



UTC's Legal / Regulatory / Standards Update

**Michael Oldak
Brett Kilbourne
Klaus Bender
Prudence Parks**

Public Policy Division

- **Public Policy Division**
 - Chair Steve Zoromsky, Lower Colorado River Authority
- **Spectrum Issues Committee**
 - Chair: Jason Griffith, AEP
- **Infrastructure Issues Committee**
 - Chair: John Hughes, Douglas County PUD
- **Legislative Affairs Committee**
 - Chair: Jim Smith, NIPSCo
- **Homeland Security Steering Committee**
 - Chair: John Povich, PSEG

Main Issues

- Big Picture – Smart Grid
- Broadband
- Standards
- Security
- UTC Smart Grid Policy Summit: *Aligning Policies for Energy, Telecommunications, Environment and the Economy*

Why is Smart Grid Important?

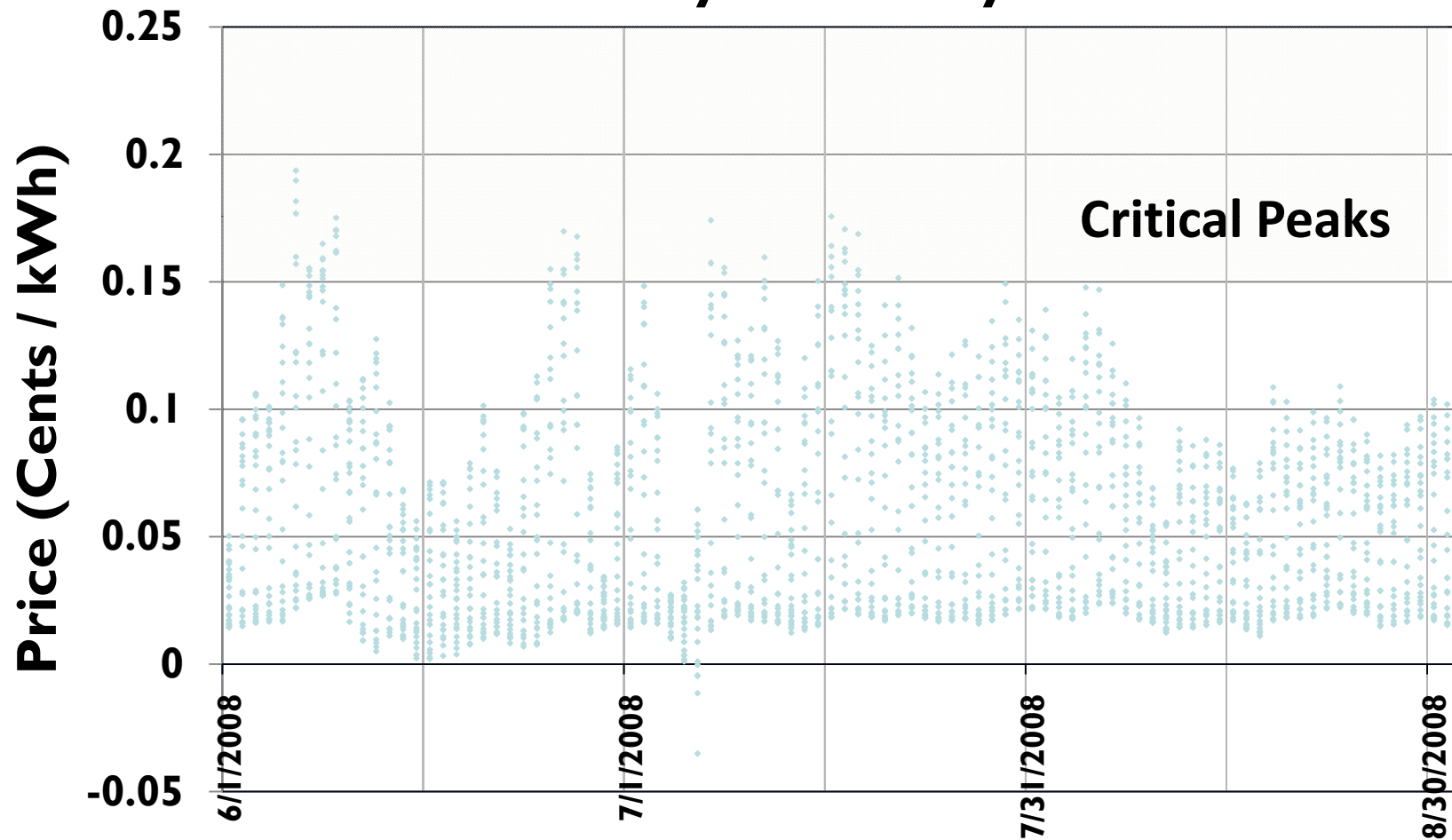
- **State of Industry**
 - Demand expected to increase by >20% (down from 40+%)
 - Many utilities dangerously near reserve margins
 - New generation options have challenges
 - Siting, technology, cost, remote locations
 - Congress imposing climate change requirements
 - Emissions, Renewable / Energy Efficiency Standards
 - Utilities prepared to leverage investment for other uses
 - Water, gas billing and or control
- **Future of Industry**
 - Billions of smart devices, sensors, resources
 - Utilities required to micro-manage supply and demand at fringes of grid to optimize all resources for the benefit of all consumers

