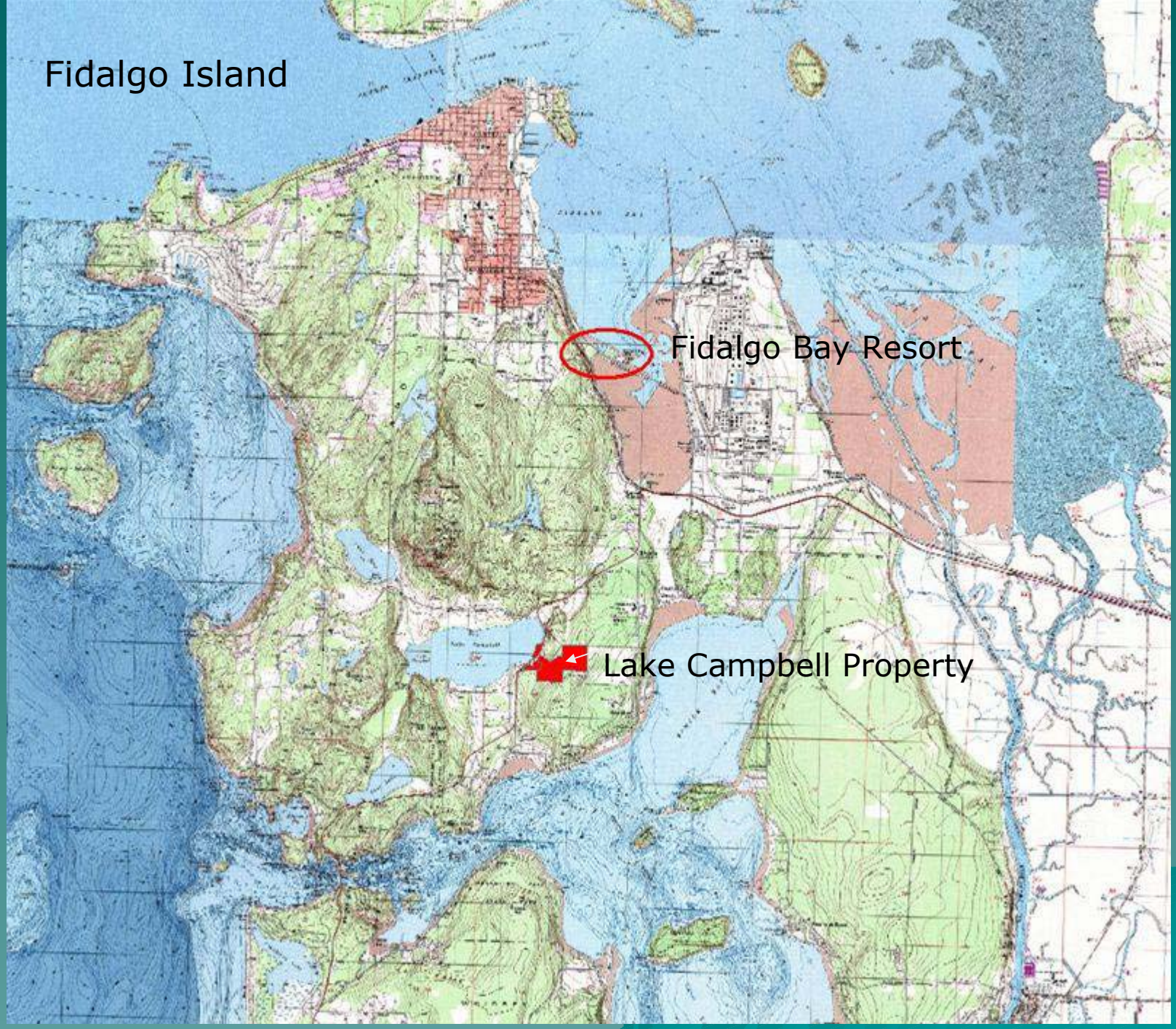
STRATEGIC ENERGY PLAN

Presentation for the Department of Energy
Tribal Energy Program Review
Golden Colorado, October 2004

Photo credit:
Cover art from:
Samish Journey Home Vol 2;
"Songs for the Samish people"

