

The background of the slide features a series of high-voltage power transmission towers, also known as pylons, silhouetted against a dramatic sunset sky. The sky transitions from a deep orange near the horizon to a darker, greyish-blue at the top. The towers are arranged in a receding line, creating a sense of depth. The overall image conveys a sense of energy and infrastructure.

**SPP Integrated Marketplace**  
**July 28, 2016 Update to**  
**The Oklahoma Corporation Commission**

**AEP / Public Service Company of Oklahoma**



# **SPP Marketplace Benefits**



**The SPP Integrated Marketplace (IM) began on March 1, 2014, to:**

- **Maximize economic use of resources**
- **Provide greater access to available energy and ancillary services in Day-Ahead and Real-Time markets**
- **Improve regional balancing of supply and demand**
- **Facilitate the integration of renewable resources**



# PSO Customer Benefits



## Benefits of SPP IM

- **Centralized resource commitment in the market**
- **Results in PSO customer load being served from a larger and diverse portfolio of resources**
- **Company owned resources continue to be available to maintain reliability and meet capacity obligations during peak periods**



# PSO Customer Benefits

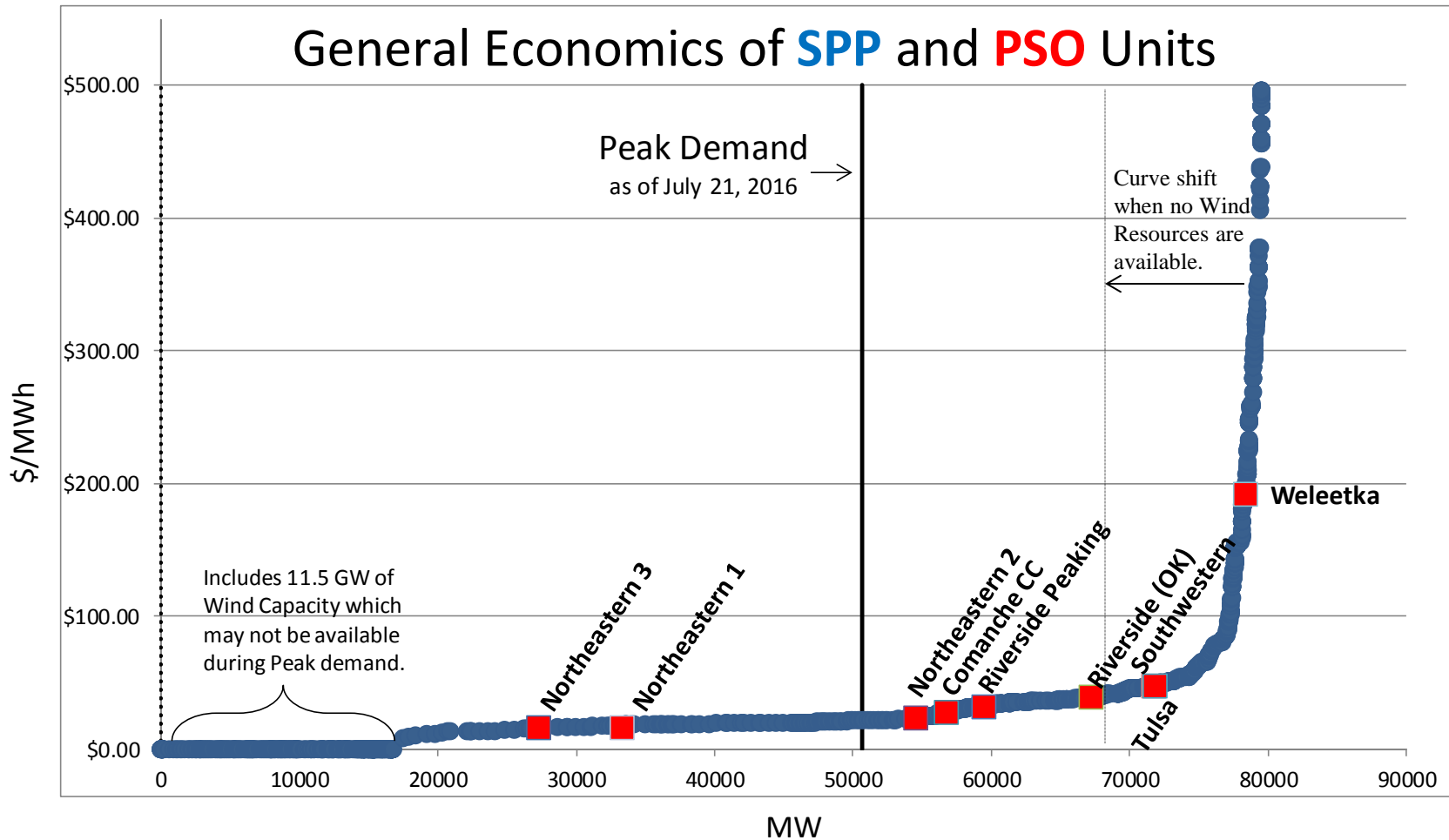


## Key Drivers for Customer Benefits

- **Availability of lower cost market resources within SPP's footprint:**
  - **Natural Gas supply continues to be abundant**
  - **Large renewable energy portfolio in the SPP footprint resulting in lower wholesale prices**



# Resource Economics



SNL source of comparative ranking data

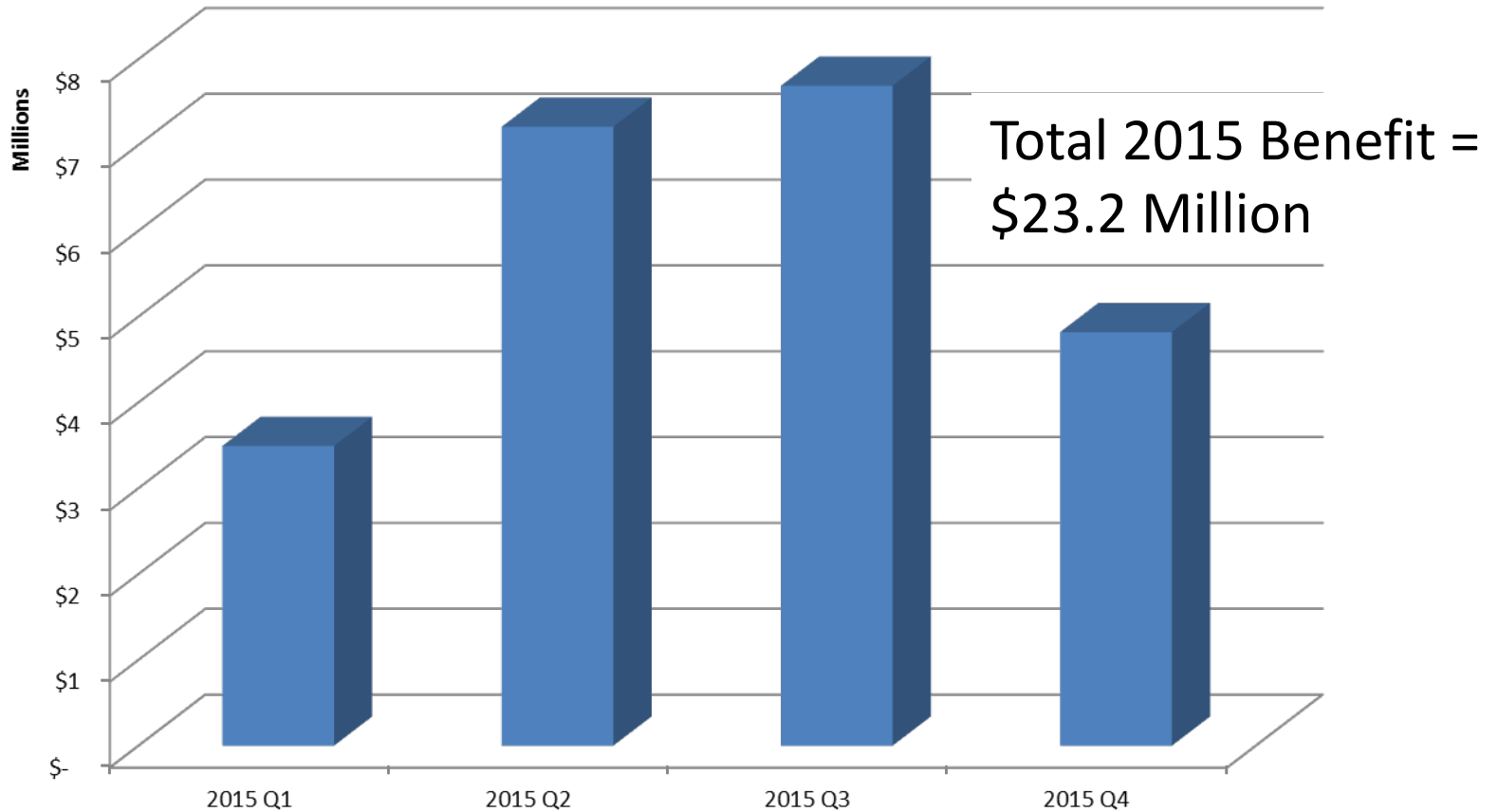
Every graph point denotes an SPP resource; PSO resources are shown in red.



