



**FastDR**

# Fast Demand Response:

*Be a clean, lean, green company*





# Agenda

- What is Fast DR?
- Define the benefits of Fast DR for your company
- Automated Demand Response vs. Semi-Automated Demand Response
- Conduct Bill Analysis & Discuss Jointly Developed Shed Strategies
- Determine the Next Steps





## What Is Fast Demand Response (Fast DR)?

- **Fast DR** helps Oahu become greener by stabilizing the power grid as we add renewables and become less dependant on fossil fuels. With **Smart Grid** technologies we can use energy more intelligently, improving the stability of our grid and electricity rates
- **How?** Participating in this **community stewardship program**, lets **commercial & industrial** customers be on call to temporarily reduce energy when needed
- **What's in it for me?** Participating customers will know they are doing their part to make **Oahu more sustainable, AND also receive 1) technology upgrades, 2) resources to monitor energy use in real time and 3) a monthly bill credit**
- **Who benefits? Everyone!** 1) Participating customers, as noted; 2) all electricity users who get reliable service and stable, lower priced electricity from more renewable energy; 3) Hawaiian Electric, which can add more renewables to meet clean energy goals (40% by 2030) and deliver reliable service at stable prices





# How Does Fast DR Work?

- Fast DR event is triggered when Hawaiian Electric anticipates demand may exceed supply or when variable renewable resources (like wind or solar) drop unexpectedly
- **What happens without Fast DR?** To manage the electric grid during such events, Hawaiian Electric options are costly, inefficient, bad for the environment, and bad for business:
  - Start old generation plants (costly, inefficient, & bad for the environment)
  - Build more power plants (very costly & bad for the environment)
  - Issue rolling brownouts or blackouts (bad for business)
- **What happens with Fast DR?** Fast DR supports Hawaii's clean energy future by:
  - Using voluntary customer power reductions (**Fast DR**)
  - Reducing dependency on imported fuel sources
  - Stabilizing state-wide electricity rates



## Fast DR Benefits to Your Company

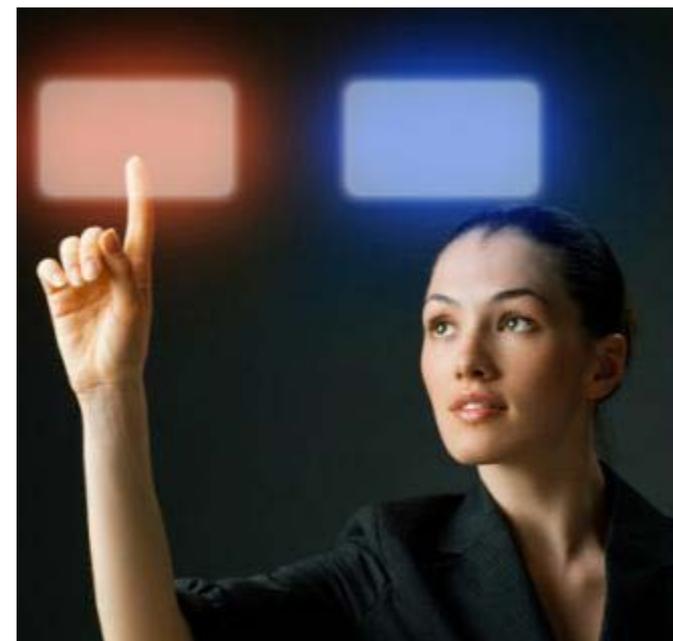
- **Sustainability & Community Responsibility**
  - Capture Leadership in Energy Efficiency Design (LEED) points – *new for 2012 and 2013!*
  - If you choose, public credit for good corporate citizenship
- **Operational Upgrades**
  - Receive a free technical audit and real-time energy monitoring platform
  - Newest BMS/EMS upgrades available
  - Advanced notification of energy emergency
  - Full control - equipment **you deem essential will NEVER be turned off** ; ancillary load can provide the DR resource
    - Non-essential lighting, adjusted HVAC settings, preselected equipment with flexibility (pumps, motors, etc.)
    - Fast DR does not allow the use of backup generators as a load shed method
- **Economic Benefits**
  - Receive financial incentives whether event is called or not
    - \$5/kW/month (50kW minimum enrollment = **\$3,000+ per year**)
    - \$10/kW/month (50kW minimum enrollment = **\$6,000+ per year**)
    - Additional \$0.50/kWh credit during events
  - Reduce *overall* energy costs through information & insights on facility operation





