

# MISO PJM IPSAC

October 26, 2015


- Michigan Interface Study Update
- Quad Cities Study Update
- Review Stakeholder Feedback
- Metrics Analysis



# Stakeholder Feedback

(Metrics or Process issues involving cost allocation will involve the PJM Transmission Owners and MISO RECBTF)

Submitting Entity	Stakeholder Comment	RTO Response	Timeline
ITC	Eliminate cost and voltage thresholds for project approval	Elimination of \$20 million threshold for MEP to be filed at FERC in 2015. MISO regional process has engaged the voltage threshold issue. The JOA has no voltage threshold. PJM's regional process will chose the most efficient or cost effective upgrade to remedy regional and interregional issues, regardless of voltage.	\$20M - 2015 voltage - 2016
Exelon	Eliminate cost and voltage thresholds for project approval		
Exelon	230 kV voltage threshold is ineffective. Must be not greater than 100 kV		



Submitting Entity	Stakeholder Comment	RTO Response	Timeline
ITC	Needs approval and cost allocation clarification	Quick hit upgrades can be cost allocated by the currently effective IMEP project benefit metrics. The RTO's are open to exploring ways to simplify the calculation of quick hit benefits. Technical details need to be worked out. FFE issues, currently under discussion at the JCM , should come to resolution before consideration by the IPSAC.	2016
NIPSCO	Cost Allocation using FFE		

# Stakeholder Feedback – Ad Hoc Targeted Evaluations

Submitting Entity	Stakeholder Comment	RTO Response	Timeline
ITC	Clarify approval and cost allocation (like Duff-Rockport-Coleman project)	The JOA has and must maintain the flexibility to enable targeted studies to develop the most efficient interregional solutions to regional issues as they arise. Process for projects believed to be more frequently encountered can be considered, for example see slide #9.	2016/17

Submitting Entity	Stakeholder Comment	RTO Response	Timeline
ITC	Eliminate regional process role	Regional processes are necessary to ensure projects are beneficial to each region and no party is saddled with costs for projects that do not produce sufficient benefits. Benefit determinations, especially for IMEP or public policy projects, based on future system conditions are inherently uncertain and based on assumptions. Regional differences regarding benefit determinations must be taken into account.	
ITC	Joint evaluation of benefits to both regions should be a rebuttable presumption of regional benefits		
Exelon	Regional approval will always be required		
NIPSCO	Eliminate regional process role		

Submitting Entity	Stakeholder Comment	RTO Response	Timeline
ITC	Simplify Interregional approvals	After cost and voltage thresholds and retention of the regional approvals, then simplification of interregional approvals may be desirable.	2016 for B/C change 2016/17 for more complex changes
ITC	B/C screen at 1.0		
ITC	Don't count negative benefits to split costs between RTO's		
Exelon	Interregional study for cost allocation only may work		
Exelon	Eliminate B/C. could substitute commensurate benefit/cost comparison screen		
Exelon	Agree that multi-year cycle works for interregional planning	the RTO's are proposing a two-year interregional cycle overlaid with PJM's two year and MISO's 18 month regional cycles.	



Submitting Entity	Stakeholder Comment	RTO Response	Timeline
ITC	Multiple Benefits Consideration	Current interregional planning considers interregional projects that address reliability or economic or public policy issues on both sides of the interface. This enables the appropriate study method to be applied to consider the comparable benefits of an interregional solution to each RTO. Consideration of different benefits on either side of the interface or multiple benefits on either or both sides of the interface may or may not be achievable and would require a long development process. One idea that could make such a proposal potentially feasible would be to go to an avoided cost benefit determination for all project types.	Using avoided cost - 2016/17 more complex methods 2016/17+
ITC	Method to simultaneously consider multiple benefits on each side of the interface		
ITC	Method to consider different silo benefits on each side of the interface		
NIPSCO	Use a single interregional benefit that includes all benefits		

Submitting Entity	Stakeholder Comment	RTO Response	Timeline
ITC	Benefits evaluation horizon 20-25 years	10 years maximum. Beyond this time frame benefits are too speculative and regional assumptions become more divergent. Analysis beyond this time may be appropriate for requested public policy informational type reviews.	
ITC	use minimum 20 capped at 25		
ITC	70/30 APC/NLP	RTO's are open to a redesign of the IMEP benefit calculation	2016/17
ITC	Split ok		
ITC	Don't include negative benefits		