Value For Consumers and Utilities

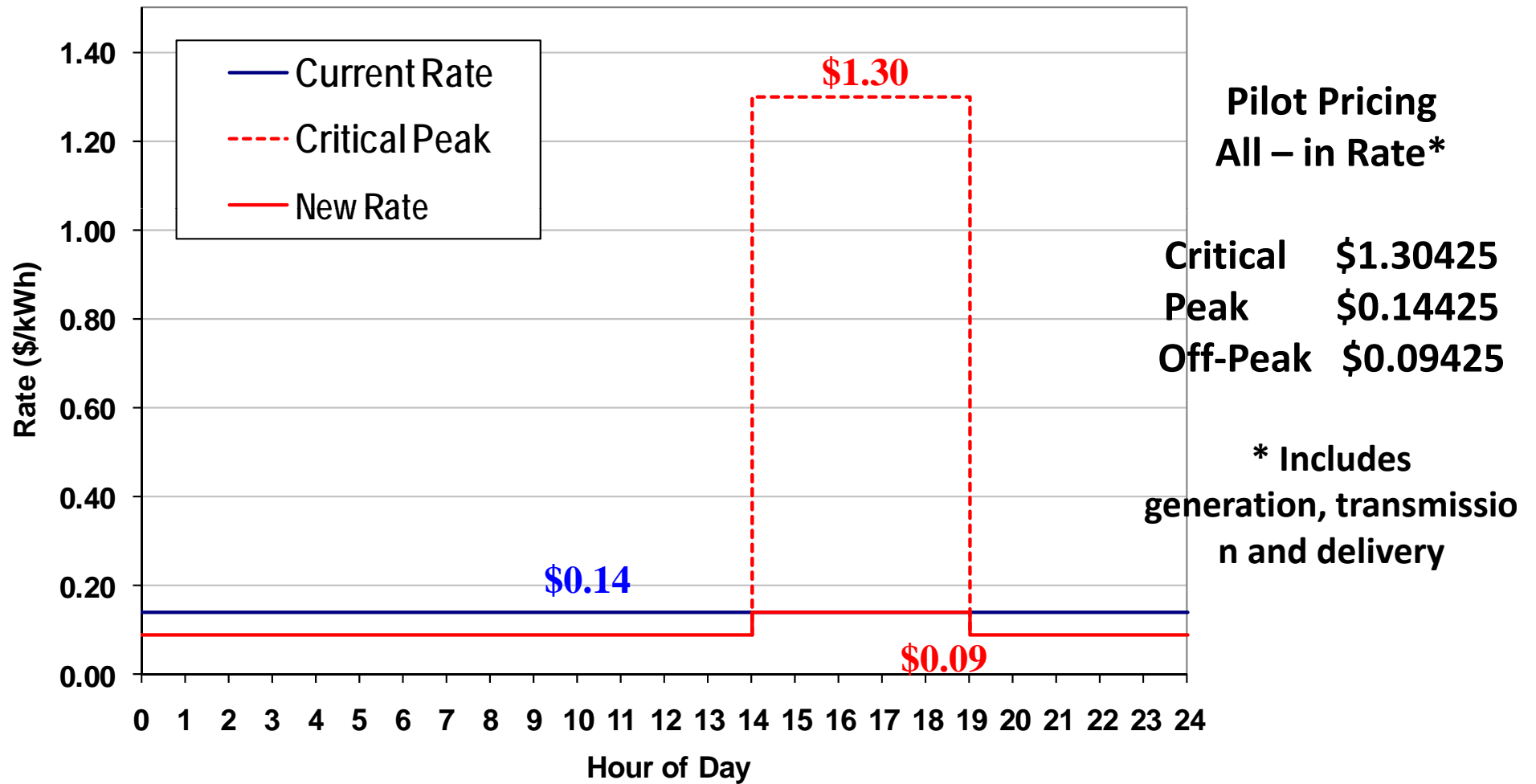
Baltimore Gas & Electric

How Smart Grid and Smart Rates Can Help

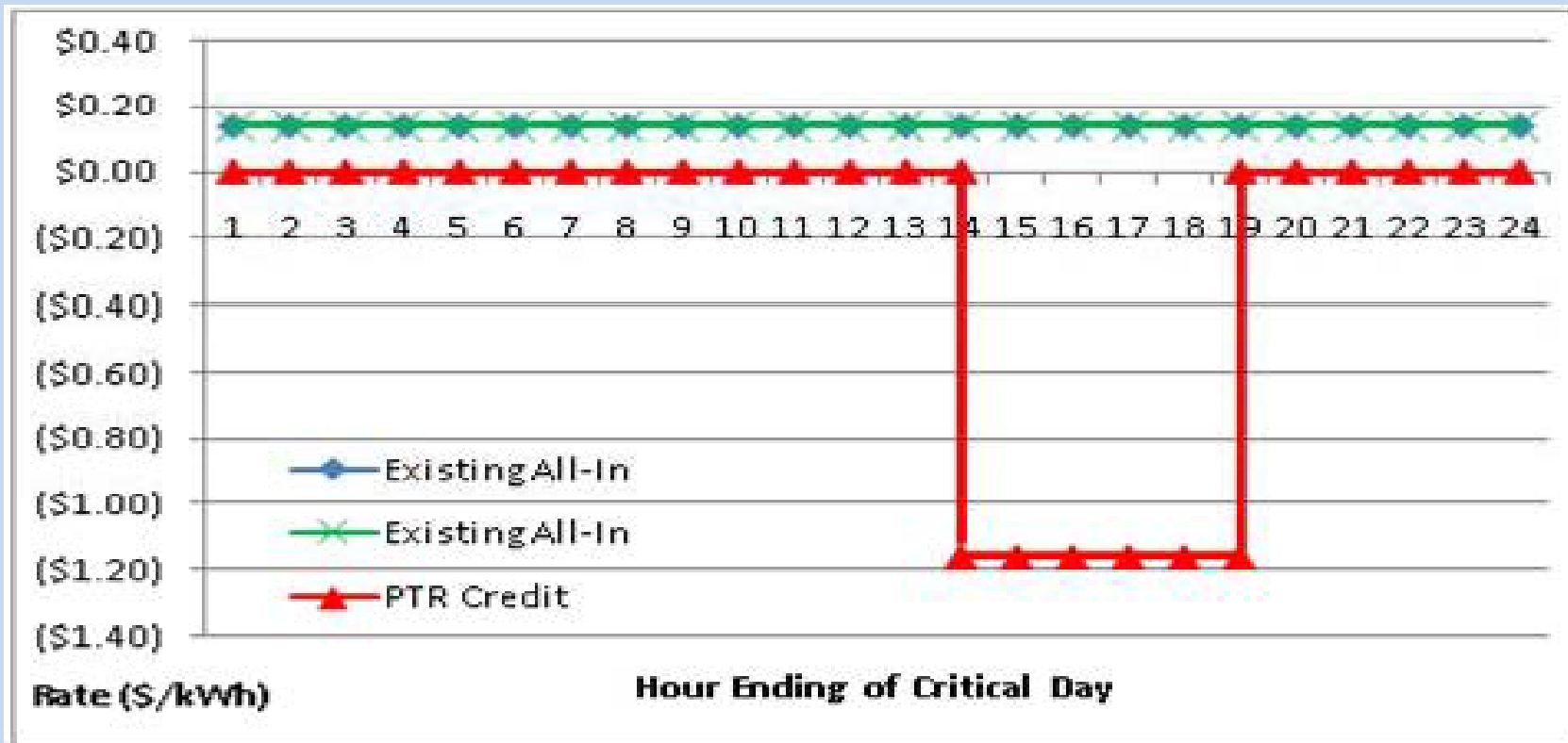
Summer Hourly Electricity Price



Dynamic Peak Pricing: Weekdays (excluding Holidays)

