



Energy Curtailment Specialists

The Five Phases of an Effective Demand Response Program...



Introductions:

Paul Tyno, Executive Vice President Program Development, Energy Curtailment Specialists, Inc.

– Responsible for the implementation of the demand response curriculum working closely with prospective clients, utilities, current participants, business / trade associations, economic development corporations and affiliate service providers.



IN THE NEWS-THE PROBLEM

BBC NEWS
 You are in: World: Americas
 Tuesday, 1 May, 2001, 08:50 GMT 09:50 UK
Cheney warns of power shortages

BBC NEWS
 You are in: World: Americas
 Wednesday, 9 May, 2001, 01:10 GMT
Heat forces California blackouts

BBC NEWS
 You are in: World: Americas
 Sunday, 14 January, 2001, 13:41 GMT
US power talks end in failure

BBC NEWS
 You are in: Business
 Thursday, 18 January, 2001, 07:31 GMT
California declares state of emergency

BBC NEWS
 You are in: Business
 Friday, 16 March, 2001, 15:05 GMT
California faces more power cuts

BBC NEWS
 You are in: Business
 Thursday, 18 January, 2001, 17:48 GMT
California's economy hit by power cuts

BBC NEWS
 You are in: Business
 Monday, 8 January, 2001, 16:29 GMT
Utility fears hit US banks

BBC NEWS
 You are in: Business
 Tuesday, 27 March, 2001, 21:20 GMT 22:20 UK
California hikes electricity prices

Consumers Union
DRIFT AND DISARRAY: THE CALIFORNIA ENERGY CRISIS CONTINUES

California's ENERGY CRISIS
Withering Effects
 California's record heat waves, which have transformed and causing 500 outages, may have a silver lining: It will spur more conservation efforts.

TODAY'S OUTLOOK
 No alerts today. If necessary, rotating outages will start.

Gross product annual growth
 (%)
 United States
 California
 1991 1993 1995 1997 1999

© Kent Christopher. Image from Bigstockphoto.com



Value Proposition

Demand Response is one of the few “technologies” that can target energy and environmental issues positively but it must be available, reliable and accurate.



PHASE ONE: PROGRAM DESIGN

– Compensation to Participating Customers

The single most important piece of the demand response program puzzle is the compensation that is to be paid to participants.

– Establishing the parameters of the program

It is important to identify the minimum kW qualifications, service classes that are eligible, etc.

– When will the Demand Response Resources be utilized

DR programs need to consider call frequencies, event durations and curtailment seasons.

– Advanced Notification of Events

Programs that provide a courtesy advanced notification have higher performance ratings vs. requiring almost immediate response.



PHASE ONE: PROGRAM DESIGN

– Baseline and Measurement of Curtailment

Baseline methods must have predictability, simplicity, accuracy, minimization of gaming, and consistency with other methods used

– Penalty Structure

This component of a demand response program carries significant weight to the end use customer so care must be given to balance competing interests.

– Event Trigger Mechanism

Predictability of event calls.

– Resource Flexibility

Allow for resources to change their committed curtailment levels monthly (some regular interval) because of operational characteristics.

– Form of Payment to Customer

Direct payment vs. bill credit.



PHASE TWO: MARKETING and ENROLLMENT

– Branding

Provide / create program recognition.

– Development of Marketing Materials

Identify benefits of demand response programs. Can be resource specific.

– Marketing and Written Materials

Aggressively get the word out, press releases, targeted mailings, print advertisement etc.



PHASE TWO: MARKETING and ENROLLMENT



- Development of Internet Website

Website is a portal that perspective customers can go to and find program information, answers to their questions and general program information.

- Webinars / Seminars

It is important to host seminars and webinars for prospects. These information sessions promote the program and provide critical information. Education = future success!



PHASE THREE: PRE-EVENT ASSESSMENT AND READINESS

– Installation of Interval Metering System

Critical component for the customer and in many cases can provide real-time access to meter data allowing a customer to track performance and adjust loads accordingly during events.

