



Short-Term De Minimis Update

May 29, 2020

Short-Term De Minimis Update

- BPA will review the *de minimis* policy objective, decision criteria, policy analysis, industry scan and share our initial leaning on a short-term *de minimis* policy.
- BPA encourages customers to ask questions during the presentation and to submit written feedback on their preferred short-term *de minimis* policy alternative following the Webex.
- BPA will share next steps to update *de minimis* related documentation to reflect how transmission service requests are evaluated.

Long-Term De Minimis Update

- Long-Term analysis is moving forward but has been delayed due to the social distancing impacts of COVID-19.
- The scope of long-term *de minimis* policy
 - *Includes de minimis* related documentation that will align with the final *de minimis* policy decision and implementation (eg. systems and tools).
- BPA will send notice to customers announcing any future meetings and/or postings of materials out-for-comment.

What is *De Minimis*?

- Definition: Too trivial or minor to merit consideration
- Policy used to grant service in the absence of ATC, as long as the impact is insignificant
- Service deemed *de minimis* is treated as zero in the ATC calculations
- Only used for flowgate evaluation, not inerties

De Minimis Policy

Step 2: Define the issue or opportunity

Step 3: Analysis of Issue

Step 4: Possible Alternatives

Step 5: Customer Feedback

Step 6: Options

Next Steps

Step 2: Issue or Opportunity

Issue or Opportunity

- Hourly firm transmission was limited effective July 2019.
- During the transition to implementation, transmission customers became aware of and raised concern that BPA is not consistently applying the *de minimis* policy as posted.
- BPA needs to clarify its posted documents and provide a response to customer concerns.

De Minimis Objective

The objective is to ensure the *de minimis* policy aligns with agency strategy goal #4 to meet transmission customer needs more efficiently and responsively.

Agency Strategy

BPA's 2018–2023 STRATEGIC GOALS
DELIVERING ON OUR PUBLIC RESPONSIBILITIES THROUGH A COMMERCIALY SUCCESSFUL BUSINESS

- #1 STRENGTHEN FINANCIAL HEALTH** Improve cost-management discipline, build financial resiliency and maintain strong credit ratings.
- #2 MODERNIZE ASSETS & SYSTEM OPERATIONS** Administer an industry-leading asset management program; modernize federal power and transmission system operations to leverage market and technology developments.
- #3 PROVIDE COMPETITIVE POWER PRODUCTS & SERVICES** Increase revenues; align the region around a durable and financially sustainable fish and wildlife plan; align energy efficiency investments with long-term needs; achieve a modernized Columbia River Treaty.
- #4 MEET TRANSMISSION CUSTOMER NEEDS EFFICIENTLY & RESPONSIVELY** Make more flexible, scalable, economical and operationally efficient transmission investments; support efficient regional resource development; streamline processes; standardize products and services.

Transmission Business Model

WE ENERGIZE THE PACIFIC NORTHWEST

Transmission Value Proposition

- Operating a High Performing Grid
- Enabling Economic Growth in the Region
- Providing Access to Federal and Non-Federal Resources And Markets

Through Excellence

- Product Portfolio** Providing standardized options
Value-based price profiles
Drawing from integrated regional planning
- Infrastructure** Advanced situational awareness
Right-sized investments in assets
Value and risk-based asset management
- Long-Term Viability** Integrated and efficient processes
Data-driven decision making
Innovation and continuous improvement

A Dependable and Responsive Business Partner

The Transmission Business Model is supported by the Agency Strategy to position BPA to be a dependable and responsive business partner

De Minimis Policy Goals

To achieve our overall objective, BPA is striving to reach these primary policy goals:

- Address transmission service requests through business practices and documentation that are clear and streamlined to accurately reflect policy, processes and systems.
- Offer more standardized products that are aligned with BPA's OATT and is reflective of *pro forma* and/or industry best practices.
- Ensure that our proposed policy respects available transmission capacity, limits curtailment risk exposure, and preserves transmission system reliability.

Step 3: Analysis of the Issue

Current Implementation of *De Minimis* Criteria

Criteria used to evaluate long-term TSRs:

- It uses a “net impact” criteria for both Test 1 and Test 2.
- Test 2 criteria allows the Redirect to exceed the parent impact with no ATC.

Definitions	A = 0 MW or positive Flowgate MW impact of new request B = 0 MW or positive Flowgate MW impact of original reservation, if any. (A - B) = Net Flowgate MW impact PUF _A = Flowgate PUF associated with POR/POD of new request		
Test 1	(A - B) ≤ 10 MW AND PUF _A ≤ 0.1000	Test 2	(A - B) ≤ 10 MW AND (B ÷ A) ≥ 0.8000, for non-zero A values

Criteria used to evaluate short-term TSRs:

- Uses “total impact” rather than “net impact” for PTP and NT requests alike.
- No Test 2. ATC is needed if the Redirect has more impact than the parent.

Definitions	A = 0 MW or positive Flowgate MW impact of new Original or Redirect request PUF _A = (POR _{PTDF} - POD _{PTDF}) of TSR A		
Test 1	A ≤ 10 MW AND PUF _A ≤ 0.100	Test 2	No Test 2 used in the short-term

Short-Term Netting of Existing Rights

- Flexibility in using existing LTF rights is important to PTP customers.
- The current approach gives full credit for existing parent rights by using “netting” when evaluating short-term Redirects.
 - This means that a Redirect will be granted when ATC is zero as long as the customer holds parent rights that meet or exceed the ATC needs of the Redirect.
- The current approach does not guarantee that a customer can exceed their existing rights when redirecting into the short-term market.
 - If a short-term Redirect has a greater impact than the parent (however small), then ATC is needed.

Request	POR	POD	PTDF	Redirect Impact	Parent Impact	Net Impact	Result	Comment
Redirect	BC.US.Border	JohnDay	0.2276	22.76	23.95	-1.19	Pass	Redirect needs 1MW <u>less</u> than the parent already holds.
Redirect	BC.US.Border	BigEddy	0.2395	23.95	22.76	1.19	Fail	Redirect needs 1MW <u>more</u> than the parent already holds. With no Test 2 criteria, new ATC is needed.

