



OGE

Positive Energy Smart Grid

Presented to:
65th Annual NECPUC Symposium
May 22, 2012

OG&E Smart Grid



Agenda

- Strategy
 - What, Why?
 - Benefits
- Customer Programs / DR
- Closing Comments



Disclaimer – DOE Funded Projects



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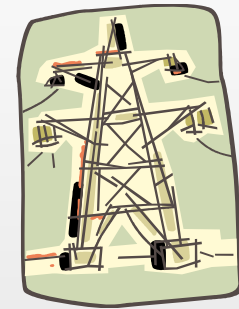
**Smart Grid Strategy:
What Are We Doing and
Why?**

CEO Goal: Defer building more fossil fuel generation until 2020 or beyond



How?

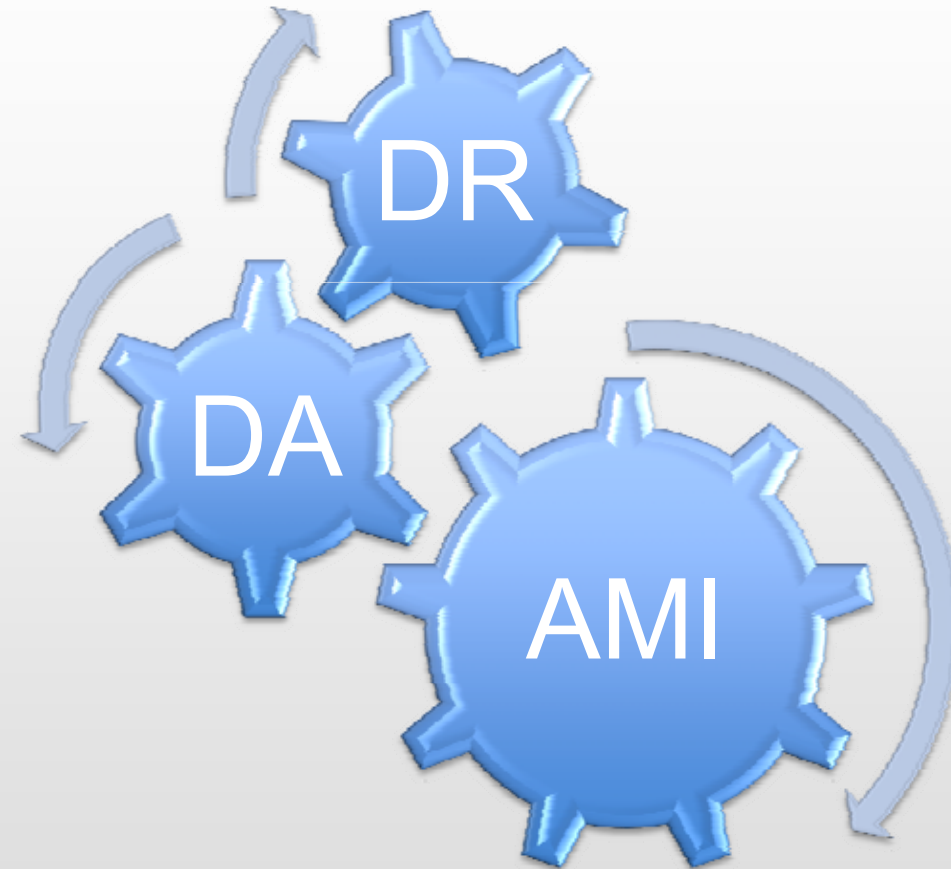
- Additional **wind** generation
- Build **transmission** to deliver wind energy
- Increased focus on **energy efficiency**
- Deploy **Smart Grid** technology



OG&E Smart Grid Includes:



- **Advanced Metering Infrastructure (AMI)**
 - Digital meters for all customers
 - Remote disconnect
 - 2-way communications
- **Demand Response (DR) Programs**
 - Dynamic pricing
 - In-home technology
 - Customer engagement
- **Distribution Automation (DA) Technologies**
 - Automated switching
 - Volt–VAr Optimization
 - Centralized control - DMS
- All enabled through integrated wide area communications network, IT systems and supporting business processes