## What Happens During a Fast DR Event?

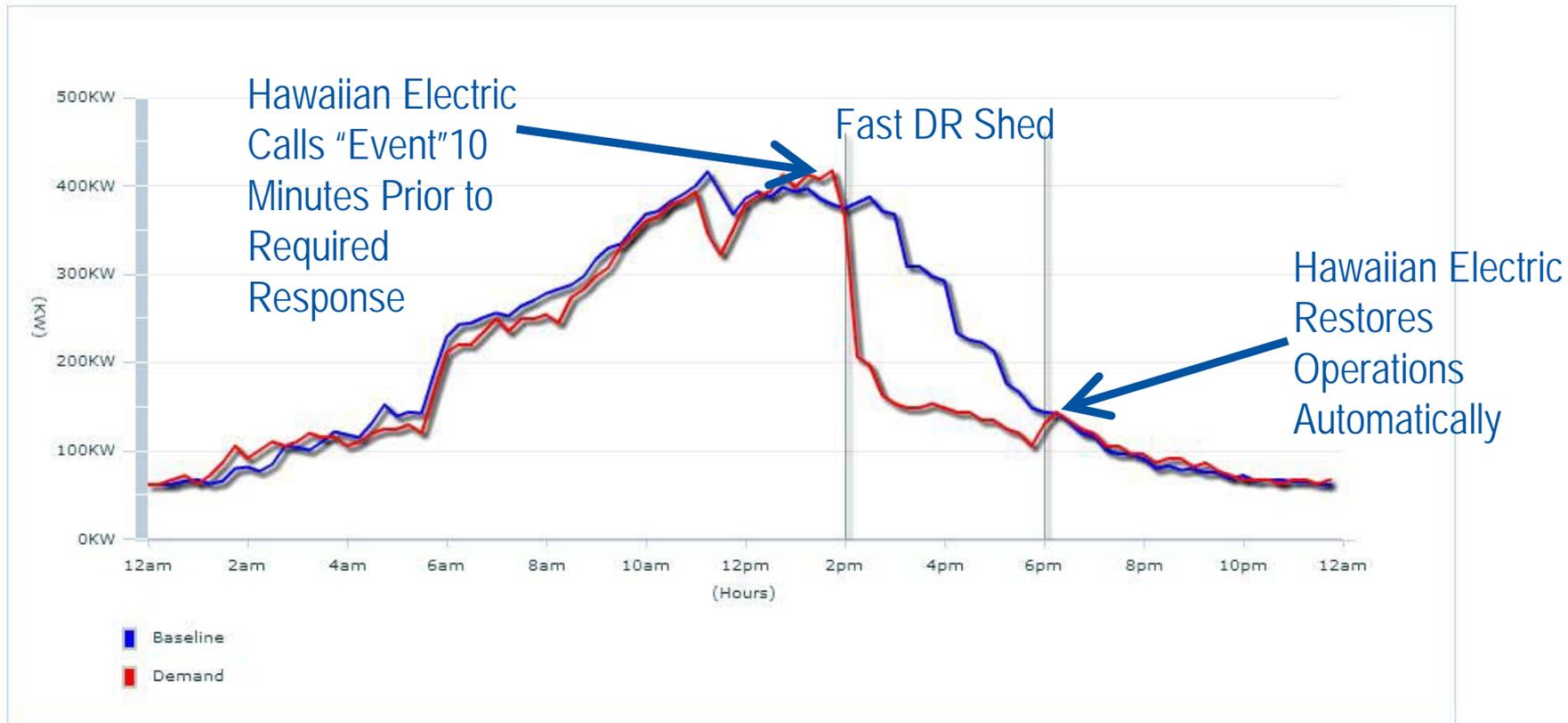
- Fast DR participants receive up to 10-minute advanced notice of the impending event
- Customers with **Energy Management System (EMS)** will shed load via agreed upon, predefined strategies:
  - Turn off or adjust specific equipment
  - Scale back portion of HVAC usage
  - Shut off non-essential lighting
- When a Fast DR Event ends, normal energy use settings are restored
- Participants can always opt out, even if an event has already begun





