



Tacoma Power 2022 IRP Workshop #4

Tuesday, July 19, 2022

PARTICIPANTS

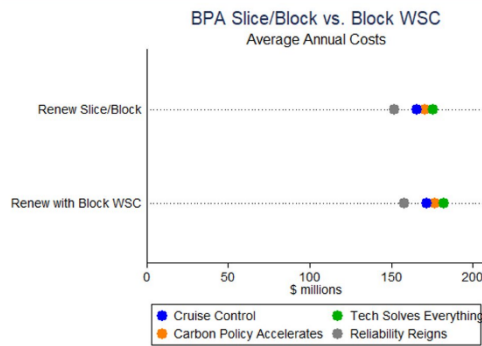
Name	Representing	Name	Representing
Pat Babbit	City of Tacoma	Keil Drescher	TPU
Klarissa Monteros	City of Tacoma	Rachel Clark	TPU – Meeting Lead
Annabel Drayton	NW Energy Coalition	Haley Saul	TPU – Facilitator
Kyla Wilson	PC Sustainable Resources	Ahlmahz Negash	TPU – Project Team
Rebecca Sliger	Tacoma Community College	Danielle Szigeti	TPU – Project Team
Paul Munz	BPA	Michael Catsi	TPU
		Ray Johnson	TPU

NOTES

TIME	ITEM	LEAD
2:30 P.M.	Welcome	Rachel Clark
2:35 P.M.	Objective & Agenda Review To share final resource adequacy results and draft recommendations and actions for the future	Haley Saul
2:40 P.M.	Updated Resource Adequacy Results	Rachel Clark

Renew BPA @ current levels	}	• Slice/Block	KEY Red = Inadequate Yellow = Minor adequacy concerns under certain conditions Green = Always meets adequacy standard
		• Block with Shaping Capacity (BWSC)	
		• Slice/Block + 10MW DR	
• Slice/Block + 10MW 6-hour Battery Storage			
• Slice/Block + 100 MW Wind			
• BWSC + available DR			
• BWSC + 10MW 6-hour Battery Storage			
• BWSC + 100 MW Wind			
Renew BPA @ reduced level	}	• Reduced Slice/Block + 100 MW Wind	
		• Reduced BWSC + 100 MW Wind	
		• Reduced Slice/Block + 100 MW MT Wind	
		• Reduced BWSC + 100 MW MT Wind	
		• Reduced Slice/Block + 100 MW Solar	
Don't renew BPA	}	• 2,300 MW Wind + 100MW Solar + DR + 300MW Pumped Storage	
		• 2,300 MW Wind + 100 MW Solar + DR + 300MW SMR	

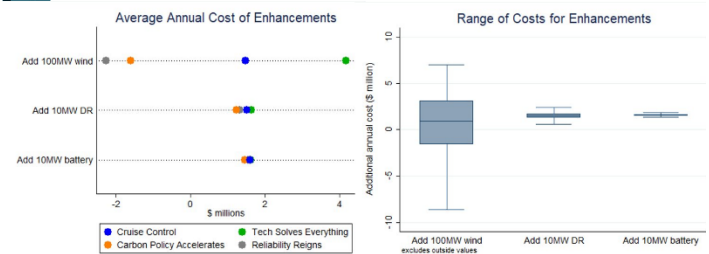
Note: All portfolios also include Tacoma Power-owned hydro resources and cost-effective conservation



Switching from Slice/Block to Block with Shaping Capacity in 2028 would not substantially improve resource adequacy and would increase annual costs by ~\$8 million annually.

Caveat: Assumes future BPA products resemble current products.

Expected costs are similar across all three options under base case (Cruise Control) scenario but vary substantially depending on wholesale power market prices.



Note: Annual costs are net of revenues from wholesale power market sales.

QUESTION: Can you explain what 10 MW of demand response is?

ANSWER: The 10 MW stems from our Demand Response Potential Assessment. Assuming a large industrial customer, a simple demand response program.

QUESTION: To me, demand response means a change in behavior, can you explain?

