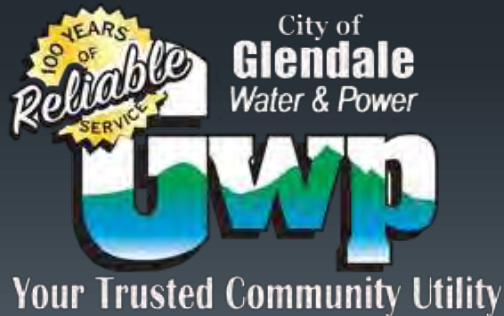




# Glendale *Water & Power* Smart Grid Project May 5, 2011



# About Glendale



- Municipal utility NE of Los Angeles
- 88,000 electric and 33,000 water customers
- Home to the Americana, Disney, Nestle and DreamWorks

# Glendale Water & Power



- 1 of 33 Publicly Owned Utilities selected by DOE for a Smart Grid Grant – GWP Received \$20 million
- 1<sup>st</sup> in Nation to Sign DOE Agreement
- Awarded \$1 million Smart Grid Grant from CEC
- Winner of the GridWeek Leadership Award for AMI/ Smart Grid Deployment
- Top 11 “Movers and Shakers” of the Utility Industry by Intelligent Utility Magazine

# What is Smart Grid?



- Will enable active participation by consumers
- Will accommodate all generation and storage options
- Will enable new products, services, and markets
- Will provide power quality for the digital economy
- Will optimize asset utilization and operate efficiently
- Will anticipate and respond to system disturbances (self-heal)
- Will operate resiliently against attack and natural disaster

# Smart Grid Project at a Glance

- \$70 Million total - \$51 million electric, \$19 million water
- 88,000 electric and 33,000 water meters
- Proof of Concept (April 2010) - 1,000 electric and 500 water meters
- Tropos Citywide Wi-Fi Backhaul installed
- Full AMI deployment commenced December 2010
- AMI installation to be completed Summer 2011
- Ice Energy Thermal Energy Storage program underway
- Distribution Automation, Demand Response, and Residential Customer Engagement programs to start this Summer
- New rate programs to follow in 2012



# Phase I – AMI-MDMS



- Smart Electric Meters
- Smart Water Meters
- Leak Sensors
- Meter Data Management System
- Electric and Water Data Collection Units
- Tropos Wi-Fi Backhaul System
- Ethernet gateways connected to our fiber network

# Smart Meter Installation

- Approximately 60% complete
- 53,000 smart electric and 18,000 smart water meters installed
- Full installation by Summer 2011



Status  
↓



# Leak Sensors and Detection System





# Communications Backhaul

- AMI backhaul complete



Status

Design

Plan

Execute

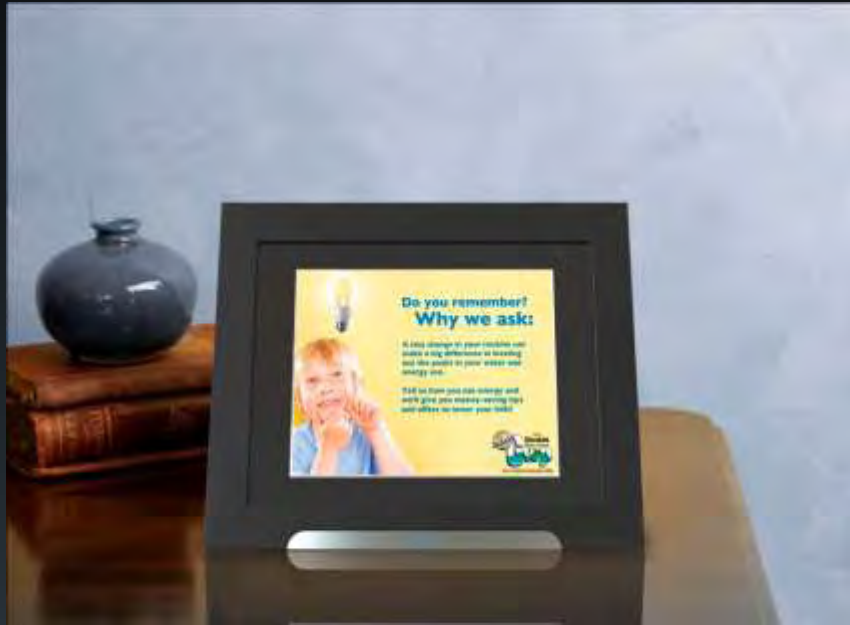
# Phase II – Customer Engagement

- In-Home Displays
- OPOWER
- Demand Response
- Thermal Energy Storage
- Electric Vehicles