– Demand Response Audit

Work with key facility personnel to understand their energy use pattern
Tailored audit with emphasis on each facility's energy and operational characteristics

Areas of audit focus:

- Electrical distribution system
- Identify large electrical loads
- Load profile analysis
- Existing energy management systems and controls
- Equipment operating hours and cycle times
- Energy (kWh) saving options
- Load profile/ demand shaving techniques



PHASE THREE: PRE-EVENT ASSESSMENT AND READINESS

– Establishing a Reduction Action Plan (RAP)

Implemented with **understanding and support** of all levels of the organization.

Provides **action items** for personnel to ensure desired objectives are met:

- Personnel notification
- Identification of loads to be curtailed
- Automated controls
- Manual loads adjusted
- Operating instructions

– Installation of Automated Equipment (where applicable)

The installation of automated equipment will **maybe** necessary to enable the customer to fully participate and automate their load reductions.

– Ensure Communication for Event Calls

Several contacts and ways of communicating that information is essential so that participants are timely informed about event activations.



PHASE FOUR: EVENT ACTIVATIONS

Once the event is triggered, there must be an automated notification system that effectively and rapidly notifies customers.

PHASE FIVE: POST-EVENT

- Data reconciliation
- Performance analysis
 - Review data with client
 - Address performance issues
 - Examine additional reduction capabilities / opportunities
- Publicize resource participation / issue press releases
- Readiness for next event



CONCLUSIONS / RECOMMENDATIONS / OPPORTUNITIES

– Design Programs that Foster Participation

Establish parameters of program that will facilitate participation from all sectors of the market, thereby maximizing program volume.

– Establish when Demand Response Performance will be needed

It is critical to set the time frame in which resources will be needed daily, weekly, annually, or for a stated number of months.

– Consider Providing as Much Advance Notification as Possible

Establishing a day-ahead notification, even if only a *courtesy* notice, can maximize participation and performance during event calls.

– Utilize a Baseline that is Easily Understood and Eliminates Barriers

Setting a baseline using an average peak monthly demand eliminates the uncertainty of an ever-changing baseline.



CONCLUSIONS / RECOMMENDATIONS / OPPORTUNITIES

– Develop a Balanced Penalty Structure

Penalty structures should be developed by balancing the two most significant interests of a demand response program: marketability and reliability.

– Clear Event Trigger for Events

With clear event triggers participants learn the signs of when and how events will be called, and thereby start to anticipate when they need to be ready to respond.

– Resource Flexibility

Demand response participants must be free to change their committed kW on a monthly basis or at some other interval as their business needs change.

– Aggressive Marketing and Branding the Program

Participants recognize the program and take ownership.



CONCLUSIONS / RECOMMENDATIONS / OPPORTUNITIES

– Pre-Event Assessment and Readiness

Strong emphasis placed on assessing how the customer will be able to perform and preparing the customer for the event call.

– Event Notification ; Fostering a Successful Response

Event notifications must go smoothly. It is extremely important that participants are notified and prepared to perform promptly during the event call.

