

Integrated Resource Plan

TVA'S ENVIRONMENTAL AND ENERGY FUTURE

Creating Incentives For Energy Efficiency & Demand Response Through Time of Use Pricing

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September 24, 2009
Chattanooga, TN



Outline

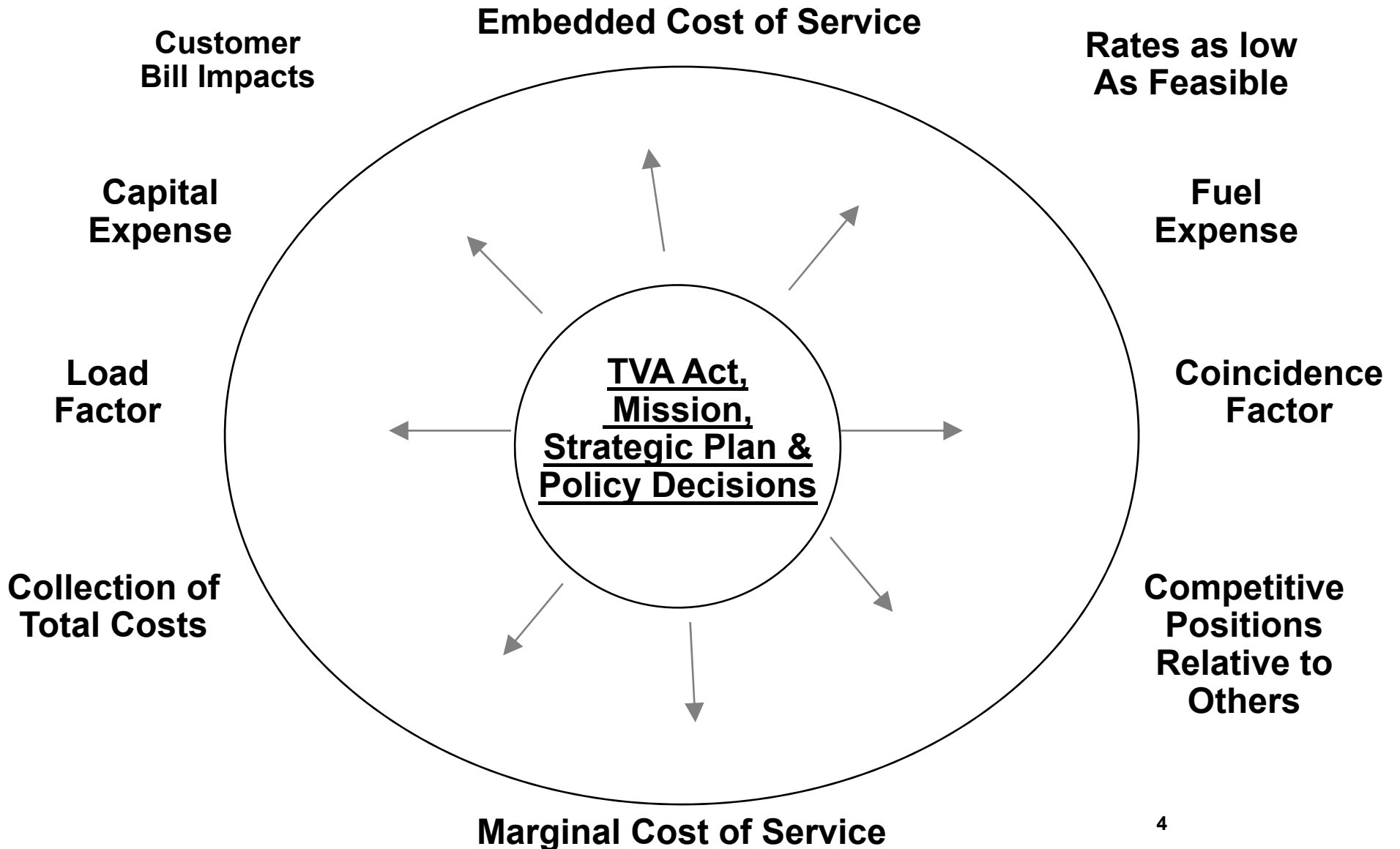
- Purpose:
 - Provide an understanding as to how TVA approaches pricing
- Describe TVA's Pricing Approach:
 - How we have proposed to design rates for near term applications and long-term objectives
- Discussion of Pricing & Preliminary Results:
 - Collect Feedback
 - Your thoughts on our approach, direction, and vision
- Pricing Products recently implemented and others on the horizon