Program Goals

- Meter Operational Savings:
 - Meter Reading ~\$15M/Yr
 - 300,000 connect/disconnect orders/Yr
 - 200,000 move in/out orders/Yr
 - Theft Reduction: \$8.2 M/Yr
- Net Headcount Reduction: 135
- Customer Participation Goals:
 - 20% penetration
 - 1.3 kW per customer
- Demand Reduction: 298 MW
 - DR: 223 MW; VVO: 75 MW
- Avoided Generation Cost: \$287 M (15 Yr NPV)
- Energy Reduction (VVO): 106 GWh/Yr
- Reliability: 30% SAIDI reduction
 - DA Societal Benefits: \$300 M/Yr

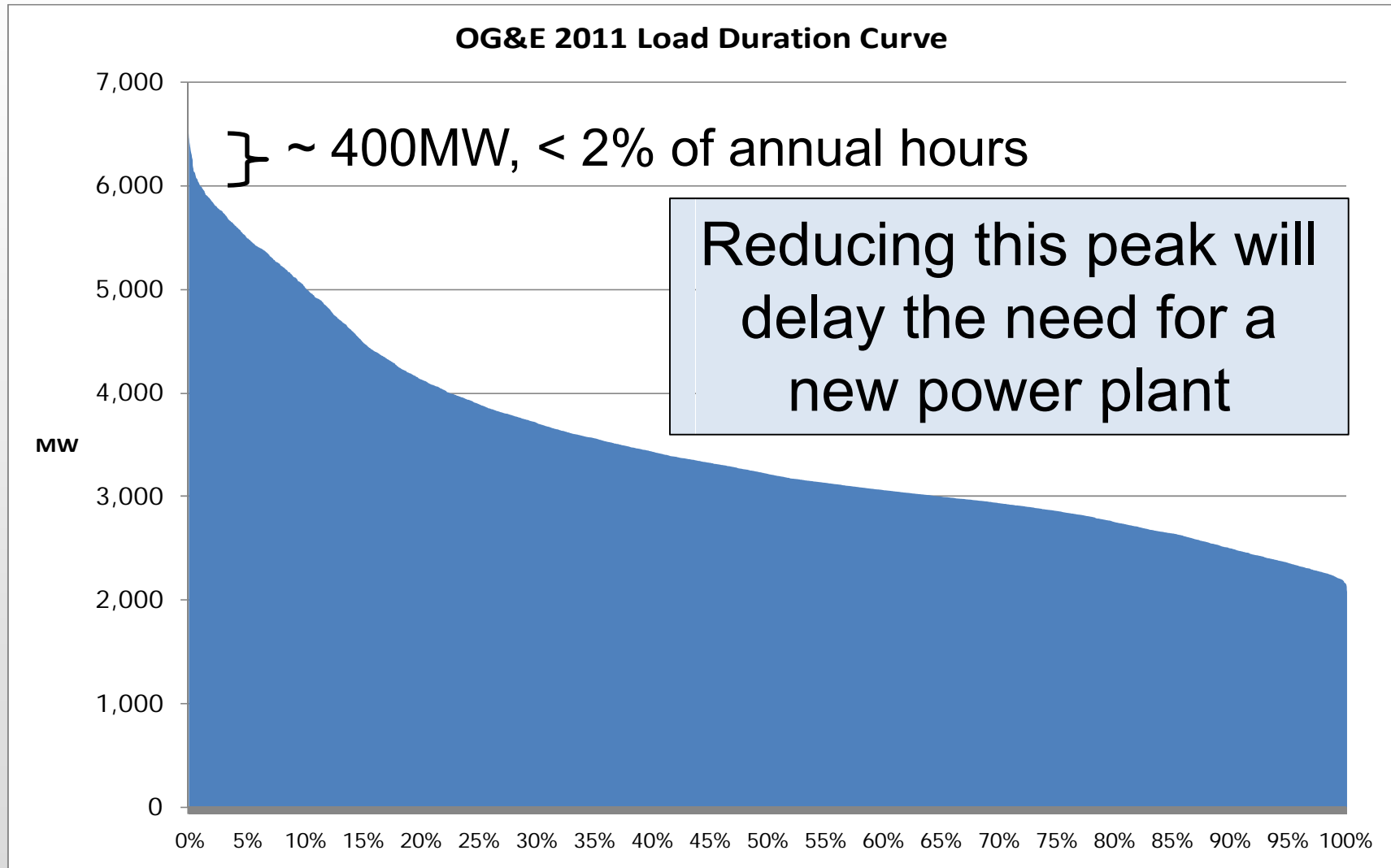




