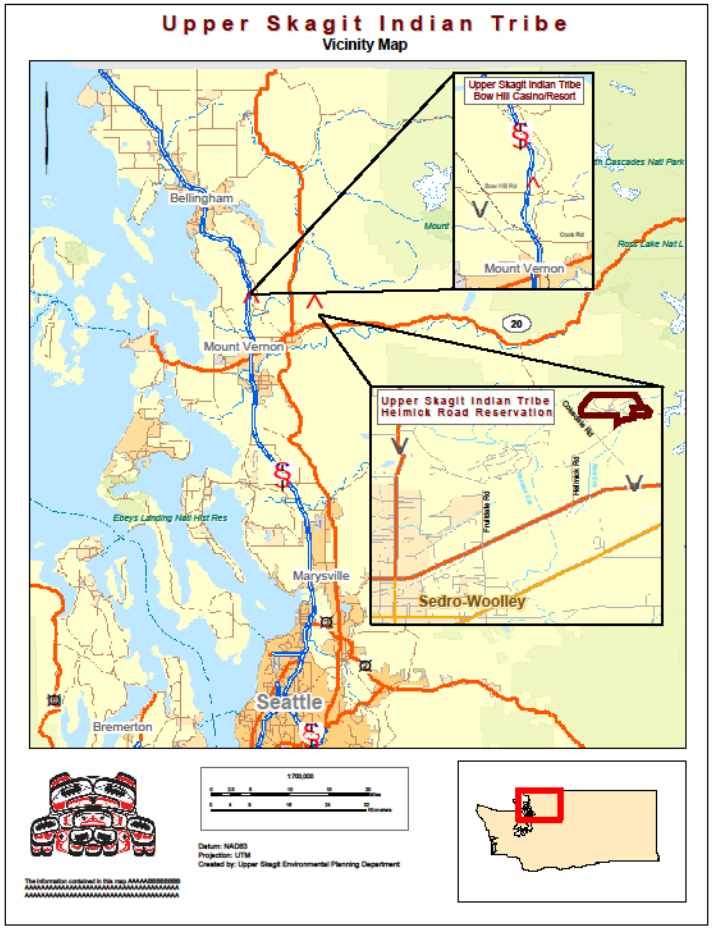
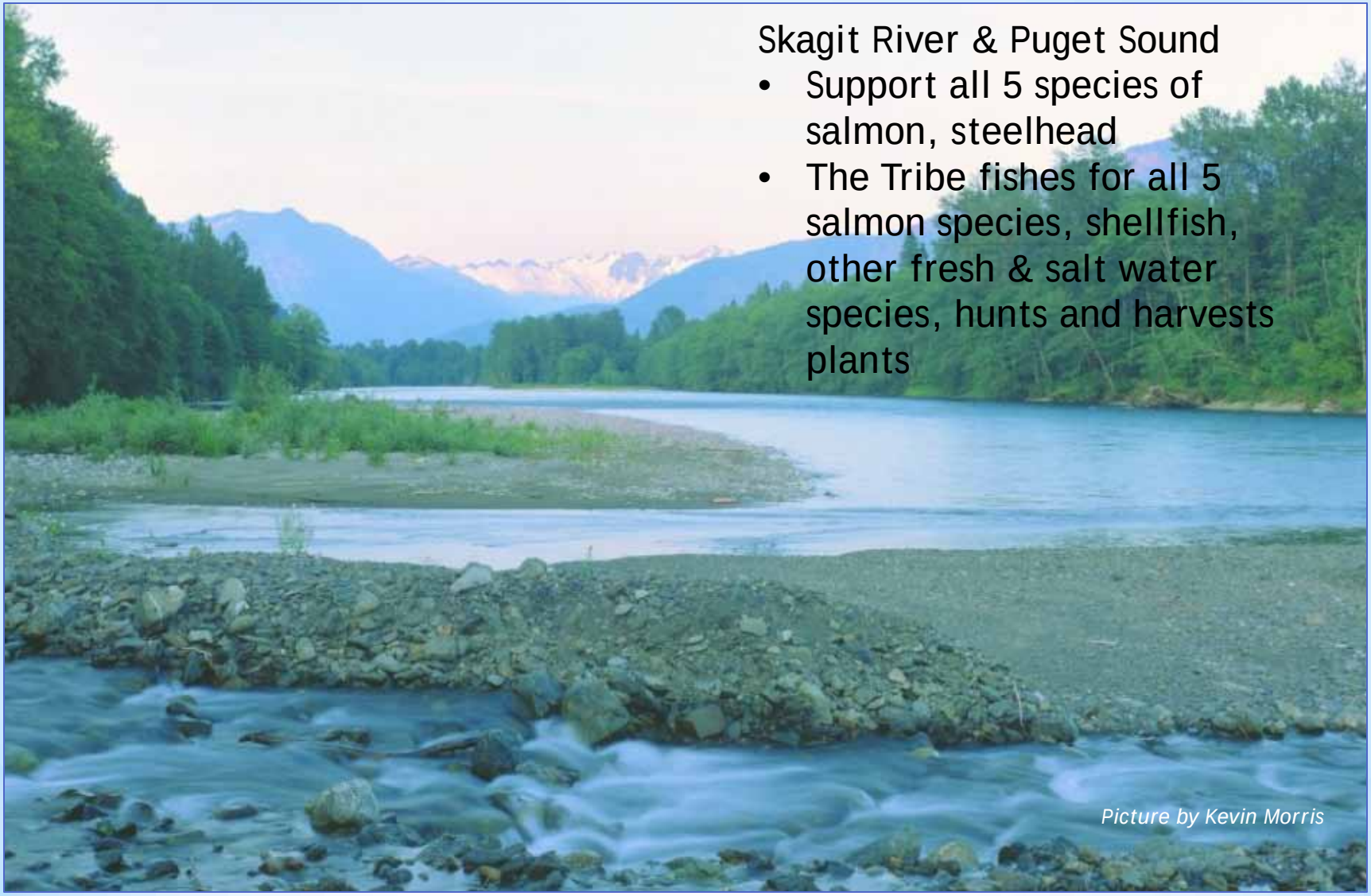
Upper Skagit Indian Tribe