- In the long-term, the impact of a Redirect can exceed that of the parent and still be granted in the absence of ATC. This is what Test 2 accomplishes.
- Test 2 would not benefit NT customers if adopted today.

Treatment of Short-term Original and Redirects

Original and Redirect requests are treated identically under Test 1.

Request	POR	POD	PTDF	Total Impact	Parent Impact	Net Impact	Result	Comment
Original	BPAPower	Franklin	0.0714	7.14	N/A	N/A	Pass	Original is <i>de minimis</i> , so it is accepted.
Redirect	BC.US.Border	BigEddy	0.2395	23.95	22.76	1.19	Fail	Same example. The Redirect is not <i>de minimis</i> and needs more capacity than the parent. It fails under current short-term rules.

Summary: The Redirect fails only needing 1MW more than the parent (net impact), whereas the Original is accepted for 7MW. Note these requests have different POR/POD's. The key is the *de minimis* criteria is based on the total impact, so the Redirect is not *de minimis* (24MW) but the Original is (7MW).

Request	POR	POD	PTDF	Total Impact	Parent Impact	Net Impact	Result	Comment
Original	BPAPower	Franklin	0.0714	7.14	N/A	N/A	Pass	Original is <i>de minimis</i> , so it is accepted.
Redirect	BPAPower	Franklin	0.0714	7.14	0	7.14	Pass	The Redirect is also accepted under the very same <i>de minimis</i> rules as the Original.

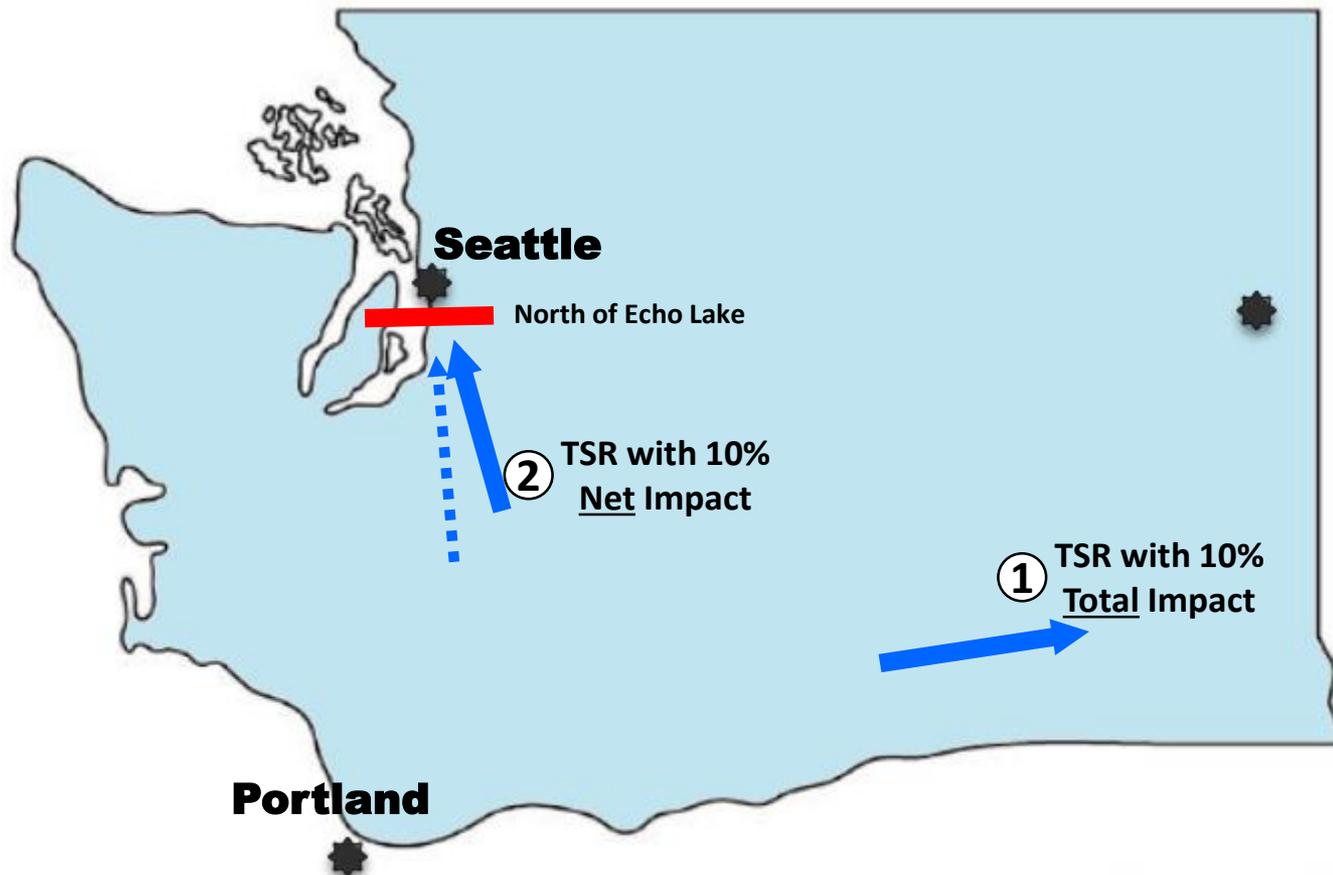
Summary: The *de minimis* rules are applied equally to Original and Redirect requests for the same request for service (same POR/POD). Per Section 22.2 of the OATT, a Redirect is indeed being "treated as a new request for service" by evaluating the total impact on a flowgate as the Test 1 *de minimis* criteria.

There is no situation in which a short-term Original request will be granted for which an equivalent short-term Redirect is denied for the same service (POR/POD).