Washington State




Fidalgo Island
Fidalgo Bay Resort
Lake Campbell Property

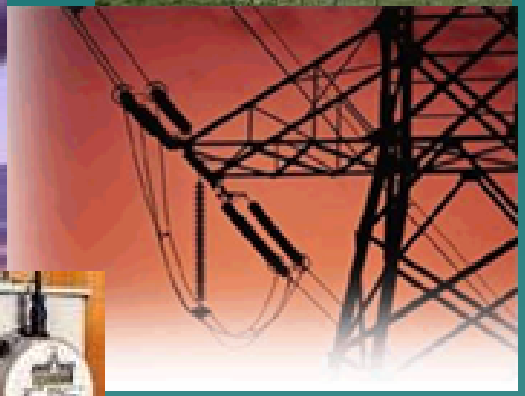
Vision Statement

The Samish Indian Nation will develop a comprehensive Strategic Energy plan to set policy for future development on tribal land that will consist of a long-term, integrated, systems approach to providing a framework under which the Samish Community can use resources efficiently, create energy efficient infrastructures, and protect and enhance quality of life. Development of the Strategic Energy plan will help the Samish Nation create a healthy community that will sustain current and future generations, by addressing economic, environmental, and social issues while respecting the Samish Indian Nation culture and traditions.

Overview

- Why Renewable Energy?
- On-Site Resource Assessment
  - Progress narrowing the field
  - Promising options so far
- What RE options are available?
- Work remaining on task

Why Renewable Energy?



- Increasing costs
- Price volatility
- No local control
- Decreasing Reliability
- Environmental Impacts

Resource Assessment

- Tribally Owned Buildings Inventory
  - Longhouse-4300 sqft
  - Contract Health-1800 sqft
  - Administration Building- 5800 sqft
  - 4-plex X2- 2600 sqft
  - Fidalgo Bay Resort
    - Store- 3000 sqft
    - Clubhouse- 4300sqft
    - Shower/laundry- 1000 sqft

Energy Providers

- Puget Sound Energy-Electric
  - All buildings
  - Administration Building with electric heat
- Cascade Natural Gas
  - All buildings except Administration building and RV Park
- Suburban Propane
  - RV Park

2004, To Date Consumption

- PSE
  - 107791 KWH for Tribal Buildings
  - 587815 KWH for Fidalgo Bay RV Park
    - $51,817.00
- CNG
  - $1905.00
- Propane
  - $3,554.00