ANSWER: It's changing behavior - whether it's a large industrial customer or a residential. They have a profile of how they typically use electricity. We call them ahead in an emergency, and ask the customer to reduce their consumption. It is behavior change, but during only emergencies the way that we modelled it.

QUESTION: Why is it that you need 10 times more power with wind than with the demand response or battery?

ANSWER: Wind at 100 MW is nameplate capacity - at full generation 100% of the time. Wind doesn't always blow. Part of it is that it doesn't generate 100 MW in every single hour. On average, the capacity factor assumptions is more in the range of high 20 to low 30% depending on the region, which is fairly similar to what wind is projected to be. The other part is that wind sometimes shows up the times that we need it, and sometimes it's not. We have more control about demand response than we do about when the wind blows

QUESTION (continued): I was thinking that you were thinking of three options to give you the same benefit. Instead, you are considering what is the easy way to get more, not that they are equivalent?

ANSWER (continued): when you're looking at the peak times, it might not have the same capacity benefits as battery or demand response. We picked battery and wind to get the same amount of capacity benefit. We also tried to go to the smallest possible amount of each that gets us to adequacy.

QUESTION: Can you remind us if the effects of carbon price is included in all of the scenarios, like if the carbon price from the climate commitment program is affected in resource dispatch in the models?

ANSWER: it's not incorporated into resource dispatch. In actual operations, we're not dispatching resources that way. However, it is included in carbon cost that we're adding to all the resource. The additional carbon costs comes from buying from the market and from BPA.

QUESTION: I know 10 MW of demand response was also preferred. At what time does Tacoma pursue a new resource like demand response?

ANSWER: At a high level, we have been pursuing it. We're trying to talk to people to find a demand response solution that works for both us and our customers. When we're talking about industrial demand response, it's not like "lets build a program that generally meets a customers needs", it's targeted to capabilities and limitations of specific customers, a lot of negotiating.

Although we don't have an electrofuel customer in our service area, a couple years ago, we put out a rate. The idea for that reduced rate (electrofuels provide environmental efforts), we have been pursuing these opportunities; it's just not visible. On the residential side, we're starting to build up capabilities in water heating demand response. It's very new for us, diving into getting demand response, so we'll find as we go along what our potential for demand response really is. If we can't get enough, we'll need to explore what options we need to take.

QUESTION: Is the DR potential assessment something that Tacoma has released?

ANSWER: There's not a glossy report. The DR potential assessment was used as an exercise to obtain inputs into the IRP model.

SUGGESTION: I wonder if a report with the opportunity for stakeholder input could help move along DR acquisition. It's not always the case, but maybe it could create a targeted goal and outcomes with action steps to get there.

ANSWER: We'll talk internally on how we can do that.

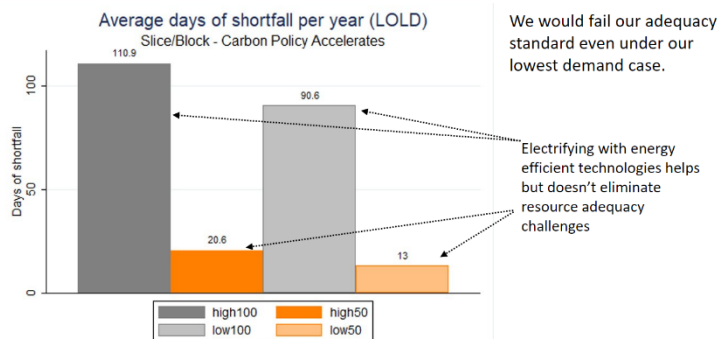
QUESTION: Was changing the rate structure to flatten demand considered as part of adequacy modelling?

ANSWER: Assuming you're talking about rate based demand response. We don't model a rate. We don't model the program details. We model what happens on the resource side. Whenever we model rates, it's usually wholesale rates. i.e. how these resources would response to a wholesale price. If by rate structure, retail rates, then no, we don't model it in our adequacy modelling. Our models are set up in a way that doesn't let us do that easily. That being said, it's an open question to see, are there ways to model adjustments to load as a resource? It's on our list of things to think about.

3:10 P.M.