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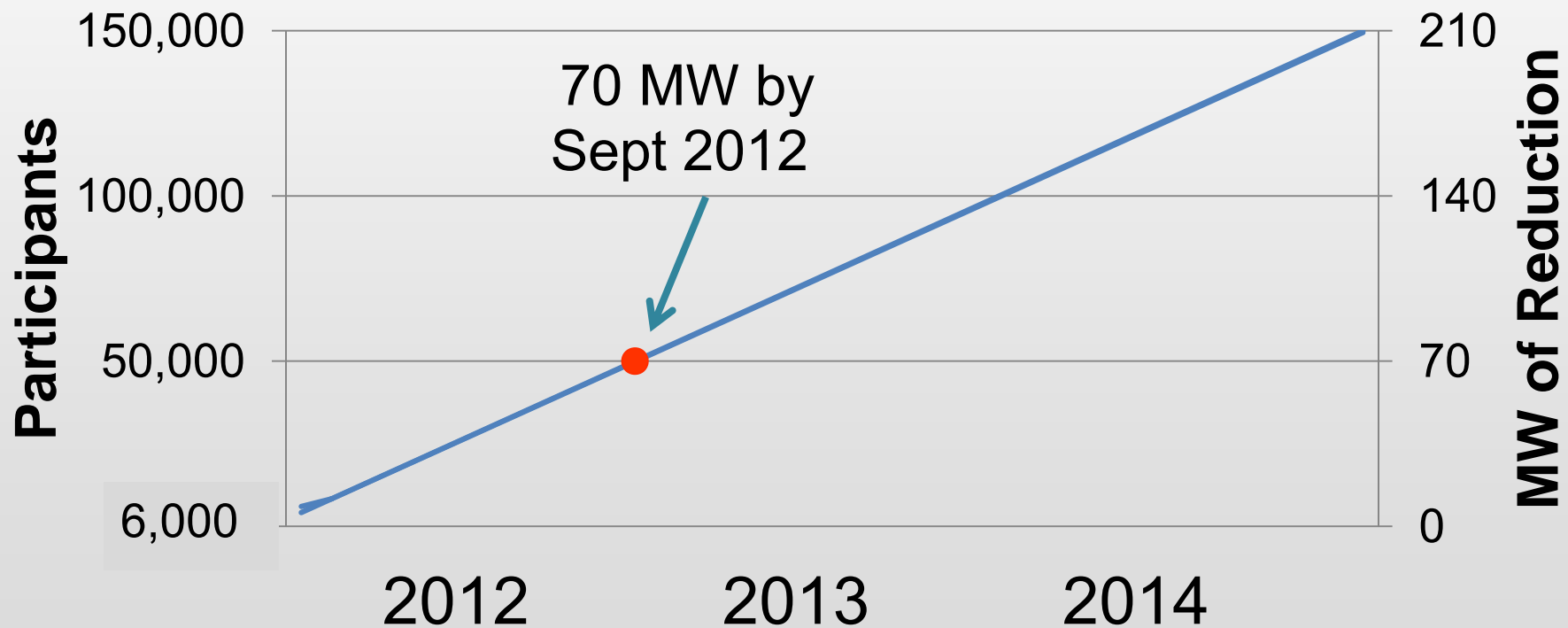
Demand Response (Customer Programs)

Peak Demand: Short in duration but must be served!



DR Study Hypothesis

- 20% Participation by December 2014
 - 150K customers (50k per year)
 - 1.33 kW per customer (~70 mW per year)



Smart Grid Demand Response Background



Quail Creek

- 25 Customers
- Acceptance
- Energy Awareness

2010 Study

- 3,000 Customers
- Reduced Peak
- Segment Results
- Acceptance
 - Technology
 - Dynamic Pricing

