



# ATC Customer Benefit Metric

ATC Stakeholder Meeting  
5/10/2010





# Overview

- MISO's RECB II Metrics
  - Load LMP
  - Adjusted Production Cost (APC)
  - 70/30
- ATC's Experience
  - Paddock to Rockdale
  - Bain to Zion
- The ATC Customer Benefit Metric



# MISO's RECB II Metrics

## Load LMP

- Most highly visible Market attribute
- Implied Assumptions
  - Load Pays Load LMP
  - Load is completely Un-Hedged in the Market
    - No Ownership relationship with Generation (All Generators are IPPs)
    - No Bi-Lateral Contracts with Generation
    - Holds no FTRs
    - Receives no Loss Refunds from the Market
- Very few customers match this description



# MISO RECB II Metrics

## Adjusted Production Cost

- Production Cost
  - Fuel plus Variable O&M
  - Assumed to be the Offer Behavior of generators in a competitive Energy Market
- Adjusted Production Cost (APC)
  1. Production Cost Paid for Generation
  2. Add Payment for Imports at Load LMP
  3. Subtract Revenue from Exports at Gen LMP



# MISO's RECB II Metrics Adjusted Production Cost

- Implied Assumptions
  - Utility Load has a “Production Cost”  
Relationship with a Utility Generation Portfolio
    - Utility Load Pays local Load LMP
    - Utility Generation Gets Paid Gen LMP
    - Utility Load hold 100% FTR coverage to Utility Generation
    - Losses are priced at Production Cost
  - Load pays for Imports at Load LMP
  - Generation Gets Paid for Exports at Gen LMP
- Widely used by both MISO and PJM



# MISO's RECB II Metrics

## MISO 70/30

- Weighted combination of 70% APC and 30% LMP
- Represents consensus of MISO stakeholders at the time
- Approximates the percentage of MISO load in Retail Choice states plus IPP generation
- Now codified in the MISO Tariff

# ATC's Experience Paddock to Rockdale

- Examined the MISO Regional Metrics
  - Each was refined by adding adjustments
    - FTR assumptions for hedging congestion
      - Existing FTRs possibly decreasing in value
      - New FTRs creating possible new value
      - Assumption for FTRs within ATC
      - Assumptions for FTRs into ATC
    - Loss assumptions
      - Payment for losses at marginal price
      - Refund of loss payments for over-collection (typically 50%)



# ATC's Experience Paddock to Rockdale

- Introduced the “Energy Formula” to capture overall Customer Benefit
  - Used Consulting assistance from the Brattle Group
  - Incorporated the FTR and Losses assumption refinements
  - Added an adjustment for IPPs within the fleet of generators hosted by the ATC system





# ATC's Experience Paddock to Rockdale

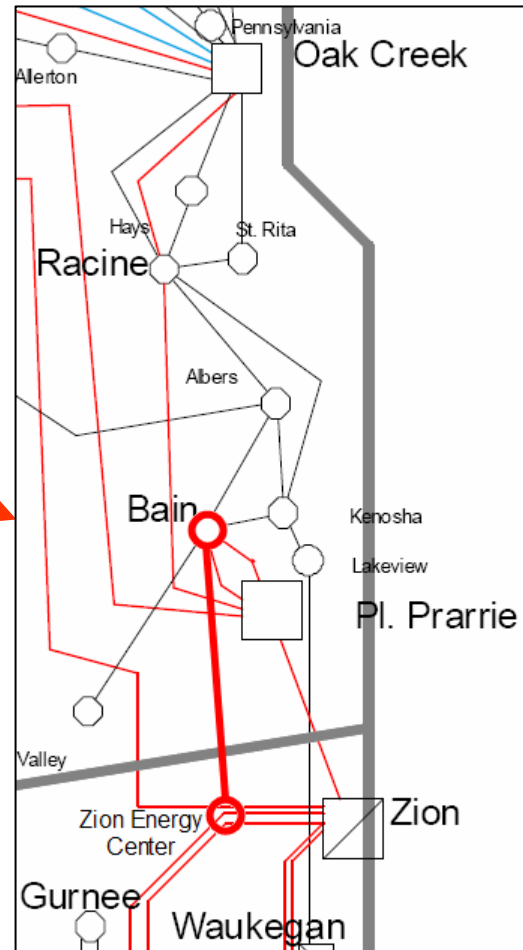
- The Paddock to Rockdale CPCN filing analysis provided a snapshot comparing the MISO RECB II Metrics with the Energy Formula
  - Energy Formula results were typically between the APC and 70/30 Metrics
- The MISO 70/30 Metric was used by ATC when reporting Project Benefits



# ATC's Experience Bain to Zion

- Bain to Zion was one of three projects selected for economic study during 2008
- Preliminary reports to stakeholders in December 2008 and March 2009 indicated that the project performed poorly using the 70/30 Metric
- Stakeholders asked for more in depth analysis

# Bain – Zion Energy Center 345 kV



## 345 kV Mileage and Cost Estimate\*

Bain – Zion = 6 miles = \$18 M

Total = 6 miles = \$18 M

\*Cost estimate = \$3M/mile; mileage from PSS/E idev

These drawings are intended for informational purposes only and do not depict actual transmission line additions or potential routes and siting