Submitting Entity	Stakeholder Comment	RTO Response	Timeline
ITC	NLP needs review for correctness	RTO's are open to a redesign of the IMEP benefit calculation	2016/17
Exelon	Add metric to ensure proposals address a binding constraint	An additional metric is needed to determine project proposal impacts on targeted congestion. This will be an important factor in project selection	2015
Exelon	Clarify evaluation of PJM/MISO benefit of binding constraint relief		

Submitting Entity	Stakeholder Comment	RTO Response	Timeline
Exelon	Benefits interpolations between analysis years ok unless significant topology changes	RTO's are open to a redesign of the IMEP benefit calculation	2016/17
Exelon	Benefits extrapolation beyond analysis year is less valuable		
Exelon	Clarify Benefits calculation if interpolation and extrapolation are not performed		

Submitting Entity	Stakeholder Comment	RTO Response	Timeline
NIPSCO	Stick with current metrics but refine them for hedging assumptions, M2M etc. not opposed to considering new metrics.	Current interregional metrics with planned changes could be used and RTO's are open to discussing modifications as well. regarding APC and congestion, production cost metrics are not intended as a direct quantification of congestion impacts, which are captured indirectly through LMP metrics like load cost or directly through flowgate congestion measures. Regarding netting of congestion in the NLC, that assumption can be considered in the metric discussions	
NIPSCO	JOA APC doesn't include all congestion cost effects		
NIPSCO	NLC calculation of netting component should be reviewed		

Submitting Entity	Stakeholder Comment	RTO Response	Timeline
Exelon	How will PJM and MISO reconcile regional gen expansions	Each RTO will use regional assumptions.	
Exelon	Develop joint light load power flow	RTO's agree this is appropriate on a case-by-case basis	
ITC	Hurdle rates: evaluate appropriateness	RTO's agree this is appropriate part of benchmarking	

Submitting Entity	Stakeholder Comment	RTO Response	Timeline
ITC	Use multiple weighted futures	Each Interregional MEP approvals are based on the single JOA joint case and metrics. CPP involves public policy questions that must originate in regional processes. Additional scenarios would not provide necessary information. Time permitting, or as a special study, information analysis requested by public policy makers can be useful. TO will use regional assumptions.	
Exelon	Consensus needed for interregional model		
NIPSCO	Need wide array of futures including CPP compliance		

Submitting Entity	Stakeholder Comment	RTO Response	Timeline
ITC	Needed	RTO's agree. Update information can be presented at IPSAC	
Exelon	Provide update on efforts		



Submitting Entity	Stakeholder Comment	RTO Response	Timeline
ITC	Pseudo Tie, RAS (Remedial action Schemes or Special Protection Schemes) impact and upgrade studies	JRPC will discuss these issues	



Submitting Entity	Stakeholder Comment	RTO Response	Timeline
ITC	How will PJM solicit its portion of a project	Issues will be identified on quick hit evaluations in 2016 as well as regional models developed in 2016. These issues will be presented at regional MTEP and RTEP forums as well as at IPSAC for input.	Quick Hit and Reliability – 2016
ITC	More explanation of timeline, approvals, competitive solicitations	Potential Interregional Projects can be entered in Regional processes about the September 2016 through February 2017 timeframe. Beginning in 2016 and continuing into 2017 Interregional models will be formed, vetted with stakeholders and used as needed to evaluate interregional project candidates. Any potentially promising projects will be reviewed in Regional processes in the second half of 2017 for potential presentation to the respective Boards after regional reviews are complete.	Market Efficiency and Public Policy - 2017
NIPSCO	More explanation of timeline, approvals, competitive solicitations. Explain how process will not delay projects.	Interregional project proposals must be entered in a PJM solicitation window, preferably the November - February window between years 1 and 2 of the 24 month planning cycle. They will compete with all regional project proposals and they will use only costs allocated to PJM and construction responsibility for portions located and/or connected in PJM.	
NIPSCO	List of issues should not be overly restrictive		

Submitting Entity	Stakeholder Comment	RTO Response	Timeline
NIPSCO	Explain interregional coordination of interconnection and retirement studies	Interregional reviews of generator interconnections are governed by the process implemented under JOA including sections 9.3.3 and 9.3.4. Retirements issues are coordinated under the JOA including sections 9.3.1 and 9.3.5.1	
NIPSCO	EL13-88	Please refer to the material in that proceeding	

# Metric Analysis

- How do multi-party transactions (both between PJM & MISO, and with other pools) impact the benefit metric?
- How do APC and NLP work together? Is 70/30 a reasonable split?
- How does the process for interpolating between and extrapolating beyond the three modeled years impact the benefit calculations?

