

**BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI**

NOTICE OF COMMUNICATION

Comes now The Empire District Electric Company (“Empire”) and for its Notice of Communication states as follows:

Pursuant to 4 CSR 240-4.020(8), the Company files this Notice of Communication in all of its contested cases pending before the Missouri Public Service Commission.

On this date, Empire, through counsel, sent a communication to the Commissioners in follow-up to Empire’s presentation at the Commission’s Agenda Meeting on October 8, 2015. The communication included materials regarding Empire’s usage per customer, including usage per customer for residential customers participating in Empire’s average payment plan (“APP”) option.

Respectfully submitted,

BRYDON, SWEARENGEN & ENGLAND P.C.

By:

/s/ Diana C. Carter

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Certificate of Service

The undersigned certified that a true and correct copy of the foregoing document was sent by electronic transmission, facsimile, U.S. mail or e-mail to all parties of record in all of its contested cases pending before the Missouri Public Service Commission on this 12th day of November, 2015.

/s/ Diana C. Carter

Ann Whittle

From: Diana Carter
Sent: Thursday, November 12, 2015 12:00 PM
To: Morris Woodruff; Erica Hurt
Subject: Empire UPC and APP Presentation_Nov-9-15.ppt
Attachments: Empire UPC and APP Presentation_Nov-9-15.ppt; ATT00001.txt

In response to questions from Commissioner Rupp when Empire representatives appeared at the agenda meeting on October 8, 2015, Empire prepared the attached. Please provide this information regarding use per customer and Empire's average payment plan option to the Commissioners. Empire would be happy to provide additional information or return to an agenda meeting if the Commissioners have additional questions.

I will be filing a notice of communication today in all open Empire cases.

The Empire District Electric Company

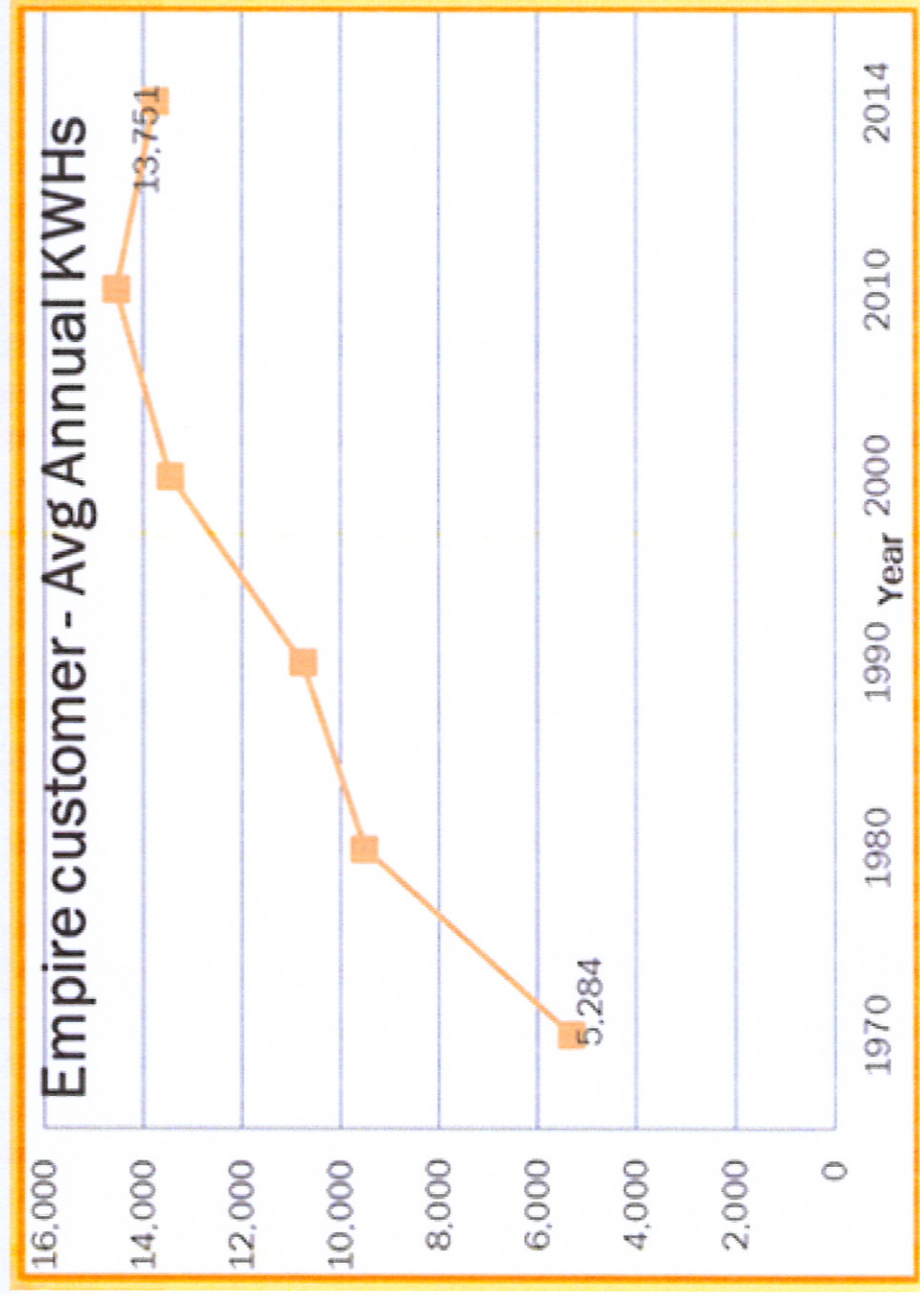
Use Per Customer (UPC)

