LMPMWG

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Agenda

- PJM expanded data matrix on extent of cost capping in 2002
- LMP impact illustrations
- Definition of cost capping issue
- Set of proposed solutions to cost capping issue
- Proposed short term solution

Issue

- Is cost capping compensatory for units that are cost capped effectively all the time?
- Is cost capping compensatory for units that are cost capped at times?

Number of Units Cost Capped

Number of units by cost capped hours and percent of run hours cost capped

Percent of run hours cost capped	Minimum Cost Capped Hours				
	500	400	300	200	100
90%	4	6	8	11	11
80%	5	7	11	**18**	22
75%	5	7	11	18	27
50%	7	10	22	29	42
25%	7	10	22	29	51
10%	8	11	23	32	61

Extent of Cost Capping

- Units cost capped more than 90% of time; > 100 hours
  - 11 units
  - Varies by run hours
- Units cost capped more than 75% of time ; > 100 hours
  - 27 units
- Units cost capped more than 50% of time ; > 100 hours
  - 42 units
- Units cost capped more than 25% of time; > 100

Impact on LMP

- Impact of increased cost cap on LMP depends on:
  - Details of constraint
  - Impact of unit(s) on constraint
- Range of impacts for heavily cost capped units
  - Example constraint: 40% to 100% impact on zonal LMP

Definition of Cost Capping Issue

- Unit cost capping threshold: percent of hours/run hours
- Reliability requirement: definition of required for reliability
- Definition of compensatory
  - Marginal costs
  - To go costs
  - Full carrying costs
  - Net revenue shortfall

Long Term Solutions

- Long term solutions/issues
  - Opportunity to recover all costs for heavily cost capped units from all market sources
  - Definition of appropriate scarcity prices
  - Definition of competition in load pockets
  - Determine if units are part of energy market or transmission system
  - Local solutions
  - Incentive issues
  - Value issues

Short Term Solutions: Summer of 2003

- Short term solutions
  - Cover direct out of pocket costs for heavily cost capped units

Proposed Solutions

- Proxy/proxy approach
  - Fixed/variable costs floor
  - Run hours assumption
- Proxy/actual approach
  - Fixed/variable costs floor
  - Run hours assumption
- Marginal cost approach
  - Short run variable costs
- To go cost approach
  - Short run variable costs
  - Fixed O&M (annualized)
  - Direct out of pocket costs (annualized)

Other Issues

- Inclusion in LMP
  - ODEC proposal: recover costs via zonal uplift
- Application to New Units (Post 1996)

Proposed Solutions (1)

- Proxy/proxy approach
  - Proxy fixed costs: $72,000/MW-year
    - 100 run hours: $720/MWh
    - 500 run hours: $144/MWh
  - Proxy variable costs: Heat rate = 10,500
    - Gas costs @ $5.00 plus O&M: $50 - $65/MWh
  - Total: $194 - $785/MWh
- Offsets
  - Capacity market revenues
  - Ancillary market revenues (including blackstart)
  - Energy market net revenues
  - Operating reserves

Proposed Solutions (2)

- Proxy/actual approach
  - Proxy fixed costs: $72,000/MW-year
  - Actual variable costs:
    - Heat rate; Variable O&M; Fuel Costs
    - $50 - $110/MWh
  - Total: $194 - $830/MWh
- Offsets
  - Capacity market revenues
  - Ancillary market revenues (including blackstart)
  - Energy market net revenues
  - Operating reserves

Proposed Solutions (3)

- Marginal cost approach
  - Fuel costs
  - Short run variable costs
  - Total: $50-$110/MWh
- Marginal cost plus 10% approach
  - Fuel costs and short run variable costs
    - $55 - $121/MWh
  - Contribution to other costs
    - $5 - $11/MWh

Proposed Solutions (4)

- To Go Cost approach
  - Fuel costs and short run variable costs
    - $50 - $110/MWh
  - Long run variable costs
    - $5 - $10/MWh
  - Annual out of pocket costs
    - $15 - $125
  - Total: $70 - $245

Comparison of Cost Capping Methods

Comparison of Cost Capping Approaches ($/MWh)

	Proxy/proxy	Proxy/Actual	Marginal Cost	MC + 10%	To Go Costs
Low Estimate - High Run Hours					
Total Cost	$218.50	$250.00	$106.00	$116.60	$126.00
Marginal Cost	$106.00	$106.00	$106.00	$106.00	$106.00
Contribution to Fixed Costs	$112.50	$144.00	$0.00	$10.60	$20.00
Mark up over Marginal Cost	106.13%	135.85%	0.00%	10.00%	18.87%
High Estimate - Low Run Hours					
Total Cost	$794.50	$830.00			$241.00
Marginal Cost	$106.00	$106.00			$106.00
Contribution to Fixed Costs	$688.50	$724.00			$135.00
Mark up over Marginal Cost	649.53%	683.02%			127.36%

Proposed Interim Solution

- Threshold for increased cost cap
  - Greater than 80% of run hours cost capped
  - Greater than 200 run hours
  - Currently 18 units exceed threshold

Proposed Interim Solution

- To Go Cost approach (direct costs)
  - Fuel costs and short run variable costs
  - Long run variable costs
    - Inspections/overhauls (annualized)
  - Annual out of pocket direct costs
    - Direct labor
    - Repair parts
    - Site electric and communications
    - Property taxes
- To Go Cost approach does not include:
  - Allocation of corporate overheads
  - Capacity costs

Proposed Interim Solution

- To Go Cost approach fixed cost recovery (no offset) occurs via:
  - Net energy market revenues
  - Ancillary service market revenues (Including Blackstart revenues)
  - Operating reserve payment revenues
  - Capacity market revenues
- Net revenue review

Proposed Interim Solution

- Modified Cost Cap
  - Changes cost-based offers to PJM
  - Affects dispatch
  - Included in LMP calculations
- Applies to new units
  - Subject to negotiation if requested

To Go Cost Variations

- Proxy To Go Cost Adder
  - Fixed Adder ($/MWh)
- Proxy To Go Cost Mark Up
  - Fixed Percent Mark Up (Percent)

Additional Features

- Units agree to provide cost data
  - Fuel costs
  - O&M costs
  - Other compensated costs
- Required review of maintenance practices and expenditures

Summary of Proposal

- Threshold for additional compensation
  - 80% cost capped; 200 run hours
- Payment of To Go costs in addition to marginal cost
- Included in cost-based offers; dispatch; LMP
- Applies to new units (subject to negotiation)