Renewable Energy Resources

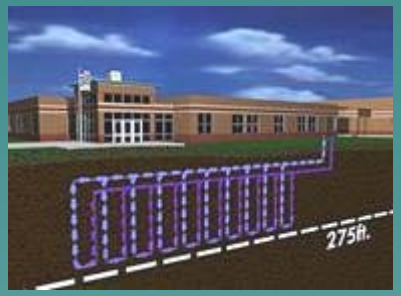
Solar PV

Wind

Geothermal

Micro-Hydro

Solar Hot water



Geothermal Heating

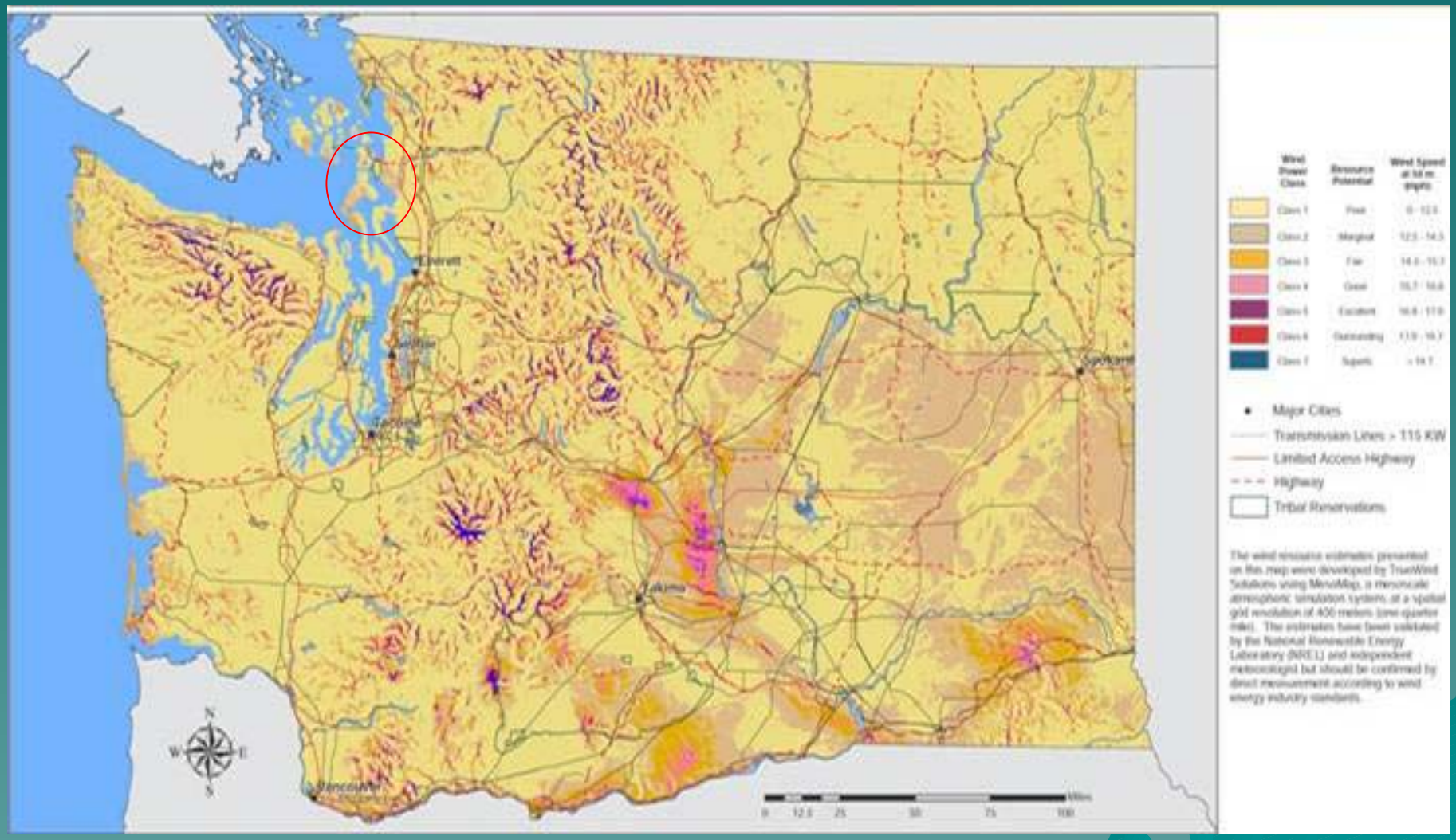
BioMass

BioGas

Wind Energy

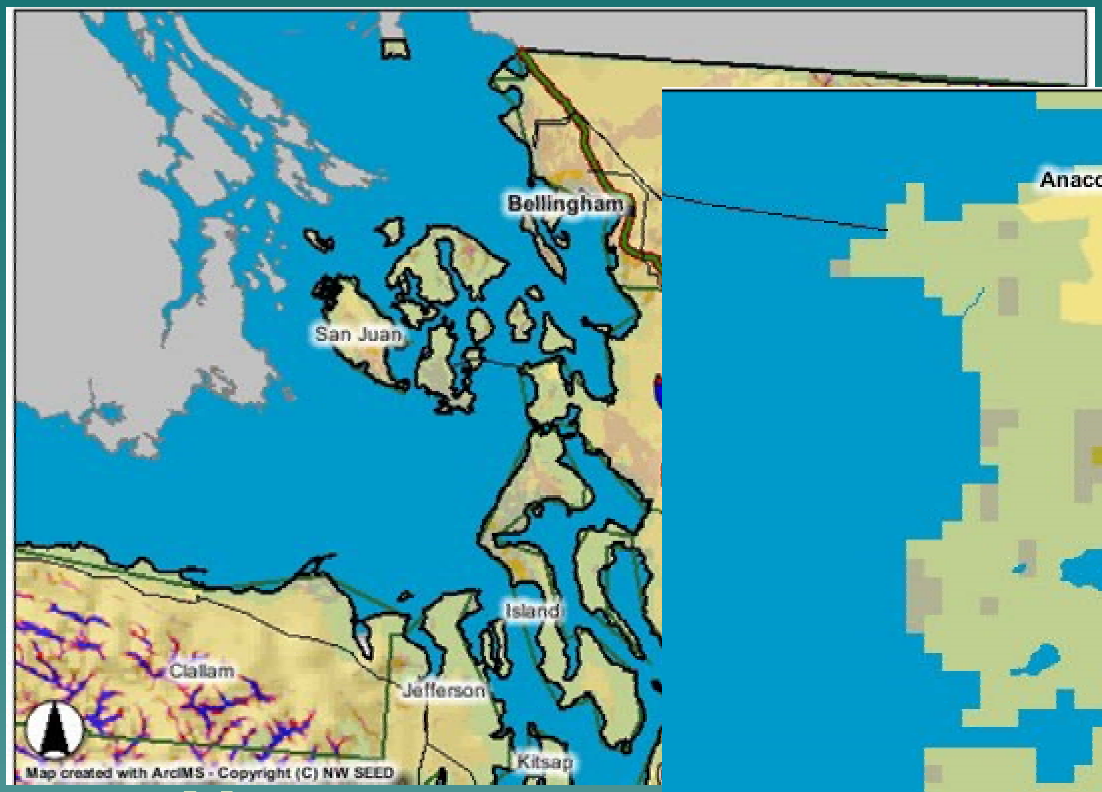
