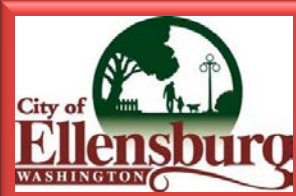


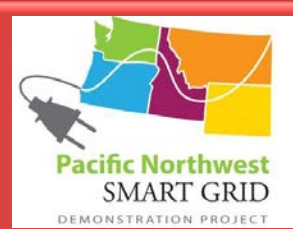
City of Ellensburg



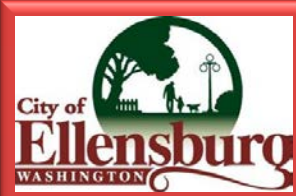
- Located in the center of Washington State with a population of ~18,000
- Home to Central Washington University which is the largest employer and largest utility customer
- Only City in the Pacific Northwest providing both gas & electric service
- The electric utility is the oldest municipal utility in Washington State and fourth oldest on the west coast
- The gas utility is the oldest municipal utility west of the Mississippi
- Currently serving about 10,000 electric & 5,500 gas customers



Project Roots



- The City's community solar project started in 2006 and was the first community solar facility in the US
- The City has consulted with utilities and/or communities in 28 states & 2 foreign countries about community solar and/or small renewables
- Participation in the Pacific Northwest Smartgrid Demonstration Project allowed us to add solar & wind capacity (total 154 kW), a MET tower, and contract with CWU for data analysis and development of a K-12 renewables curriculum



Project Objectives



- Demonstrate utility & customer benefits of centralized vs. dispersed small renewables.
 - Utility: single interface, quality control, crew safety, better load predictability, customer satisfaction
 - Customer: entry point as low as \$250, everyone (owners & renters) can participate, no ongoing maintenance, purchasing economies of scale
- Provide comparative data of various small renewables for university research and K-12 curricula development.
- Demonstrate ability of centralized small renewables to cost effectively act as a relief valve during periods of regional over-generation.