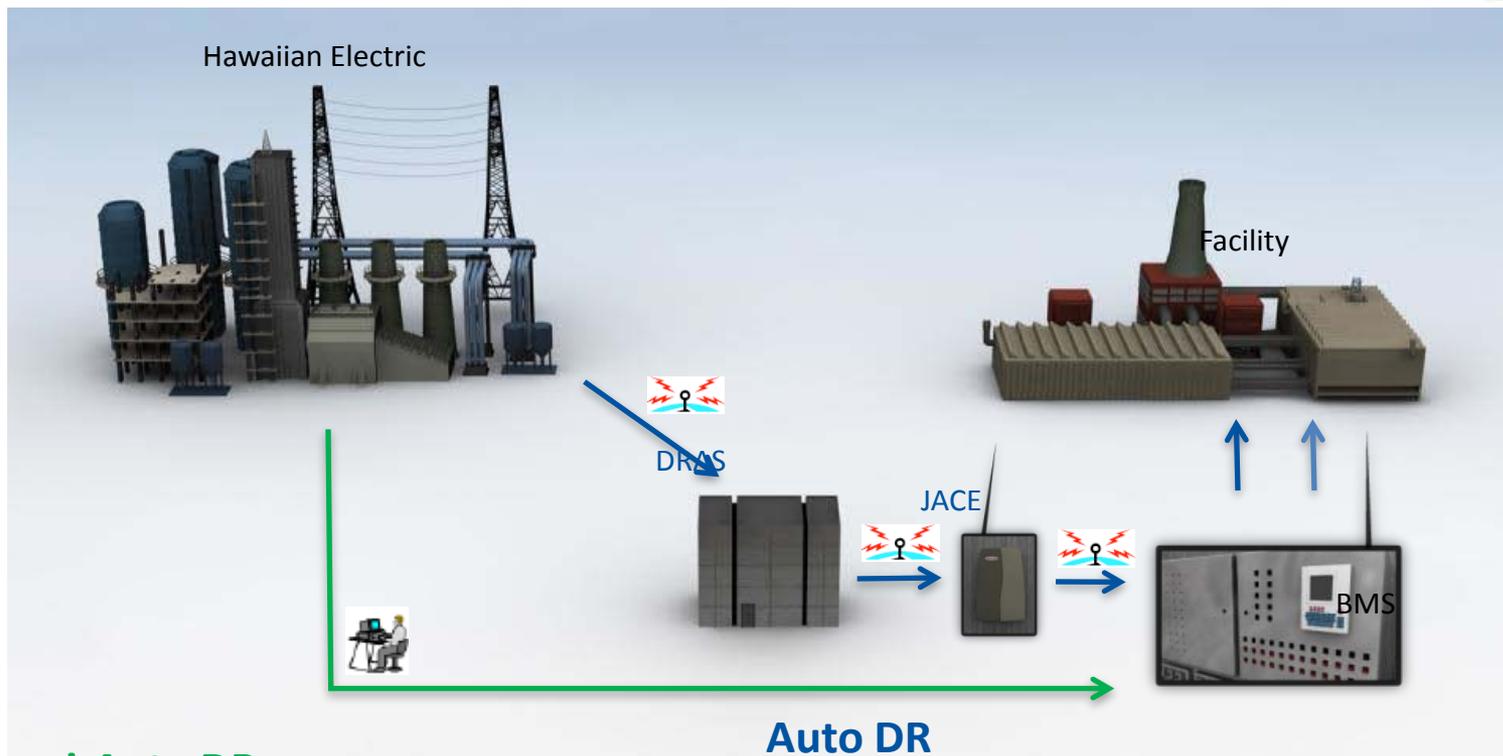
# What a Fast DR Event Looks Like

	Baseline		Telemetry		Shed	
	Avg(KW)	Total(KWH)	Avg(KW)	Total(KWH)	Avg(KW)	Total(KWH)
Entire Day	205.50	4,932.00	182.75	4,386.00	22.75	546.00
During Event	271.72	1,086.88	160.09	640.36	111.63	446.52





## Semi-Auto DR vs. Auto DR



### Semi-Auto DR

Facility personnel receive phone call, email, and/or page; they respond to an event by shutting devices down and/or adjusting set points manually or automatically via Building Management System.