2011 Study

- 6,000 Customers
- Commercial Results
- Critical Price Results

2012 Roll-Out

- ~40 K Customers
- 70 MW
- ROI Marketing
- Penetration Testing

Gateway Product

- 20% Penetration
- 210 MW
- New Pricing Products
- Value Added Products

2010 - 2011 Demand Response Study



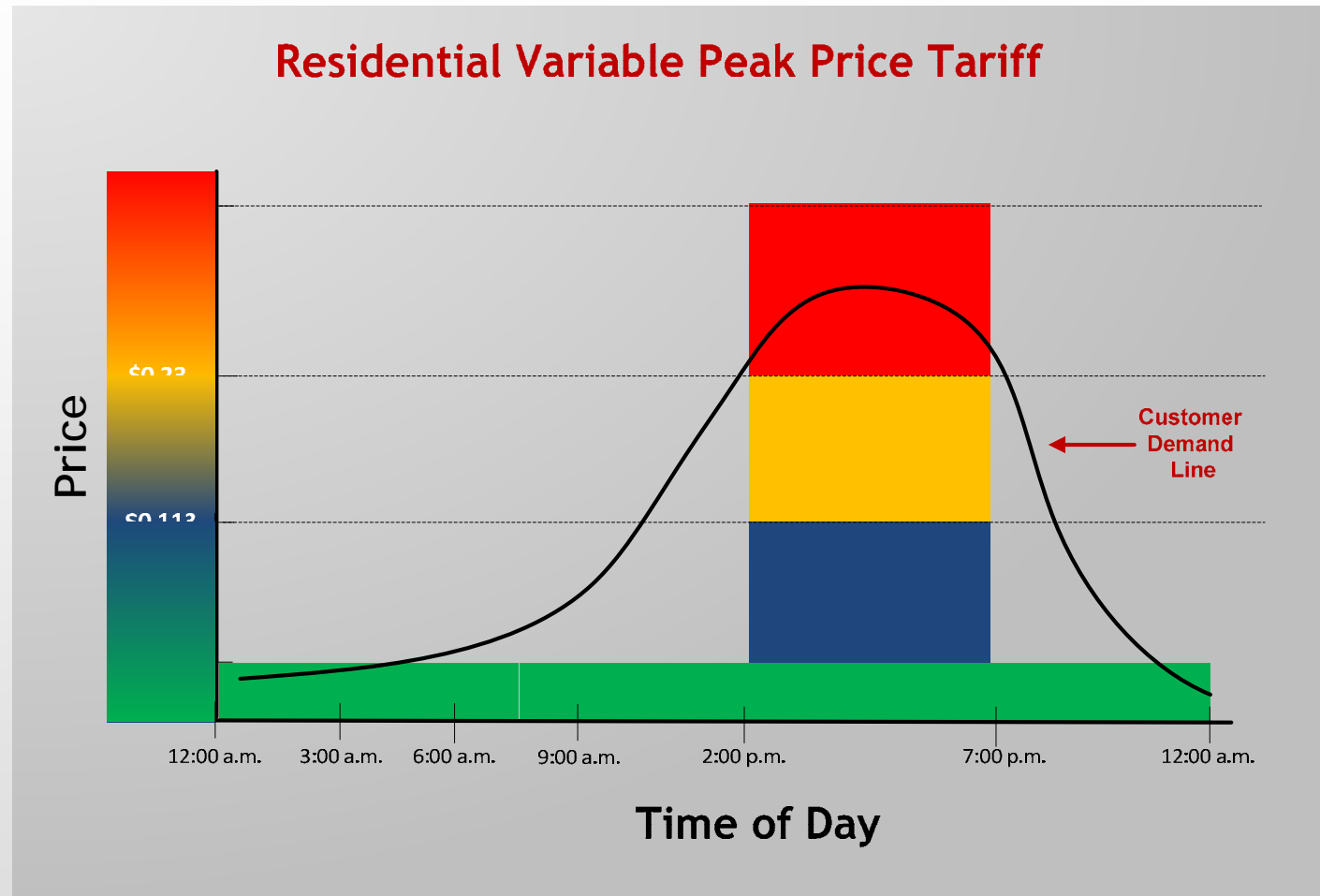
Two Price Plans

Four Technologies

Residential and Small Commercial Customers

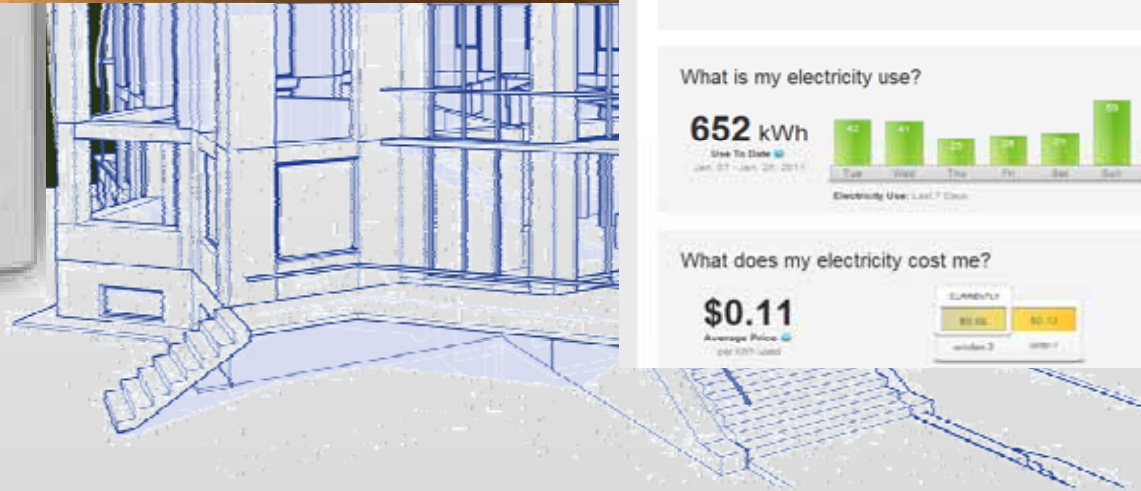
New Dynamic Pricing Options Offered

- Hours: 2-7 PM, M-F
- **Summer Season**
(June – September)
- Customers receive day-ahead price via in-home display, web, text, email, voice message
- Tariff is **Optional**
- **Customer** decides how to respond & manage consumption