- Fastest percentage growth of any generation source in the world
- Becoming competitive with fossil fuel generation costs in some places
- Existing infrastructure in WA

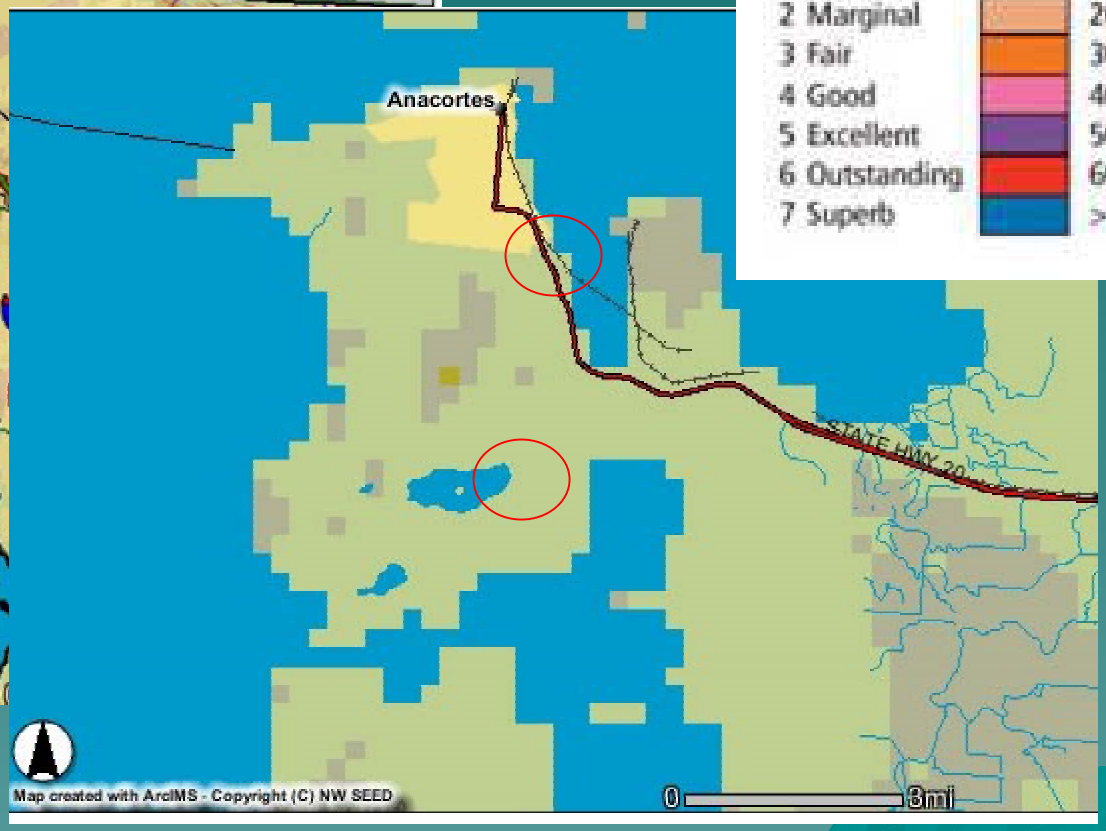
WA State Wind Map



Data courtesy of NREL and NWSEED www.windpowermaps.org/windmaps/states.asp#washington

