



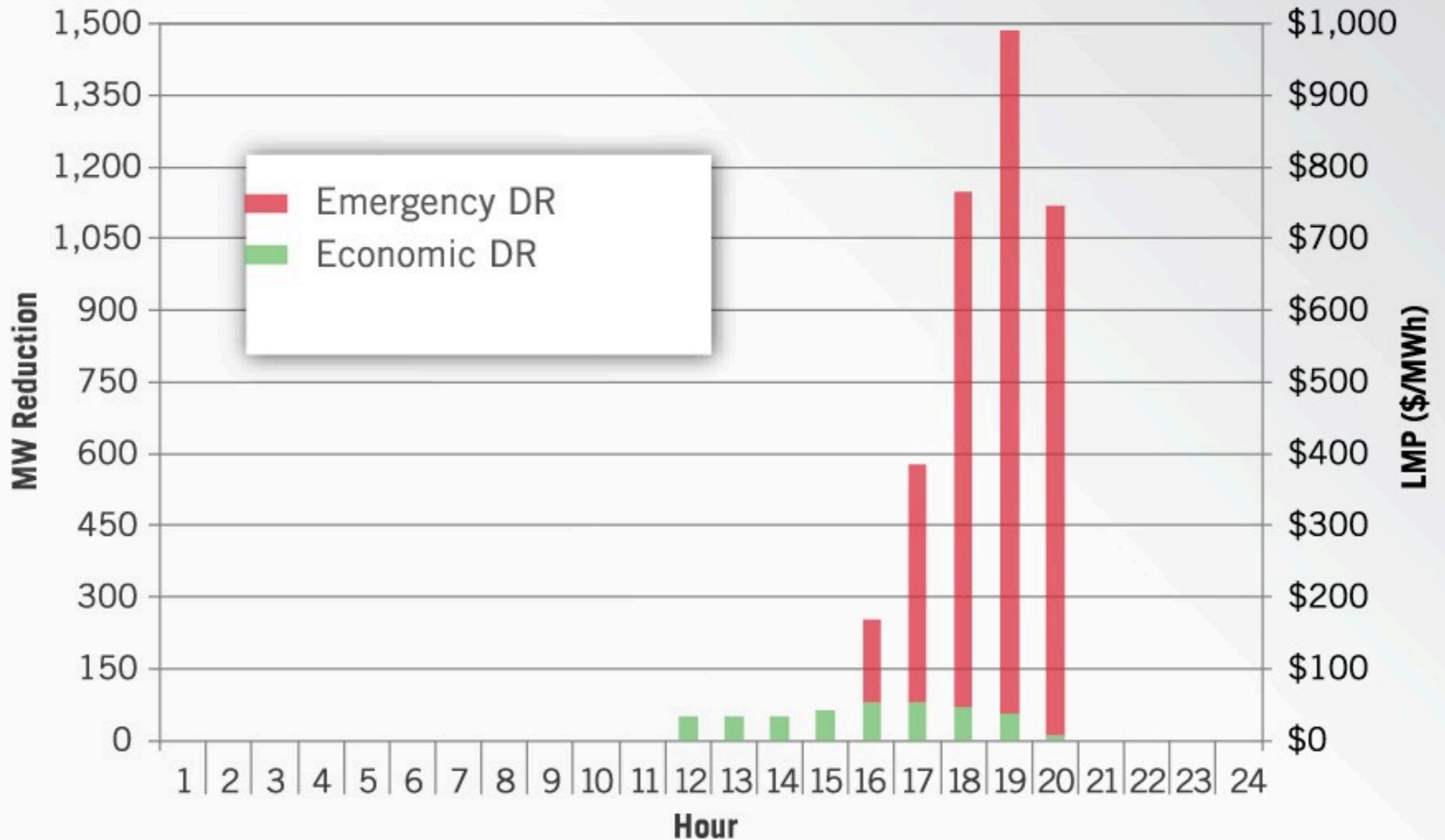
El Paso, TX ○



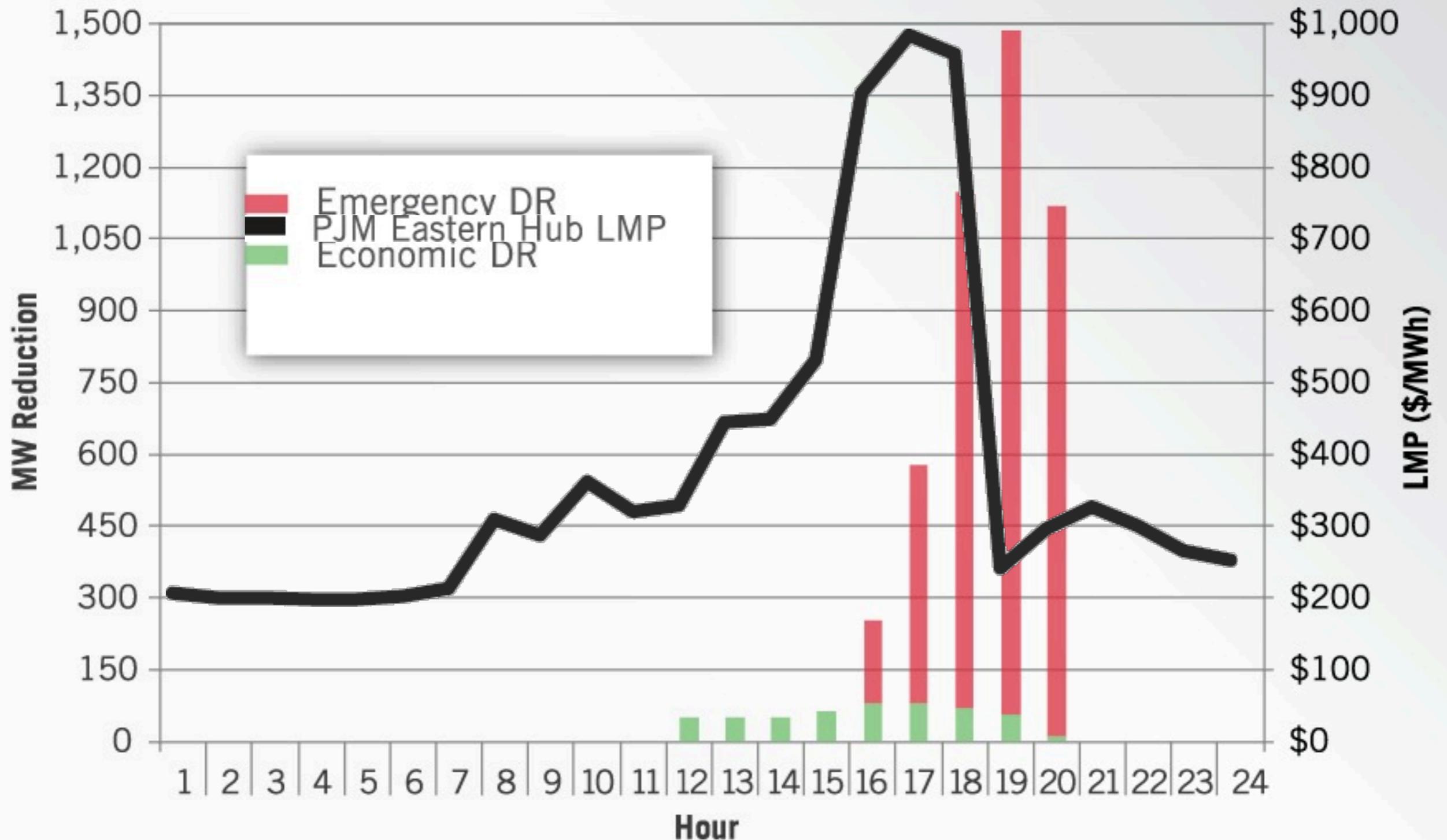


El Paso, TX

DR in PJM on May 31, 2011



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- * Lower demand/lower price**
- * Flatten load profile reducing costly generation**
- * Reduces generator market power**
- * Enhanced reliability**
- * Supports renewable power**
- * Reduces emissions & generator maintenance**



Monday, November 4, 2013



Integrated Enterprise-Wide Advanced Control Systems

Soft Grid: Data Storage, and Analytics

- Rackspace, SAS, Oracle, EcoFactor, Convergys, Cisco, IBM, Teradata, VMware, EMC², Space-Time Insights
- Aclara, Powerit Solutions, Power Analytics, SAP, EDX Wireless, Intergraph, Mitsoft, GRDIant, OSIsoft, Hansen Technologies