– Post-Event Assessment

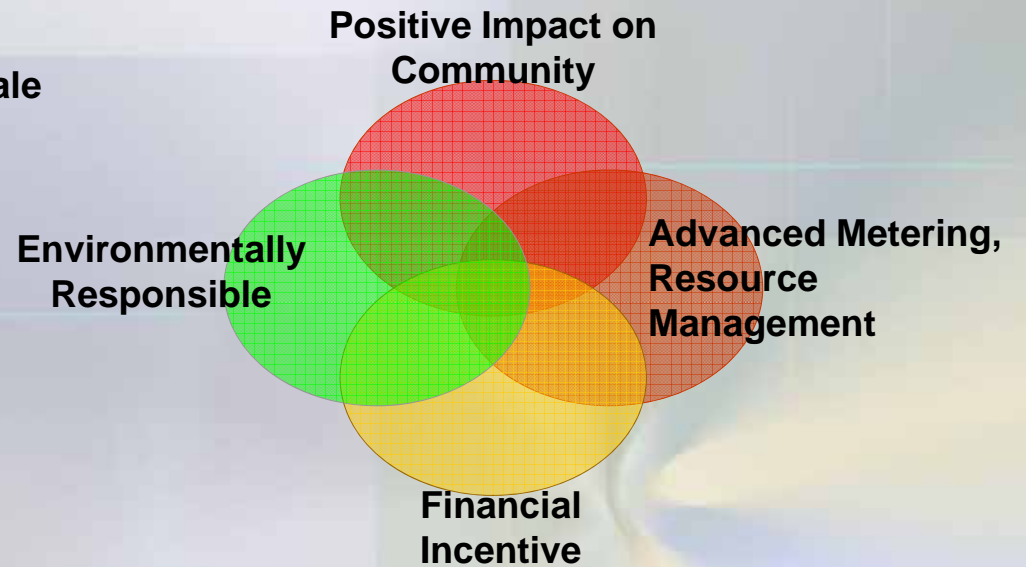
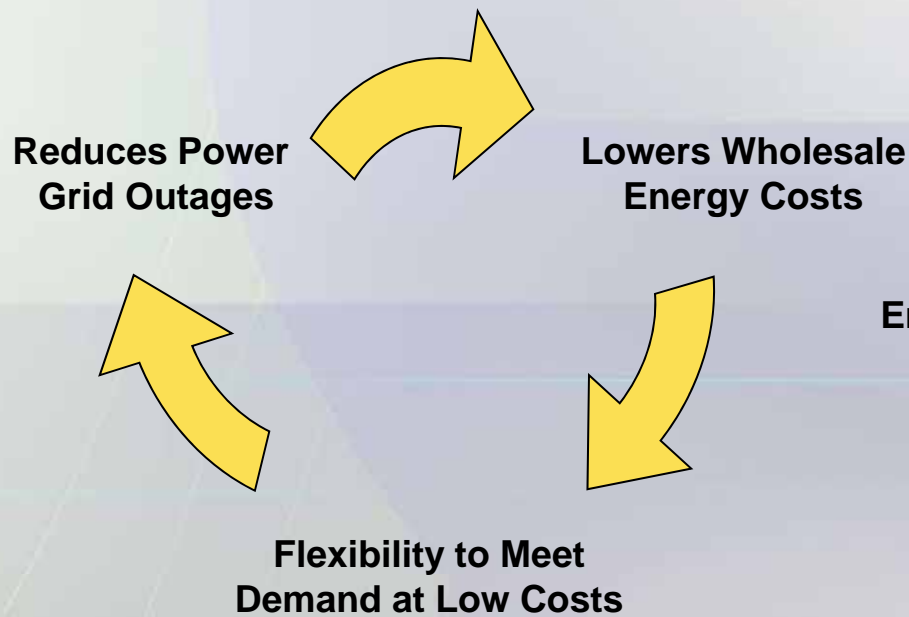
It is important to provide the participant with compiled data and analysis.