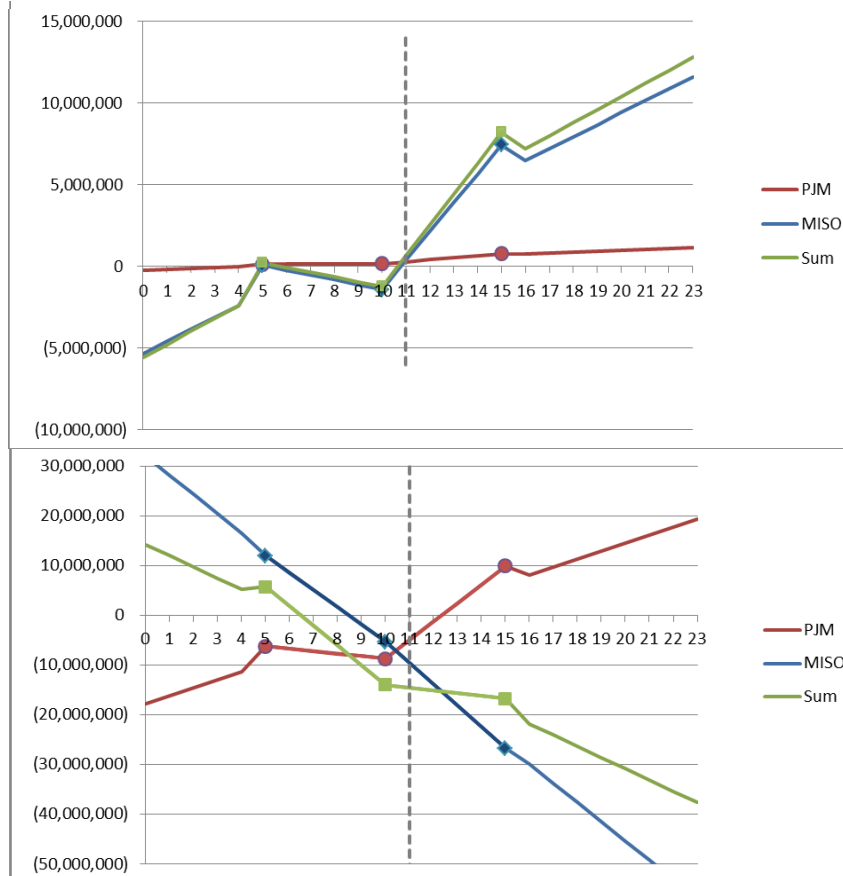
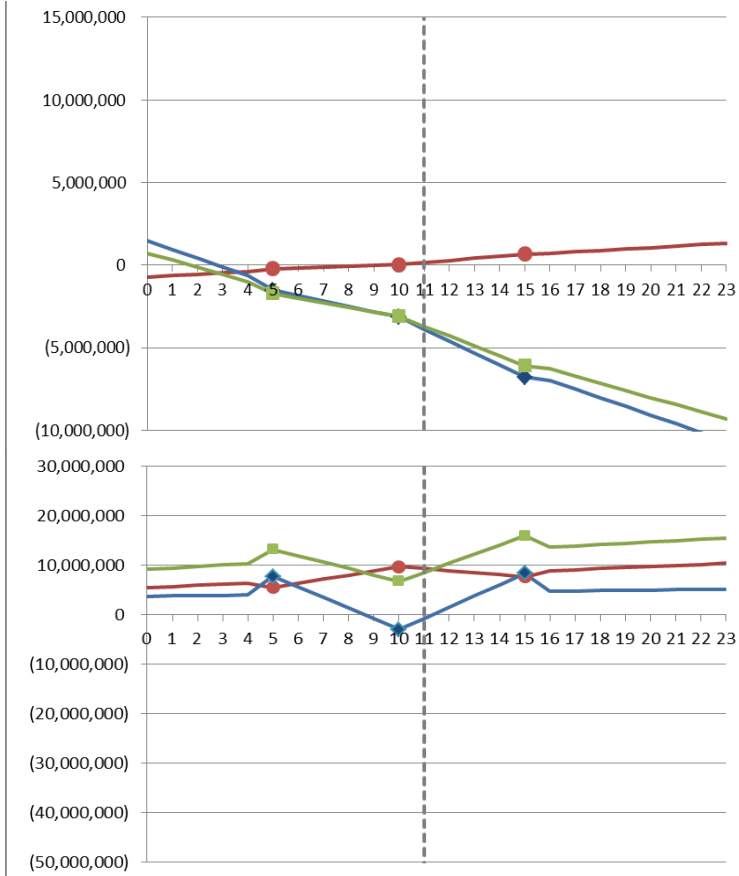
- Ran the JOA IMEP benefit metric for a few hypothetical upgrades using the old JOA planning study models from 2013/14 timeframe
- Reported APC and NLP components separately by pool
- Re-Ran analysis without multi-parties
  - Replaced PJM-MISO multi-party with a bi-lateral transaction based on hourly profile of multi-party
  - Replaced other significant multi-party transactions with load modifier transactions

