



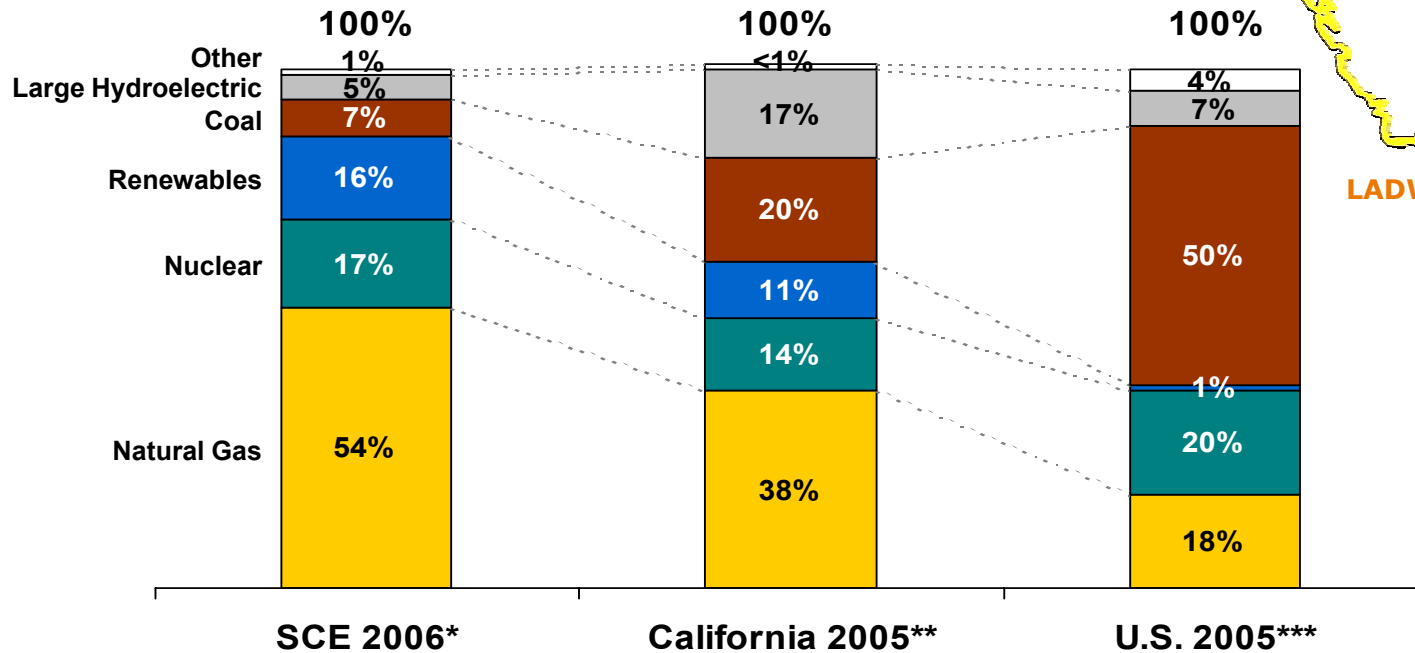
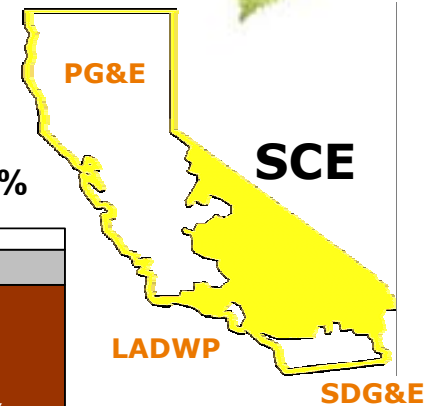
# Demand Response on a Smart Grid Platform

Larry Oliva, Director, Tariff Programs and Services  
Southern California Edison  
PLMA Spring Conference

Demand Response: Paving the Way for the New Energy  
Alternatives  
April 30, 2009

# About Southern California Edison

- Largest electric utility in California
  - Peak load 23,300 MW
  - 4.6 million customers
  - Serving Los Angeles metro area (50,000 sq. miles)