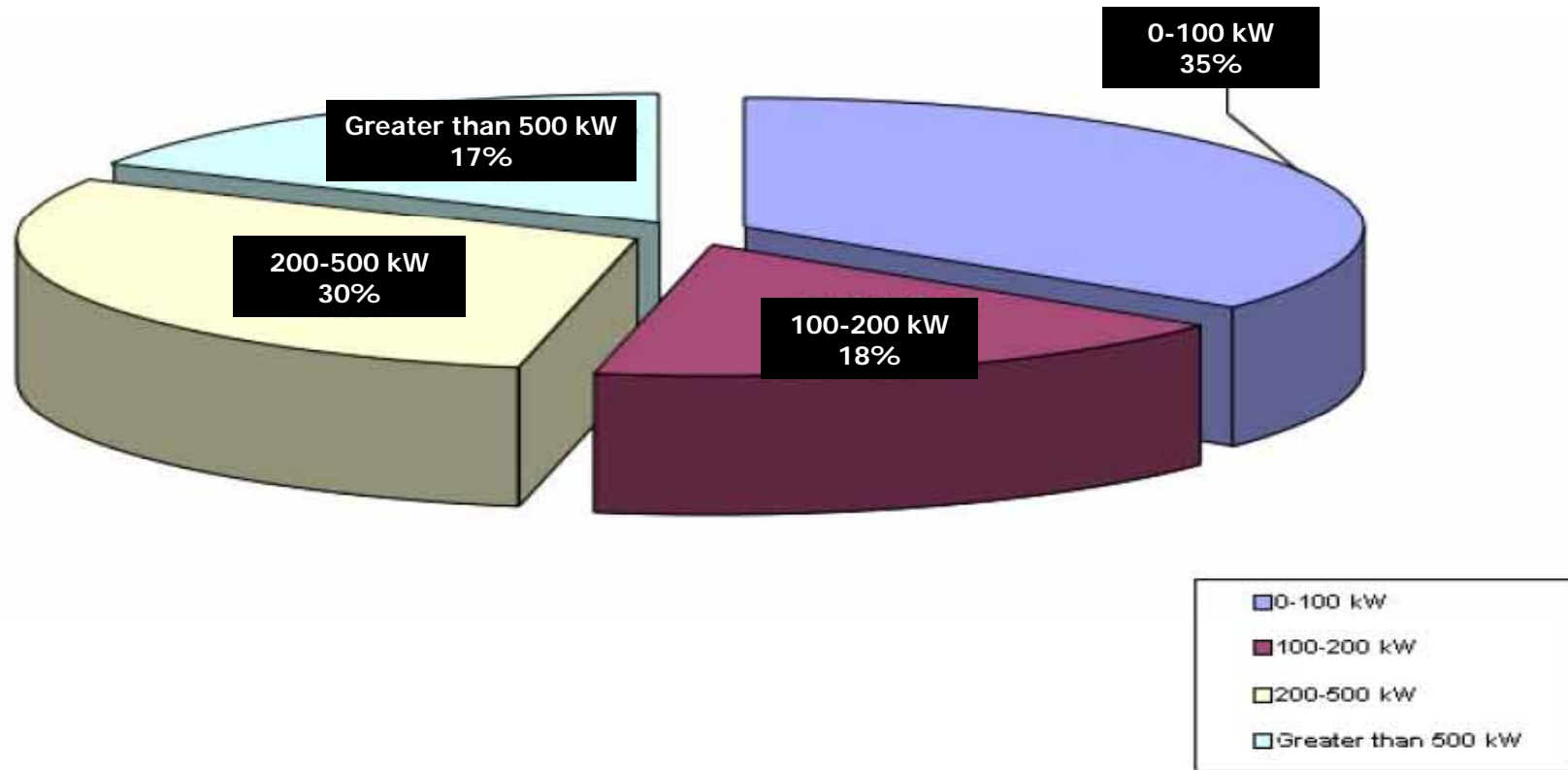
Benefits of Demand Response

Power Grid Benefits

Electric Customer Benefits



Marketability of a DR Program



Attention to each detail of the "Five Phases of an Effective Demand Response Program" is imperative for a successful program.

*The true success of a DR program is seen not merely in the amount of MW that the program enrolls, but rather is determined by the amount of MW that program **actually delivers** when response is needed.*



Inclusive program features will deliver the benefits...

- Provide value beyond DR participation (efficiency, information, emissions)
- Tools to make sound financial decisions
- Allow user control / input to manage events
- Protect the core business i.e. critical loads



Inclusive program features will create supplementary participation benefits...