Net Impact vs Total Impact *De Minimis* Criteria

Compare the transmission service that may be possible under constrained NOEL flowgate:

1. Original and/or Redirects using Test 1 based on 10% Total Impact on NOEL.
2. Redirect using Test 2 based on a Net Impact on NOEL.



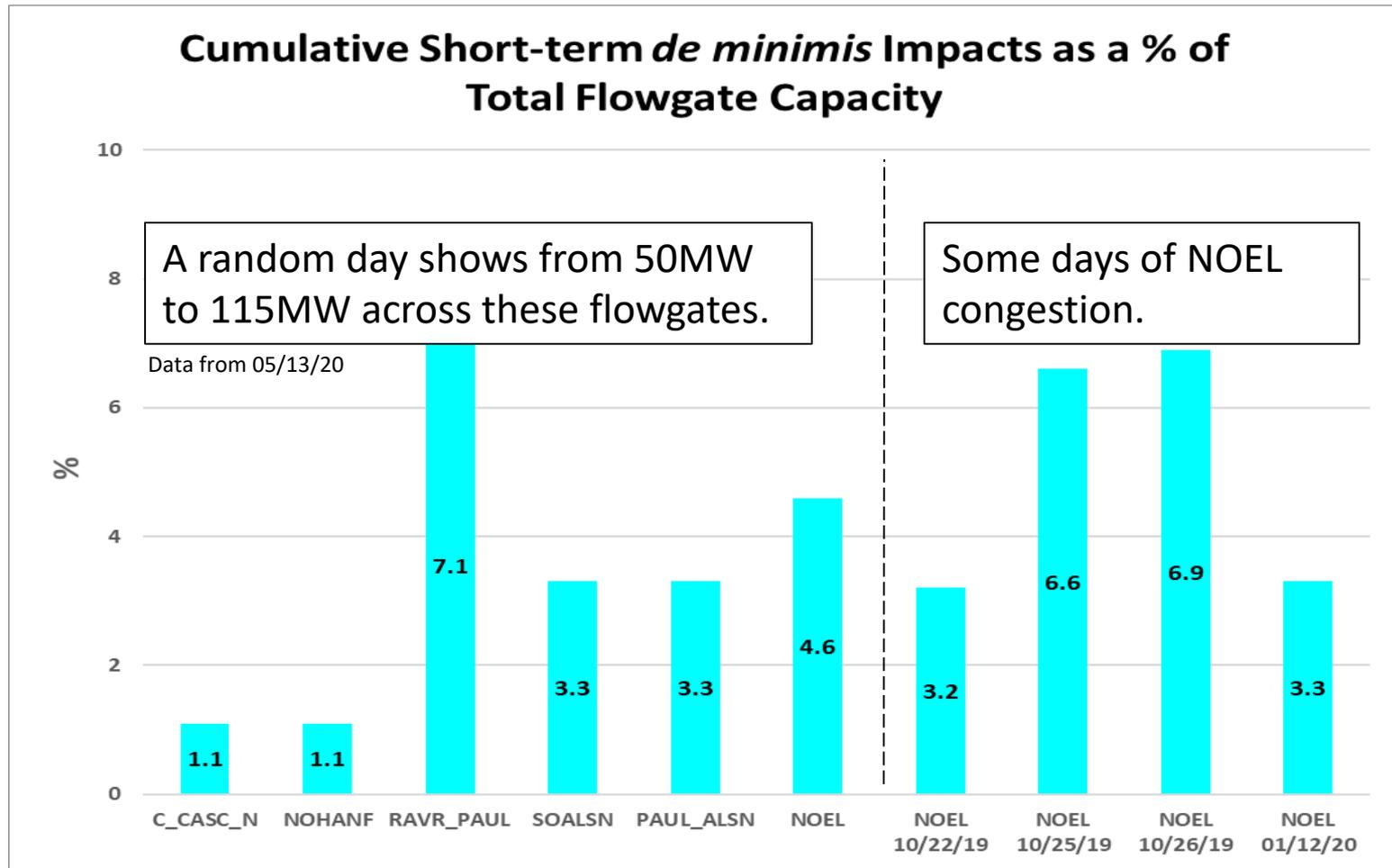
Industry Scan of *De Minimis* Policy

- Currently there are no industry standards or regulations governing how *de minimis policy* is defined or implemented. NAESB is silent in its standards. There are no specific FERC regulations, but FERC has approved tariff filings that include *de minimis*.
- It appears that TPs have discretion on how to apply *de minimis* criteria to the evaluation of TSR's based on the risk profile and reliability needs of their system.
- BPA staff benchmarked other flow-based TPs (MISO, SPP, Duke, Dominion).
- The BPA ST *de minimis* policy is consistent with (and more generous than) our peers.
 - Like BPA, the other TPs evaluate short-term TSRs using a Test 1 *de minimis* criteria based on total flowgate impact for NT, PTP, original, and redirects alike.
 - However, the thresholds set by other flow-based TPs are much more strict, ranging from 3% - 5% which has been approved by FERC.
 - The BPA threshold is 10% for Test 1 *de minimis* criteria.
 - Like BPA, none of these TPs use a Test 2 *de minimis* criteria. This means that short-term redirects will be given credit up to (but not exceeding) their existing parent rights.