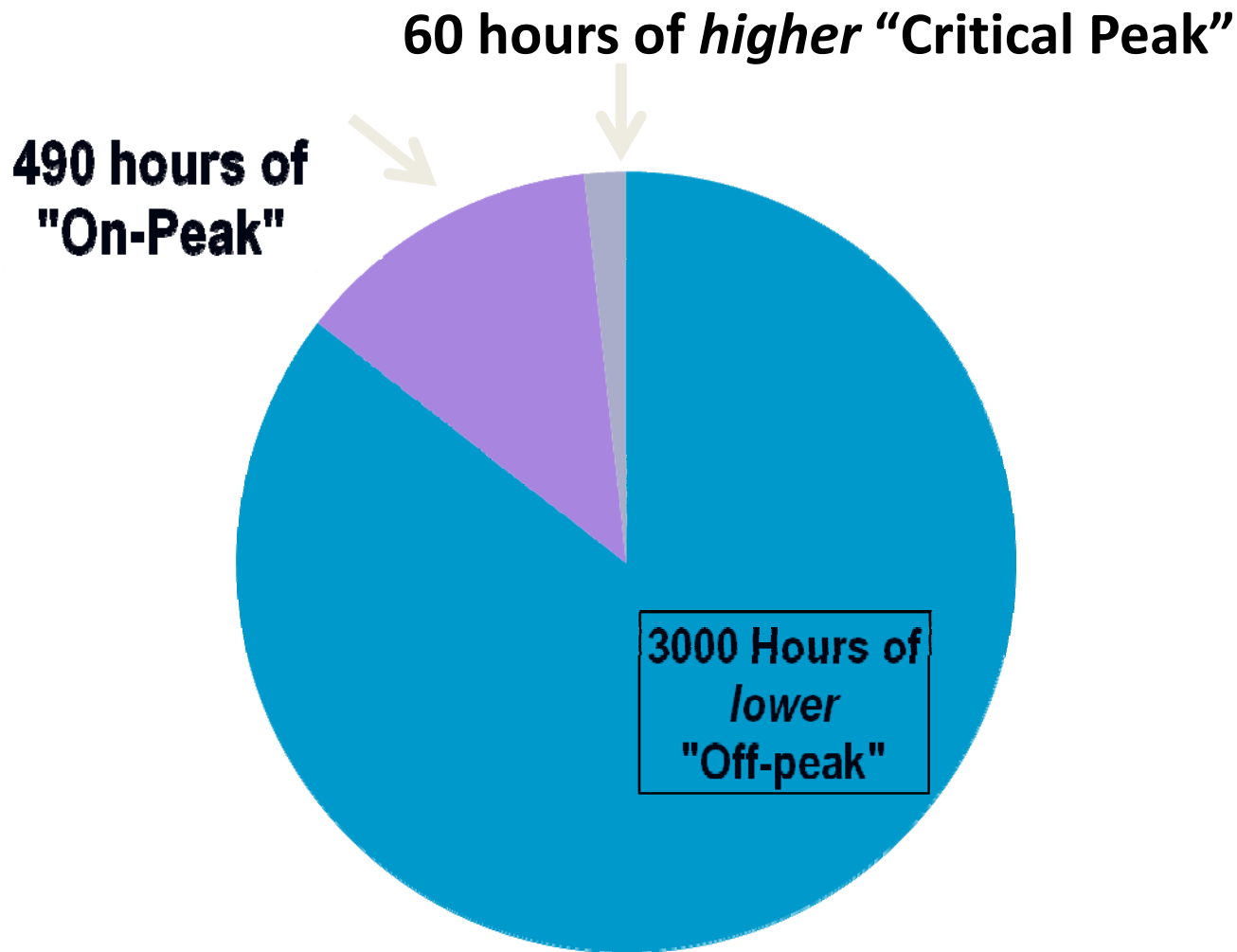


Peak Time Rebate: Weekdays (excluding Holidays)



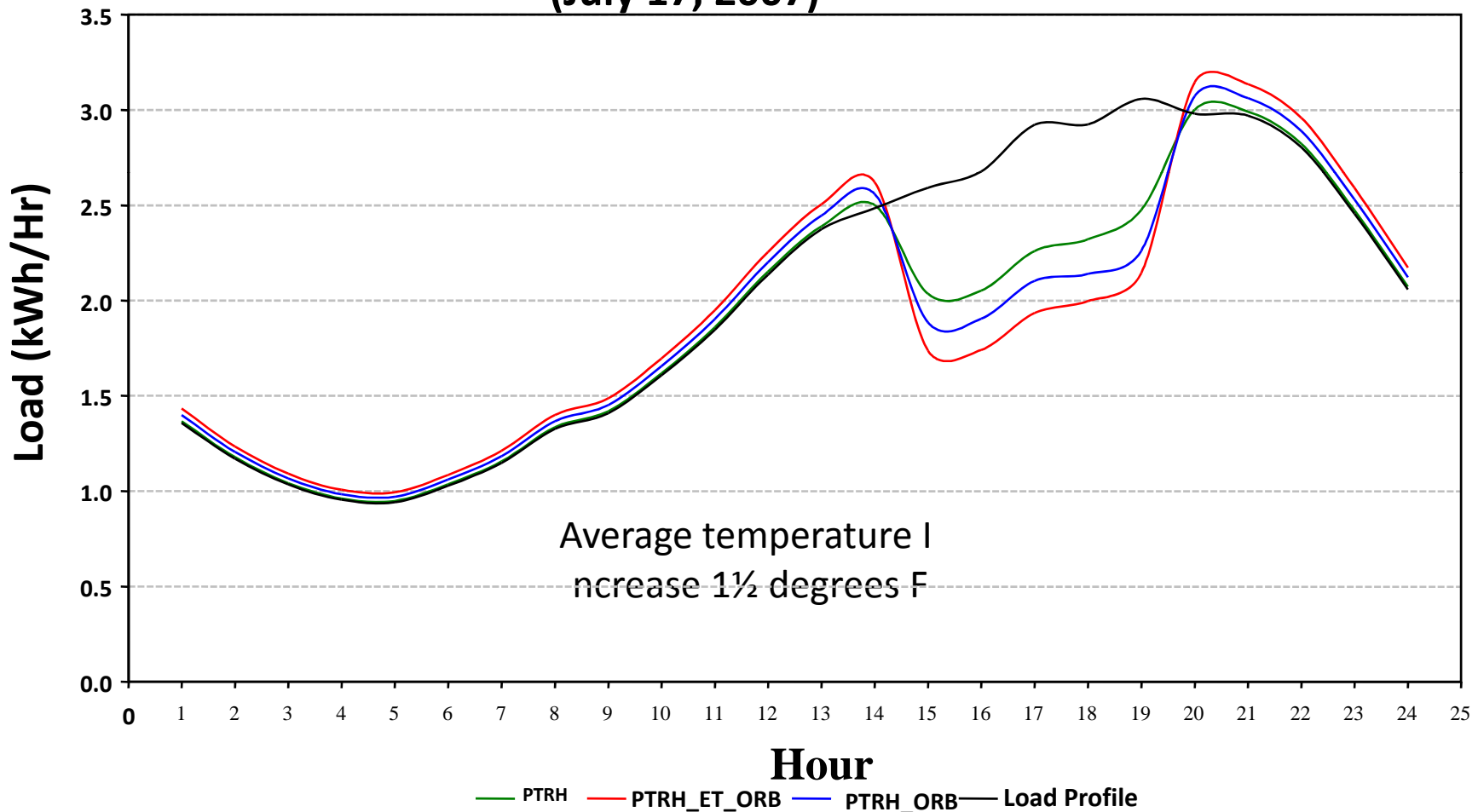
- Schedule R summer rates are \$0.14 / kWh for all summer hours
- Up to 12 critical peak days will be called by 6 p.m. the prior day
- Customers who use less during the critical period (2 – 7 p.m.) on any critical peak day will receive a rebate. Two levels being tested: \$1.75/kWh and \$1.16/kWh

