Scarcity Revenue Offset

SPWG

Howard J. Haas

February 18, 2010

Monitoring Analytics

Scarcity/Shortage Revenues

- **Scarcity Revenues can be collected via the energy market, the capacity market or some combination**

- **Maintaining a reserve requirement requires administrative intervention**
  - **Capacity Market**
  - **Scarcity Pricing**

Monitoring Analytics

Scarcity/Shortage Revenues

- **RPM revenues are scarcity revenues**
  - **Designed to provide incentive to build and maintain peaking units**
  - **Designed to cover fixed costs of peaking units**
  - **Designed to provide price signal to reduce peak load**
  - **Designed to provide performance incentive to units**
  - **Designed to smooth boom and bust cycle**

Monitoring Analytics

Scarcity/Shortage Revenues

- **Under the Operating Reserve Approach:**
  - **"Scarcity Adder" is an administrative contribution to marginal bus LMP(s) when short one or more reserve products**
    - **LMP = Energy + Marginal Losses + Congestion + "Scarcity Adder"**
  - **Scarcity revenues are those revenues directly attributable to the scarcity price adder contributions to the marginal unit LMP during a reserve shortage**
    - **Bus specific effects on LMP and revenues**

Monitoring Analytics

Scarcity/Shortage Revenues

- **Under the Operating Reserve Approach:**
  - **PJM "Scarcity Adder"**
    - Penalty Factor(s) applied to marginal unit bus
    - Effect measured at every bus
  - **MA "Scarcity Adder"**
    - Difference between the marginal unit offers and the scarcity price target
    - Effect measured at every bus

Monitoring Analytics

Concepts to Date

- **Historical Three Year Average (no real time offset)**
  - **CONE unit offset only**
  - **Actual net revenue offset for ACR**

- **Perfect real time offset:**
  - **RPM resources do not receive energy market scarcity revenues**

- **Modified real time offset:**
  - **RPM resources keep only energy market scarcity revenues that exceed, on a cumulative basis, the RPM $MW/day scarcity payment for the delivery year/operating year in question**

Monitoring Analytics

MA Proposal: Modified Scarcity/Shortage Revenue Offset

- **RPM resources would keep energy market generated scarcity revenues that exceed, on a cumulative basis, the RPM $MW/day scarcity payment for the operating year in question**

Monitoring Analytics

MA Proposal: Example

- **RPM payment = $100 MW/day**
  - **First Scarcity event provides $50 MW/day equivalent.**
    - **Nothing collected**
  - **Second Scarcity event provides $60 MW/day equivalent.**
    - **$10 MW/Day kept ($50+$60-$100=$10)**
  - **Third Scarcity event provides $30 MW/day equivalent.**
    - **$30 MW/day kept**

Monitoring Analytics

Historical Three Year Average

- **Historical three year average method works reasonably well in the absence of scarcity pricing**

- **With scarcity pricing mechanism, will cause lumpiness in revenues**

  - **Scarcity events will causes over collection of scarcity revenue in a given operating year**

  - **Causes under collection in subsequent years**

- **Disrupts viability of long term RPM price signal**

Monitoring Analytics

Historical Three Year Average

- **Disrupts viability of long term RPM price signal**
  - **Scarcity event in 2013**
  - **In 2013 RPM participants would be getting scarcity rents from RPM to cover operation in 2013 based on the average of 2007 through 2009 going forward cost requirements**
  - **In 2013 RPM participants would also be getting real time scarcity event dollars (over collection)**
  - **This would not only affect the 2013 participants in the subsequent auctions but all participants in the 2017, 2018 and 2019 delivery year auctions**

Monitoring Analytics

Historical Three Year Average

Year	2013 Auction	2014 Auction	2015 Auction	2016 Auction	2017 Auction	2018 Auction	2019 Auction	2020 Auction
2007								
2008								
2009								
2010	Auction Held							
2011		Auction Held						
2012			Auction Held					
2013	Scarcity Event			Auction Held	x	x	x	
2014					Auction Held			
2015						Auction Held		
2016							Auction Held	
2017								Auction Held
2018								
2019								
2020								
Historic Years	Overcollection				Undercollection	Undercollection	Undercollection	
Year Auction Held								
Operating Year								

11

Monitoring Analytics

Perfect Real Time Offset

- **Prevents over collection of scarcity revenue in operating year**
  - **Marginal incentives consistent with real time performance**

- **Maintains viability of long term RPM price signal**

Monitoring Analytics

Advantages of MA Proposal

- **Minimizes over collection of scarcity revenue**
  - **Provides incentives for real time performance**

- **Maintains viability of long term RPM price signal**
  - **Allows the market to correct for potential planning errors**

Monitoring Analytics