Run with Multi-parties

No Multi-parties

A  
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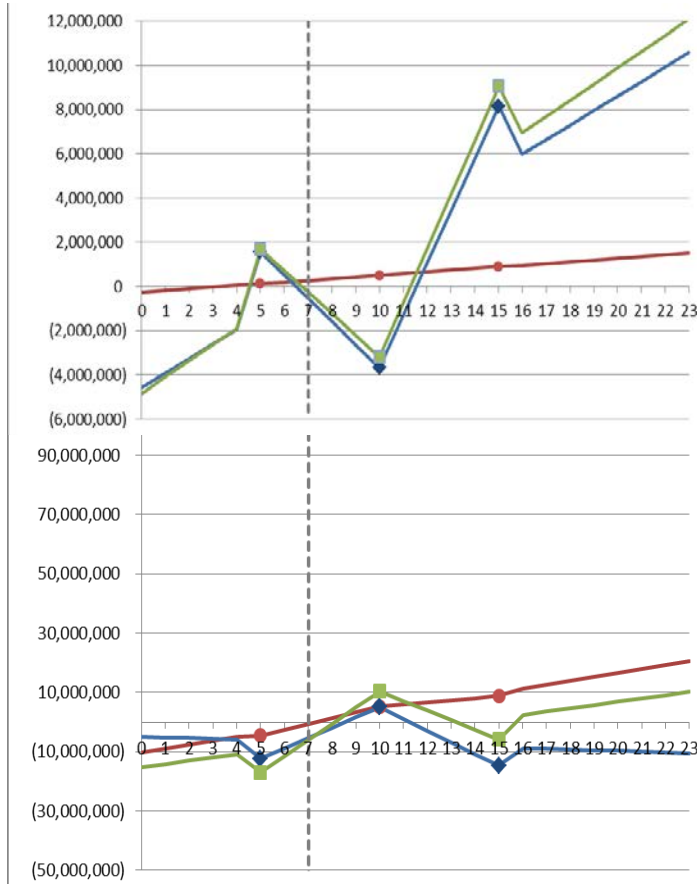
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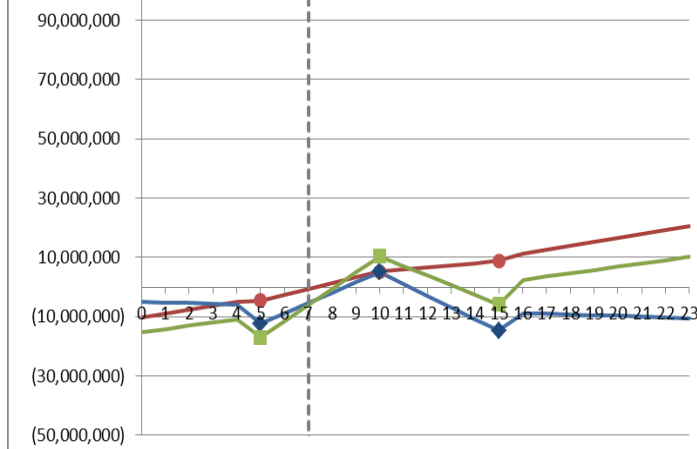
- APC:
  - PJM small, similar benefit with or without MP
  - MISO only had big change in year 15
  - Transaction differences in 1 of 6 runs produces significant different trend
- NLC:
  - For PJM and MISO transactions produce large difference
- Benefits are only calculated from ISD: may be driven almost entirely from the extrapolation of single run result
- APC and NLP can be contradictory

