

Discovery Center Test Bed



EcoDog Energy Monitoring System

The screenshot displays the FIDO Energy Advisor interface. On the left, a 'View Message' window shows a 'Device Failure Alert' for a refrigerator on 02/23/11. The message text reads: 'Device Failure Report for 02/23/11. The "Refrigerator" did not cycle on between the hours of 02/23/11 06:14 PM and 02/23/11 10:14 PM. Please ensure that the device is working properly.' Below the message is an 'Archive Message' checkbox.

In the top right, a summary box shows the date 'August 01, 2011' and time '02:18:42 PM'. It displays energy usage as '\$ 017657' and 'kWh 160518', with a note 'Currently using 5298.1 Watts'.

The bottom half of the interface features a floor plan of a house with various rooms labeled: Conference Room, Study #1, Study #2, Living Room, TV Room, Main Room, Family Room, Kitchen, Ldry, and Dishwasher. A pie chart to the right of the floor plan breaks down energy usage by room/appliance, including A/C, Oven, Disposal, Living Room..., Kitchen and..., Refrigerator, Water Heater, TV Room, Microwave, Features Co..., Dryer, Main Room, Washer, and Furnace.



GE Nucleus Gateway, DR-Enabled Appliances, and Software



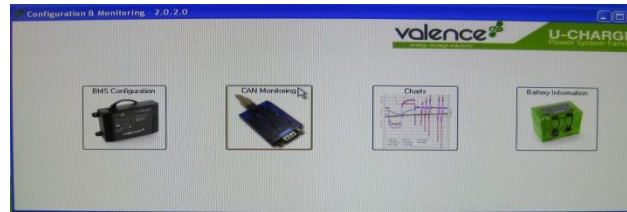
Residential Energy Storage System



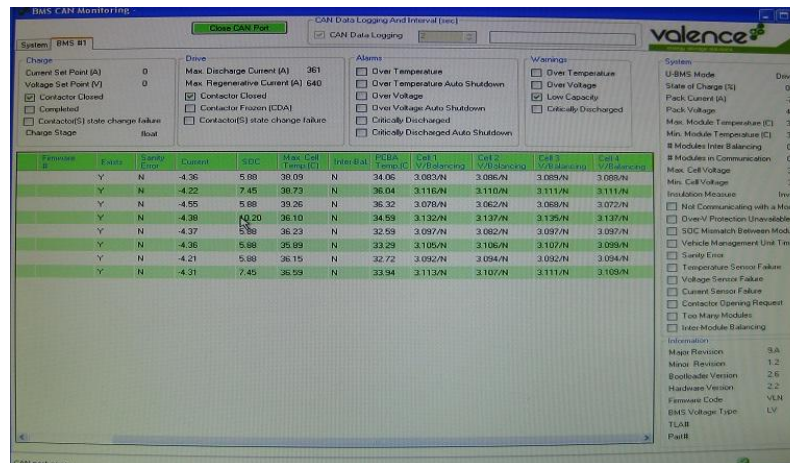
Xantrex XW4548 with Solar Controller



8 Valence 12V Batteries (@ 14kWh)



Valence Battery Management System



Sunverge - 24" x 73"
9 - 27kWh
Same components + gateway

Plug-in Electric Vehicle Charging and Vehicles



Utility-Level Monitoring Improvements

Circuit- and transformer-level monitors are being placed in both Discovery at Spring Trails and Legends Ranch



Demonstration Approach and Status

Approach	Current Status
Install and test equipment in the Discovery Center which serves as the technology integration test and demonstration laboratory as well as a community outreach and education facility	Many devices installed and tested. More are planned, especially HEM systems
Stage events to inform Texas leaders and the public	Planning events once Discovery Center is rebranded. Recent visit by Deputy Secretary of Energy
Use REP to enlist residential participants	In negotiations with several REPs. Nine residents/buyers are interested in “deep green” homes
Install equipment in participant homes, and work closely with homeowners	Smart appliances installed in one home, and two more planned. Awaiting REP decision to install more equipment
Install community-level components	Solar farm is planned to begin later this year
Perform interoperability and cyber security testing	Planning process has begun. Awaiting final equipment decisions for testing
As part of data collection and analysis efforts spanning 2-3 years, implement various demand response and load control scenarios	
Document lessons learned and analyze the prospects for application of technologies to the retrofit market	

Four Tranches of Homes

Four customer tranches will be used for the benefit of collecting quality, accurate data.

	Control Group	EE1 Group	EE2 Group	EE3 Group
Development	Legends Ranch	Legends Ranch	DST	DST
Number of homes	30	30	30	30
In-home displays	Yes	Yes	Yes	Yes
Energy monitoring system (EcoDog)	Yes	Yes	Yes	Yes
Smart appliances	---	---	---	Yes
HEM system	---	---	---	Yes
Load control (PCT adjustment)	---	Yes (1-way)	Yes (2-way)	Yes (2-way)
Solar panels	---	---	---	Yes
Energy storage system	---	---	---	Yes *
PEV charging station and lease vehicle	---	---	---	Yes *
HERS weatherization measures	Audit only	Audit with light measures	Audit with heavy measures (if necessary)	Audit with full measures (if necessary)

* Some homeowners will receive these items



Featured “Deep Green” Technologies