# PSO 2015 Benefits from SPP IM



## SPP Integrated Marketplace 2015 PSO Customer Benefits





# Methodology for Calculating SPP IM Benefits

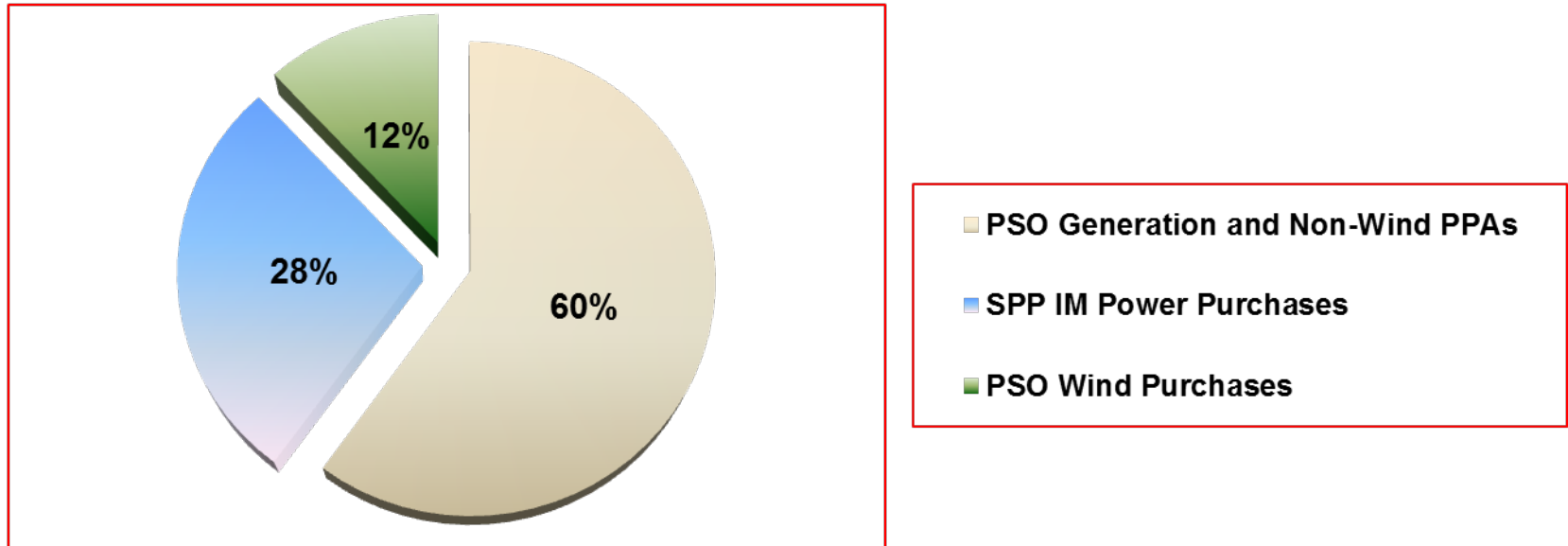


- **Savings are primarily realized from the Day-Ahead Energy and Ancillary Services Markets.**
- **The analysis shows fuel cost savings of \$23.2 million in 2015.**
- **Benefit estimates are conservative as a rigorous hourly re-dispatch and unit commitment was not performed, therefore excluding benefits from:**
  - **Avoided unit start-up costs**
  - **Savings resulting from reduced levels of resource commitments to meet Balancing Authority operating reserve requirements**

# PSO Resource Mix



## 2015 PSO Load Served By SPP IM Purchases, PSO Wind PPAs and PSO Generation and Non-Wind PPAs



Wind generation accounted for 13.52% of total energy consumed within the **SPP** footprint for 2015.