TVA Pricing Principles

- Revenue Recovery
 - Recover all costs of providing services
- Efficient Pricing Signals
 - Prices should encourage energy efficiency and promote demand response
- Simplicity
 - Designs should be easy to understand & should minimize cost of implementation
- Stability
 - Structures and Prices should be predictable and move gradually
- Minimize Cost of Service Variances
 - Rates should recover costs; equitably among classes and customers within classes.



TVA Rate Redesign Objectives: Achieving Balance

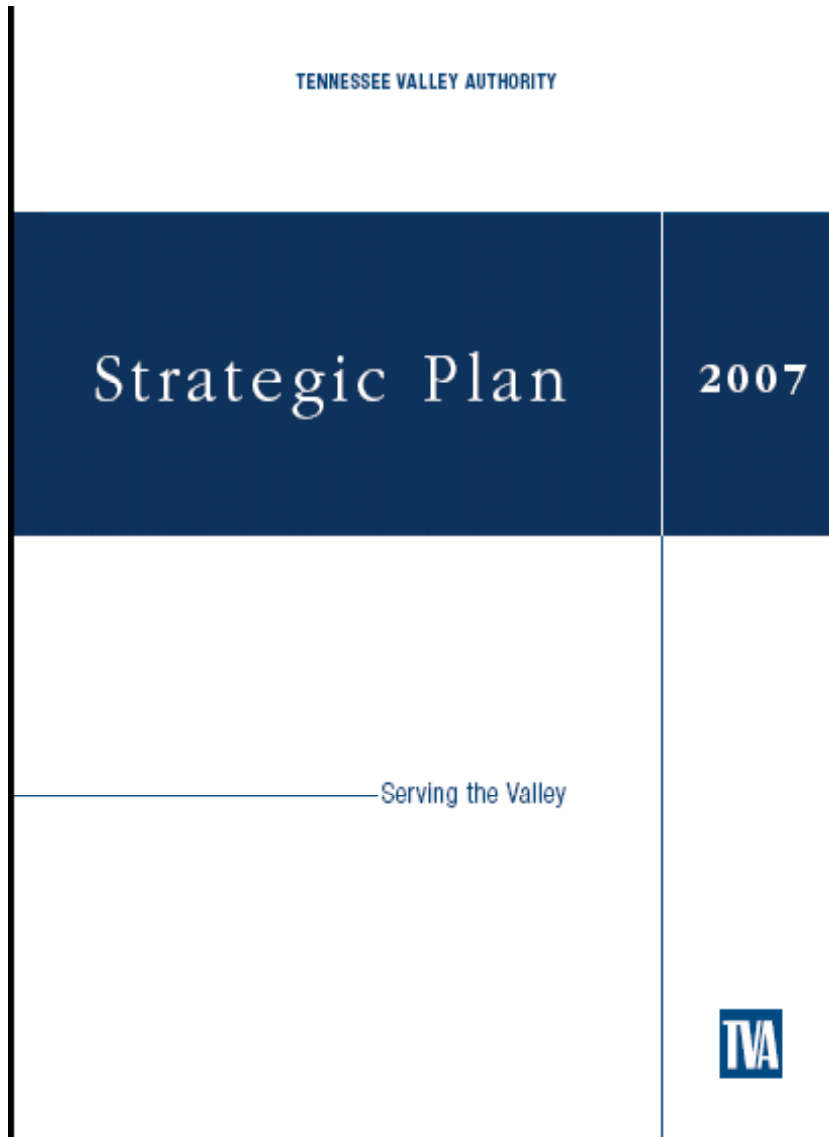


Why Are We Proposing Change?