- Feasibility of Wind to Serve Upper Skagit's Bow Hill Tribal Lands
- Assess Feasibility of Residential Wind Energy Applications



* Upper Skagit Indian Tribe is located in the Pacific Northwest , about 1 hour north of Seattle, Washington
* Upper Skagit have two reservation land bases –
  * Bow Hill the economic land base
  * Helmick Road Reservation the center of government, community services & residences

* Upper Skagit is a Treaty Tribe with land, riverine and marine rights.


Skagit River & Puget Sound
• Support all 5 species of salmon, steelhead
• The Tribe fishes for all 5 salmon species, shellfish, other fresh & salt water species, hunts and harvests plants
Picture by Kevin Morris


Shrimping


Checking for CWT


Clamming


Coho test fishery

*Energy Planning

- *Strategic Energy Plan
- *Energy Efficiency Improvement Plan
- *Renewable Energy Resource Assessment
- *Integrated site developent, building and energy code

*Steps Forward

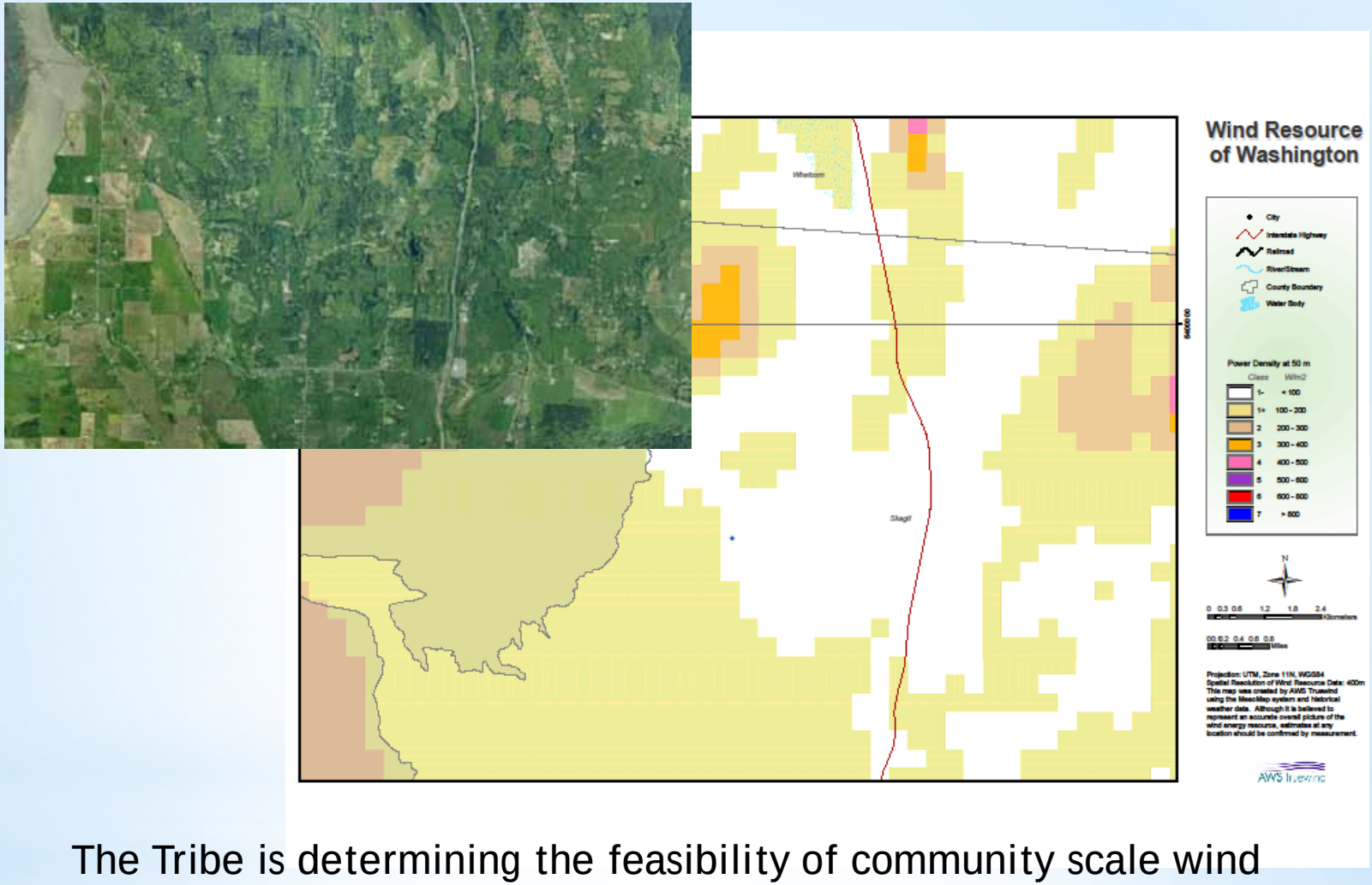
*CFL commercial lighting transition
*Energy efficient windows
*Insulation
*Solar demonstration
*Residential rehab, lighting