Consumer Energy Management Systems & Networks

Security

- Tofino, McAfee, Industrial Defender, Revere Security, Symantec, iDactive, Boeing, Cylance, Lockheed Martin

Integration and Consulting

- CSC, EMC², SAIC, Capgemini, EnerNex, Wipro, Bettelle, Green Energy Corp., Black & Veatch, Accenture, Infossys, IBM, Quanta Tech., Bridge Energy Group, DNV Kema, Quality Logic

Application Layer

Grid Support: Managing distributed energy

Xtreme Power	A123 Systems	Greenlots	NGK Insulators	Clipper Creek	Locus Energy	AeroVironment
Beacon Power (Flywheel)	ECOtality	Coulomb	General Microgrids	Vycon	Better Place	Ice Energy
Petra Solar	SANYO	Primus Power	Enphase Energy	SMA	Xtreme Power	Axon Power
						Prudent Energy

Network Operations: Network monitoring and control

Schneider Electric, Cooper Power Systems, Ventyx (ABB), Survalent, Siemens, Efacec, OSI International, Toshiba, Alstom, ETAP, GE

Transmission: Wide area controls and applications

XD Group, Toshiba, ABB, SEL, Alstom Grid, Crompton Greaves, Siemens, American Superconductor, GE

Distribution Automation: Reliability, real-time monitoring and intelligent control

ABB	Cooper Power Systems	Doble	Schneider Electric	BPL Global	Crompton Greaves	G&W Electric	GridSense
Hubbell Inc.	S&C Electric Co.	Sentient Energy	Gridco Systems	Siemens	PowerSense	Eaton	GE
Tollgrade Comm.	XD Group	Utilidata	Toshiba	SEL	Dynamic Ratings	Varentec	OptSense Networks
							Efacec

AMI Infrastructure: Manage distributed energy

eMeter	Itron	Aclara	Ecologic Analytics	Wasion Group	Oracle	Holley	OSIsoft	Silver Spring Networks	Triliant
Telvent	Elster EnergyICT	ElectSolve	GE	Echelon	Harris Utilities	Landis+Gyr	ELO Sistemas	Sensus	Elster

Demand Side Management: Energy management systems, portals and apps

- EnerNOC, Converge, Veridity Energy, SynapSense, Consort, SClenergy, Honeywell, 4Home, AlertMe, Alektrona, Opower, Exegin, Alarm.com, Energy Hub, iControl, Energy Aware, Control4, INSTEON, Onzo, Verdiem, EcoFactor, Energate, Tendril, Sequentric, Sentilla
- Acura Technologies, Calico Energy Services, Integral Analytics, Advanced Telemetry, Greenwave Reality, Powerhouse Dynamics, Constellation Energy, Johnson Controls, Radio Thermostat, Digi International

