MEPETF Phase 3
Impact of Including Negative Benefits in B/C Ratio Calculation

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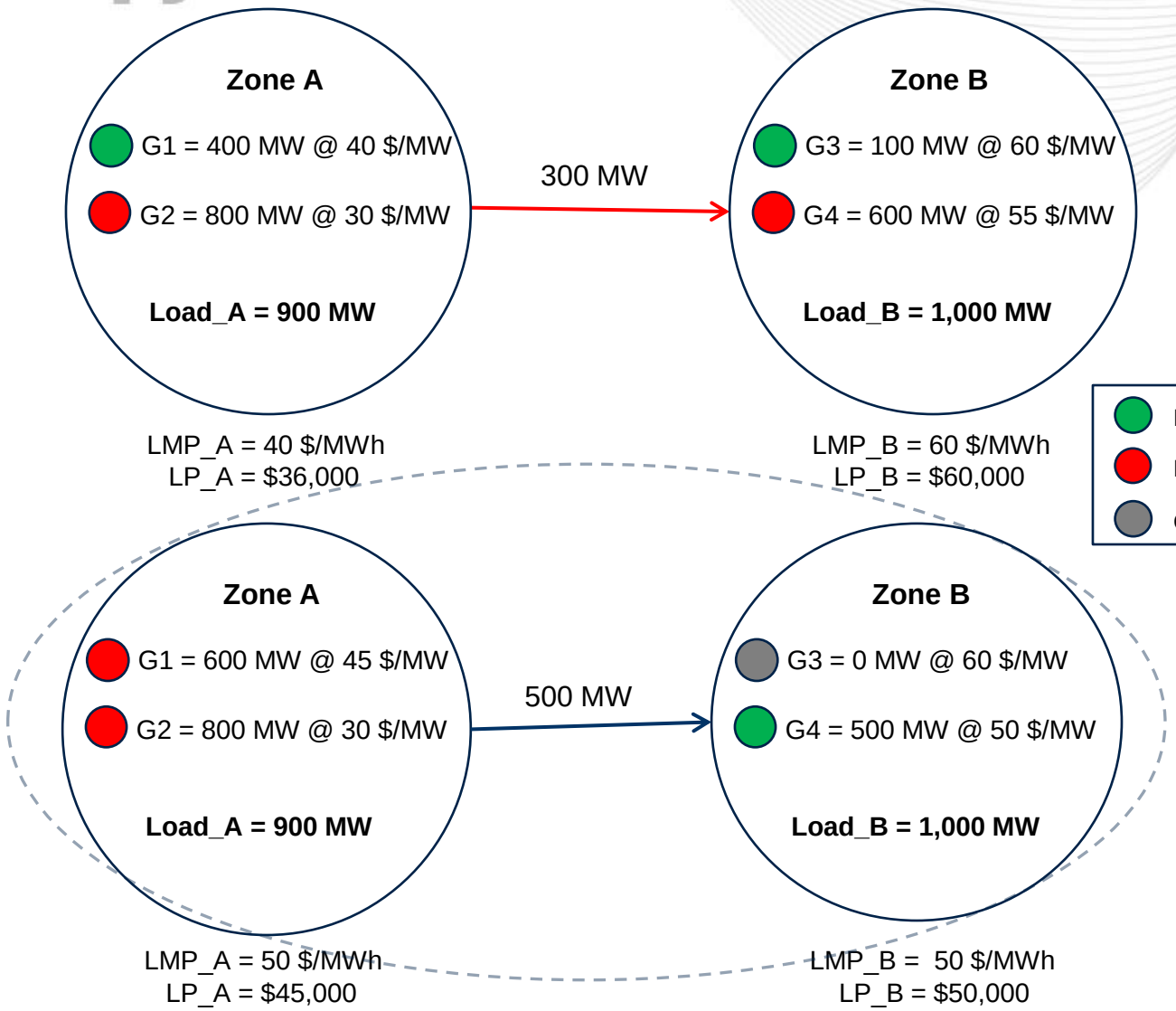
Benefit/Cost Calculation Rationale

PJM stakeholders approved rules for the Benefit/Cost Metric to only include zones with a decrease in net load/capacity payments

- Market Efficiency projects by definition address market congestion inefficiencies that exist because customers on both sides of a constraint are not paying equitable costs
- Zones that are currently benefiting from the inefficiency should not be included in B/C Metric because the following:
  - These zones would not derive benefits absent the inefficiency in first place
  - These zones are benefitting from the inefficiency before the market efficiency project is placed into service via artificially low prices
  - These zones are not paying for the direct cost to build the upgrade to remove the inefficiency
  - Threshold to pass a Market Efficiency project if include all zones more difficult because not addressing the cost inefficiency

Impact on B/C Ratio – Illustrative Example



Generator	Zone	Min/Max Cap (MW)	Gen Block Bid Offer ($/MWh)
G1	A	300/600	$38@300MW;$40@400MW;$45@550MW
G2	A	400/800	$25@400MW;$27@550MW;$30@700MW
G3	B	50/150	$55@50MW;$60@100MW;$65@125MW
G4	B	400/600	$45@400MW;$50@500MW;$55@550MW

Marginal generator
Maxed out generator
Offline generator

230 kV Line Upgrade Information	
Line Rating Before Upgrade	300 MW
Line Rating After Upgrade	700 MW
Cost ($)	$5,000

Results	
LP_A Savings	-$9,000
LP_B Savings	$10,000
Total Congestion Savings	$6,000
Status Quo Lower Voltage B/C Ratio (Benefiting Zones Only)	2.0
B/C Ratio (Including negative benefits)	0.2

Previously Approved Projects – Statistical Analysis

Project Group	Project Count	Project Cost Average ($M)	Status Quo (only +)		Including Negative Benefit Zones (+ and -)		Average decrease of NLP Savings (%)
			Average of NLP Savings ($M)	Average of B/C Ratios	Average of NLP Savings ($M)	Average of B/C Ratios	
Total projects analyzed	13	$ 34.49	$ 237.62	39.13	$ 89.40	26.66	65%
Projects with cost < $20 million	10	$ 4.35	$ 155.23	49.90	$ 65.51	34.20	70%
Projects with cost > $20 million	3	$ 134.96	$ 512.27	3.22	$ 169.03	1.52	46%
Projects still passing the B/C Ratio test when including PJM Zones with negative benefits	9	$ 9.39	$ 175.46	51.85	$ 104.78	39.25	22%

Notes: Data sample included the Market Efficiency enhancements that were previously approved based on load payments benefits.
An outlier data point, a small $0.1 million upgrade was removed from the sample as it skewed the results.