- Public Utility Regulatory Policy Act (PURPA) Ratemaking Standards
 - Energy Policy Act 2005 – Modified standard adopted by TVA:
 - “TVA will initiate a rate change in accordance with the provisions of its wholesale power contract with distributors of TVA power to assess in detail:
 - (1) benefits & costs of implementing a mandatory time-based rate schedule for large C&I,
 - (2) benefits and costs of implementing advanced metering and communications technology to help the electric consumer manage energy use and costs, and
 - (3) other factors affecting the implementation of such structures as soon as feasible”
 - Energy Independence Security Act 2007 – Standard which TVA must consider:
 - “Rate design modifications to promote energy efficiency investments”
- Alignment with TVA’s Strategic Plan



TVA Rate Design: Alignment with Strategic Plan 2007



- **Customer - Reliability / Price**
“TVA will develop a portfolio of products and pricing structures that more accurately reflect the costs of serving load at different times”
- **Customer - Energy Efficiency**
“Partner with Distributors and Directly served customers to encourage conservation, promote energy efficiency, and reduce peak demand.”

Approach

- Pricing is a part of a comprehensive approach to achieving “rates as low as feasible”
 - We want to encourage & incent energy efficiency and demand response
- Considerations:
 - Recognize diversity among distributors and customers
 - “Incentivize behavior with a carrot and not a stick”
 - “Big Bang” Vs Slow & Gradual
 - Demand Side Resources equal Supply Side Alternatives

Execution – Two Part Approach

- Wholesale Rate Redesign:
 - Movement away from “End-Use Pricing”
 - Introduction of Pricing Differentials by Season
 - Offer TOU option for distributors and End Use customers
 - Recognize infrastructure requirements and current status
 - Road to success – includes recognition of gradualism
- Customers Greater than 5 MW:
 - Send Pricing Signals Now – no metering obstacles
 - Provide opportunities for cost savings without penalizing those who can not shift load

Wholesale Rate Redesign Timeline

2007 – 2009 Pricing Pilots

Initiate Discussions
With Distributors & Direct
Serve Customers

Develop & Implement
Voluntary Price
Responsive
Products

July 2009

Rate Change
Letter to
Distributors

October 2009

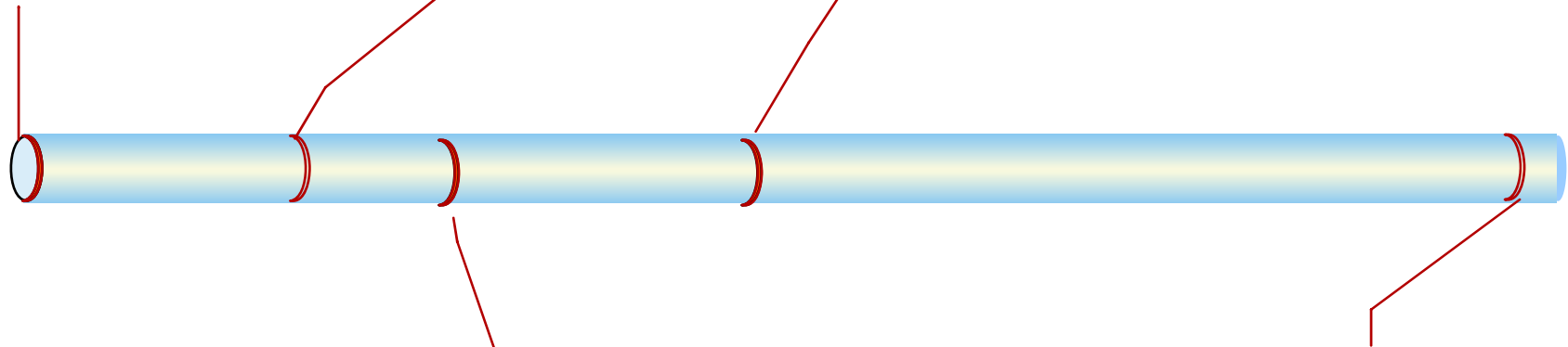
Retail TOU Options, including
continuation of pilot

April 2010

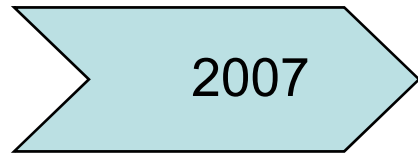
Implement Wholesale Seasonal
Demand & Energy