# Optimization / Improvements



- **Participation in any organized market requires participants to be constantly working to ensure their assets and obligations are appropriately represented, operated, and / or dispatched within the market.**
- **SPP has a robust stakeholder process to support market improvements. For example:**
  - **Reliability Commitment Process (November 2015 – AEP Revision Request)**
  - **Day Ahead Market Timelines (coming in September)**
- **AEPSC/PSO continues to be an active leader and advocate to maintain current benefits and drive additional benefits / operational improvements in the SPP IM processes.**
  - **PSO long-term wind purchases**



# PSO Optimization of SPP IM Process



**The benefits to PSO's customers of optimizing PSO's activity in the SPP IM, including OSS margins, results from the coordinated effort of groups throughout Commercial Operations.**

**One example of PSO's optimization activity is reflected in day-ahead market purchases.**

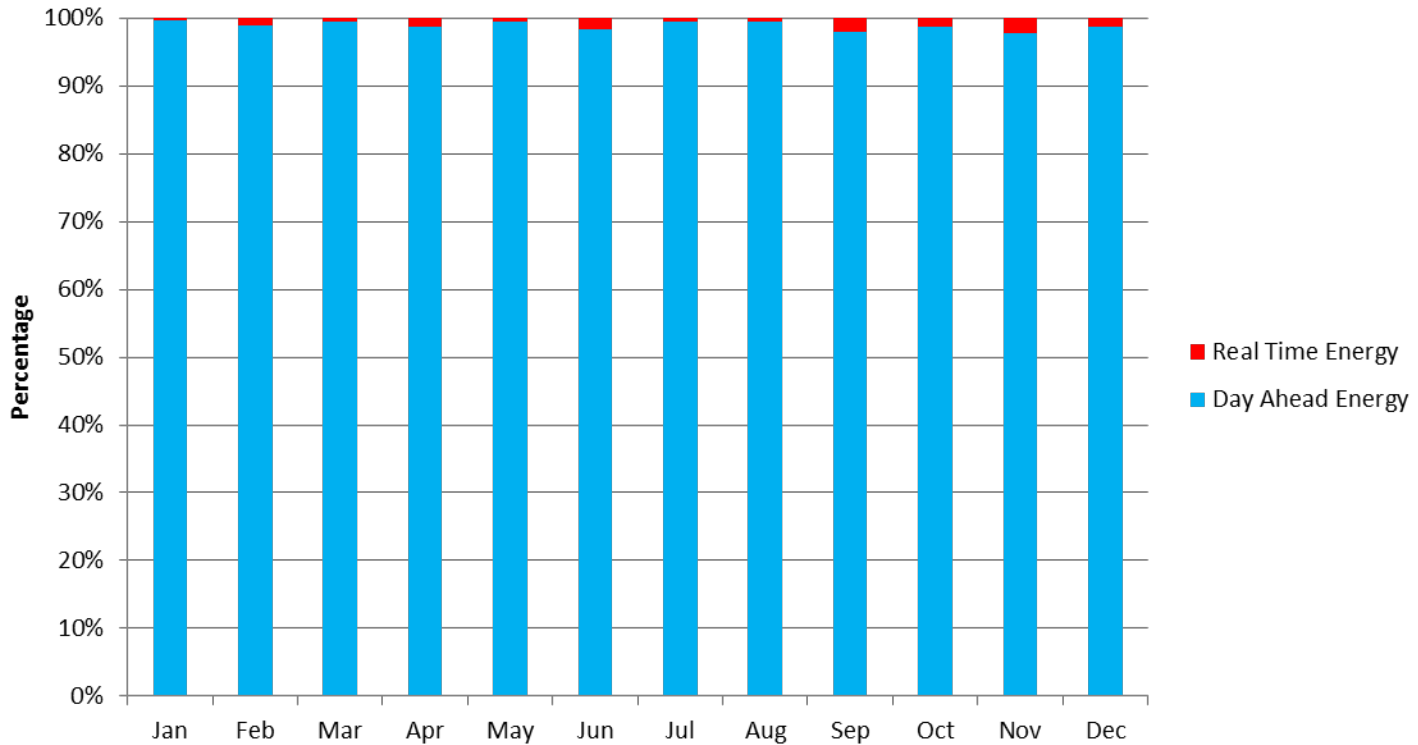
- **Real-time prices are more volatile than day-ahead, so accurate forecasting of day-ahead load requirements and resulting purchases reduces exposure to real-time price variations.**
- **The following chart illustrates the results for PSO.**



# Day-Ahead vs. Real-Time Purchases



2015 PSO Purchase % in SPP Real-Time and Day-Ahead Markets





# Questions ?



**Naim Hakimi**

**AEP Service Corporation**

**[nhakimi@aep.com](mailto:nhakimi@aep.com)**

**214-777-1466**