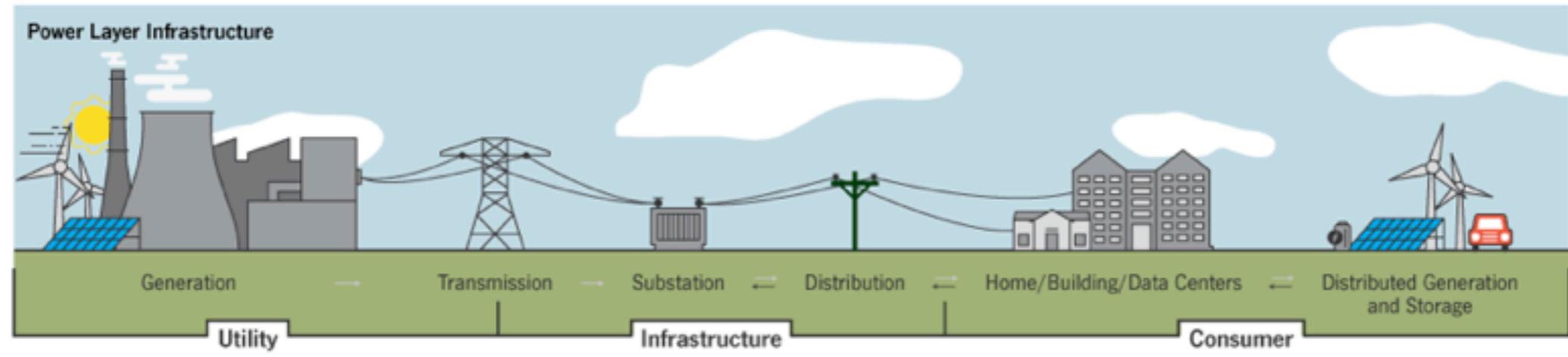
Platform and Analytics

Communications: Networking platform

Current Group	Airspan	Elster	Nexgrid	Fujitsu	Proximity	Alcatel-Lucent	AT&T	Verizon	Cisco	Sensus
Ericsson	RuggedCom	GridMaven	Qualcomm	Huawei	Amperion	Ambient	S&C Electric Co.	Tropos		
Freewave	On-Ramp Wireless	Sierra Wireless	Sprint	Sinnet	LiveData	Silver Spring Networks	Power Tagging	Tantalus	Triliant	

Communication Layer (H/W, S/W/ Control) Network Gateway Smart meter & Broadband

Industrial Defender



UTILITY

CONSUMER

FIRST FUEL

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Consumer Energy Management Systems & Networks

OPPOWER

- Lockheed Martin
- Cyberance
- Bridge Energy Group
- QIV Key
- Quality Logic

Application Layer

Grid Support: Managing distributed energy

- Xtreme Power, A123 Systems, Green
- Beacon Power (Flywheel), ECOtality, General Microgrids
- Petra Solar, SANYO, Primus Power, SMA



Meter Data

Clipper Creek

Locus Energy

REMOTE BUILDING ANALYTICS

Deriv and Side Management: Energy management systems, portals and apps

Energy management systems, portals and apps

Network Operations: Network monitoring and control

- Schneider Electric, Cooper Power Systems, Veys (ABB), Survalent, Siemens, etc.



Controls and Applications

- SEL, Alstom Grid, Crompton Greaves

Availability, real-time monitoring and intelligent control

- Doble, Schneider Electric, BPL Global, Cr
- Sentient Energy, Gridco Systems, Ser
- Utilidata, Toshiba, SEL, Dynamic Ratings, Varentec, OptSense Networks, Etacec

ENERNOC

Security

Telecom

Integration and

CSC

Wipro

Platform and

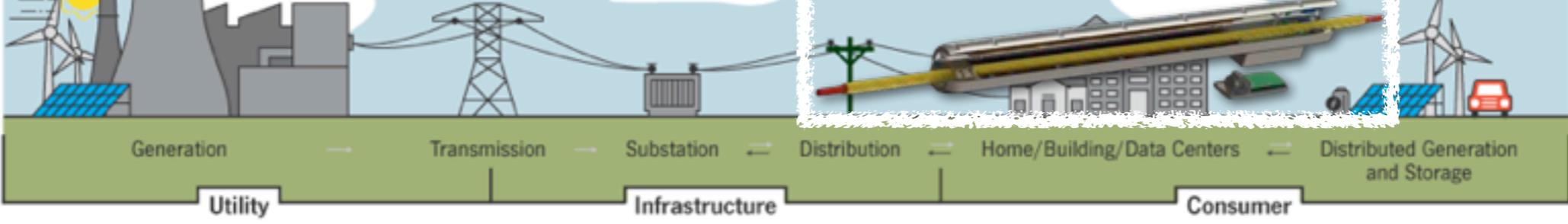
Communication Layer (H/W, S/W/ Control)