Hours in Each Summer Pricing Period



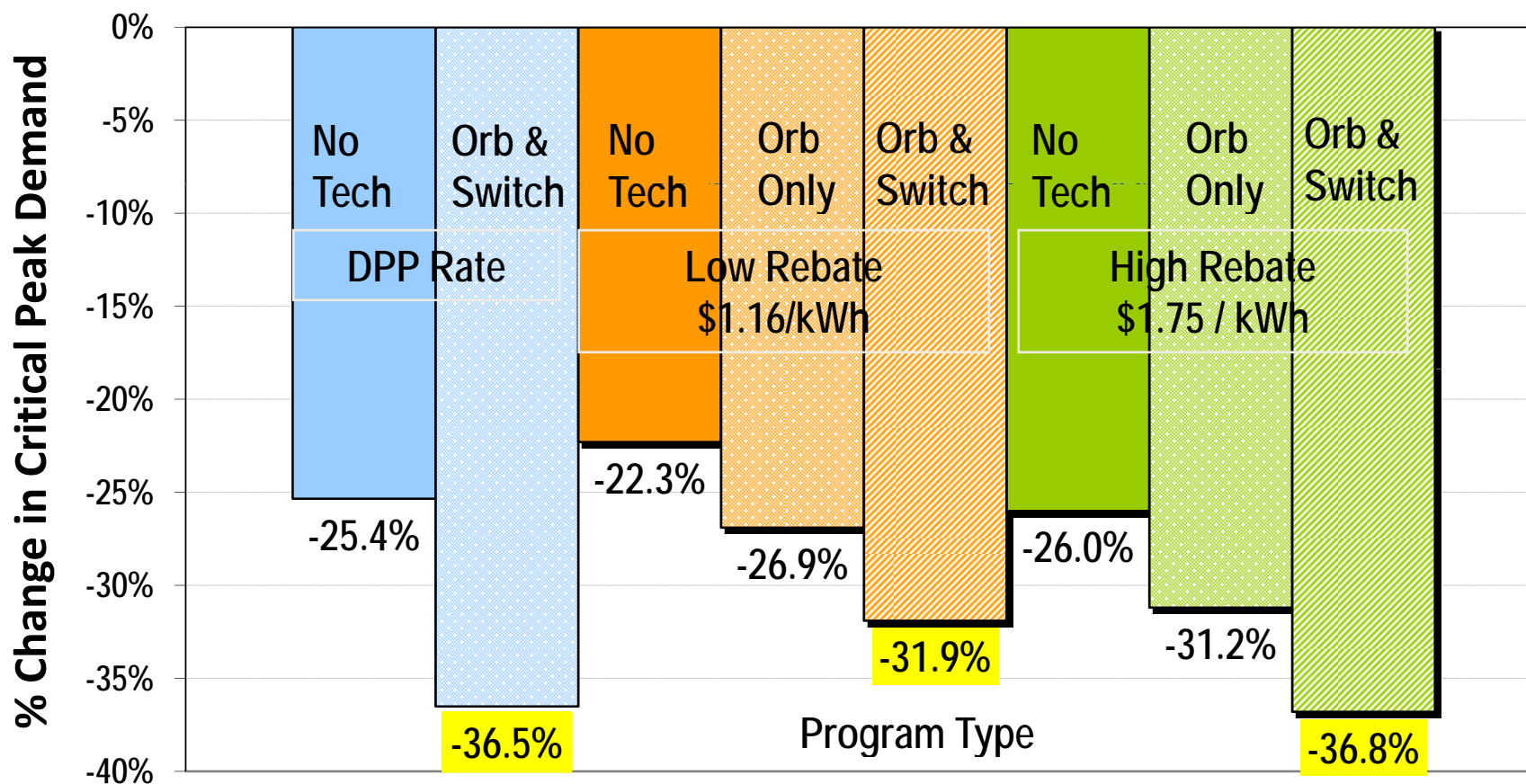
Actual Load Shapes for Participants and Control Group during Critical Peak Event

Load Profile on CPP Day before and after Demand Response
(July 17, 2007)

