

# Development of A Monitoring and Communications System for Distributed Resources

Project Duration: 25 September 08 to 30 September 09  
FY 2009 Budget: \$339,704.86 BPA (\$346,000 Match)  
Expended So Far This Year: \$30,000  
BPA Lead: Pam Sporborg, Martin T. Gault  
Consultant: Oregon Dept. of Energy, Mark W. Kendall

# Project Synopsis

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## ■ **Problem Statement:**

The telemetry hardware, protocols, data structures, reporting and System Control Center requirements for distributed resources (DR) under 10 MW are not standard, substantially increasing variability in cost, data quality, confidence, reliability or security between independent system operators and system control centers.

# Project Synopsis (cont.)

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## Project Partners/Investigators:



# Project Synopsis (cont.)

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- **Define :**

- Standardized DR interface/protocols
- Naming conventions and data structure(s)
- Monitoring and communication equipment
- System Control Center Reporting

- **Evaluate and identify:**

- ISO, RTO and SCC concerns, methods, protocols
- Common elements of data structures, protocols

- **Demonstrate:**

- A test-link between PGE and BPA SCC for three DR projects
- A DR performance data-push to BPA Energy Web
- Compliance with FERC/NERC cyber security
- Affordable telemetry equipment and software applications

# Project Synopsis (cont.)

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- Using conventional DR IO systems
- Test radio, cellular, fiber, satellite telemetry
- Install telemetry, package software and protocols
- Lower cost of proven reliable telemetry
- Demonstration sites in Beaverton, Tigard, Hood River, Echo,
- Integrate data at PGE SCC Portland and relay real-time to BPA SCC backup

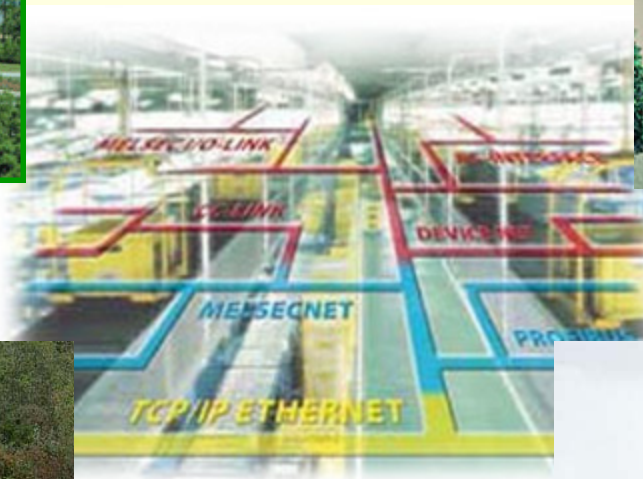
# Photos



**Pro Logis Warehouse**  
**1.2 MW PV**  
**Beaverton**



**Oregon Solar Highway**  
**104 kW PV**  
**Interstate 5 and 205**



**Hood River Irrigation**  
**3.5 MW Hydro**  
**Parkdale**



**Glenn Ikemoto**  
**10 MW Wind 5, 2MW**  
**Echo Ridge**

# Accomplishments

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- Agreements with three DR sites
- List of telecom equipment to use
- Contract in place with BPA
- Contracts with two of three sub-contractors
- Four Team Meetings since October
- Telemetry at two sites installed/confirmed
- SCC Operators survey complete and to SCC's
- Requirements met
- First Stage gate deliverables to be presented February
- Software plan and data elements defined

# Benefits

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- Telemetry on up to 10 MW proven reliable, forecastable under \$50,000 per site
- Standardized protocol for small DR data for contracting and real-time assessment
- Short term benefits include informing OPUC on pending small generator interconnection
- Small DR may be able to wheel
- Longer term, small DR consortia may be able to aggregate for firming and bidding

# Technology Transfer/Application to BPA

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- BPA SCC receives DR telemetry and can wheel
- Data conforms to BPA SCC requirements
- Demonstration in June - July '09
- Small DR unable to be monitored in real-time
- Small DR unable to trade into other SCC's
- Applications use off-the-shelf technology
- Subsequent aggregation platform could become Intellectual Property issue
- Small wind, COU, other DR request to observe
- No apparent leaders in deployment of practice

# Project Direction/Next Steps

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- Telemetry in and tested May '09 at three sites
- Equipment and software protocols documented
- Regional SCC operators survey completed
- Demonstration of cost and data transfer July '09
- Agreements with DR demonstration sites may be challenging
- BPA Will need to allow data to be pushed to their SCC backup for demonstration
- BPA DSM group will be briefed