

**Arizona Public Service Co.**  
**Energy Imbalance Market (EIM)**  
**DEB Enhancements Working Group**

4/20/2017



# Background

- APS began its participation in the EIM on October 1, 2016,
- On August 31, 2016, FERC issued on APS's EIM Market-Based application and mitigated APS to DEB for all hours. With this ruling, APS is limited to 10% of cost recovery for all gas units above the day-ahead index price(s),
- FERC also agreed that the order does preclude APS from recovering all costs associated with fluctuating real-time gas prices,
- In addition, FERC directed APS to negotiate with the CAISO/DMM on an alternate methodology for the DEB to allow it to recover any and all costs incurred during Real-Time above the DA index price,

# Real-Time Calculations of DEB's

- All examples assume a 9 heat-rate unit and \$3/MMBtu delivered gas plus \$3 VOM;
  - Under normal conditions,  $DEB = (9 \text{ MMBtu/Mwh} * \$3 / \text{MMBtu} + \$3 \text{ O\&M}) + 10\% = \$33/\text{MWh}$ ,
  - For load forecast variations (<2%), APS typically won't see big variations in gas volumes,
  - For coal or nuclear contingencies, APS could see as little as 10-15K of additional gas burn or as much as 70-80K, for which we are forced to go out on the market and/or lean on gas storage to off-set the needs (Slide 4),
  - If pipelines happen to issue an SOC or COC during a time when we are short due to a contingency, the pipelines asses penalties up to three times the commodity prices;
    - $NEW \text{ DEB}^{**} = \$33/\text{MWH} + \text{Penalty portion } (9*3*3) = \$117 / \text{Mwh}$  (IF NO ADDITIONAL GAS WAS PROCURED)
  - During the past ten years, APS managed to avoid paying any pipeline penalties by utilizing intra-day gas storage withdrawals/injections or performing RT purchases/sales.

\*\* Example cost if pipeline penalty imposed

## Since Go-Live on October 1, 2016 through March 31, 2017 “182 days”

- APS had 35 days where we had to purchase gas during real time (19%),
- Eight (8) times APS had to purchase gas that exceeded 110% of day-ahead gas index, with the highest being 22% above.
- From the examples on Slide #3; Using a RT gas purchase price of \$3.66
  - The “new temporary” DEB =  $(9 \text{ MMBtu/Mwh} * \$3.66/\text{Mmbtu} + \$3/\text{Mwh}) + 10\% = \$36.53/\text{Mwh}$

### Options for when APS has low gas supplies:

1. Should APS remove all bids in EIM and take the ETSR's to zero if RT gas supplies are > 10% of DA index, (This could lead to SW Region Reliability Issues particularly if other EIM entities are experiencing same conditions).
2. Should APS continue to offer energy in EIM and incur pipeline penalties!! (results in sales below cost),
3. Should APS procure additional gas supplies regardless of price and continue the participation in EIM (could also result in sales below cost).

**APS Proposals ;** Avoid any and all pipeline penalties (if applicable), perform RT gas purchases as required and continue to offer bids in the EIM. If any of the gas purchases do exceed the DA index by greater than 10%; adjust DEB's RT to reflect the new dispatch price and upon request from the DMM, provide back up information that reflect the cost of gas procured.