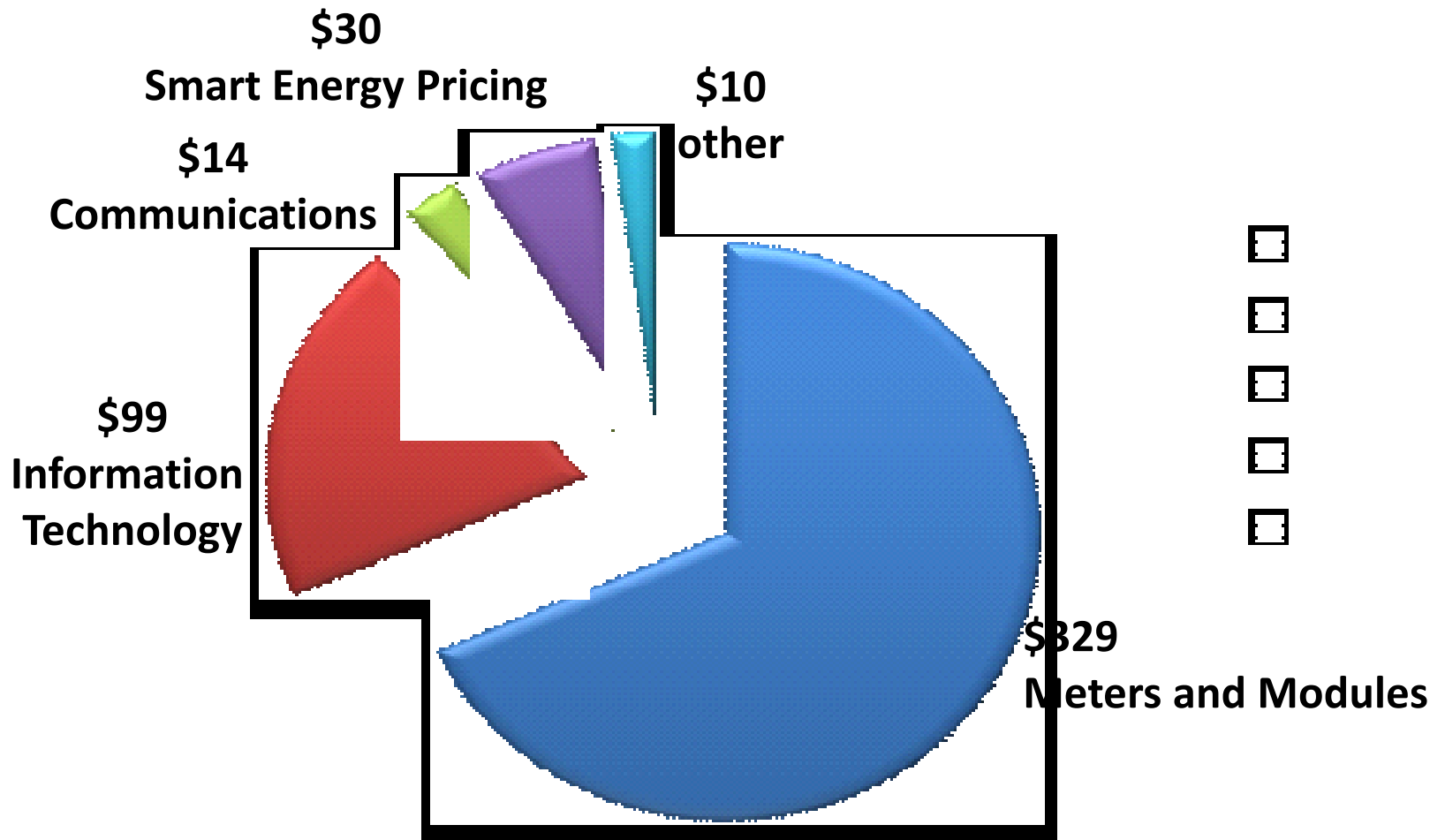


Summer 2008 Pilot Smart Energy Pricing - Peak Demand Reductions

Average Customer

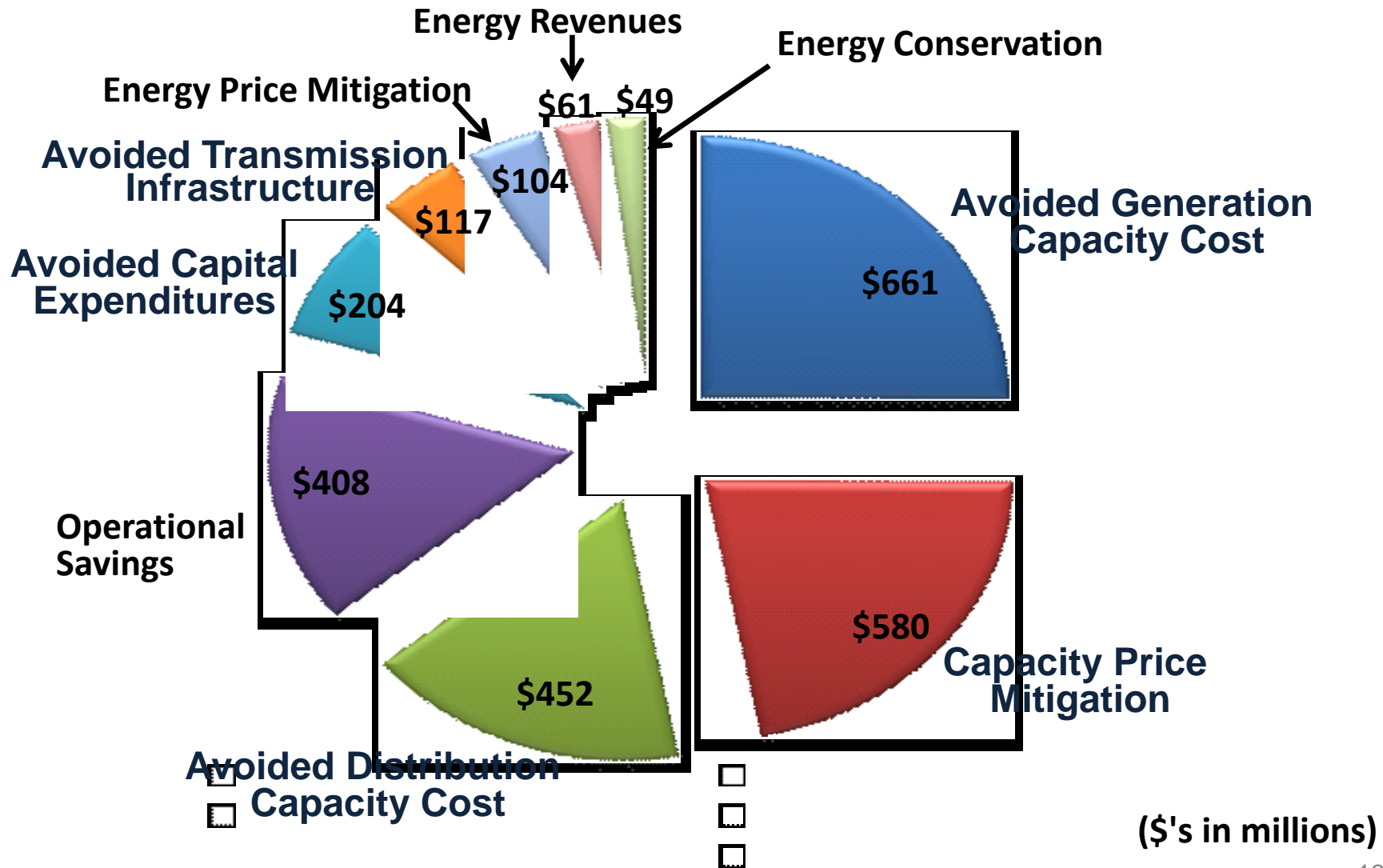


Estimated BG&E Deployment Costs \$ 482 Million (2009-14)