*Wind Feasibility Presentation Will

- *Describe Objectives
- *Describe Progress
- *Review Project Schedule
- *Lessons Learned

*Objectives

- *Determine if resource potential for community scale wind resource exists
- *Determine if residential rooftop wind technology has advanced
- *Assess economic, environmental, cultural, and social benefits to justify the cost of development

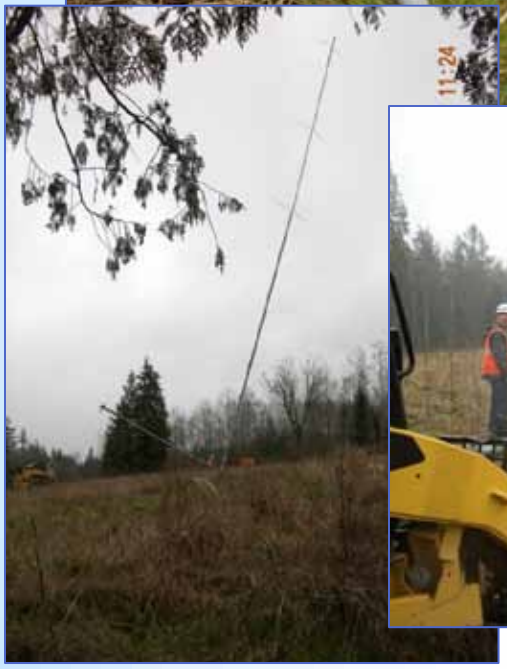


The Tribe is determining the feasibility of community scale wind resource to serve the Bow Hill Tribal Lands. These lands, situated on a ridge above the Skagit valley are within 4 miles of the shoreline, and receive winds both north/south and east/west.

*Progress

- *Installation completed after permitting delay
- *SODAR low-wind season deployment completed high-wind season deployment occurring this month
- *Monthly data collection reports completed to date

Installation Day



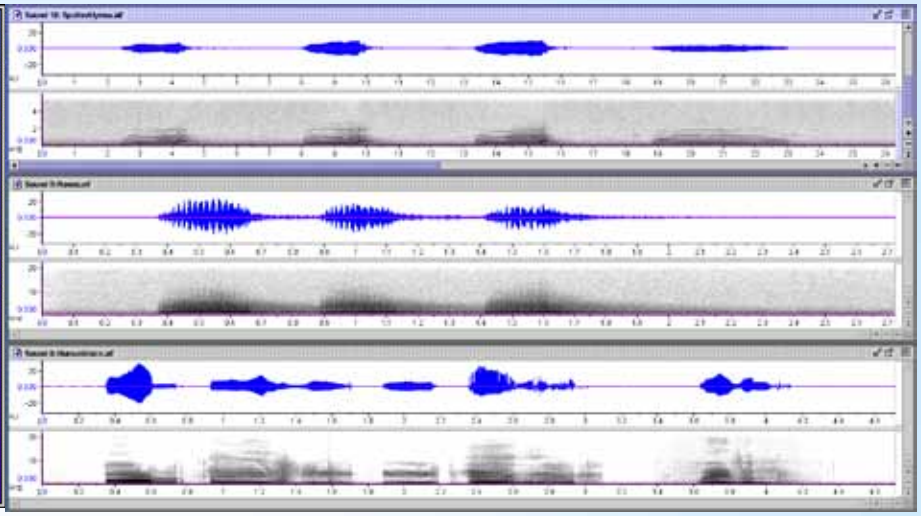
The wind tower is installed at location C SODAR is referenced at C and spends one month each at locations A and B – once in low wind season then again in the high wind season

Monthly Field Checks & Data Downloads

- Reference stations, three ASOS weather stations and three Washington State AgWeather Net (AWN) stations suggest an upward adjustment to the USIT met tower data, implying that the mean wind speed of the months on record is lower than the long-term annual average.