Electrification Solutions & Questions

Rachel Clark



Note: Standard for frequency adequacy metric (LOLD) is no more than 0.2 days per year (2 days in 10 years)

QUESTION: For transportation electrification, does your model account for Washington adopting advanced clean cars too - 100% light duty vehicles sold by 2035 are 0 emission vehicles and advanced clean truck rule?

ANSWER: Currently we don't. Our simplified electrification doesn't model any legislation. However we have a broader effort to develop a more realistic set of potential trajectories of how electrification will roll out over time and how big it will get over 20 years. Part of our plan is to be informed by those kinds of policies - have multiple scenarios and different levels of legislation about how big electrification is.

QUESTION: About electrification- is our grid ready? Can we handle it? Can we have your feedback on it? What would you say to community members who are concerned? Are they adding strain if they buy an electric car?

ANSWER: In the short run, we're not too worried at the level it's rolling out right now. it doesn't mean it's not accelerating. If it's every single vehicle and buildings all at once, we probably wouldn't be able to handle it, which is why we're thinking about it now so that we're prepared.

ACTION: Rachel will get back to stakeholders with official position from utility on what to tell customers.

3:30 P.M.

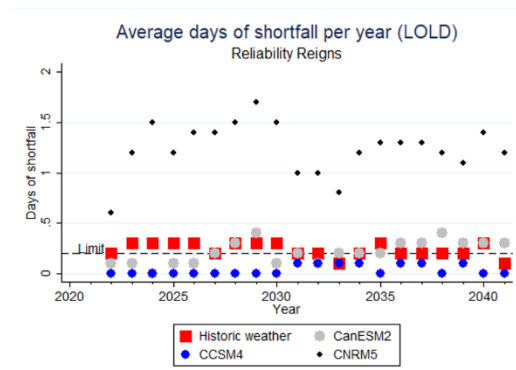
BREAK!!

3:35 P.M.

Climate Change Results & Questions

Danielle Szigeti/

Rachel Clark



Impacts vary substantially based on specific climate projection.

Need to update number of projections we include and how we select them in order to get appropriate range of impacts.

3:55 P.M.

Draft Recommendations

Rachel Clark

- Preferred resource strategy:
 - Renew Slice/Block product in 2028 if it remains similar to today’s product
 - Continue to acquire all cost-effective conservation identified in CPA
 - Continue to develop capability to acquire DR
 - Continue involvement in Western Resource Adequacy Program efforts
- Electrification:
 - Our preferred portfolio is likely not capable of handling large-scale electrification
 - Uncertainty as to how much and when it will show up
 - Continue to work to understand how we can prepare and how quickly we might need to prepare

4:05 P.M.

Draft Action Items

Rachel Clark

	2-year action plan	4-year action plan	10-year action plan
Conservation	<ul style="list-style-type: none"> Acquire all cost-effective conservation identified in CPA 	<ul style="list-style-type: none"> Acquire all cost-effective conservation identified in CPA 	<ul style="list-style-type: none"> Acquire all cost-effective conservation identified in CPA
BPA	<ul style="list-style-type: none"> Continue active participation in BPA post-2028 contract discussions 	<ul style="list-style-type: none"> Final BPA decision 	<ul style="list-style-type: none"> Renew or replace BPA contract
Other Resources	<ul style="list-style-type: none"> Pursue additional opportunities for DR Explore short-term contracts to shore up potential resource adequacy risks 	<ul style="list-style-type: none"> Update DR potential assessment 	<ul style="list-style-type: none"> Acquire 10MW to 12MW of DR
Other	<ul style="list-style-type: none"> Final decision on joining WRAP Electrification Futures study Enhance climate change modeling 		

4:15 P.M.

Wrap Up & Next Steps

Rachel Clark

- June 27 | Review results with the Public Utility Board
- August 1 | Draft IRP complete & available for comment
- August 24 | Public Utility board meeting: Request approval of 2022 IRP update
- September 1 | IRP update due to Department of Commerce
- Submit feedback about Tacoma Power’s IRP process here: <https://www.surveymonkey.com/r/TF8GZRY>