Customer Savings Greatest Benefit

Projected Life-cycle Saving >\$2.6 B

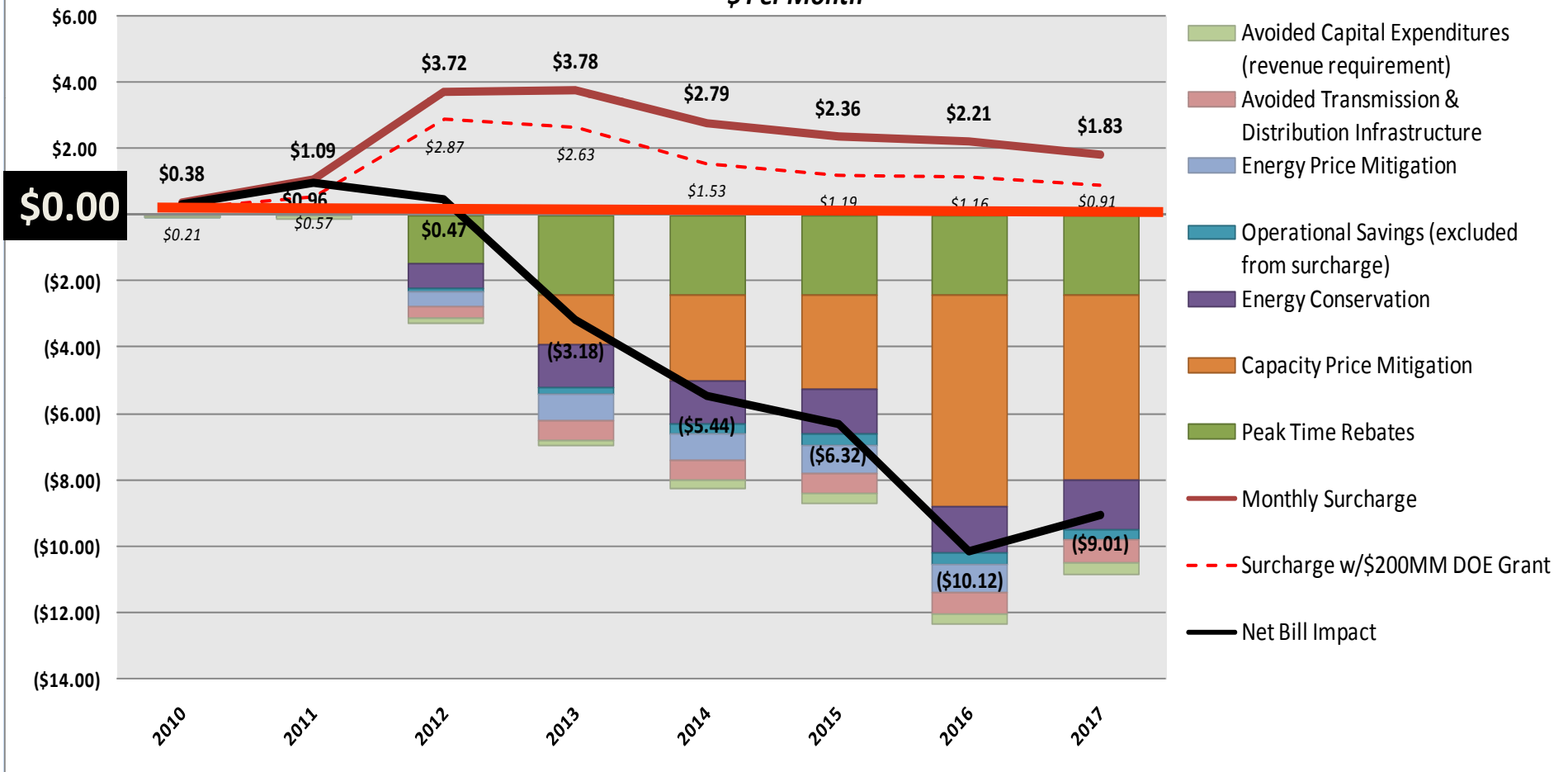


BG&E Residential Bill Impact

Over the life of the recovery period, the average monthly electric and gas surcharge is projected to be \$1.24 and \$1.52, respectively

Residential Electric Customer Bill Impact

\$ Per Month



NATIONAL BROADBAND PLAN

National Broadband Plan

Key Objectives

- Most effective and efficient ways to ensure broadband access for all Americans
- Develop strategies for achieving
 - Affordability and maximum utilization of broadband infrastructure and services
- Evaluation of the status of broadband deployment
 - Including the progress of related grant programs
- How to use broadband to:
 - Advance consumer welfare, civic participation, public safety and homeland security, community development, health care delivery, energy independence and efficiency, education, worker training, private sector investment, entrepreneurial activity, job creation, and economic growth, and other national purposes.

National Broadband Plan

UTC's Involvement

- **Impact on members**
 - Primary purpose is to identify spectrum for commercial wireless
 - Our spectrum needs may be secondary
- **Current Status: Due to Congress 3/17/2009**
- **Actions to Date:**
 - UTC files comments/replies on NOI – 6-7/09
 - UTC files comments/replies on SG PN – 10/09
 - UTC meets numerous times with FCC SG staff
 - UTC meets with FCC commissioners/offices
 - CICC sends letter to Chr. Genachowski and files it in NBP dockets – 1/2010
- **UTC Webinar on March 22 w/ Nick Sinai, FCC**
 - www.utc.org/fccnbp

National Broadband Plan

UTC's Broadband Comments

- **Utilities need access to dedicated spectrum to support smart grid and to ensure reliability**
 - Existing spectrum is in short supply
 - Reallocation / rebanding and consolidation of pools
 - Utilities sharing spectrum with millions of incompatible users
 - Smart grid will require communications upgrades
 - More spectrum for wideband applications
- **Utilities provide broadband related services**
 - Utilities can help FCC achieve broadband goals
 - Co-location supports municipal broadband, bring BB to rural areas
- **Pole attachments are not a barrier to broadband.**
 - Urges FCC to reduce regulations and promote partnerships

National Broadband Plan

UTC's Smart Grid Comments

- **Suitability of Communications**
 - Utilities need ultra-reliable communications for smart grid
- **Availability of Communications**
 - Utilities lack adequate communications to and beyond the distribution substation
 - Commercial systems are unreliable and unavailable in remote areas
 - Need cost effective options
- **Spectrum**
 - Utilities need access to 30 MHz of spectrum (10 MHz voice / 20 MHz data)
 - Allocation at 1.8 GHz would harmonize w/Canada

WIRELESS ISSUES AT FCC

Can US Follow Canadian Lead?