# In-Home displays

- Pilot planned for this summer
- CEIVA
- EnergyHub



Status

Design

Plan

Execute

# OPOWER Web Portal

- Contract complete
- Implementation and project planning underway
- Website launch scheduled for June 2011



Status

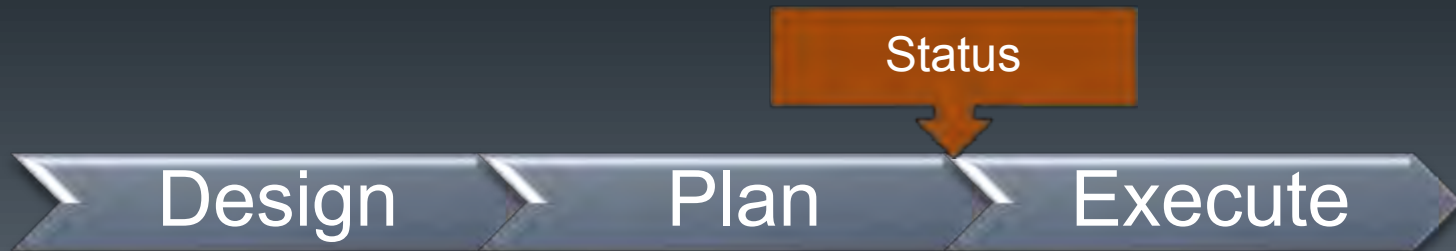
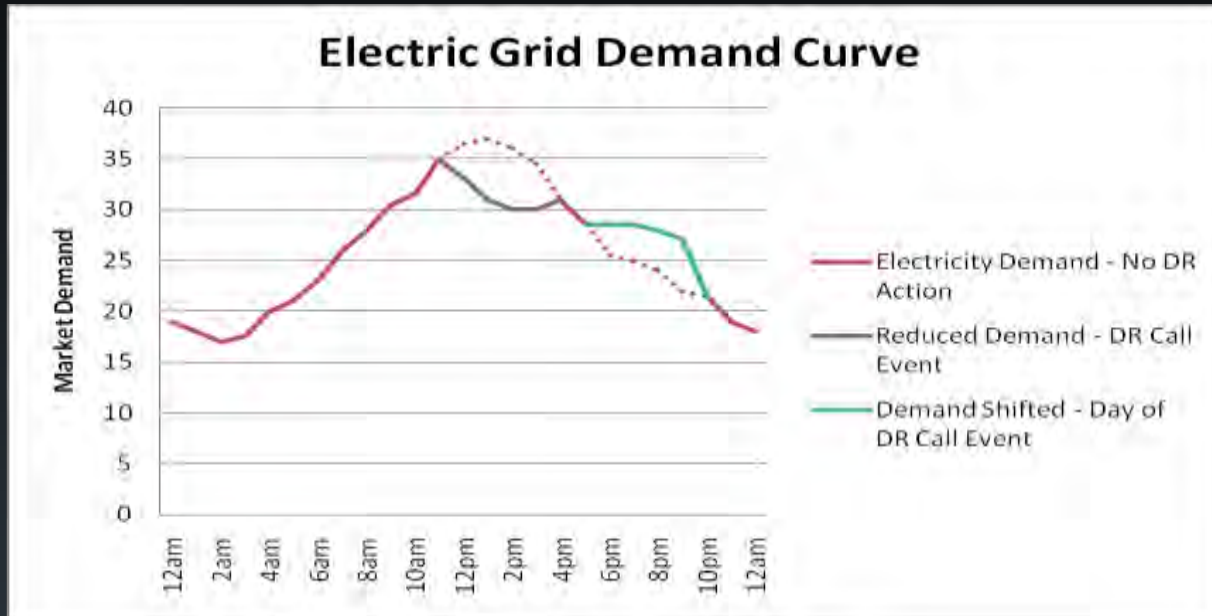
Design