Original Run

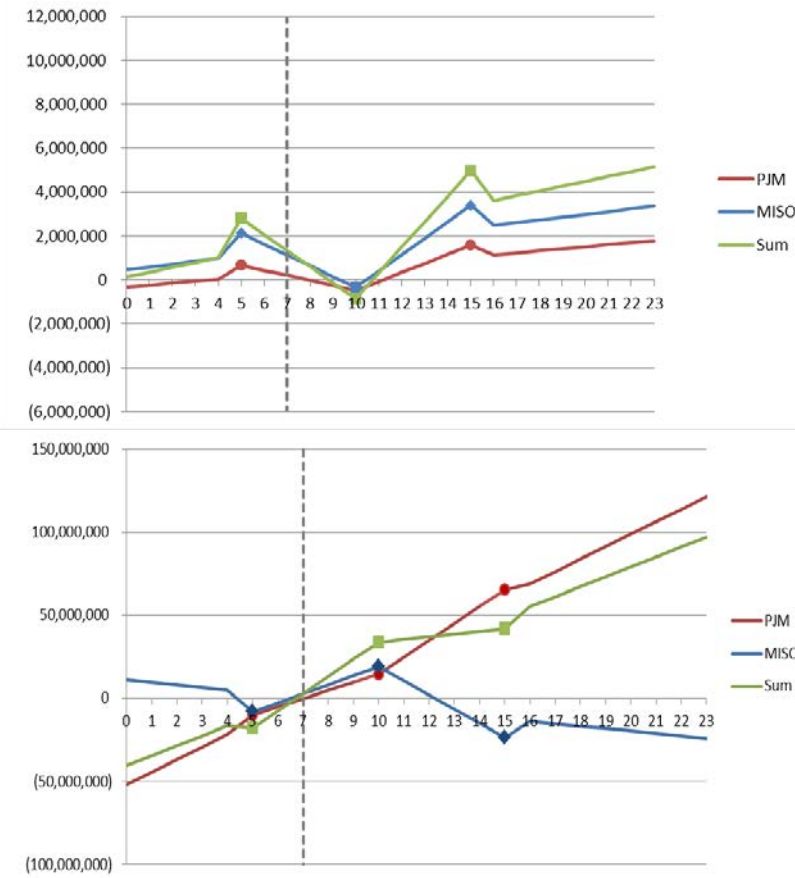
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No Multi-Parties



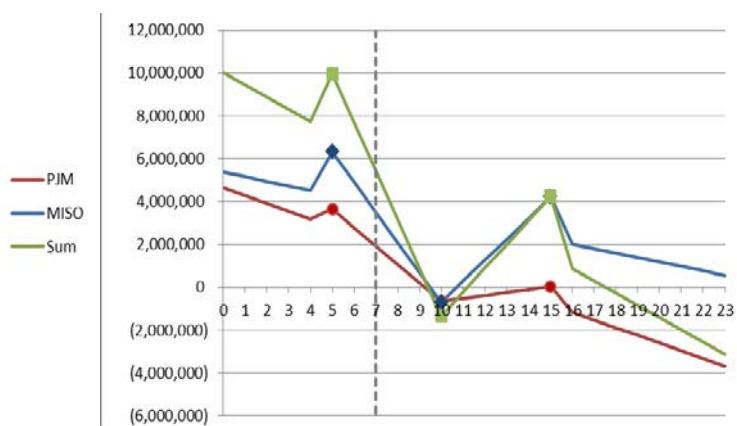
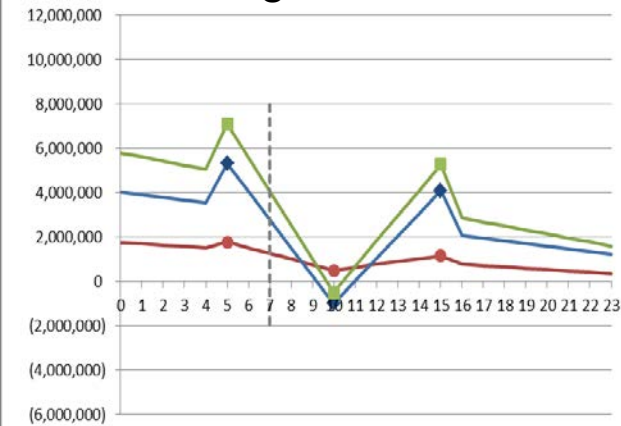
- APC:
- PJM small, similar benefit with or without MP
- MISO MP drives negative year 10 and positive year 15
- NLP similar result with and without MP but magnitudes lower with MP. Also magnitude of NLC benefits much greater than APC benefits
- Inconsistent trend in APC and NLP from year to year
- APC and NLP can be contradictory