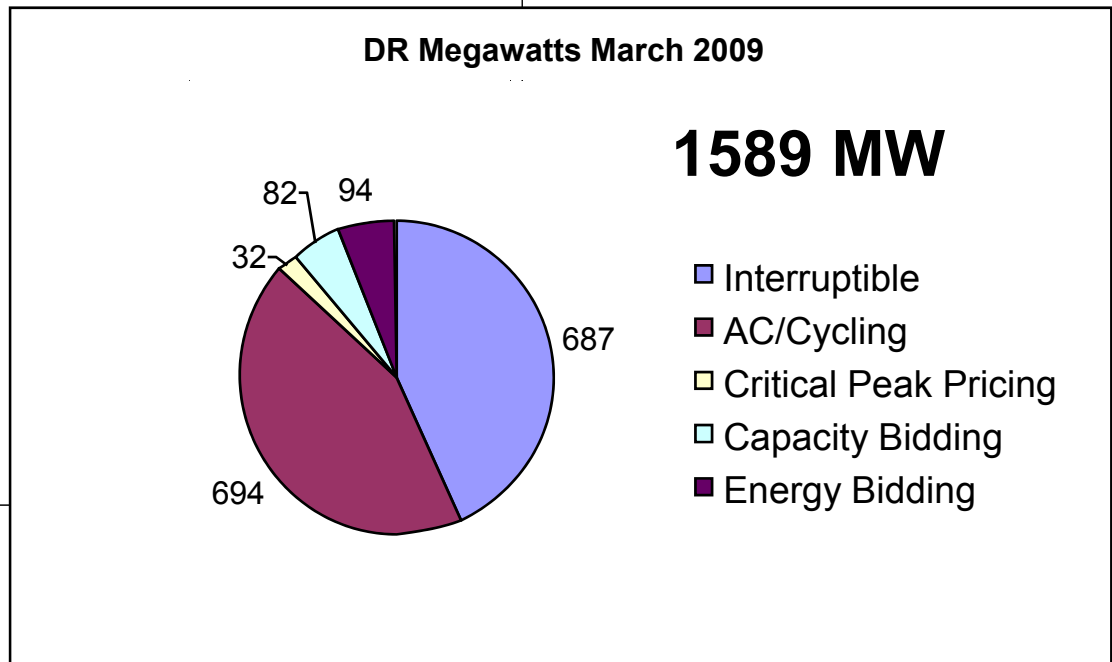
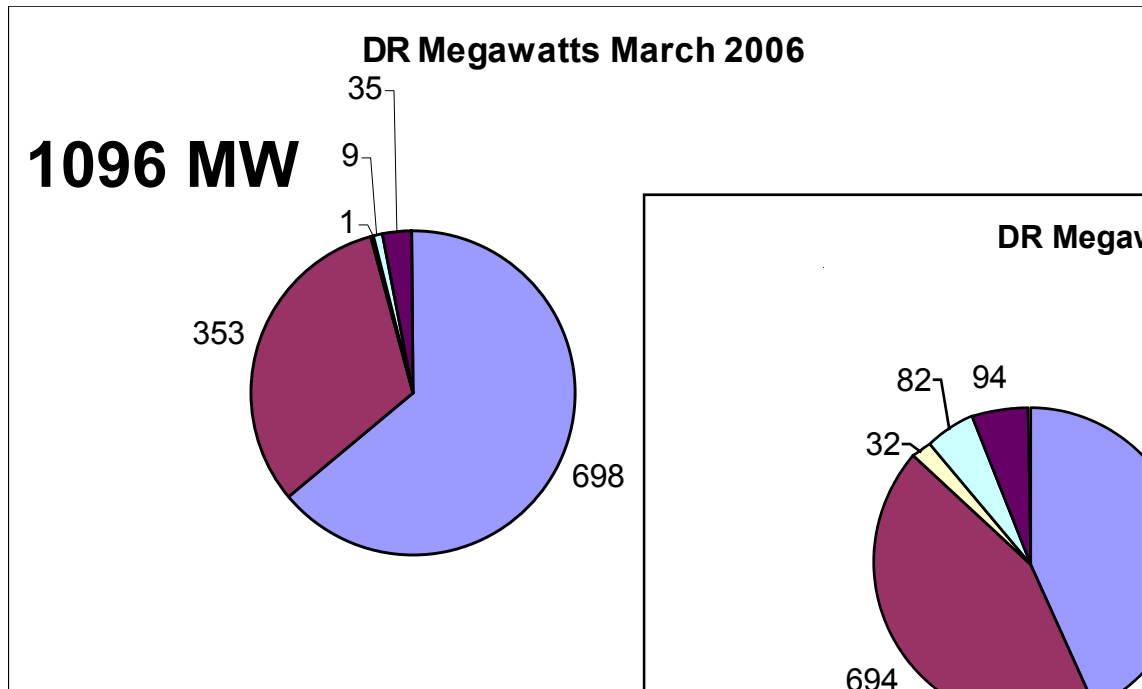
Sources: \* SCE's Power Content Label - projected, March 2006