Large Scale Wind – local view





Wind Power Density at 50m

Class	W/m²
1 Poor	0–200
2 Marginal	200–300
3 Fair	300–400
4 Good	400–500
5 Excellent	500–600
6 Outstanding	600–800
7 Superb	> 800

Not an Option

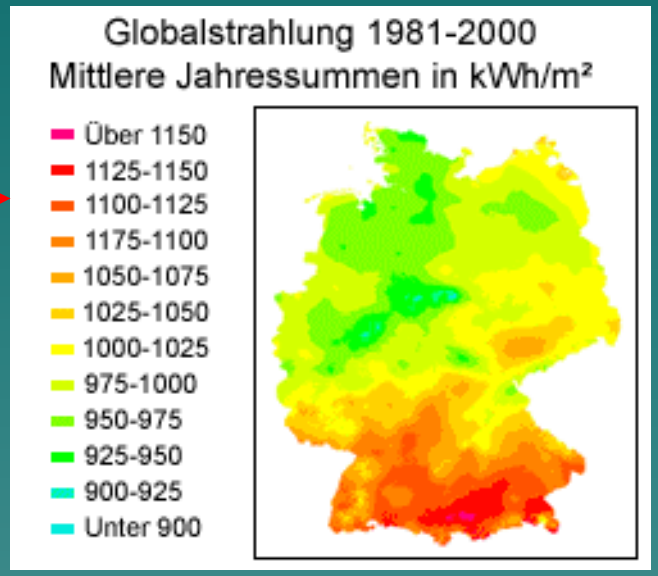
Data courtesy of NREL and NWSEED www.windpowermaps.org/windmaps/states.asp#washington

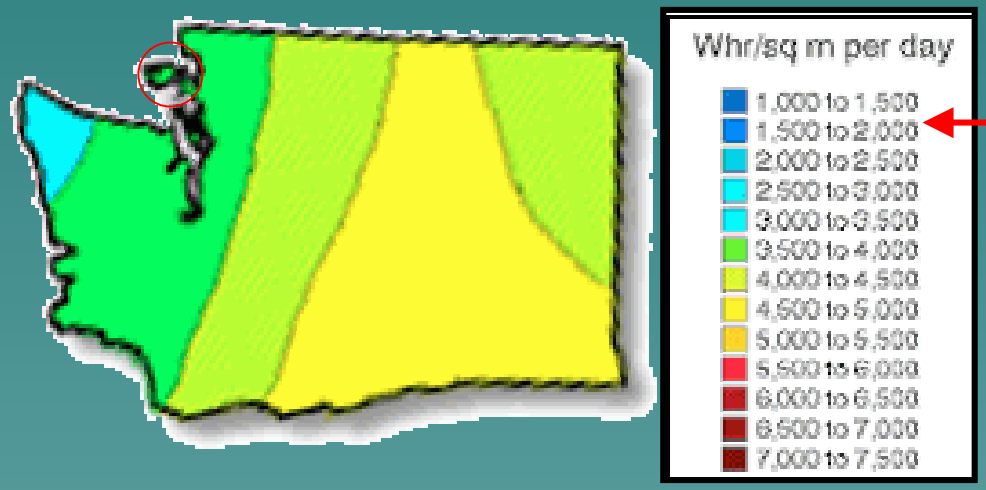
PV for Off-Grid Sites

Approx 1,000 off-grid solar sites in WA
Most are in Island County

Solar Insolation Data

- Approx 3.5 Watts/M2
- About equal to the best zones in German – world #2 Market for PV





Solar ressource for a flat-plate collector

Solar Can “Add-On”