New Spectrum: 1800-1830 MHz Band

- Recently allocated in Canada for utility purposes
- Suitable for WiMAX applications for Smart Grid
 - Equipment developed; other vendors interested
 - Can be used for mobile as well as fixed communications
- **Allocated to Federal government in the U.S.**
 - UTC meeting with NTIA and DoE to share the spectrum with Federal incumbent users
 - UTC files comments at FCC in NBP to garner support

Can Satellite Spectrum Support Terrestrial Use? **New Spectrum: 14 GHz**

- UTC and Winchester Cator file Petition (RM-11429, 5/08) to allow secondary (terrestrial) use of 14.0-14.5 GHz band for CII (FSS primary Ku band)
 - Single, nationwide license to CI entity (UTC?)
 - “CI Coordinator” to control access, prevent interference to satellite use
 - Petition includes significant technical restrictions to eliminate interference
 - Use by commercial entity on pre-emptible basis
 - Market capacity to 3rd parties
- Comments filed, UTC & WC urging FCC to issue Notice of Proposed Rulemaking (NPRM)
- UTC and Winchester Cator have had several meetings with DOE
 - Got a DOE letter of support to FCC
 - Try to get DOE to issue NPRM
 - No DOE funding for pilot project

CI Sharing Spectrum With Public Safety?

New Spectrum: 700 MHz D-Block

- D-Block was auctioned but bid did not meet minimum
- FCC required by statute to re-auction D-Block
 - Winner was intended to share with public safety (PS)
 - PS entitled to preempt access to capacity during emergencies
 - FCC showing interest in public safety / utility partnerships
 - Public Safety Spectrum Trust (PSST) and business partners looking to UTC for sharing guidance
 - Discussions with PSST representative about sharing
 - Pressure from carriers to ease restrictions
- National Broadband Plan may shed additional light on this
- UTC asked that CI be able to share with Public Safety

The Future of Public Safety Spectrum

New Spectrum: NPSTC Needs

- NPSTC working to define public safety needs for 2010 – 2020
 - Looking at broadband in addition to voice
 - Wants a nationwide, interoperable network
- UTC invited to participate – we want to be a partner
- 3 working groups, UTC part of *Operations and Spectrum*
 - Work with NPSTC to ensure interoperability with all critical infrastructure

Unused Broadcast Channels

New Spectrum: TV White Spaces

- **FCC decides on unlicensed, fixed & mobile use of unused broadcast channels (FCC 08-260)**
 - Fixed in Ch. 2-51(except 3, 4, 37) – use must be registered in database, away from TV operations, max 4 watts EIRP
 - Personal portable in Ch. 21-51 (except 37), max 100 mw (40 mw near TV)
- **New area for home routers**
 - Dynamic Power Control – senses and reduces power to what's needed
 - New products use zip code and web to identify available channels
- **Database providers**
 - Google, Comsearch, others file to administer spectrum / prevent interference
 - Once FCC decides on database providers
 - Product certification and implementation will quickly follow
 - Consumer adoption remains to be seen

Problems with Wireless Headsets in TV Bands

- Nuclear plants using Part 74 headsets under renewed experimental licenses (about 50-100 plants impacted)
 - ENDS 2/10
 - Continue to operate below 700 MHz
 - Continue to operate under experimental licenses while renewals pending
 - Some testing of alternatives, but most of industry still needs access
- **Five-year waiver request by UTC / NEI filed 7/09**
 - Will continue to use at nuclear sites but inside use only
 - No coordination with local broadcasters to be required
 - FCC include our request within wireless microphone rulemaking
- **Wireless microphone rulemaking really focused on wireless microphones but –**
 - How do you define CI in terms of using wireless headsets?
 - What conditions attach?
 - What bands should be used?

FCC Limits Narrowbanding to 12.5kHz

Existing Spectrum: Below 512 MHz

- FCC issues clarification regarding narrowbanding to 6.25 kHz
 - FCC likes narrowbanding, but no mandate to 6.25 kHz
- **Reminder: Deadlines:**
 - **1/1/2013** – Licensees must convert to 12.5 kHz channels or efficiency equivalent.
 - **1/1/2011** – cutoff for new 25 kHz applications, manufacture or importation of 25 kHz equipment.
- New 12.5 kHz equipment will be in short supply – don't wait!
- UTC offering studies on land mobile upgrade options, webinar, also specialized consulting (research / legal / technical)

FCC Protects PS from Interference

Existing Spectrum: 800 MHz Rebanding

- FCC process to protect public safety from interference from low site cellular architecture systems (Sprint / Nextel)
 - Sprint / Nextel interfering with public safety
 - Sprint / Nextel to vacate spectrum and move up to high side of the band
 - Public Safety to lower end
- **Currently**
 - FCC releases Public Notice of vacated Sprint / Nextel channels
 - Coordinators established criteria for allocation
 - Preference
 - PS get three year preference
 - Then Critical Infrastructure gets preference to remaining Sprint/Nextel channels for next two years
 - Process is ongoing and completion by 2011 deadline questionable

Interstitial 12.5kHz Channels?

Existing Spectrum: 800 MHz

- **Enterprise Wireless Association (EWA) sought interstitial 12.5 kHz channels through non-NPSPAC portion of band**
 - Pushed as effective use of spectrum
 - Driven by new Motorola equipment for the band
 - Opens up spectrum for us, but also for specialized mobile radio
- **Most Land Mobile Communication Coalition support - but UTC opposed**
 - Potential for Interference
 - Wait until 800 MHz rebanding done before this (complicating)
 - Contrary to broadband needs
 - 12.5 kHz not really good for smart grid, need 25 kHz
- **LMCC working on coordination standards**
 - UTC participating to ensure protection for existing systems.

FCC Freezes Licenses for 900 MHz

- Freeze on new applications stays until six months after each NPSPAC region 800 MHz reband is complete
 - FCC to provide Public Notice w/in 60 days of time that a region is cleared
 - If contour reaches into uncleared NPSPAC areas, FCC will consider waivers
 - FCC promises to assess qualifications of applicants and monitor the filing of new applications to protect against abuse
- FCC adopts interference protection standards based on 800 MHz band:
 - -88 dBm for mobiles / -85 dBm for portables
 - Unacceptable interference = 17 dBm
 - Receiver standards = 60 dB intermod rejection; 60 dB adjacent channel rejection and -116 dBm sensitivity.