\*\* CEC's "Net System Power: A Small Share of California's Power Mix in 2005" report, April 2006

\*\*\* Energy Information Administration's Electric Power Annual, November 2005 Table 1.1

# SCE Key DR Programs 2006 to 2009

Customers > 200kW have communicating interval meters



- Interruptible
- AC/Cycling
- Critical Peak Pricing
- Capacity Bidding
- Energy Bidding

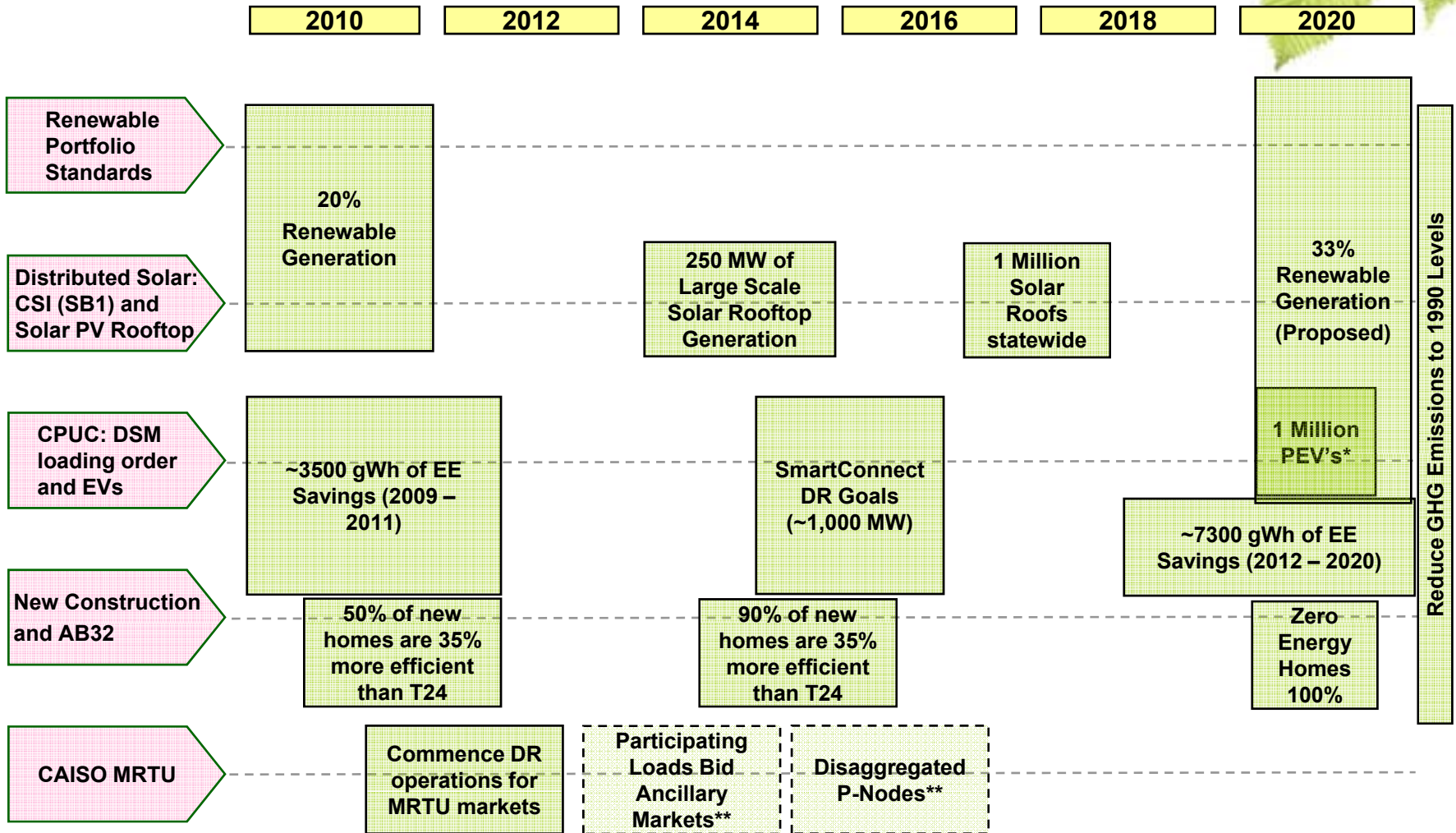
## Growth

Total MW = 45 %

Price Response = 462%

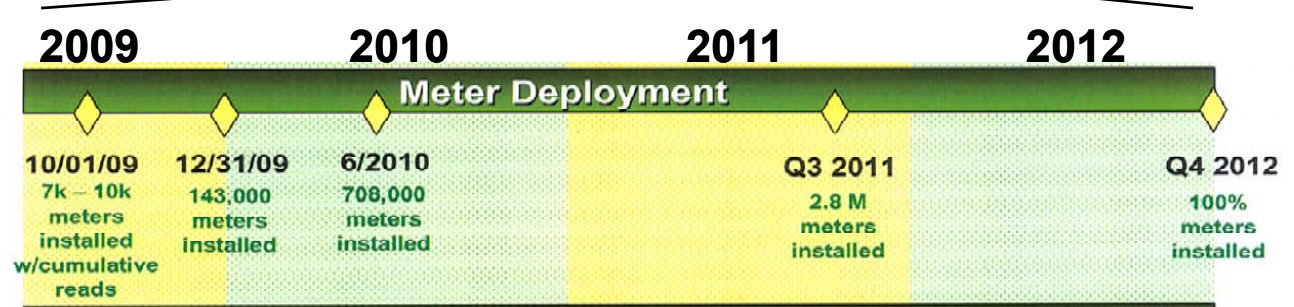
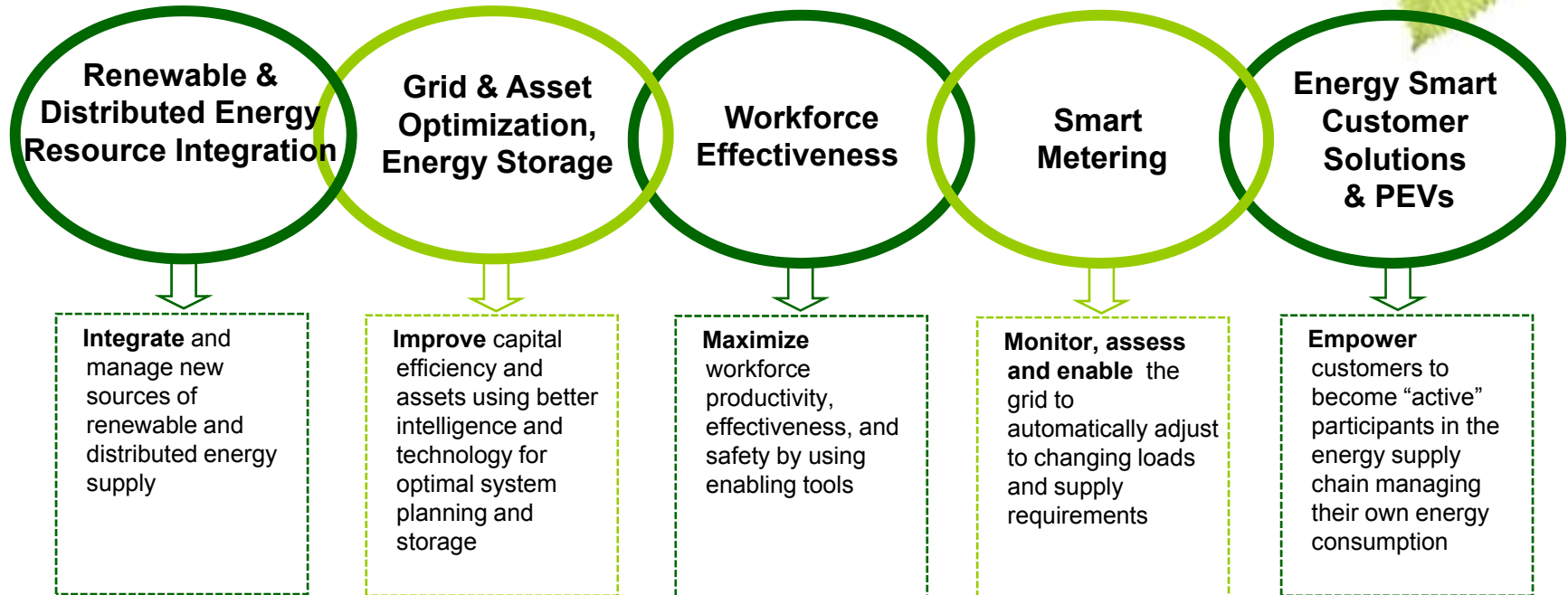
*Note: Price Response = Critical Peak Pricing + Capacity Bidding + Energy Bidding*