November, 2015



SERVICES YOU COUNT ON

Historical UPC

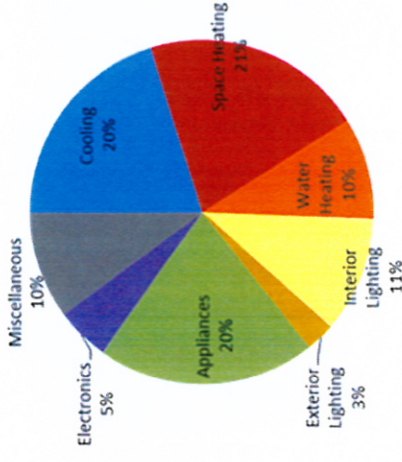


Some Reasons for a Declining UPC

- **The Economy**
 - ▶ 2008 economic recession and post-recession response
 - ▶ Housing market
 - ▶ Price elasticity of all consumer goods
- **Energy Efficiency**
 - ▶ Energy efficiency programs
 - ▶ End-use efficiency gains (e.g., new lighting & appliance standards)
 - ▶ Joplin tornado rebuild
- **Behavioral/Demographic**
 - ▶ Conservation
 - ▶ Environmental awareness
- **Customer-Sited Solar**

The Following Slides Provide Examples of Recent Efficiency Gains For Three Residential End-Uses

1. Residential HVAC (Heating, Ventilation, and Air Conditioning)
2. Residential Water Heating
3. Residential Lighting



Empire energy usage statistics based on 2015 Residential Survey

Trends in Residential HVAC

- SEER (Seasonal Energy Efficiency Ratio) is the ratio of cooling output (BTU) to energy usage (Watt-hours).
- Federal Efficiency Standards determine production
 - ▶ Average rating of a system produced prior to 1992 was 6 SEER
 - ▶ Federal Minimum Standard of 10 SEER established in 1992
 - ▶ Federal Minimum Standard increased to 13 SEER in 2006
 - ▶ Federal Minimum Standard increased to 14 SEER in 2015
- Efficiency Improvement = $1 - (\text{Old SEER} \div \text{New SEER})$
 - ▶ 6 SEER to 10 SEER = 40% Improvement (1992-2005)
 - ▶ 6 SEER to 13 SEER = 54% Improvement (2006-2010)
 - ▶ 10 SEER to 13 SEER = 23% Improvement (2011-2015)
 - ▶ 10 SEER to 14 SEER = 29% Improvement (2016-2025)
 - ▶ 13 SEER to 14 SEER = 7% Improvement (2026 and beyond)
- Average Estimated Useful Life for an AC system: 15-20 years
- 83% of Empire residential customers have Central HVAC
- 41% of Empire customers' usage comes from heating and cooling
- 67% of Empire residential customers have replaced their HVAC in the last 10