- These reference stations require further investigation for data quality, data recovery, sensor history and site exposure.

- This long-term reference site validation and verification will happen in the coming months, prior to completing a full year of data recovery at the site.



Environmental data collection – birds and bats

- Programmed for sunrise, sunset and 3 hours after sunset
- Simulator shows recording time, battery life and memory card capacity
- Acoustical data – free software – you have to analyze the visual graph, or purchase software that can sort it

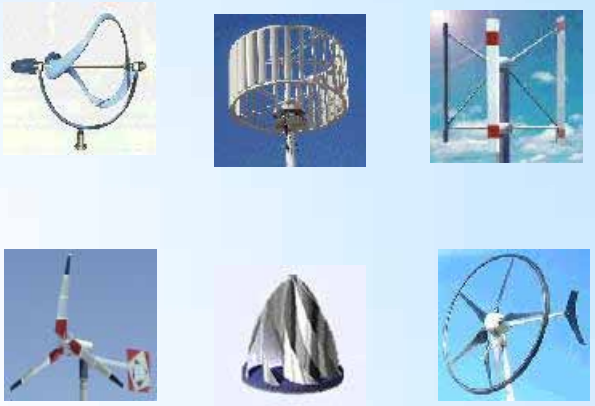
Small Roof Mounted Wind Turbines Set to Power Rural India: Tata

Tata, one of the largest business groups in India is planning to launch innovative clean energy technologies in rural areas as it plans to grab the opportunity of India' rapidly expanding power sector.

The Tata Power Company, a subsidiary of the Tata group, plans to test a 2 kW wind turbine which would generate enough electricity to meet the basic demands of an small rural home. With several thousand villages still not connected with the national grid this micro turbine could prove highly beneficial.

The 2 kW turbine which can be mounted on rooftops would be enough to power multiple ceiling fans (rated 60 W) and bulbs/lights (rated 40 W). Even more appliances if battery systems are coupled with the wind turbines.

Residential rooftop applications – have they come into their own?



Clarian Power Wins GE Ecomagination Consumer Innovation Award

Renewable energy system developer chosen over 3,000 entries

SEATTLE – November 16, 2010 – Clarian Power today announced that its SmartBox™ Solar Module is a winner of the Consumer Innovation Award in the GE Ecomagination Challenge, a global contest to find and fund the most innovative clean technologies. Clarian Power is one of several consumer technology companies selected from more than 3,000 entries, and the SmartBox™ Solar Module was selected for its feasibility and potential impact as rated by GE and venture capital leaders.

*Schedule

- *On-time with revised monitoring station installation date
- *April 2012 second year data collection begins, analysis of resource

Task Schedule

Task Number Per SOPO	Title or Brief Task Description	Task Completion Date				Progress Notes
		Original Planned	Revised Planned	Actual	Percent Complete	
1	Site Assessment	Year 1 at least 12 months		Start April 1, 2011	50%	Tower installed and collecting data.
2	Sodar Deployment	Year 1 up to 5 months			50%	Sodar unit deployed and collecting information.
3	Permitting	Qtr3 2010		Qtr 1 2011	100%	Permits issued March 2011
4	Wind Resource Analysis and Reporting	End of Year 1		Start April 1, 2011	40%	On schedule
5	Action Plan	Year 2				
6	Residential Wind Technology Assessment	End of Year 1				
7	Load Assessment	End of Year 1				
8	Transmission & Interconnection Coordination	Year 2				
9	Technology & Economic Analysis	Year 2				
10	Environmental Assessment	Year 2				
11	Preliminary System Design(s)	Year 2				
12	Professional Development	Year 2				
13	O&M Plans	Year 2				
14	Business Plan	Year 2				

*Lessons Learned

- Flexibility re: project schedule - delays
- Project unknown costs - other/miscellaneous to cover unexpected extra staffing efforts, software needs, etc.
- Recognize climate change is affecting data collection and future forecasts

Upper Skagit Indian Tribe

- Looking forward to 2nd year of data collection to improve/inform Final Report
  - Load assessment, cost analysis of design options, business plan, environmental and utility efforts