### Auto DR

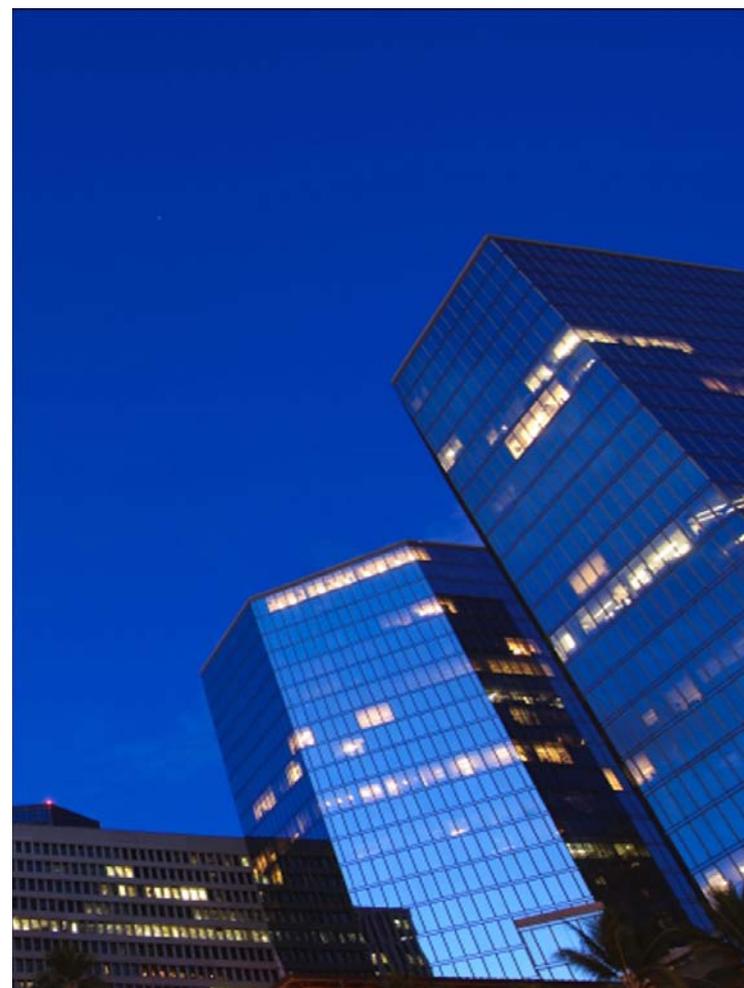
Hawaiian Electric sends signal to building through the Demand Response Automation Server. Building receives signal via JACE and initiates pre-defined routines to reduce demand. This “machine to machine” process requires no human intervention or effort. (Designated personnel still receive phone call, email or page and have the ability to override the process to opt-out.)



## Frequency & Duration of Fast DR Limits

- DR event may last one hour at most
- Loads must be reduced within 10 minutes of event notification
- 3 opt-outs permitted per year without penalty
- Load reduction must be available 7 am to 9 pm weekdays (excluding federal/state holidays)
- Consistent underperformance can result in adjusted enrollment levels or suspension from program
- Event frequency depends on incentive level

Nominated Load Incentive	Annual DR Event Frequency
\$5 per kW/month	0-40
\$10 per kW/month	41-80





## How Can You Get Started with Fast DR?

1. Set Preliminary Assessment and/or Technical Audit site visit (ASAP)
2. DR Team develops recommended Shed Strategy
3. Meet to review audit findings and approve or modify Shed Strategy
4. DR Team develops detailed proposal for Fast DR measures, estimated load curtailment, & estimated annual savings based on nominated load
5. Presentation and execution of Fast DR Customer Contract. **Funding is limited**
6. Contract must be executed in 30 days to reserve implementation funds
7. Implement changes to enable Fast DR at customer site
8. Conduct site commissioning & test event within 90 days of contract execution
9. Incentives begin two months after commissioning (at end of first full billing cycle)

Customer enrollment is on first-contracted, first-served basis. Budget is limited to enable all potential customers into the program. Hawaiian Electric is asking PUC for an extension of pilot program, but no decision expected before end of 2013.



# Testimonials

**“This program will help reduce our energy costs so more funds can go directly to caring for our young patients.”**

**Andi Kubota  
Shriners Hospitals for Children® – Honolulu**

**“Starwood Hotels & Resorts in Waikiki -- which includes Sheraton Waikiki, The Royal Hawaiian, Moana Surfrider, and Sheraton Princess Kaiulani -- are always looking for new and exciting ways to help build a sustainable future for Hawaii. Fast DR helps us go one step further in our green initiatives by improving and creating a more reliable electrical grid.”**

**Eric Au  
Area Director of Engineering and Sustainability-Hawaii  
Starwood Hotels & Resorts**

**“Allure Waikiki is taking the initiative, through the Fast DR program, toward Island Sustainability.”**

**Fernando Bastos, ARM®; B.O.C®; M.B.A.  
General Manager  
Allure Waikiki**



# More

**“Admiral Thomas is looking forward to participating in the program to make Oahu greener and our grid more efficient.”**

**Russell Kulinski  
General Manager  
Admiral Thomas condominium**

**“With the environmental responsibility we all bear on Oahu, coupled with the costs of higher education that continue to increase globally, BYU–Hawaii is pleased to be active in efforts that promote energy consciousness and conservation. Managing electricity costs through this program helps us offer an affordable and high-quality education to our students who come from more than 70 countries around the world.”**

**David Lewis,  
Vice President  
BYU–Hawaii**

**“We are pleased to be the first customer to enroll and take advantage of this valuable program.”**

**Angela Hodge, CBRE, Inc.  
General Manager  
Pacific Park Plaza**

# Questions / Comments?