# Key Energy Policy Timing in California



\* SCE estimate \*\* Anticipated by SCE

# SCE's Smart Grid Vision



# Smart Meter: Vision to Reality

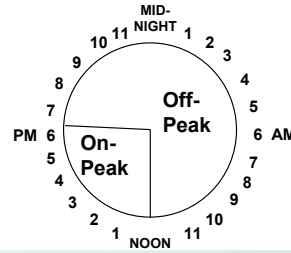
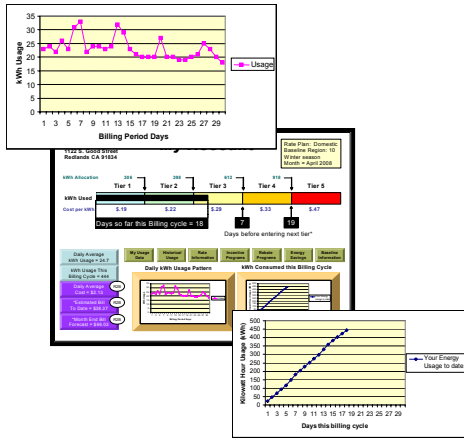


## Smart Meter Functionality

- 200A service switch with load limiting capability
- Remote upgradeability (never visit the meter)
- Flexible tariffs & programs (TOU, CPP, PTR, etc)
- Improved computing capability
- Integrated HAN interface (ZigBee/Homeplug)
- Integrated 2-way LAN communication
- Power quality metrics
- Robust security encryption



# Smart Metering = Enabled Offerings



## Dynamic Rates

**ZigBee**  
Earn \$\$\$ in Rebates

EDISON  
AN EDISON INTERNATIONAL COMPANY

## Better Information

**EDISON Manage Your Energy Costs**  
An EDISON INTERNATIONAL COMPANY

Empower Yourself to Save

- Highest Cost
- Lowest Cost

Illuminated LED indicates current electric energy cost range. For more information, please visit [www.sce.com/ami/hourly-usage](http://www.sce.com/ami/hourly-usage)