Volume of LT and ST Redirect Requests

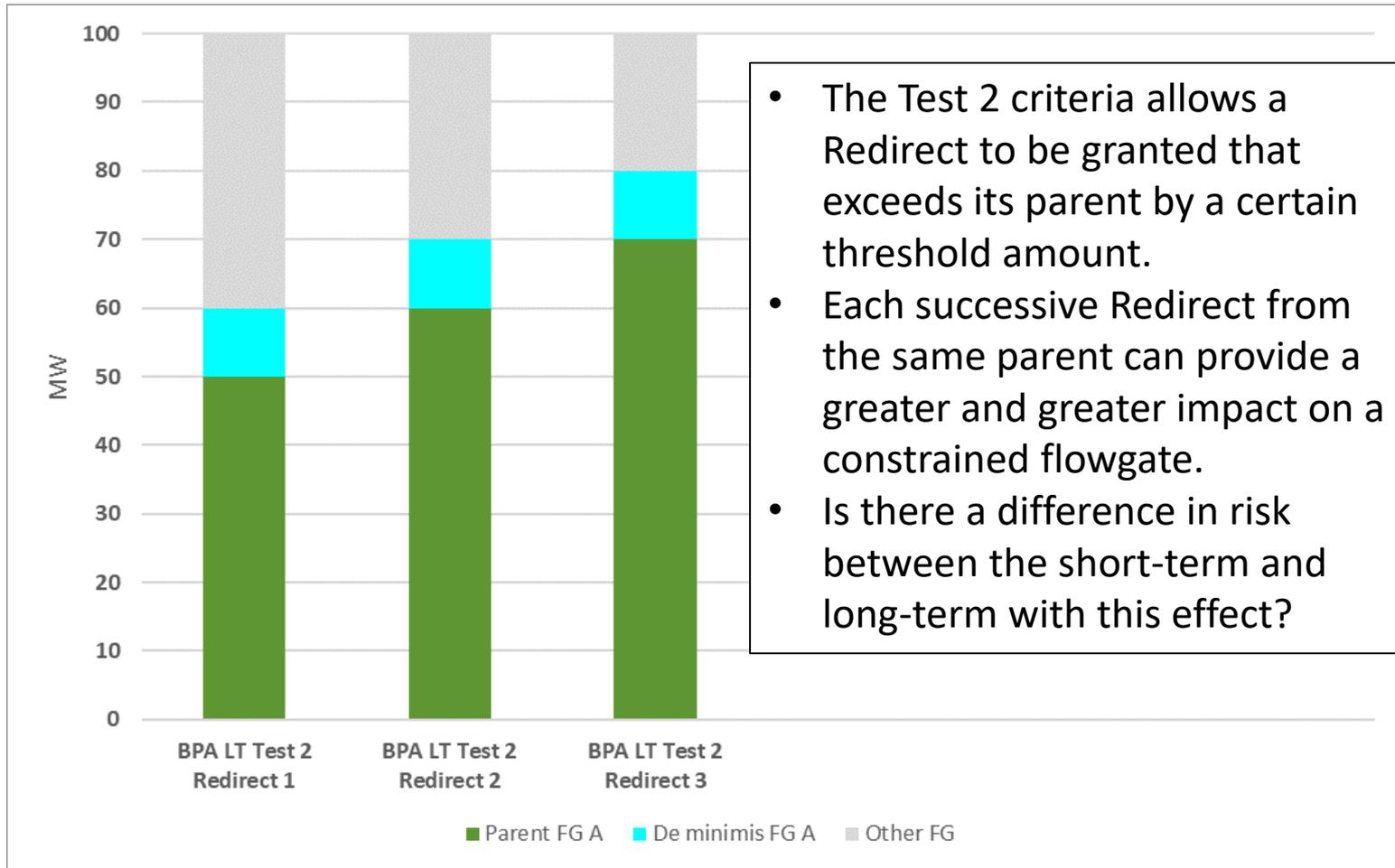
- Risk associated with *de minimis* is correlated to the volume of redirect requests that is vastly different between the short-term and long-term markets, respectively.
- No firm curtailments since full implementation of limited HF in January 2020.
- Time Period Covered - February 2019 through April 2020
 - These are all redirect requests for both time horizons
 - No filters applied to the data
 - » Includes invalid, withdrawn and annulled requests
 - Long-Term Redirect Requests
 - 260 as of February 2020
 - 306 as of April 2020
 - Short-Term Redirect Requests
 - 364,535 as of February 2020
 - 437,146 as of April 2020
 - » Confirmed Redirects - 402,406
 - » Declined Redirects – 647
 - » OASIS status other than Confirmed or Declined – 34,093

De Minimis Impacts on Constrained Flowgates



At what point does *de minimis* no longer have a *de minimis* impact?

Compounding Effect of Test 2



Does the *de minimis* policy enable an increase in existing rights?

Risk Profile of Long-Term *De Minimis*

Long-Term

- The *de minimis* tests are low risk
- Customers are subject to technical analysis and planning subgrid check
 - Not passing would mean that the customer is likely to enter a Cluster Study and be identified for a plan of service
 - Many customers coming in the queue are new developers that generally end up entering the Cluster Study for further analysis
- Each year, many of the TSRs calculated by PTFD (which utilized *de minimis*) are moved to the powerflow calculation, which does not utilize a *de minimis* structure
- Current long term *de minimis* count in MW. Most of these numbers will be reduced as we post the next ATC case.

Flowgate	Test 1	Test 2
SOA	2	5
CCN	2	5
WOLM	50	0
CCS	13	0
NOH	6	0
NOJD	6	2
PA	2	5
RP	2	6
WOM	16	4
WOS	4	5
WOJD	12	3
SOC	15	2
WOFH	55	0
NOEL	10	0

Risk Profile of Short-Term *De Minimis*

Short-Term

- Much higher amount of *de minimis* impacts
- More uncertainty in ATC because those impacts are not included
- Short-Term market is all automated and there are no limits to *de minimis* impacts
- BPA is not willing to risk additional firm flows on already constrained flowgates

Flowgate	Test 1	Test 2
SOA	105	-
CCN	129	-
WOLM	130	-
CCS	94	-
NOH	34	-
NOJD	50	-
PA	115	-
RP	117	-
WOM	80	-
WOS	69	-
WOJD	122	-
SOC	116	-
WOFH	121	-
NOEL	137	-