Fidalgo Bay RV Park

187 RV Sites plus clubhouse, store and laundry

New Addition

Expansion Project

- **Add 4000 sq feet**
- **Energy efficient building design**

- On-Site Power benefits

- High Visibility

  Solar has the highest public recognition as the most environmentally friendly form of Renewable Energy

- Good long term Economics
  - Incentive programs make a difference
  - Building benefits (roofing, structure)

Solar Thermal Opportunities

- Hot water for the RV facilities
  - Washing, showers, etc.
  - Seasonal usage match
- Possible pre-heat for radiant floor heating systems
- Quick view of the costs
- 1/4 the pay-back time of PV

Campbell Lake Property

Approximately 80 acres

- 26 single family Tribal homes
- Potential solar and/or geothermal heat pumps

Geothermal Heat Pumps

- On-site HVAC Solution
- Cost Effective
- Environmental plus
- More heat recovery Options

www.pnl.gov/TechReview/hybrid-new/ hybrid-ghp.html

Ground Source Heat Pumps

- vertical, horizontal or open loop
- Residential options
  - Combined installation with above ground septic

Kelleher Road Property

48 acres of grassland

- Potential Biomass site
- Heart of dairy country

Bio Mass

- Burning agricultural or industrial solid waste
- Convert waste to energy
- Huge raw material resource that currently represents a disposal problem

Positive Points

- Normally escaping methane would have negative impact; therefore this can be a restorative activity
- Process by-products can have value
  - Manure sludge has better fertilizer properties and no pathogens
- Excellent $/KW results
- Removes waste from land application

Pro's & Con's

- Low cost fuel = cost effective generation
- Environmentally preferred disposal
- On-site power benefits

- Low, but some emissions
- Make-up gas additions with propane or natural gas

Tax Benefits for RE Investments

- Federal Tax Credit
  - 10% tax credit for purchase of solar or geothermal systems.
  - Wind Production Tax credit of 1.5¢/KWhr +
- Accelerated depreciation
  - Solar, Wind, and Geothermal Modified Accelerated Cost Recovery System (MACRS): Depreciation over 5 yrs
  - Job Creation & Worker Assistance Act of 2002: Additional 30% depreciation on solar, wind, and geothermal property in the first year.

Communications Planning

- Networking & outreach
- Corporate Sustainability Reporting
- Recognition Programs
- EPA Green Power Partnership

More Communications

- Well done Communications, Internal and External will,
  - Show leadership
  - Leverage more environmental benefits by increasing the use of RE
  - Improves the value of the investment

- Keys to good communication Plan:

  Sincerity, Clarity, Connection

- The Green Power Partnership is a voluntary Partnership between the U.S. Environmental Protection Agency (EPA)
- As a Green Power Partner, an organization pledges to replace a portion of its electricity consumption with green power within a year of joining the Partnership.

- The goal of the Green Power Partnership is to facilitate the growth of the green power market by lowering the cost and increasing the value of green power.

Samish Indian Nation

- The Tribe has joined the EPA Green Power Partnership program and has committed to obtain at least 10% of their electricity from new renewable energy sources within the next year

Join the Green Power Partnership

- If your organization is interested in supporting the development of renewable energy, join the U.S. EPA's Green Power Partnership.
- http://www.epa.gov/greenpower

Work Remaining on Task

- Energy code and ordinance development
- Development of a long-term strategic energy plan
- Development of a strategic energy implementation plan
- Resource assessment
- Identification of potential projects
- Apply for funding for projects

Project Approach

1. Energy Resource Assessment

- ***Potential energy resources and opportunities***
- ***Priority ranking of options***

2. Long-Term Strategic Energy Plan

- ***Where is the Tribe now?***
- ***Where do we want to be?***
- ***How will we get there?***
  - *Generation options*
  - *Energy-efficiency options*
  - *Institutional options*

Project Approach

3. Project Implementation Plan

- ***Technical and economic feasibility***
  - *Generation options*
  - *Energy-efficiency options*
  - *Institutional options*

4. Capacity Building

- ***Code and Policy Development***
- ***Training and Information Transfer***
- ***Public Involvement***

Responsibility

“We cannot simply think of our survival; each new generation is responsible to ensure the survival of the seventh generation. The prophecy given to us, tells us that what we do today will affect the seventh generation and because of this we must bear in mind our responsibility to them today and always."