INFRASTRUCTURE ISSUES AT FCC

Pole Attachment Reform – Rates / Access

- **Pole Attachment Reform Proceeding (07-245)**
 - Rates:
 - Proposes uniform rate for BB attachments between telecom / cable rates
 - Access:
 - Best practices?
 - “Make ready” or “Presumption wireless on top of poles is safe”
 - Unauthorized attachments
 - Mandatory make ready requirements
 - Comments/replies filed; ex parte meetings continue
- **Pole Attachment Petition (09-154)**
 - Seeks declaration that CATV VoIP attachments are subject to the higher telecom rate

Court Remands Two BPL Issues

Extrapolation Factor/Unredacted Studies

- FCC releases Further Rulemaking (04-37)
 - Extrapolation factor – proposes 30 dB factor
 - Unredacted Internal Staff Studies – invites comment
- Extrapolation factor is the primary issue: it could have the effect of reducing the emission limits, which affects BPL performance.
- Comments filed September 23, 2009; replies filed October 8, 2009

UPLC Comments On BPL Rulemaking

- Support existing extrapolation factor
- Reject ARRL efforts to reopen the entire record based on “smoking gun” unredacted internal studies
- Status
 - UPLC has met with FCC to follow up
 - Outlook
 - FCC likely to reaffirm extrapolation factor, rather than compromising on 30 db proposal

Utility Microwave Spectrum Moved for Advanced Wireless Services

- **AWS (1710-1755/2110-2155) Relocation includes:**
 - 2-yr mandatory negotiation period for non-public safety Fixed Service incumbents
 - 10-year sunset period for reimbursement
 - Clock starts when contacted by AWS licensee (“rolling” negotiation / sunset)
- **Voluntary self-relocation is an option**
 - Submit costs to a cost-sharing clearinghouse.
 - AWS subject to 50% of the costs, up to \$250,000
 - Remember to keep your receipts!
- **Don’t modify your 2.1 GHz licenses**
 - It will terminate your reimbursement right
 - They will become secondary!

VIEW FROM DOE, NTIA and RUS

Stimulus Funds

Department of Energy

- \$4.5 Billion allocated for DoE Smart Grid Grants under the Recovery Act of 2009.
 - 50% match up to \$200M for Smart Grid Investment Grants (SGIG) / \$100M for Smart Grid Demonstration Program (Demo's)
 - DoE awards \$3.2B in SGIGs (10/09)
 - DoE awards \$620M in SG Demo Grants (11/09).

Stimulus Funds: NTIA / RUS

- **\$7.2 Billion allocated for NTIA / RUS Broadband programs under Recovery Act**
 - \$4.7B to NTIA for Broadband Technology Opportunities Program (BTOP) grants
 - \$2.5B to RUS for Broadband Infrastructure Program (BIP) grants, loans and loan guarantees
- **NTIA / RUS award \$183M in 1st Round BTOP grants (12/2009)**
- **Next steps:**
 - NTIA / RUS offer \$4.8B in 2d round (applications due 3/15)

VIEW FROM FERC / NIST

NIST Standards for Interoperability

- National Institute of Standards & Technology (NIST) required to adopt standards for smart grid interoperability under Energy Independence and Security Act of 2007
- **NIST Interoperability Roadmap**
 - Workshops - 3 held in Washington, DC area
 - Final version 1 released January 18, 2010
 - PAP15 added for PLC appliance communications
 - Some proposed standards moved to “wait and see” status
 - SGIP and governing board functional and working
 - Next step: Develop compliance testing procedures
- **NIST standards must be adopted by FERC**
 - Unclear if this makes the “mandatory”

Standards: Federal Energy Regulatory Commission

- FERC Smart Grid Policy Statement / Action Plan to provide guidance on 4 priority issues:
 - Cyber security
 - **Communications** among regional market operators, utilities, service providers and consumers
 - Ensuring that the bulk power system operators have "**wide-area situational awareness**" with equipment that allows them to monitor and operate their systems
 - **Coordinating operation** of the bulk power system with new and emerging technologies for renewable resources, demand resources, electricity storage and electric transportation systems.
- FERC Grants 1st SG Proposal by PG&E (12/2009)
 - Allowed recovery of a portion of regional synchrophaser costs in transmission rates for regional project

UTC Participating in Standards Groups

- UTC participates in smart grid, control system security standards processes through a variety of groups:
 - OPEN SG
 - Energy Sector Control Systems Working Group (ESCSWG)
 - DHS Industrial Control System Joint Working Group (ICSJWG)
- Goal – represent UTC member needs
 - Bring information *from* standards meetings to members
 - Articles, white papers and briefings so that members and clients are up to speed (as much as possible) with activities;
 - Bring information *back* to standards groups from members that do not have the resources to participate.

VIEW FROM CONGRESS

Radio Spectrum Inventory

H.R.3125 / S.649

- FCC and NTIA w/in 180 days required to;
 - Create an inventory of spectrum b/w 220 MHz and 10 GHz
 - Licensees, transmitters and contour maps
 - *Create a centralized publicly-accessible portal to post this information on the Internet*
- Require FCC and NTIA w/in 1 yr to report:
 - The results of the inventory
 - The least used spectrum
 - Recommendations on spectrum for reallocation

Radio Spectrum Inventory

UTC Concerns

- Information being required could create security issues
 - UTC recognizes need to provide data, but wants it keep non-public
- RSI includes useless national security exception
 - Information must be “classified national security information” or
 - Legal prohibition on disclosure AND detrimental to national security, homeland security or public safety
 - Utilities have little if any “legal prohibitions”
- UTC working w/CICC on an amendment to the legislation to protect utility information from public disclosure
- Bill has been marked up in subcommittee; but an amendment can be introduced before full committee mark-up

VIEW FROM STATES

State Trends

- States are eager to get federal funds for smart grid and / or broadband
 - Lending support to utility requests for funding
- States are also suspicious of Federal intrusion into matters of state jurisdiction
 - Example - regulation of electric distribution grid
- States are beginning to take an interest in consumer protection issues for SG
 - Example - data privacy and security
 - Who “owns” data?
 - Who has access?
 - How to keep it secure and private

State Trends: UTC Efforts

- **Approach: Provide information to members**
 - Subscribes to state monitoring service
 - Created state smart grid policy spreadsheet
 - Shows status of proceedings / legislation
 - Available on UTC website
 - Issue-related reports on significant developments to UTC members
 - California customer data decision
- **UTC encourages member input on state developments!**

UTC's Smart Grid Policy Summit

www.utc.org/summit

- *Aligning Policies for Energy, Telecommunication, the Environment and the Economy – An Inside the Beltway Policy Discussion*
- *Multi- policy communities addressing multiple policies*
- *Panelists*
 - *FERC Chair*
 - *FCC Commissioner and NBP leader*
 - *Department of Energy*
 - *RUS*
 - *President of NARUC*
 - *Electronic Information Privacy Council leader*
 - *National Association of State Utility Consumer Advocates*
 - *Congressional representatives*

Conclusions

- Making progress on quest for spectrum!
- Pole attachment and overall FCC policy attitude toward CII present continuing challenges for UTC members
- Smart grid, energy tie-in create best opportunities
- Get involved to learn more!

Thank you!

Many issues not covered!
For more information, contact:

Michael Oldak, mike.oldak@utc.org

Brett Kilbourne, brett.kilbourne@utc.org

Klaus Bender, klaus.bender@utc.org

Prudence Parks, prudence.parks@utc.org