Data from 05/21/20

Step 4: Alternatives

Summary of Short-Term Alternatives

Alternative	<i>De Minimis</i> Test 2
Alt. 1 Status Quo	No. Do NOT apply Test 2 to short-term Redirects.
Alt. 2 Align ST with LT policy	Yes. Apply long-term Test 2 to short-term Redirects. Long-term Test 2 is the ratio between the parent PTDF and the Redirect PTDF. The threshold is >80%
Alt. 3 Same as Alt 2, but establish a different threshold for ST Redirects	Yes. Establish new threshold to apply Test 2 to short-term Redirects. For example, apply 90% instead of 80% threshold to short-term Redirects.
Alt. 4 Establish new Test 1 threshold and a new Test 2 for ST Redirects based on net PTDF difference	Yes, but different from current long-term Test 2 for Redirects. For example, compare net PTDF difference (Redirect PTDF – parent PTDF) against a newly established percentage threshold (e.g., 3%, reset to 0% if TLR Avoidance). Test 1 would still be applicable during TLR Avoidance.
Alt. 5 Another way to manage the amount of TSRs granted as <i>de minimis</i> impact	Maybe. This is complementary to all alternatives, including status quo. For example, we would grant TSRs up to a ceiling amount, without reducing ATC, until the cumulative amount of impact of <i>de minimis</i> TSRs adds up to some predefined threshold (e.g., 50 MW).

Staff has evolved the policy alternatives to reflect new analysis and to align, to the extent possible, with other TPs with flow-based transmission systems.

Step 5: Customer Feedback

Customer <i>De Minimis</i> Comment Themes	BPA Response
Lack of clarity and inconsistent documentation is exacerbating the recent changes in BPA policies and practices	BPA agrees as noted in written response to customer comments
Concern that present implementation is inconsistent with BPA's tariff	BPA addressed this concern in written response and this slide deck.
Add to criteria that the net impact by flowgate from short-term original requests should be the same as the net impact by flowgate for short-term firm redirects	BPA does not believe this is a requirement but will be assessed in Decision Criteria #6.
Desire for quicker response in resolving this issue	BPA is seeking customer input on two viable short-term policy alternatives.

Step 6: Options

Short-Term *De Minimis* Decision Criteria

1. Alignment with BPA's statutory and legal obligations, authorities or responsibilities.
2. The reliable and efficient operation of the Federal system.
3. Prevents significant harm or provides significant benefit to BPA's mission or the region.
4. The FERC *pro forma* tariff is lagging behind industry best practice, including instances of BPA setting the industry best practice.
5. Cost of implementation and maintenance.
6. Customer Satisfaction

Option 1 of 2

- **BPA Alternative 1 – Status Quo**

- *De minimis* in the short-term should be to grant requests that have an inconsequential impact on a constrained flowgate, while giving full credit for rights held on long-term firm parent paths. Status quo already meets this.
- The current policy is consistent with our Tariff by treating Redirect requests exactly the same as Original requests under Test 1.
- Consistent with other flow-based providers. No industry precedent for Test 2.
 - BPA threshold is 10%, while other providers have a threshold of 3-5%.
- Any other alternative would require customization of the industry software used to calculate ATC. A separate future customization would be needed for NITS.
- Adopting Test 2 in the short-term would increase the cumulative *de minimis* impacts by an uncertain amount, possibly increasing flowgate congestion.
- Avoids the compounding problem associated with Test 2.
- If BPA were willing to take on increased short-term risk to ATC, that is best accomplished via short-term ATC improvements that benefit all customers.

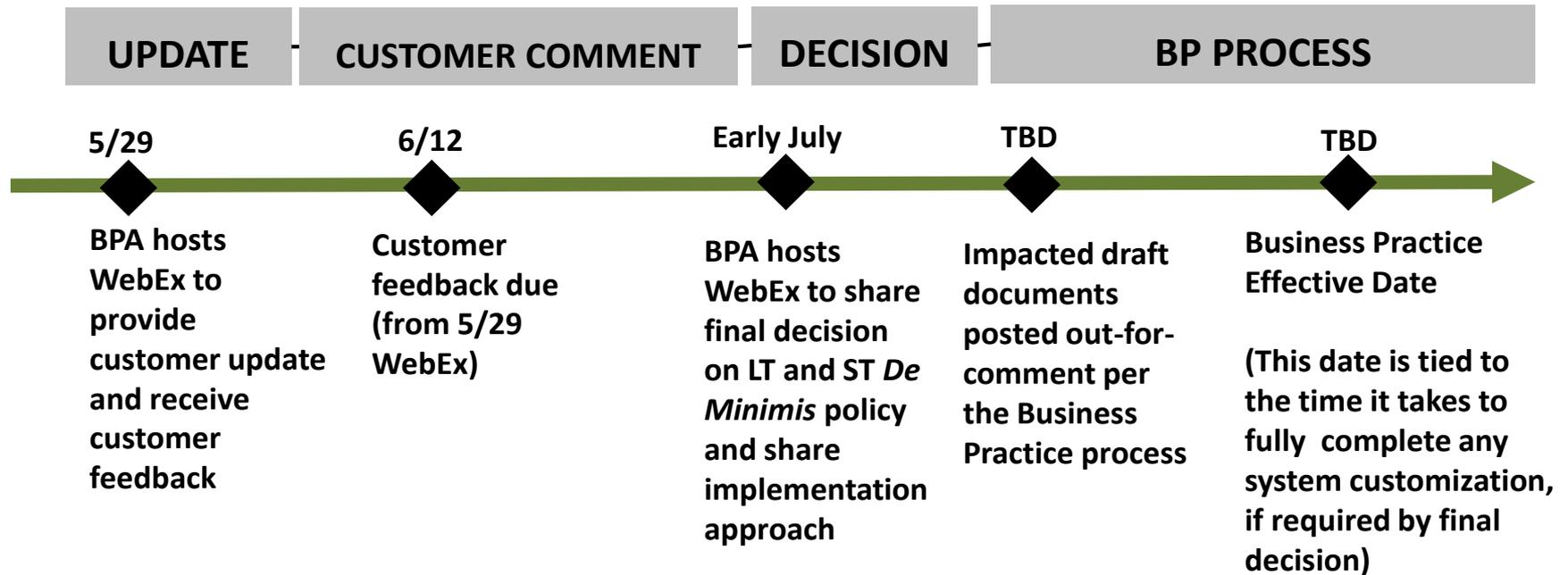
BPA is seeking customer feedback on the impact of the two options