Plan

Execute

# Demand Response

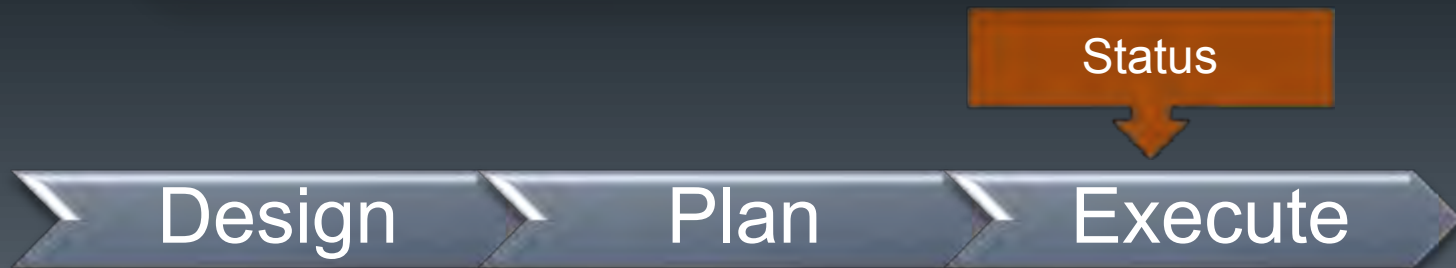
- Program design complete
- Implementation scheduled to begin June 2011





# ICE Thermal Energy Storage

- 118 Units Installed
- 163 Units Planned



# Phase III – Distribution Automation

- Enterprise Computer Systems
- Distribution Automation Technologies



# Enterprise computer Systems

Current state documented, future state designed, roadmap developed and under review.



# Distribution Automation

Feeder Automation and Substation Automation Pilot Project locations selected, initial testing and systems selection is underway



# Key to Smart Grid Success

- Customer Acceptance
- Customer Education
- Customer Participation





# Customer Acceptance

- Know Your Customer Base
- Anticipate and neutralize objections through targeted communications and engagement
- Know the kinds of reassurance that customers require to move off their objections
- Know the concepts that will be most appealing to customers – what do they want and expect



# Customer Education

- Consistent and Persistent Messages
- Creatively Engage Your Customers
- Utilize the old ways, but incorporate new ways of communication and engagement



# Customer Participation

- Programs must creatively engage customers and keep their interest over the long term
- The goal is to change behavior
- Initially GWP is concentrating efforts in two programs
  - CEIVA
  - OPOWER



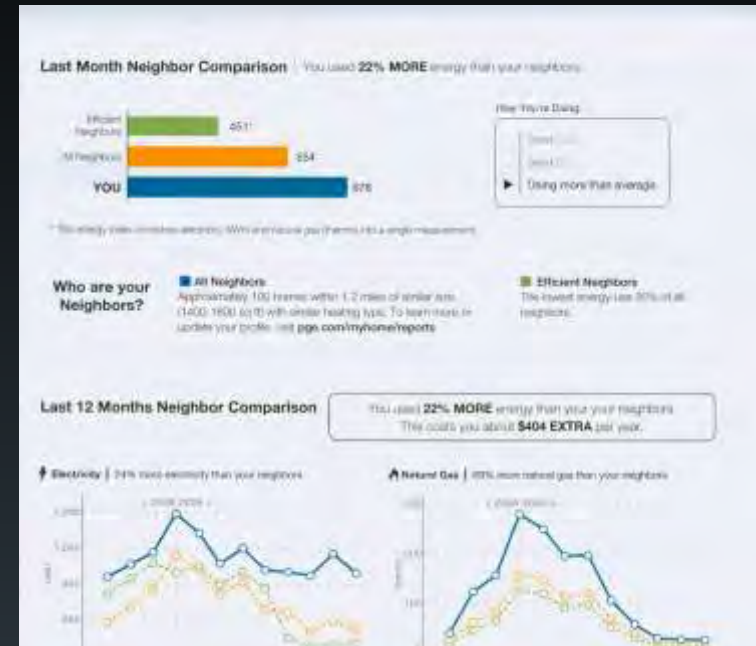
# CEVIA

- Multi-Functional In Home Display
- Serves as a web based “picture frame” for customers
- Allows GWP to provide customized messages to advertise programs, warn of power alerts, etc.
- Zigbee enabled to show real time electric usage and enable demand response programs
- Provides next day water usage information



# OPOWER

- Existing program is saving 3-4% annually on 25,000 customer bills - 3,000 mWh saved last year
- Program is being modified to use Smart Grid data and expanded to 50,000 residential customers
- New web portal will be available to all 75,000 residential customers
- Web portal will analyze customer bills and provide information to CSURs to better serve customers





# For More Information

Craig Kuennen

Business Transformation and Marketing Administrator

- Phone (818) 548-3369
- email [CKuennen@ci.glendale.ca.us](mailto:CKuennen@ci.glendale.ca.us)

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