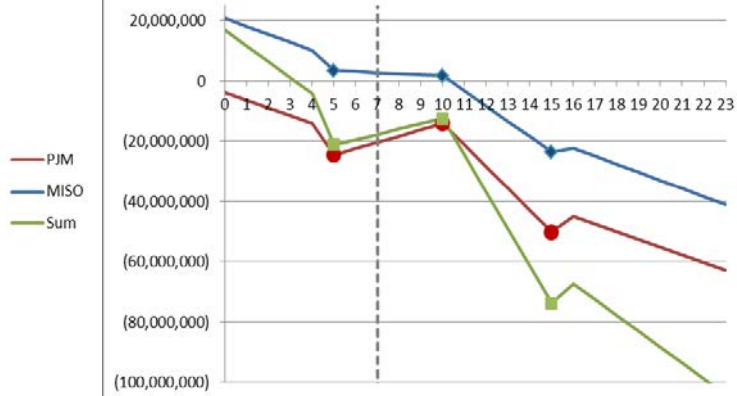
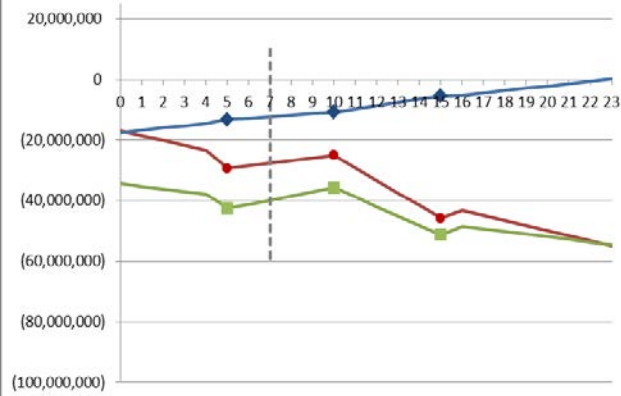
Original Run

No Multi-Parties

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- APC similar result with and without MP for PJM and MISO
- NLP similar for PJM with and without MISO different trend
- Inconsistent trend in APC and NLP from year to year
- NLP magnitudes much larger than APC

- Different results in all regions with and without multi-parties. It may or may not drive a benefit and is affected by:
  - Different market solution domino effect (who's "benefiting"?)
  - changes in transactions far from seam and targeted congestion
  - Resource assumptions
  - Methods to adjust production cost
- The direct desired benefit of transmission is congestion relief on targeted lines, which is not directly measured by the metrics.

- Current metric does not target desired PJM-MISO benefits on the seam
- Elimination of MP eliminates the need for the production cost adjustment
- Saw tooth effect can create trending issues
- Does it make sense to combine APC and NLP when they produce contradictory benefit results?
- Any metric involving LMP is likely to produce negative “benefits” in some areas
- The magnitude of NLC benefits are typically significantly larger than APC benefits
- NLC usually drives split metric result, even at 30% weighting
  - Difference in outcome between 70/30 and 50/50 will likely be minimal in many cases

- Benefits are calculated from project in service date, and can thus be driven by a single, distant year result and trend effectively ignoring the first 14 years of results
- Extrapolation requires high confidence in out year results – if 5 and 10 year models show little benefit, but 15 year model shows significant benefit, current trending method will show to be very beneficial
- Extrapolation often results in negative benefits for near in years; likely unrealistic

# Open Discussion

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