Smartgrid Project General Area



View of Project Site



Solar Panels

Standard Polycrystalline
58 kW



Thin-Film Nano-Technology
54 kW



Residential Class Wind Systems

Windspire – 1.2 kW



Honeywell – 1.5 kW



Wing Power – 1.4 kW



Energy Ball – 2.5 kW



Skystream – 2.3 kW



Commercial Class Wind Systems

Bergey – 10 kW



Tanquarie – 10 kW



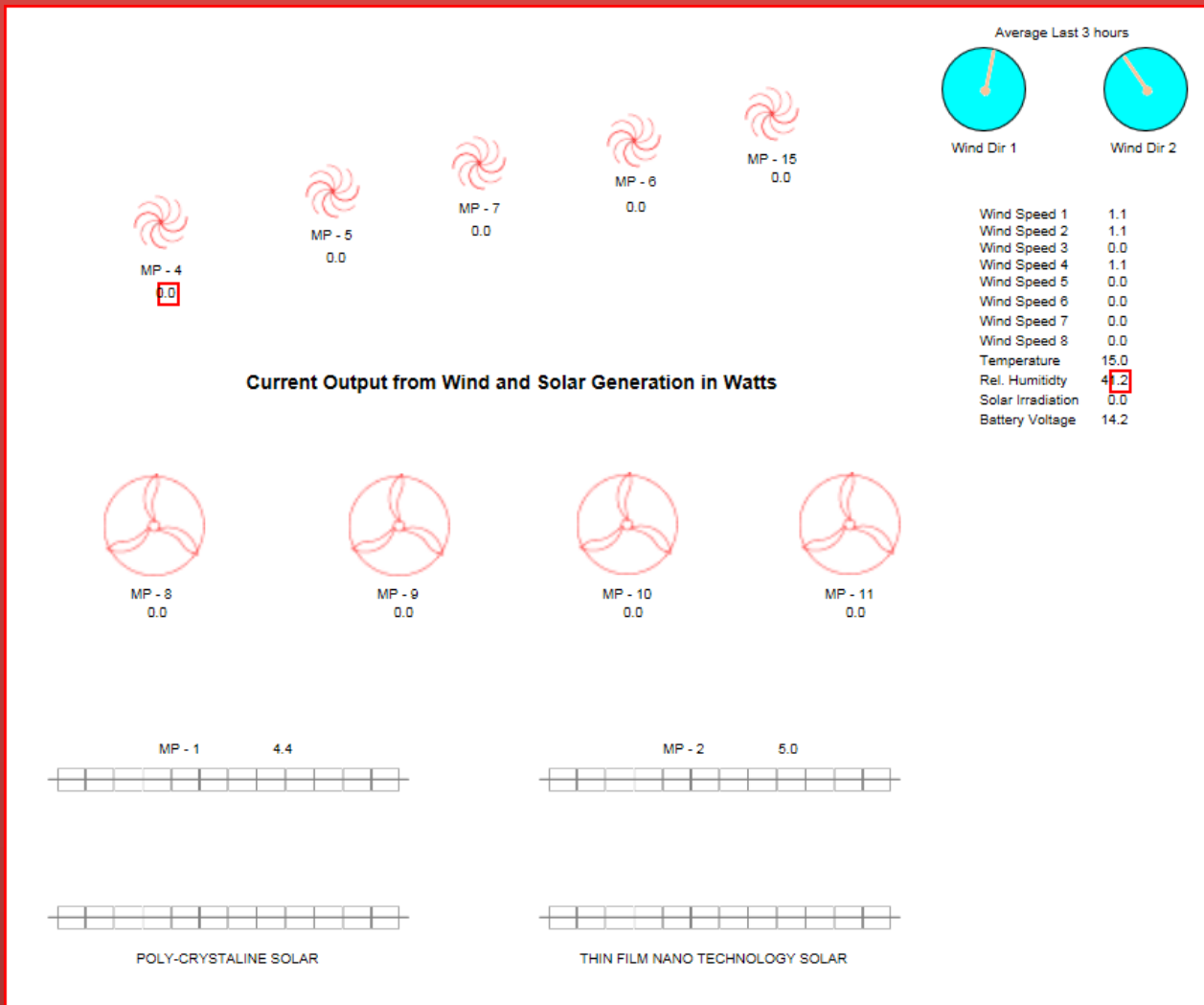
Urban Green Energy – 4 kW

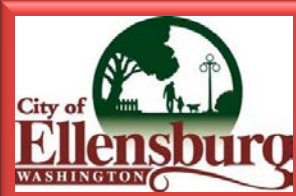


Ventura – 10 kW



Project Dashboard

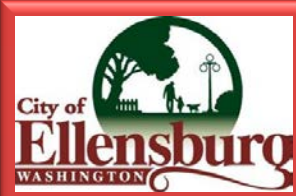




Challenges



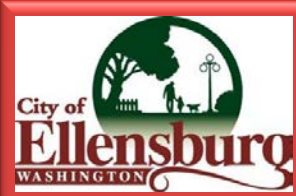
- Staff time to support the project was greatly underestimated when the City initially scoped the project
- Almost half the manufacturers whose assets we proposed to install at the beginning of the project were still in business when it became time to install assets
- The transactive control element of the project proved extremely complex, time consuming and expensive
- The recession and Washington State incentives for solar made it much more difficult to solicit financial contributions for our wind systems



Lessons Learned



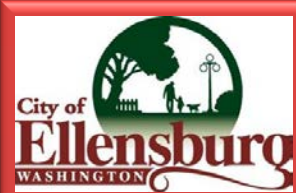
- Even signed contracts with vendors does not mean products will be delivered
- There are lots of vendors who only exist on the web
- Linemen require more than rudimentary training to work with fiber optic components
- Lead times for new products can change overnight
- Corollary to Murphy's Law: Regardless of careful planning and scheduling to have assets installed at times when conditions are optimal, the schedule will change and/or the weather will not cooperate (too cold, too wet, too windy)



Additional Benefits



- A small wind turbine certification facility is being developed in conjunction with our project.
- The Renewables Park has become an eco-tourism site
- We're turning the park landscaping into a demonstration site for low-water plants and grasses to encourage our citizens to adopt more sustainable irrigation water usage
- Signage and an electronic kiosk will provide park visitors with information on the project plus a billboard on I-90 will provide travelers with information
- The project output will reduce our future BPA Tier 2 obligations



Questions



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