- Data / Information
- Climate Change, Carbon Neutral Initiatives
- Efficiency Upgrades
- Enabling Technologies



LOCAL NEWS
FOUR NEIGHBORHOOD

IN THE DARK

L.I. Braces For Heat Waves And Power Conservation
April Jimenez - ajimenez@longislandpress.com 08/03/2006 12:15 pm

Long Islanders are no strangers to blackouts. In fact, the massive Aug. 14, 2003 North American blackout, and recent power outages in Queens, prove that LI is still at risk for scattered, heat-related outages, according to the Long Island Power Authority (LIPA). So, what can we do to keep what happened in western Queens from happening here—and how do we deal with it if it does?

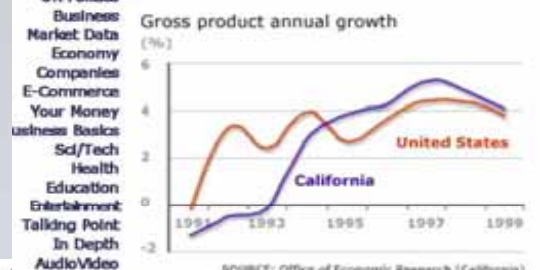


The multi-day heat that we are experiencing this week, with temperatures reaching triple digits in some areas, has officials at LIPA and at Keyspan, LI's national gas distributor, concerned about the usage of power, and the possibility of outages.

BBC NEWS

You are in: Business
Thursday, 18 January, 2001, 17:48 GMT

California's economy hit by power cuts



E-mail article Graphic version Most popular

Record power usage recorded

By Jennifer Kavanaugh/ Daily News Staff
Thursday, August 3, 2006 - Updated: 11:59 AM EST

Yesterday's heat and the region's electrical grid. I power usage set a new

BBC NEWS

You are in: World: Americas
Tuesday, 1 May, 2001, 08:50 GMT 09:50 UK

Cheney warns of power shortages



Mr Cheney says the US faces an impending energy crisis

People's Daily Online -- Eastern US continues to sweat under heat wave

Eastern US continues to sweat under heat wave

The demand for electricity set new records and caused power outages as millions in the region endured oppressive heat and humidity that was expected to continue into Thursday.

NEW YORK POST
ONLINE EDITION

August 4, 2006

Heat Wave Exacts a Brutal Parting Toll as It Disrupts Power

Another Day, Another Scorcher

By Seth Voornhies/R News Staff
Published Aug 02, 2006

BRINGIN' THE HEAT

and LUKAS I. ALI

reaching 100 degrees on the field at

Wednesday turned into another hot one. High temperatures today reached into the 90's once again. At 4 pm, the mercury hit 94 degrees. The record temperature for this date is 96 degrees set in 1944.

Monroe and other counties to the south were placed under an excessive heat warning. Areas to the west are under a heat advisory. An air quality advisory was also issued because of high ozone levels.

IZ-PEÑA

journey through the Northeast, tens of thousands of customers lost power in the Bronx to Stamford, Conn. But utility officials narrowly averted a third day of high demand strained the electrical grid to its



BBC NEWS

You are in: Business
Thursday, 18 January, 2001, 07:31 GMT

California declares state of emergency



Power supplies are still dangerously low

The governor of California has announced a state of emergency after power shortages led to a wave of blackouts.

Peak demand for electricity causes headaches for businesses

By DENIS PAISTE
The Union Leader

Manchester - Wednesday's combination of intense heat, record power demand and severe thunderstorms caused business disruptions, both large and small, across a wide swath of New Hampshire. Both Unitil and Public Service of New Hampshire set records for electricity demand on Wednesday, and both struggled with power outages caused by storms that went through the Hampton-Rye area about 6 p.m. that day.



Education = future

On Behalf of

Energy Curtailment Specialists

Thank You!

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