

ASERTTI Webinar August 2012

Xtreme Power Technology

Dynamic Power Resource[™]





The 21st Century Grid

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Target Segments

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Projects

Xtreme

Project	Application	DPR™	COD	Services
South Pole Telescope	Microgrid	0.5 MW / 0.1 MWh	Q4 2006	Peak-Shaving, Load-leveling
Maui	Wind	1.5 MW / 1.0 MWh	Q3 2009	Ramp Control
Kahuku	Wind	15 MW / 10 MWh	Q1 2011	Ramp Control, Voltage Regulation
Xcel	Solar	1.5 MW / 1.0 MWh	Q1 2011	Ramp Control, Ancillary Services, Firming/Shaping
Lanai	Solar	1.125 MW / 0.5 MWh	Q2 2011	Ramp Control, Ancillary Services
Ford	End-User	0.75 MW / 2.0 MWh	Q2 2011	Peak-Shaving, Load-leveling
KIUC	Solar	1.5 MW / 1.0 MWh	Q3 2011	Responsive Reserves, Ramp Control, Ancillary Services
KWP II	Wind	10 MW / 20 MWh	Q4 2011	Ramp Control, Curtailment Capture, Responsive Reserves
Fosters*	End-User	3.0 MW/ 2.0 MWh	Q4 2011	Uninterruptible Power Supply
Duke	Wind	36 MW / 24 MWh	Q4 2012	Ramp Control, Ancillary Services
Tres Amigas	T&D	~ 100 MW / 200 MWh	Q2 2013	Ancillary Services

* Project not yet announced

Lanai Sustainability Research

Doubling Renewable Output





Lanai Sustainability Research's 1.2MW solar farm is currently curtailed to 600kW, until it can guarantee output that will not vary by more than ±360kW/min. DPR[™] will smooth power and increase its output to full capacity, as well as provide ancillary services.



Lanai Sustainability Research Operational Performance



Operational Performance Summary			
Operation Period	8/5/2011 - 10/2/2011		
Ramp Rate Compliance	99.98%		
# Frequency Response Events	421		



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Ford Michigan Assembly Plant

Reducing Costs, Increasing Reliability







Ford selected the Xtreme Power DPR[™] to operate with one of the largest solar power generation systems in Michigan. The DPR[™] will help the plant save an estimated \$160,000 in energy costs annually by shaving peak demands and leveling load.



Ford Solar Project: Power Smoothing





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Kaua'i Island Utility Co-operative

Taking Advantage of DPR[™] Versatility



Location	Kaua'i, HI
Application	Solar
DPR™	1.5MW / 1.0MWh
COD	3Q 2011
Services	Responsive Reserves, Ramp Control, Ancillary Services



The KIUC DPR[™] will mitigate the variability of a 3MW solar PV project for the Kaua'i Island Utility Co-operative. This marks Xtreme Power's first direct sale to a utility, and first project to provide responsive reserves.



Kaua'i Island Utility Cooperative DPR™ Frequency Response



Grid-based storage system providing frequency response

The DPR[™] responds when grid Frequency drops to 59.8 Hz or raises to 60.2 Hz

• Black: DPR[™] response (kW)



Blue: Grid Frequency (Hz)
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Tres Amigas

Providing America's First Common Interconnection

Location	Clovis, NM
Applicatio n	T & D
DPR™	~100 MW / ~200 MWh
COD	Q2 2013
Services	Power Shaping, Renewables





By implementing an estimated 100 MW/ 200 MWh DPR[™], the Tres Amigas SuperStation will deliver a reliable supply of renewable power amongst America's three power grids, the Eastern, Western (WECC), and Texas (ERCOT) Interconnections.