# Bain – Zion

## (70/30 Project Benefits from March 2008 Stakeholder Meeting)

### ATC Bain - Zion Economic Project Savings<sup>1</sup>

Cost Metric	Reference	Robust Economy	High Retirements	High Environmental	Slow Growth	20% Wind	Fuel & Investment Limitation
70 / 30 <sup>2</sup> (\$2018)	(\$30,437,966)	(\$37,031,182)	(\$39,368,519)	(\$87,969,181)	(\$49,188,115)	(\$26,780,126)	(\$55,401,143)
70 / 30 <sup>2</sup> (\$2024)	(\$31,719,961)	\$38,731,904	(\$35,314,128)	(\$121,843,373)	(\$50,686,046)	(\$14,831,027)	(\$15,596,475)
40-Year PV of Savings <sup>3</sup> (\$2009)	(\$218,668,310)	\$159,173,694	(\$251,412,050)	(\$797,880,000)	(\$350,215,252)	(\$120,477,836)	(\$166,282,609)

<sup>1</sup> Project Savings shown as a negative value (\$) indicate negative benefit (cost). Positive values indicated positive benefit (savings).

<sup>2</sup> 70 / 30 metric is calculated by adding 70% of the Adjusted Production Cost value to 30% of the Load \* Load LMP value.

<sup>3</sup> 40-Year PV value is calculated assuming 2018 as the first in-service year, a real discount rate of 5.5%, and an inflation rate of 3.0%



# ATC Customer Benefit Metric

- Does the 70/30 Metric capture the flow of “Generator Profitability” benefits back to customers?
- Is there a single Metric that captures benefits for both Import and Export projects?
- Can we build on ATC’s lessons learned in the Paddock to Rockdale analysis?



# ATC Customer Benefit Metric Settlements Format

- Costs Paid and Revenue Received by Utility Customers
  - Load Pays local LMP
    - Generator Revenues Received at local Gen LMP
    - + Cost of Utility Generation (Production Cost)
    - FTR Revenue to the Utility
    - Loss Refund Revenues for over-collection
    - = Impact to Ratepayers
- Generator Revenues flow back to Ratepayers through the state regulatory process

# ATC Customer Benefit Metric Bain to Zion Example

## Settlements Format using the Reference Case

(\$M - 2020)

Positive dollar amounts reflect benefits of project

		Reference
MS1	Load LMP Payment	(39.85)
MS2	Gen. LMP Revenue	52.54
MS4a	Gen. LMP Revenue Reduced for IPPs	(1.95)
MS3	Production Cost Payments	(4.32)
MS4b	Production Costs Reduced for IPPs	0.20
<b>Subtotal (Including IPP Refinements)</b>		<b>6.62</b>
MS5	FTR Revenues for Internal Resources (Existing and Additional)	(4.11)
MS6	Internal Loss Refund	0.15
MS7	Conversion from Losses Priced at PC to Losses Priced at MLC	(0.08)
MS8	FTR Revenues for External Resources (Existing and Additional)	0.05
MS9	External Loss Refund (on Imports)	0.06
<b>Physical Loss Energy Savings</b>		<b>TBD</b>
<b>Physical Loss Capacity Savings</b>		<b>TBD</b>
<b>Subtotal</b>		<b>(3.93)</b>
<b>ATC Customer Benefit Metric</b>		<b>2.70</b>
<b>PROMOD Adjusted Production Cost</b>		<b>3.26</b>
<b>PROMOD 70/30</b>		<b>(4.61)</b>
<b>PROMOD Load-Weighted LMP</b>		<b>(22.98)</b>

# ATC Customer Benefit Metric Bain to Zion Example

## APC Format using the Reference Case

(\$M - 2020)

positive dollar amounts reflect benefits of project

		Reference
<b>ATC Customer Benefit Formula</b>		
+	Production Costs (including IPP Generation)	(4.88)
+	Cost of Imports (@ ATC Load-weighted LMP)	(1.55)
+	Revenues from Exports (@ ATC Gen-weighted LMP)	9.70
	<b>Adjusted Production Cost</b>	<b>3.26</b>
+	Cost Adjustments for IPP Generation	(1.18)
+	FTR Revenues for Internal Resources (Existing and Additional)	0.72
+	Internal Loss Refund	0.15
+	Conversion from Losses Priced at PC to Losses Priced at MLC	(0.37)
+	FTR Revenues for External Resources (Existing and Additional)	0.05
+	External Loss Refund (on Imports)	0.06
	<b>Subtotal-Refinements</b>	<b>(0.57)</b>
	<b>Physical Loss Energy Savings</b>	<b>TBD</b>
	<b>Physical Loss Capacity Savings</b>	<b>TBD</b>
	<b>ATC Customer Benefit Metric</b>	<b>2.70</b>

PROMOD APC	3.26
PROMOD 70/30	(4.61)
PROMOD Load-Weighted LMP	(22.98)





# Additional Project Benefits

- The ATC Customer Benefit Metric captures many of the Project Benefits
- ATC will continue to evaluate additional possible Project Benefits.
- Some Examples:
  - Reliability and Insurance Value
  - Renewable Resource Investment Benefit
  - Improved Competitiveness
  - Reserve Requirements Benefit
  - Others??



# Conclusions

- One Metric captures benefits for both Import and Export projects
- ATC will report the results of Project Benefits analysis using the ATC Customer Benefits Metric in the future



# Questions and Next Steps

- Questions??
- Contact ATC
  - If you have additional questions or
  - You would like to schedule a discussion of the ATC Customer Benefit Metric
    - Ken Copp @ (262) 506 6890 or [kcopp@atcllc.com](mailto:kcopp@atcllc.com)
    - Or your Customer Relations Manager