Option 2 of 2

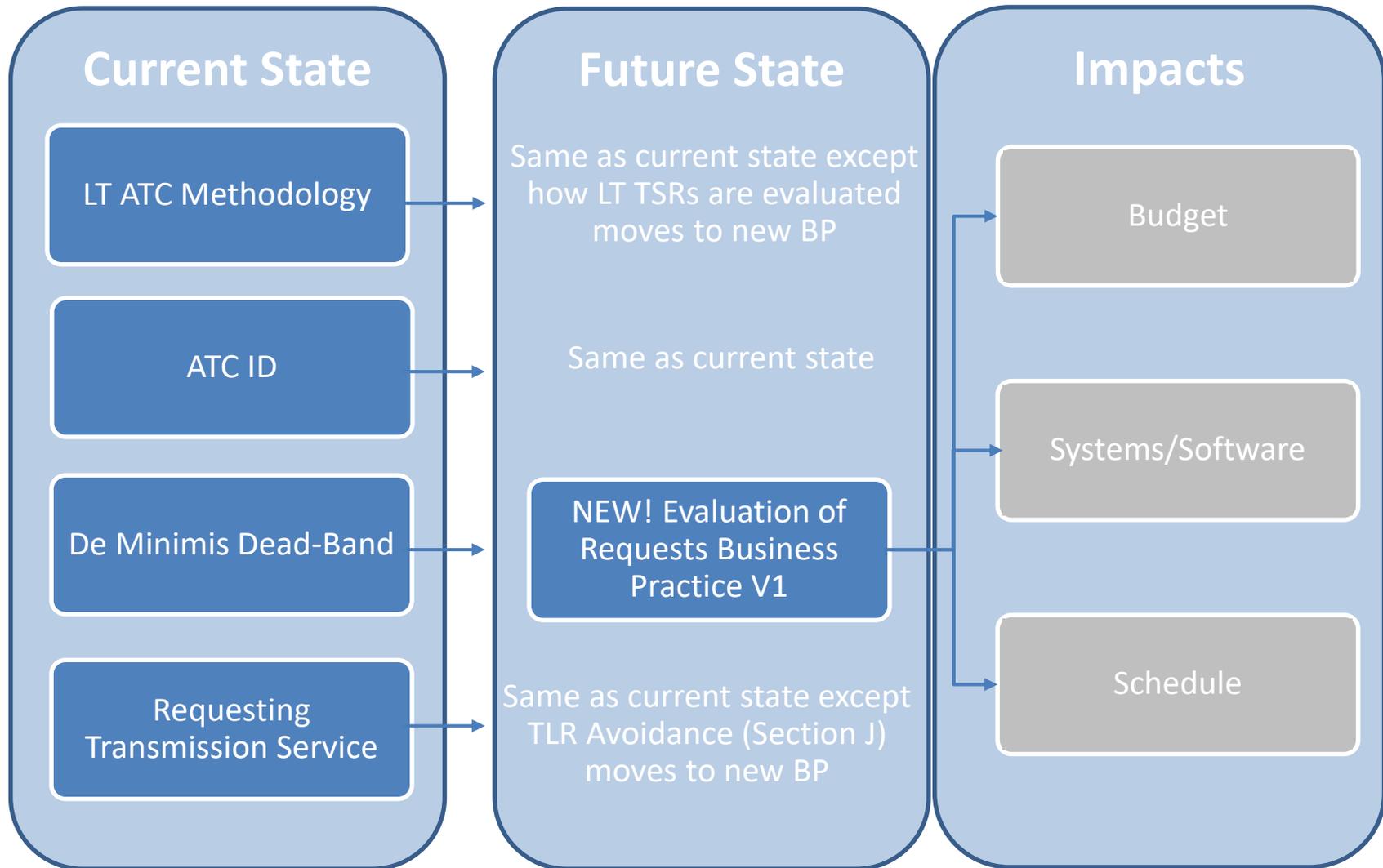
- **BPA Alternative 4: Add a Test 2 with a 3% threshold:**
 - PTP customers will benefit from greater redirect flexibility. Redirects may be granted in the absence of ATC, even if the parent does not hold sufficient rights.
 - The 3% threshold for Test 2 adopted from industry threshold for Test 1.
 - Lower threshold helps mitigate risk of congestion from accumulating impacts.
 - Alternative 4 approach uses a fixed criteria regardless of MW requested.
- **Decrease current Test 1 threshold from 10% to 5%:**
 - This change impacts all requests under Test 1 (Original and Redirects).
 - Trade-off necessary due to the risk of adding a Test 2 criteria.
 - Brings BPA into alignment with industry practice for a Test 1 threshold.
- **Test 2 would not apply during firm or non-firm TLR Avoidance:**
 - For the flowgate(s) impacted by a TLR Avoidance event, Test 2 uses a 0% threshold to prevent increased impacts during actual congested flows.
 - Test 1 does still apply at 5% during TLR Avoidance for both Original and Redirects.
 - Redirects still benefit from netting up to (but not exceeding) existing parent rights.

