Driving Demand Response in Commercial Buildings

Overcoming Implementation Challenges

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ADR Main Challenges

1. Customer Buy-In
2. Customer Buy-In
3. Customer Buy-In

Napoleon Crossing the Alps by Jacques- Louis David

Facilitating Buy-In

1. Chasing 20 to 200 KW Users
   - Sub 1 kW demand reduction
   - System level Fast ADR

2. Facilitating ADR Services
   - Smart Meter Data
   - Real Time Pricing Information

Buy-In Barriers

Key Factors:

Fear of Losing Control

- Pre-approved Control Strategies
- Manual Override
- Opt-out Options

Retaining Situational Awareness

- Pending Events / Actions Alerts
- Implications of Actions / Inactions
- Real Time Information

Facilitating Buy-In

Understanding Financial Benefits:

- Available programs
- Rate analysis / what if scenarios
- Incentives and rewards
- Sustained impact on energy costs
- Recurring operational costs
- Penalties

CPP participation		
CPP incentive	208 kW x -$11.62000	-$2,416.96
CPP event Jun 29 '12	674 kWh x $1.36229	$918.18
CPP event Jul 12 '12	644 kWh x $1.36229	$877.31
CPP event Jul 23 '12	653 kWh x $1.36229	$889.58
Subtotal of your new charges		$12,434.89
State tax	63,253 kWh x $0.00029	$18.34
Your new charges		$12,453.23

Incentives: 2,416.96
Charges: **2,685.07**
Net Charge: 268.11

Facilitating Buy-In

Understanding Financial Benefits

- Continuous Measurement & Verification
- Energy Efficiency Measures (CCx)
- Energy Thresholds and Alerts
- 24/7 Peak Demand Management
- Energy Usage and Cost Reports
- ROI calculations
- Cost Allocation and Accountability
- Bill Verification
- Carbon Credit Accounting

ADR: Best Practices

1. Energy Assessment & Site Survey
2. Implement Low-Cost EE measures
3. Evaluate DR Potential
4. Identify Best Programs
5. Implement ADR
6. Continuously Assess, Verify & Report

ADR: Features Needed

Secure Platform

Multiple Control Interfaces

- Software API
- Hardware Interrupts

Multiple Communication Protocols

- Bacnet, ModBus, SNMP, Open Architecture
- ZigBee, Z-Wave, Broadcast

Automated Alerts

- Pending Events and Actions
- Energy Abnormalities

Full Reporting Functionality

- Real Time Performance
- TOU Cost Accounting

Add On Features

Real Time Energy Information

- Ongoing Measurement & Verification
- 1-minute Resolution (or better)

24/7 Peak Demand Management

- Building Level
- System Level

Integrated Energy Dashboards

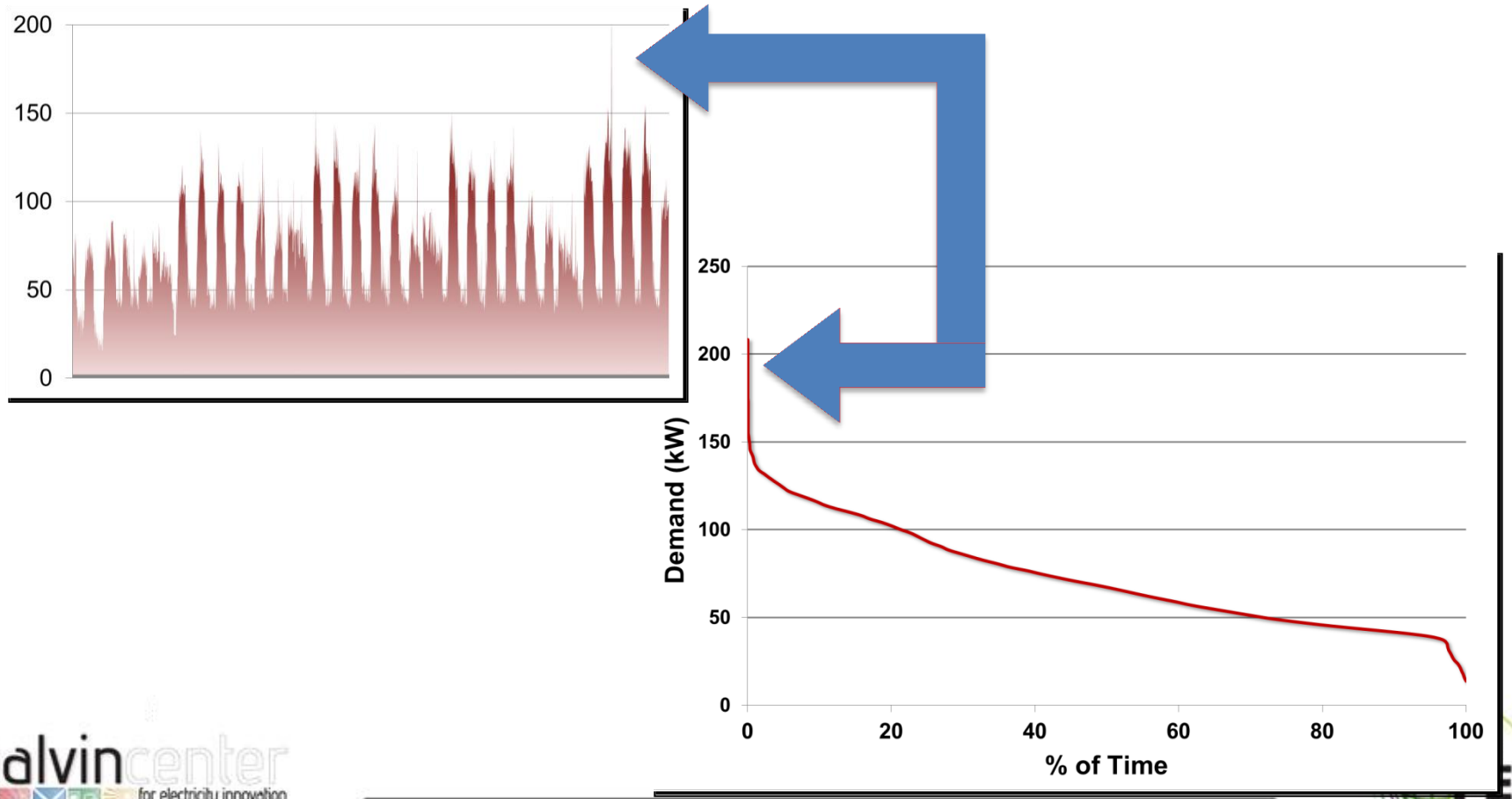
- Power, Temperature, Humidity, Flow Rates, etc.
- Roll-up and Drill-Down Capability