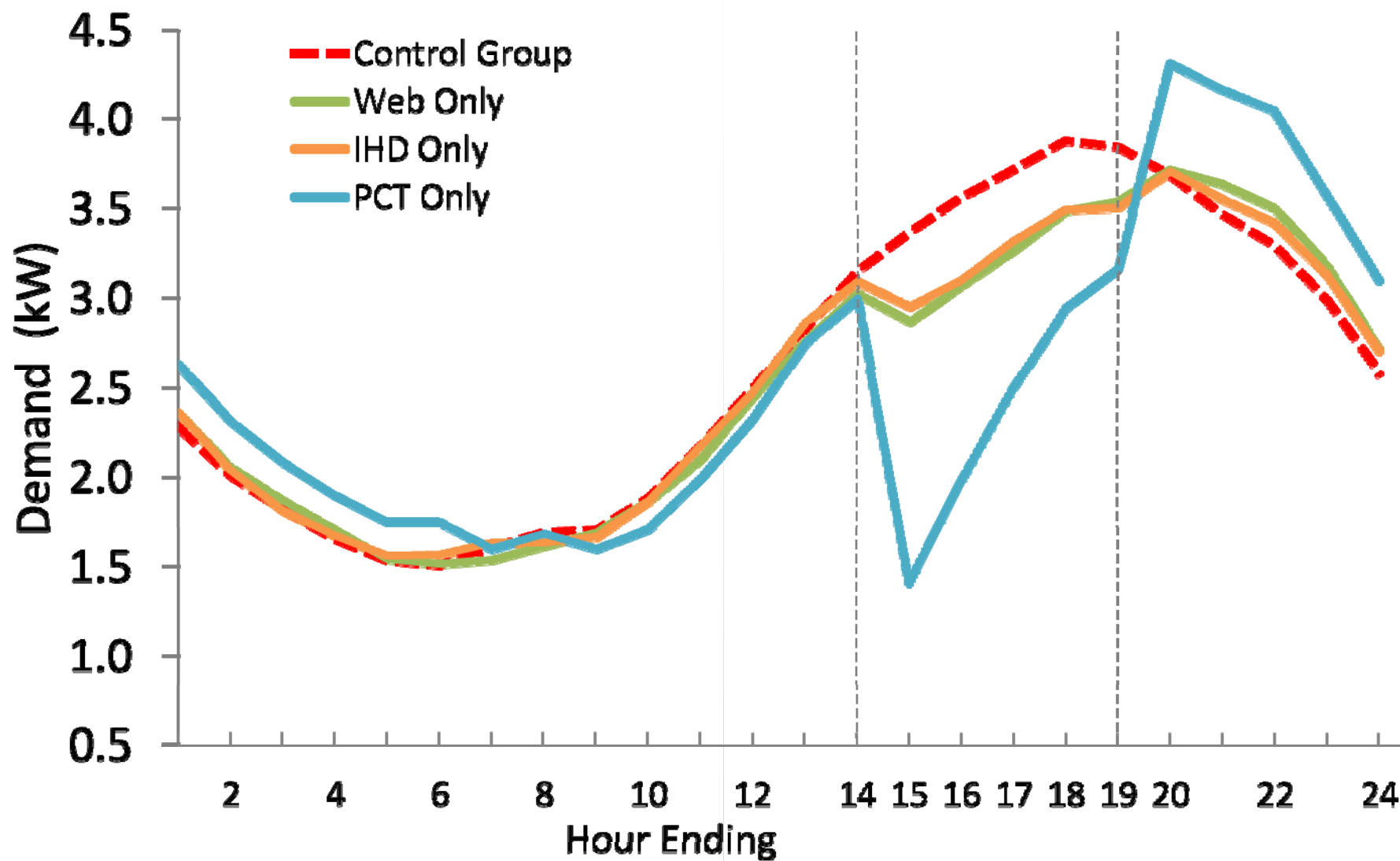


All electricity is not created equally – as demand increases, the cost to generate and deliver electricity increases

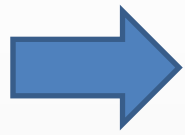
Home Area Network Technology: New Tools for Energy Awareness



VPP and Technology Impact



Study Results Validate Hypothesis



VPP rate combined with PCT enabling technology maximizes load reduction

	VPP-CP Critical Weekday Max DR	TOU-CP Average Weekday Max DR
Web	0.51 kW	0.33 kW
IHD	0.47 kW	0.54 kW
PCT	1.96 kW	1.25 kW



SmartHours

SmartHours: Key Messages

- Most Compelling Reason
 - Help change the way America uses energy
 - New technology
 - Evaluate new pricing plans
 - **Saving money**
- **Customer** control
 - OG&E provides info & tech to make managing energy & saving money easier
 - OG&E doesn't control anything in your home
 - First year best bill guarantee
- Customer **choice**
 - Offer price plan options
 - Customers choose what works best for them



Educate and Enroll

Print Ad



John Fagan
OG&E SmartHours Customer

TV & online videos

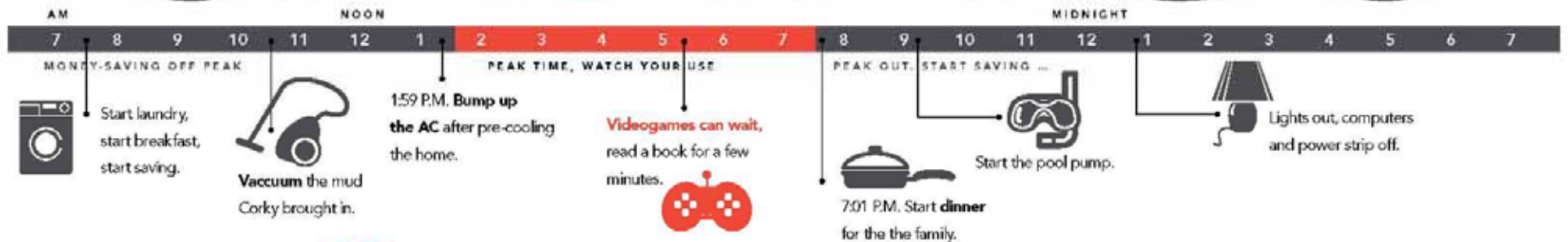
Targeted Email

Targeted Direct Mail

Online Display Ads

WITH ALL YOUR POWER  WHAT WOULD YOU DO?

WATCH THE CLOCK FOR SAVINGS



Introducing OG&E SmartHours.

When the peak hours start spiking, that's when you can start saving—with OG&E's new SmartHours pricing plan. Just reduce the amount of electricity you use during peak hours, from 2 to 7 p.m. weekdays, when it costs more to generate energy, so it costs more to use it. By taking advantage of the other 19 hours each day, plus every weekend and national holiday, you'll find shifting a little of your usage can cut your energy costs considerably. So cook a bit later, or grill more. Make Saturday laundry day. Turn off

the pool pump during the day. Pre-cool the home or office, then bump up the thermostat. The choice on how you save is always yours. And SmartHours is guaranteed to cost no more than your current bill, while likely to save your money. Start saving by clicking on SmartHours at og.com.

POSITIVE
ENERGY
TOGETHER



See how others are tracking their SmartHours savings on myOG&E power. It's easy to go off peak—[LEARN HOW](#).

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Concluding Comments

Program Milestones (where are we now?)