BPA is seeking customer feedback on the impact of the two options

Proposed *De Minimis* Future Customer Communication



Documentation Realignment



New Proposed Business Practice

Evaluation of Transmission Service Requests Business Practice V1

To provide one document for how TSR are processed and evaluated, BPA is proposing to replace the *De Minimis* Dead-Band document with a new Business Practice covering LT and ST, respectively

Evaluation of Long-Term TSRs

- Impacts of LT Requests & NT Forecasts
- LT *De Minimis* Impacts

Evaluation of Short-Term TSRs

- Impacts of ST Requests
- ST *De Minimis* Impacts

Next Steps

- BPA will continue its current implementation of the *de minimis* policy as an interim step during the customer engagement process.
- The plan is to release out-for-comment redline documents that describe how BPA evaluates TSRs in the short-term and long-term, respectively. A Tech Forum notice will be sent out with more details.
- Long-Term *de minimis* analysis and recommendation notice will go out to customers once completed.
- BPA wants to understand customer trade-offs between the two identified options:
 - Option 1: Keep Test 1 at the existing 10% with no Test 2.
 - Option 4: Lower the Test 1 threshold from 10% to the industry standard of 5% and add a new Test 2 at 3%, except during TLR Avoidance.
 - **Customers are encouraged to submit feedback to techforum@bpa.gov no later than 5:00PM on June 12, 2020.**
- Please feel free to contact your AE directly with questions or send an email to techforum@bpa.gov with “*de minimis* policy” in the subject line.

Appendix

Alternative 1

- Current Implementation
- No redirect Test 2

Test 1

A: $MW\ Impact \leq 10MW$
 AND
 B: $(POR_{PTDF} - POD_{PTDF}) \leq 10\%_{PUF}$

Example using 10MW TSR

Request Type	New Request			Parent			Net Impact (Redirect MW - Parent MW)	Test 1		Result	Comment
	POR/POD	PUF	MW	POR/POD	PUF	MW		Criteria A (<= 10MW)	Criteria B (<= 10%)		
Original	BC.US.Border to BigEddy	0.2395	2.395	NA	NA	NA	NA	Pass 2.395 < 10MW	Fail .2395 > 10%	Fail	Not considered de minimis as it fails criteria B of Test 1.

Summary: An original or redirect request must pass both criteria A and B to be considered de minimis under Test 1.

Examples using 100MW TSRs

Request Type	New Request			Parent			Net Impact (Redirect MW - Parent MW)	Test 1		Result	Comment
	POR/POD	PUF	MW	POR/POD	PUF	MW		Criteria A (<= 10MW)	Criteria B (<= 10%)		
Original	BPAPower to Franklin	0.0714	7.14	NA	NA	NA	NA	Pass 7.14 <= 10MW	Pass .0714 <= 10%	Pass	Original is de minimis, so it is accepted.
Redirect	BPAPower to Franklin	0.0714	7.14	BC.US.Border to JohnDay	0.2276	22.76	-15.62MW	Pass 7.14 <= 10MW	Pass .0714 <= 10%	Pass	The redirect is also accepted under the very same de minimis rules as the original.

Summary: The de minimis rules are applied equally to original and redirect requests. Both requests are considered de minimis under Test 1.

Alternative 1 continued

Examples using 100MW TSRs

Request Type	New Request			Parent			Net Impact (Redirect MW - Parent MW)	Test 1		Result	Comment
	POR/POD	PUF	MW	POR/POD	PUF	MW		Criteria A (<= 10MW)	Criteria B (<= 10%)		
Original	BC.US.Border to JohnDay	0.2276	22.76	NA	NA	NA	NA	Fail 22.76 > 10MW	Fail .2276 > 10%	Fail	Original is not de minimis, so rejected.
Redirect	BC.US.Border to JohnDay	0.2276	22.76	BC.US.Border to BigEddy	0.2395	23.95	-1.19MW	Fail 22.76 > 10MW	Fail .2276 > 10%	Pass	Redirect is also not de minimis per Test 1, but it is accepted because the redirect needs less capacity than the parent already holds (ie, Net Impact is negative).

Summary: Both requests fail de minimis Test 1. Where original requests fail, redirects can leverage parent capacity in some cases to get requests granted. Here, the parent rights fully cover the redirect capacity needs.

Request Type	New Request			Parent			Net Impact (Redirect MW - Parent MW)	Test 1		Result	Comment
	POR/POD	PUF	MW	POR/POD	PUF	MW		Criteria A (<= 10MW)	Criteria B (<= 10%)		
Original	BC.US.Border to BigEddy	0.2395	23.95	NA	NA	NA	NA	Fail 23.95 > 10MW	Fail .2395 > 10%	Fail	Original is not de minimis, so rejected.
Redirect	BC.US.Border to BigEddy	0.2395	23.95	BC.US.Border to JohnDay	0.2276	22.76	1.19MW	Fail 23.95 > 10MW	Fail .2395 > 10%	Fail	Redirect is not de minimis per Test 1 and needs more capacity than the parent holds (ie, Net Impact is positive). There is no de minimis Test 2 applied to the Net Impact.

Summary: Here, the parent rights do not fully cover the redirect capacity needs. The redirect needs ATC. If ATC is unavailable, a short-term redirect would fail. A long-term redirect would pass under Test 2.

Alternative 2

- Adopt the same criteria as Test 2 as in the LT

A: Redirect MW Impact – Parent MW Impact \leq 10MW

AND

B: (Parent_{PUF} \div Redirect_{PUF}) \geq **80%_{PUF}**

Examples using 100MW TSRs

- Adopt the same 80% threshold as in the LT
- One goal in this alternative is consistency between ST and LT

Redirect		Parent		Criteria A	Criteria B (Threshold 80%)	Result
MW	PUF	MW	PUF			
20	0.20	15	0.15	20 – 15 = 5MW (does meet \leq 10MW)	0.15 \div 0.20 = 0.75 (does not meet \geq 80%)	Fail
61	0.61	52	0.52	61 – 52 = 9MW (does meet \leq 10MW)	0.52 \div 0.61 = 0.85 (does meet \geq 80%)	Pass

Alternative 3

- Criteria is the same as Alt 2 but with different threshold

A: Redirect MW Impact – Parent MW Impact \leq 10MW

AND

B: $(\text{Parent}_{\text{PUF}} \div \text{Redirect}_{\text{PUF}}) \geq$ **Threshold_{PUF}**

- Threshold may differ between ST and LT (not necessarily 80% ST)
- No specific ST threshold has been considered at this time

Examples using 100MW TSRs with thresholds of 75% and 85% for illustration.