- Ericsson, RuggedCom, Grid
- Freewave, On-Ramp Wireless, Sierr

Power flow control for the Grid

Network Gateway Smart meter & Broadband

Power Layer Infrastructure



Utility

Integrated Enterprise-Wide Advanced Control Systems

OPOWER

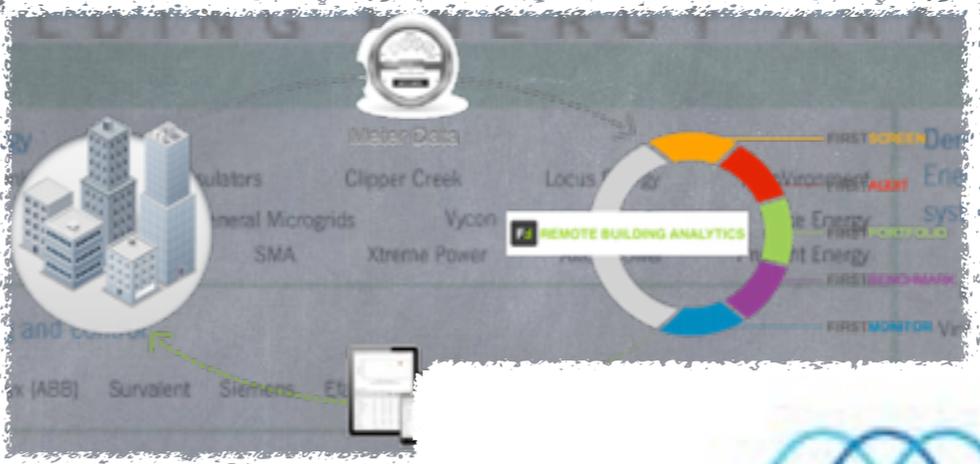
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Network Operations: Network monitoring and control

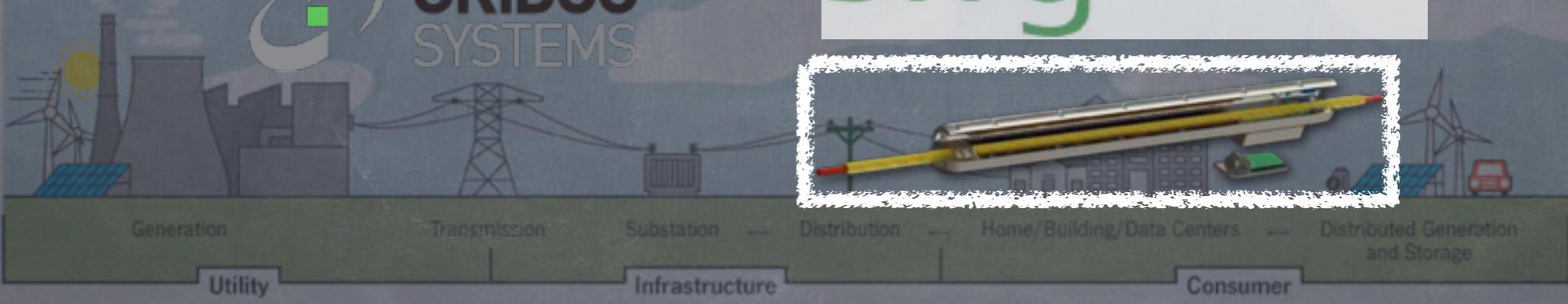
Schneider Electric Cooper Power Systems Vacon (ABB) Survalent Siemens Et



Communication Layer (H/W, S/W/ Control)

Power flow control for the Grid

Power Layer Infrastructure



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OPPOWER

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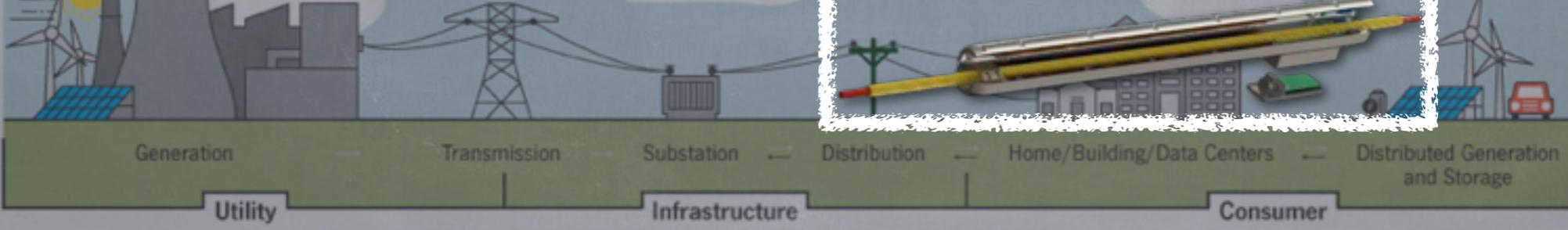
Schneider Electric Cooper Power Systems Verity (ABB) Survalent Siemens, Etc.




Communication Layer (H/W, S/W/ Control)

Power flow control for the Grid
 Network Gateway Smart meter & broadband

Power Layer Infrastructure



Thank You