- Approx. 600,000 meters installed (~75% complete)
- Meter Data Management System operational 2010
- Customer Energy Information Portal live Jan. 3 2011
- Wide Area Network (WAN) nearing completion
- DA deployed Year End 2011
 - ≈ 60 reclosers on 24 circuits (120 YE 2012)
 - ≈ 270 capacitor controllers on 45 circuits (582 YE 2012)
- DMS in site testing; go-live May 2012
- Smart Hours campaign, 17,000 new customers enrolled 2012
- DOE Grant : Approx \$110 (of \$130) million received

Vendors Sell Hotdogs – Partners find Solutions



Motorola



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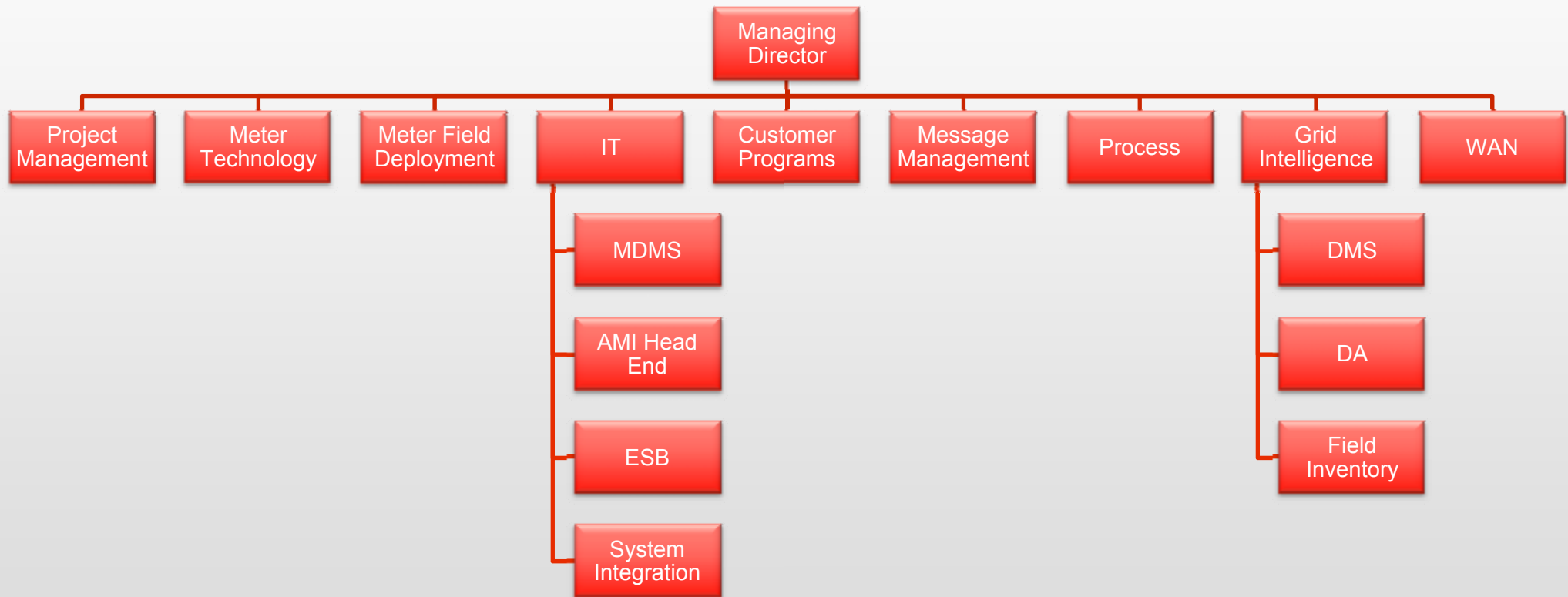
Thank You!

Mike Farrell

Success Factors

- Dedicated, Full Time Team
 - Staffing without compromise
- Executive Support
 - Reported directly to COO; visible CEO support
- Regulatory Support
 - Open communication and transparency
- Strong Partnerships with Suppliers and Contractors
 - Vendors Sell Hotdogs
- Customer Focused Approach
 - Communications; Consistent marketing message & brand

Smart Grid Organization



Challenges / Lessons Learned



- Delayed buy-in from some areas of the business – should have reported to COO earlier
- Immature / evolving technologies (MDMS, HAN, DMS, communicating FCI's, DRMS) impact deployment schedules
- Budget - constrained to early cost estimates