Redirect		Parent		Criteria A	Criteria B (Threshold 85%)	Result
MW	PUF	MW	PUF			
20	0.20	15	0.15	20 – 15 = 5MW (does meet \leq 10MW)	0.15 \div 0.20 = 0.75 (does not meet \geq 85%)	Fail

Redirect		Parent		Criteria A	Criteria B (Threshold 75%)	Result
MW	PUF	MW	PUF			
44	0.44	34	0.34	44 – 34 = 10MW (does meet \leq 10MW)	0.34 \div 0.44 = 0.77 (does meet \geq 75%)	Pass

Alternative 4 (3% Threshold)

- Uses a different criteria B than Alternatives 2 and 3

A: Redirect MW Impact – Parent MW Impact ≤ 10MW

AND

B: (Redirect_{PUF} – Parent_{PUF}) ≤ **0.03 or 3%**

- Uses a delta of PUF impacts between parent and Redirect.
- A 3% threshold is proposed to align with industry practice.
- The threshold will be set to 0% during TLR Avoidance events.

Examples using 100MW TSRs with differential threshold of 3% for illustration.

Redirect		Parent		Criteria A	Criteria B (Threshold 3%)	Result
MW	PUF	MW	PUF			
20	0.20	17	0.17	20 - 17 = 3MW (does meet ≤ 10MW)	0.20 - 0.17 = 0.03 (does meet ≤ 0.03)	Pass
61	0.61	52	0.52	61 - 52 = 9MW (does meet ≤ 10MW)	0.61 - 0.52 = 0.09 (does not meet ≤ 0.03)	Fail

Alternatives 2 and 3 Ratio Test

- The Test 2 *de minimis* criteria is an allowance for how much the impact of a Redirect request can exceed existing parent rights on a constrained flowgate and still have service granted on that flowgate.
- Alternatives 2 and 3 use a ratio of parent to redirect impacts to determine this allowance.
- This approach provides a bigger allowance the larger the existing parent rights are.

Examples using 100MW TSRs with a Test 2 ratio of 80% from Alternative 2.

Examples	1	2	3	4
Parent _{PUF}	.16	.24	.32	.40
Redirect _{PUF}	.20	.30	.40	.50
Ratio (Parent _{PUF} ÷ Redirect _{PUF})	.16 ÷ .20 = 80%	.24 ÷ .30 = 80%	.32 ÷ .40 = 80%	.40 ÷ .50 = 80%
<i>De minimis Impact (Allowance)</i> (Redirect _{PUF} - Parent _{PUF})*Demand	(.20 - .16)*100 = 4MW	(.30 - .24)*100 = 6MW	(.40 - .32)*100 = 8MW	(.50 - .40)*100 = 10MW

- All of the examples have the same Test 2 ratio of 80%. But the parent with 40MW impact is allowed a redirect of 50MW (a 10MW *de minimis* allowance) compared to a parent of 16MW that only has a 4MW allowance (to support a 20MW Redirect).

Compare Alternatives 2,3 and 4

- Whereas the ratio test for Alternatives 2 and 3 provide a *de minimis* allowance that will vary depending on the existing parent rights, Alternative 4 provides a *de minimis* allowance that is fixed. It is the same allowance regardless of the rights held by the parent TSR.

Examples using 100MW TSRs with a ratio of 80% compared to a delta threshold of 5%.

Redirect		Parent		Net MW (Redirect - Parent)	Alternative 2		Alternative 4	
MW	PUF	MW	PUF		Criteria B (Ratio 80%)	Result	Criteria B (Delta 5%)	Result
20	0.20	15	0.15	20 - 15 = 5MW	0.15 ÷ 0.20 = 0.75 (does not meet ≥ 80%)	Fail	0.20 - 0.15 = 0.05 (does meet ≤ 5%)	Pass
61	0.61	52	0.52	61 - 52 = 9MW	0.52 ÷ 0.61 = 0.85 (does meet ≥ 80%)	Pass	0.61 - 0.52 = 0.09 (does not meet ≤ 5%)	Fail

- Note that the ratio test for Alternatives 2 and 3 results in the granting of a Redirect that exceeds the parent by 9MW (row 1), while at the same time refusing another Redirect that exceeds the parent by only 5MW (row 2).
- Alternative 4 results in the opposite results. Both are allowed a fixed 5% *de minimis* impact allowance (ie, 5MW). Row 1 meets this criteria, but row 2 does not.

Alternative 5

- Alternatives 2, 3, and 4 provide a criteria by which a given Redirect request may be granted, permitting a *de minimis* impact on a constrained flowgate. However, there is no limit placed on the number of such *de minimis* allowances granted under these alternatives. Over time, the accumulation of individual *de minimis* impacts may result in a significant impact.
- Alternative 5 may address this situation by setting an upper limit on the cumulative *de minimis* impacts. It is not a standalone alternative, but one that may be used in conjunction with Alternatives 2, 3, or 4.

It would work like this:

1. Select Alternative 2, 3, or 4 for Test 2.
2. Set an MW *de minimis* limit for each network flowgate.
3. Evaluate Original and Redirects according to *de minimis* policy. If Test 1 or Test 2 passes, determine the *de minimis* impact of that TSR.
4. Accumulate these *de minimis* impacts.
5. Stop accepting new *de minimis* impacts once the limit is reached for a given flowgate.

Example using Alternative 2 with 100MW Redirects and a 35MW *de minimis* limit for a given flowgate.

Redirect PUF	Parent PUF	Test 2 Ratio	De minimis Impact	Cumulative DM Impact	Result
.43	.35	0.81	8MW	8MW	Pass
.61	.52	0.85	9MW	17MW	Pass
.32	.27	0.84	5MW	22MW	Pass
.60	.50	0.83	10MW	32MW	Pass
.16	.20	.80	4MW	36MW	Fail

The 5th TSR is refused once the 35MW limit is reached, even though this Redirect does pass the *de minimis* criteria by itself.