October 2010

Wholesale and Retail
TOU Options



TVA Recent Pricing Products Introduced

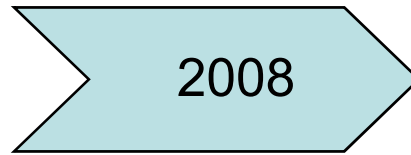


• Reliability :

- 5 Minute Interruptible
- 60 Minute Interruptible

• Notice of Termination (Legacy Pricing Products)

- Beginning in October 2006



• Price Responsive:

- Seasonal Time of Use (Pilot)
- Seasonal Market Days
- Real-time Pricing (Modifications)



• Price Responsive:

- Modified Real-time Pricing
- **Time Differentiated Hours Use of Demand “TDHUD” (Optional)**

• Termination of Legacy Pricing Products

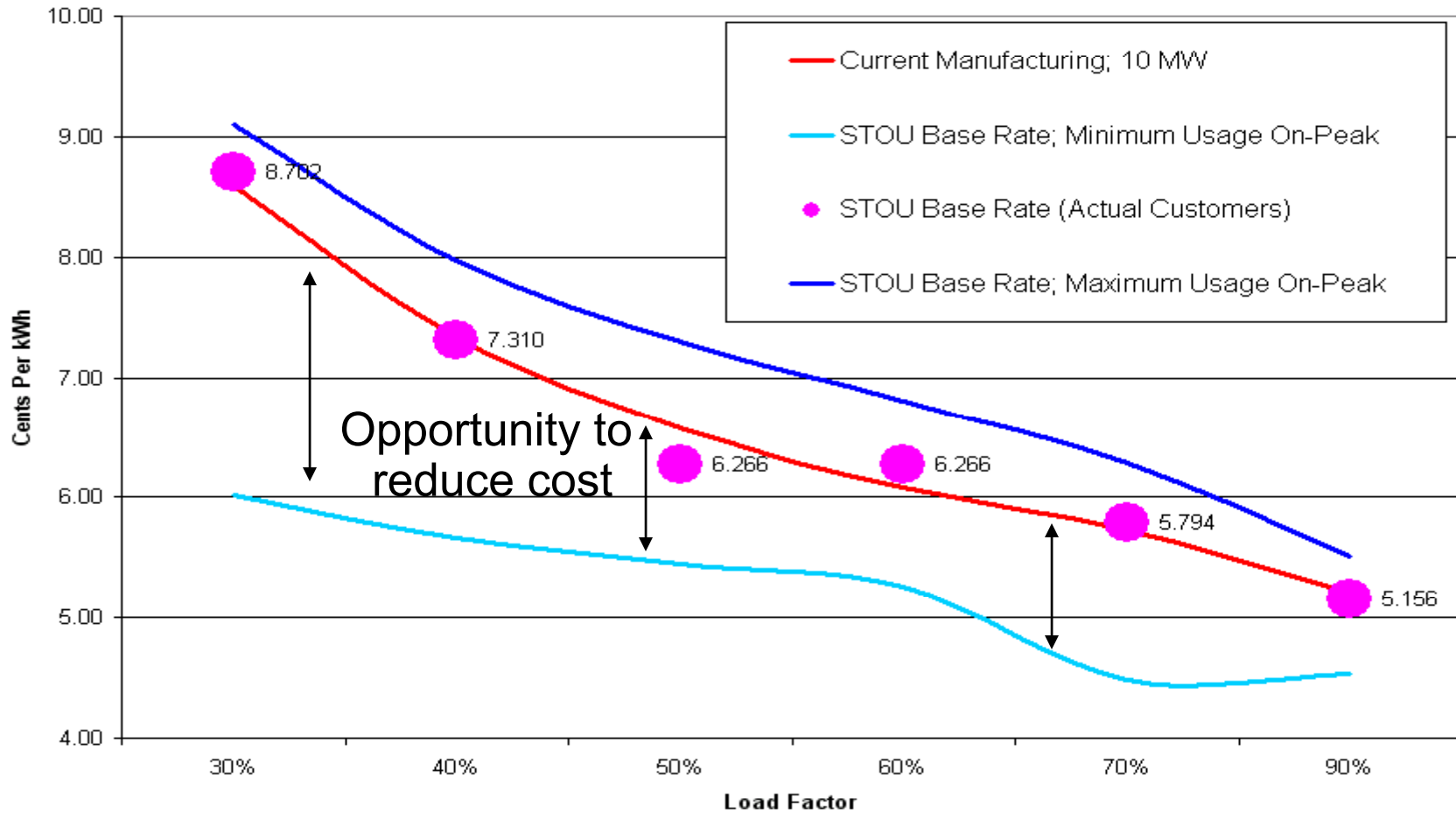
- October 1, 2009





TD HUD Big Picture – Annual Representation Comparison of TD HUD to Existing Firm Rates

Firm Rates Compared to Seasonal Time of Use
Manufacturing "B" Class 5 MW < Demand < 15 MW





Approach - Changing Viewpoint

Demand Side Resources Equal Supply Side Alternatives

Pricing Product Promotion
Summer 2008



A new vision for TVA's future

As we improve our focus on safety and achieve best-in-class operational performance, TVA will become an even better, more exciting place for our employees to work and deliver tremendous value to our stakeholders in the Tennessee Valley.

— Bill McCollum, Chief Operating Officer

“ We'll buy your capacity and energy this summer for what we would otherwise purchase it for, from a generator outside the valley” - Kim Green, Chief Financial Officer

We take seriously our responsibility to build relationships and earn the public's trust across the Tennessee Valley. Whether we're providing timely information to the news media or briefing elected officials on the issues of the day, we're proud of TVA's service to the region. We'll continue our focus to improve TVA's reputation and constantly strive to communicate clearly and consistently with our stakeholders.

— Emily Reynolds, Senior Vice President, Communications,
Government and Valley Relations

- Summer Market Days
 - \$6,800 per MW Season
 - Need only participate 96 hours
- Summer Time of Use
 - Opportunities available at \$44,000 - \$74,000 per MW Season
 - \$70 - \$115 /MWh
 - 640 hours of participation