## Saver Programs

## Better Service

## Communications



## New Payments Options



# Empowering and Engaging Customers

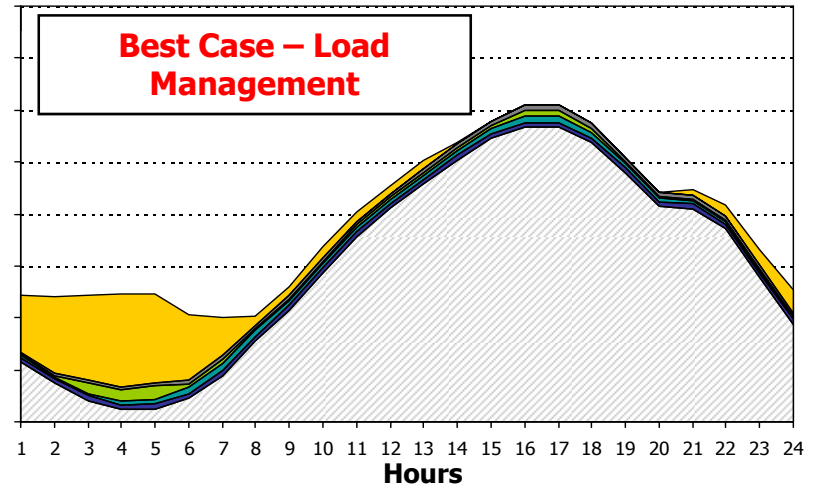
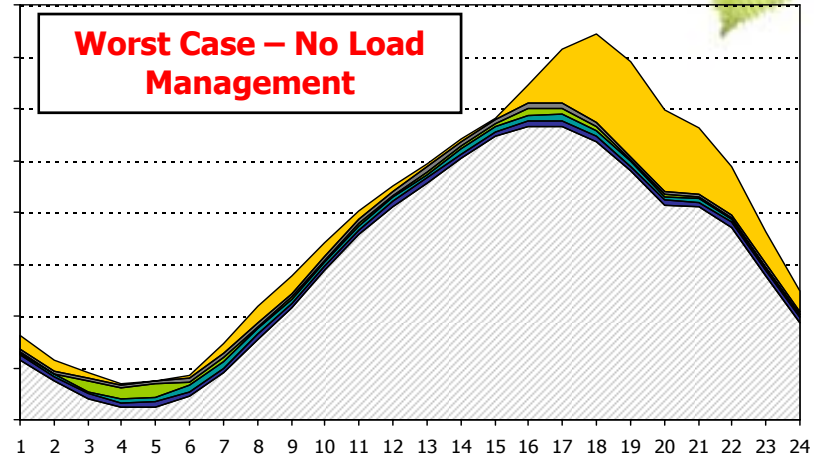


- Choice to Manage Cost & Peak Demand
  - Rates
    - Time of Use and Tiered Rates
    - Critical Peak Pricing (CPP)
    - Peak Time Rebate (PTR)
  - Saver Programs
    - Smart Communicating Controls, e.g., thermostats, pool pump devices, etc.
    - Communicating Information Displays for Rate, Usage, Cost and Event Information
    - Web-enabled Budget Assistant
  - Outcomes
    - Reduce Peak Load by 1,000 MWs
    - Energy Conservation - 1% minimum
    - Reduce GHG by 1,000 tons/day
- Automation Self-Service
  - Remote Service Switch
  - Payment and Billing Options



# Potential Transportation Impacts 2020

- Electrification growth potential from PHEVs
- Smart Load Management a necessity in planning
- Avoid significant demand peaks and GHG increases
- Improve system load factor and peak shave



# Smart Grid Enabled Demand Response Vision

## 2015 - 2020

- Enhanced DSM and tariff offerings
- Intelligent Appliances & HAN
- Outage Detection & Response
- Increased self generation integration

## 2013 - 2015

- Default dynamic pricing
- Customized rate plans
- Pre-Payment Services
- Electric Vehicle rate programs

## 2010 - 2012

- All customers have dynamic pricing available
- Enhanced Information Tools
- Enhanced enabling technologies - PCT
- Enhanced outbound communications