Energy Analytics

- Built-in Efficiency Analytics
- Automated Baseline and Benchmarking

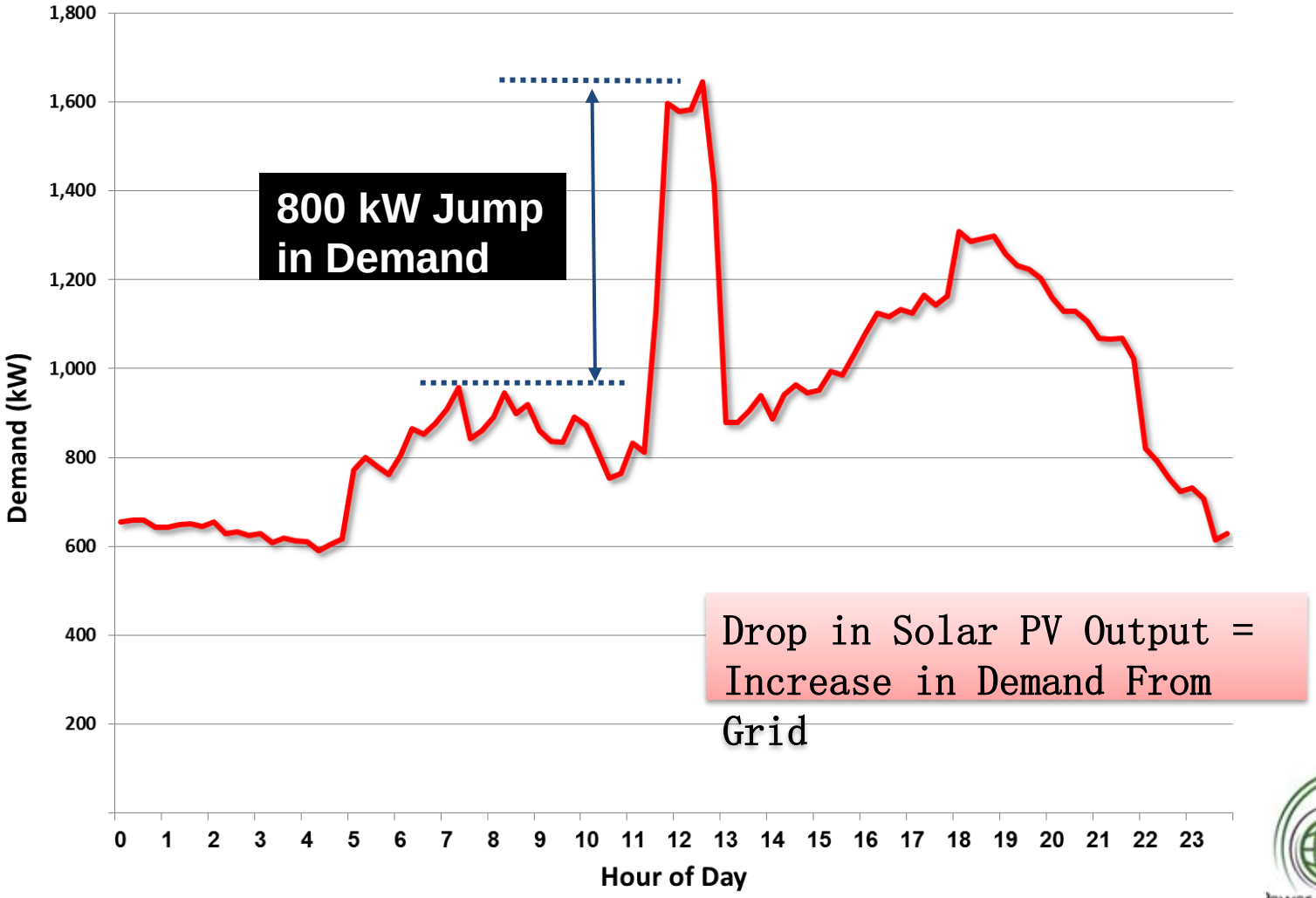
Beyond ADR

24/7 Peak Demand Management



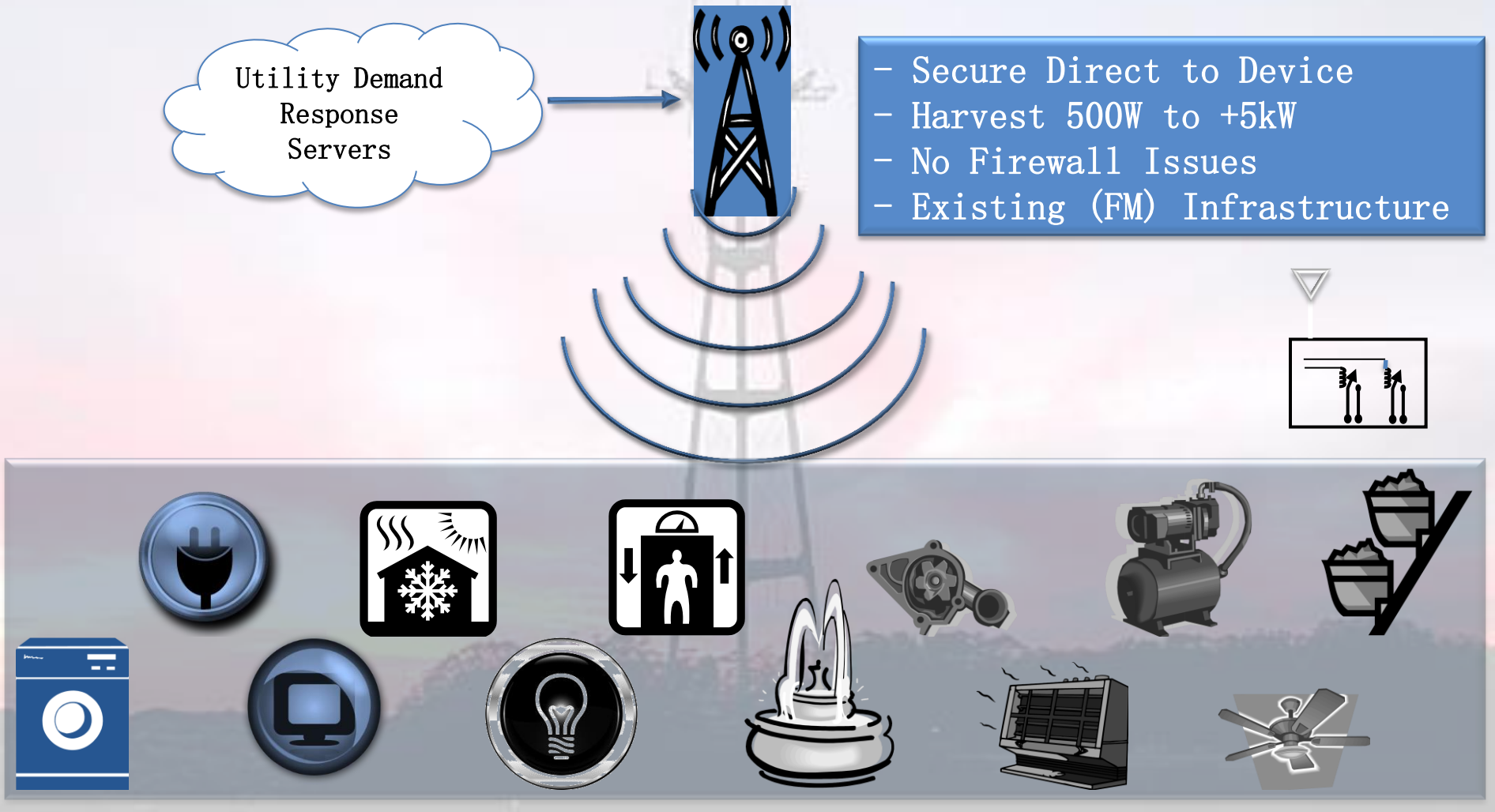
The Renewable Challenge

Managing Demand is More Challenging With Renewable Energy Sources



Promising Tech: bADR

FM Broadcast ADR: Low Cost , Scalable, Fast



Questions?

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