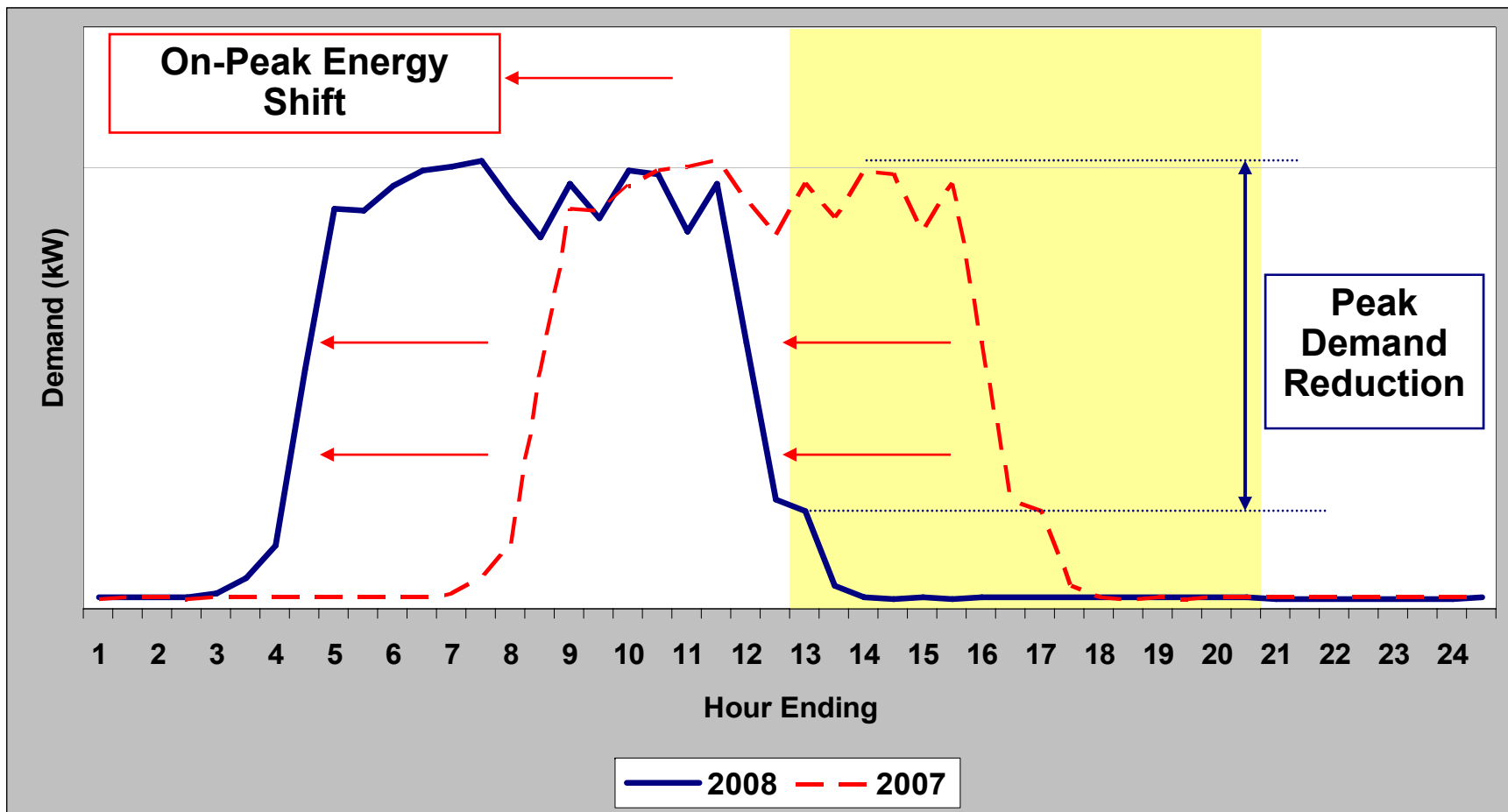
Actual Results May Vary



Seasonal Time of Use (STOU) Customer Level

Actual Customer Participating in Summer Pilot 2008

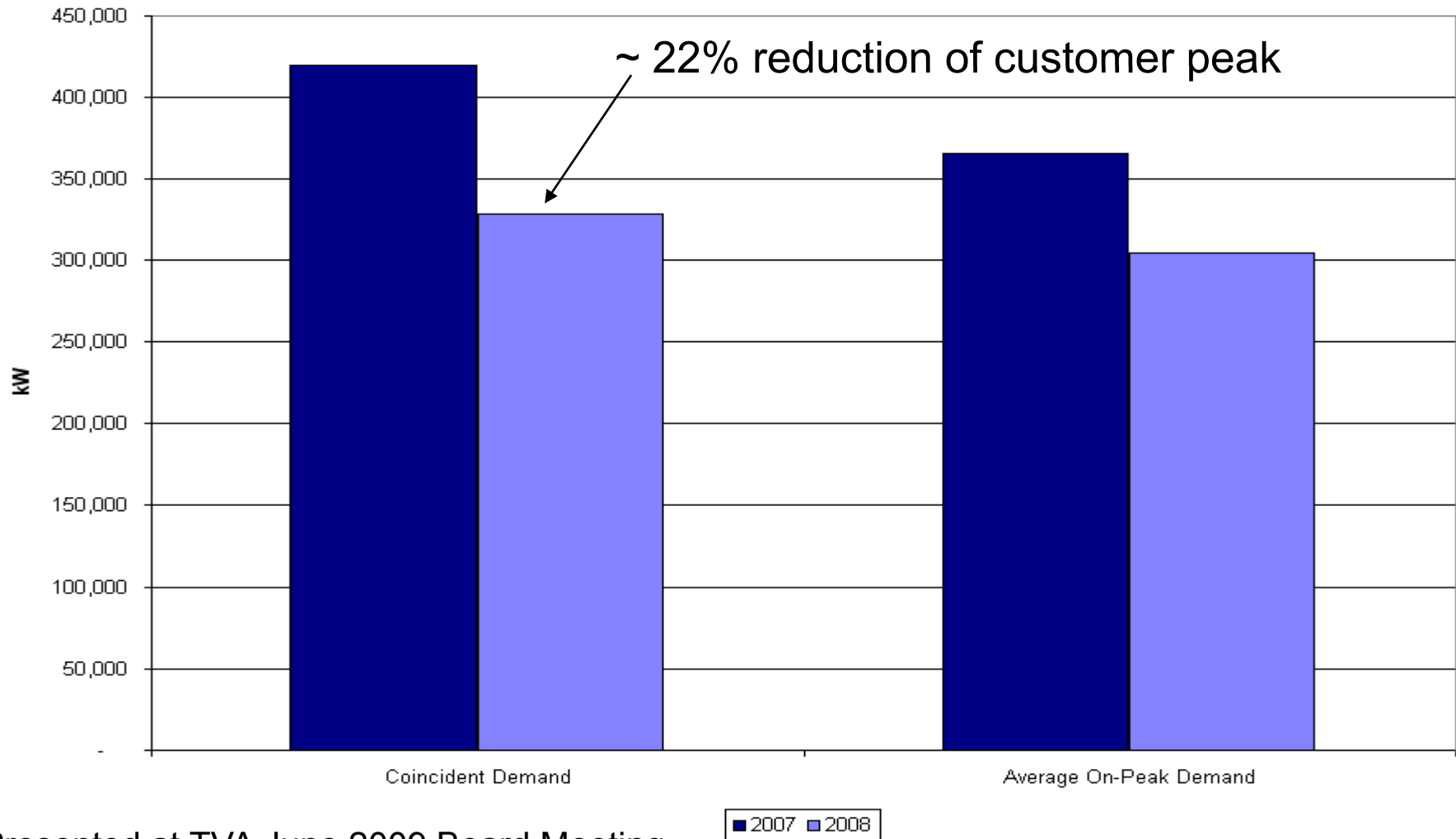
Customer shifted on-peak energy and demand usage to off-peak hours and was credited for difference in costs. Customer saved 24% relative to standard product bill. Customer savings equal reduction in TVA's cost to serve this customer (win-win).





Summer 2008 Seasonal Time of Use Class Level

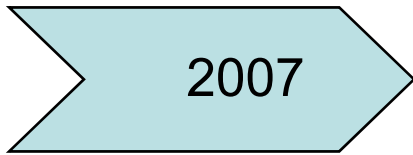
Last summer, STOU resulted in significant demand response



Presented at TVA June 2009 Board Meeting



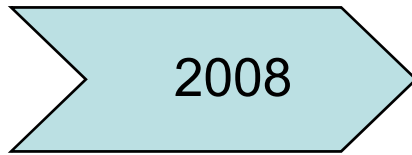
TVA Pricing Timeline



2007

• **Reliability :**

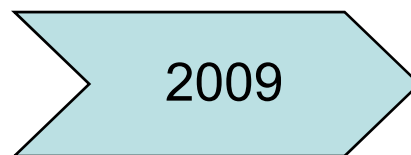
- 5 Minute Interruptible
- 60 Minute Interruptible



2008

• **Price Responsive:**

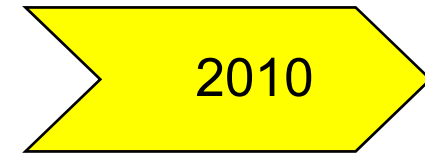
- Seasonal Time of Use (Pilot)
- Seasonal Market Days
- Real-time Pricing (Modifications)



2009

• **Price Responsive:**

- Modified Real-time Pricing
- **Time Differentiated Hours Use of Demand (Optional)**



2010

• **Wholesale Redesign:**

- Seasonal Time of Use (Default)
- Seasonal Demand & Energy (Optional)

• **Retail :**

- **Time Differentiated Hours Use of Demand (Mandatory > 5 MW)**

• **Reliability :**

- Interruptible Standby Service



2012

• **Wholesale Redesign:**

- Seasonal Time of Use



Feedback & Your Thoughts

- Recognition of Challenges
- Are We on the Right Track ?
- Question & Answers