years



Trends in Residential Water Heating

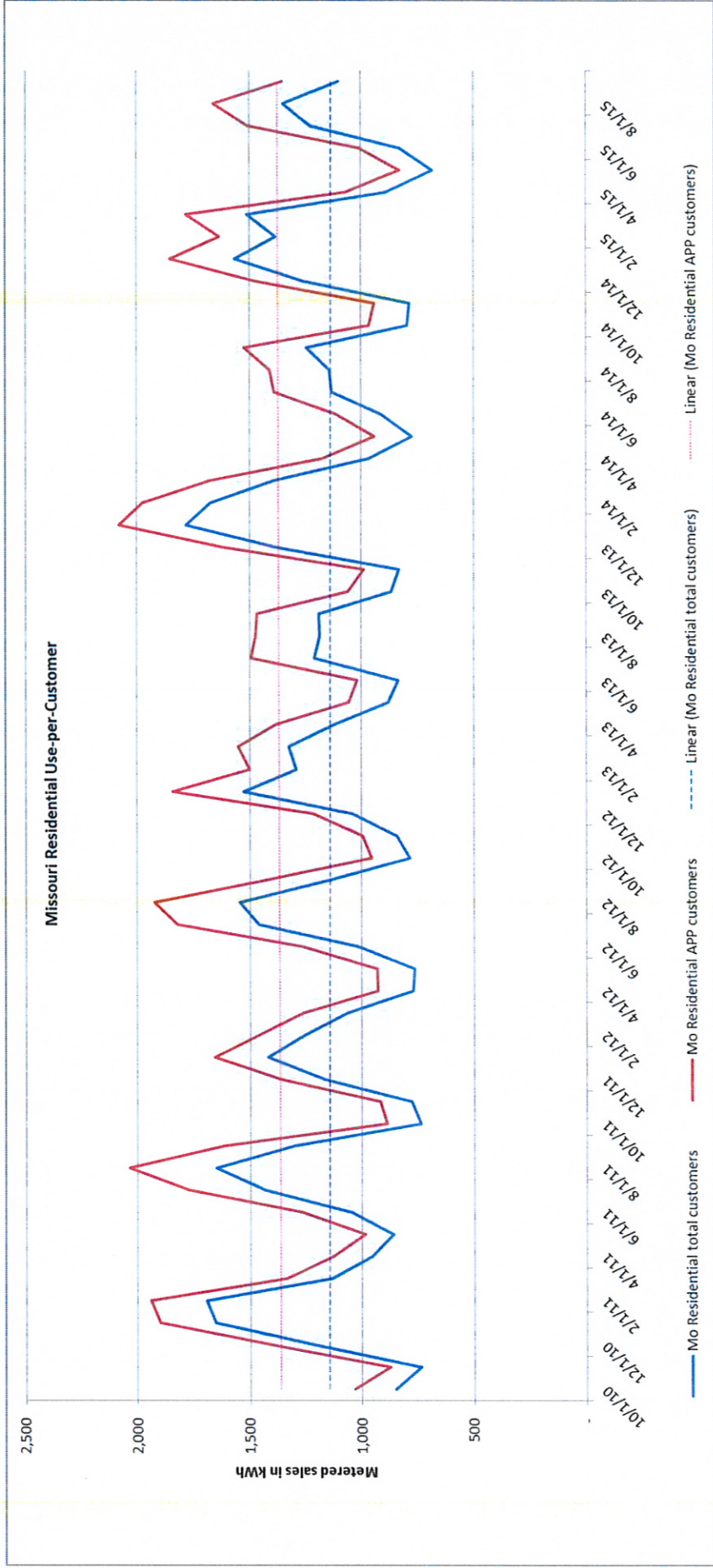
- The first federal minimum efficiency standard for production of residential water heaters was established in 1987 and became effective in 1990.
- Since 1990, the federal minimum standard for electric water heating equipment has changed twice more, which the U.S. Department of Energy (USDOE) estimates decreased the energy usage of an average electric water heater by 9 percent.
- Federal Efficiency Standards:
 - ▶ 0.86 energy factor (EF) in 1987
 - ▶ 0.90 EF in 2001 (4% improvement)
 - ▶ 0.95 EF in 2010 (5 % improvement)
- 63% of Empire residential customers have electric water heaters
- On average about 10% of an Empire residential customer's energy usage is for water heating
- 77% of Empire's residential customers have replaced their electric water heater in the last 10 years

Empire energy usage statistics based on 2015 Residential Survey

Trends in Residential Lighting

- The Energy Independence and Security Act of 2007 (EISA) set a minimum lumens-per-Watt standard on the production of light bulbs of different wattages in 2012, 2013, and 2014
- EISA set the market up for transformation and emergence of new, more-efficient lighting technologies to replace traditional incandescent lighting
- Efficiency improvements compared to equivalent 60-Watt, 1000-hour traditional incandescent light bulb:
 - ▶ EISA compliant incandescent/halogen: 43 Watts (28% gain), 3,000 hours (300% gain)
 - ▶ Compact Fluorescent (CFL): 13 Watts (78% gain), 10,000 hours (1,000% gain)
 - ▶ Light emitting diode (LED): 9 Watts (85% gain), 25,000 hours (2,500% gain)
- The average residential home in Empire's service territory has about 17 incandescent bulbs, 6 CFL's, 3 LED's, 1 Halogen, and 2 linear fluorescents
- On average about 14% of an Empire residential customer's energy usage is for lighting
- In addition to residential lighting, Empire has paid over 500 commercial and industrial rebates since 2006 through its energy efficiency program. Most have been for efficient lighting retrofits.

Missouri Residential Average Payment Plan (APP) UPC Comparison Total MO Res vs. Total MO Res APP



Missouri Residential Average Payment Plan (APP) UPC Comparison Total MO Res Non-APP vs. Total MO Res APP

