

Washington Cost of Service Collaborative Production and Transmission Classification Scenarios February 21, 2019

















- Load Factor Peak Credit (Peak & Average)
- EIM Price Allocation
- Renewable Future Peak Credit
- 4. Thermal Peak Credit
- Renewable Future Peak Credit w NPC Allocated on Energy
- Renewable Future Peak Credit w NPC Allocated on EIM Prices



- Method Pacific Power currently uses
- Uses customers' load factor to define the component of production and transmission costs which are energy-related
- 43% demand 57% energy used for production and transmission split from last GRC
- Demand allocation to rate classes based on each class' percentage of the top 100 summer and top 100 winter hours for the western states
- Energy allocation to rate classes based on each class' percentage of annual MWH usage



- 8,760 average hourly EIM prices from CY 2017
- 8,760 Historic usage CY 2013
- EIM percentage allocation calculated by applying EIM hourly average rates to historical hourly usage for each rate class
- No consideration of demand



- Based upon a hypothetical scenario where marginal load is served with batteries and wind
- Capacity need met with battery
- Energy need met with wind
- Wind cost reduced for its anticipated capacity contribution multiplied by the fixed cost of a battery
- Produces a classification of 71% demand and 29% energy



	PacifiCorp)						
	State of Washi	ngton						
Classification of Production and Transmission Costs								
	Lithium Ion Battery Storage (7.2 MWh/day)							
1	Fixed Cost per KW	\$345.21						
2	Cost per MWH to Charge	\$22.02						
3	Hours of Operation	200						
4	Storage Efficiency	85%						
5	Total Cost of Charging	\$5.18	Line 2 / 1000 / Line 4 X Line 3					
6	Total Cost 1 KW, 200 Hours	\$350.39	Line 1 + Line 5					
	2.0 MW Turbine 38% CF V	VA, 2022 (80%	PTC)					
7	Fixed Cost per kW	\$141.70						
8	Average Output Requirement @ 53.6% Load Factor	4,695	8,760 X 53.6%					
9	Output @ 38% Capacity Factor	3,329	8,760 X 38%					
10	Total kW Capacity Required	1.41	Line 8 / Line 9					
11	Total Fixed Costs	\$199.87	Line 7 X Line 10					
12	Demand Related Cost @ 11.8% Capacity Contribution	\$57.46	Line 10 X 11.8% X Line 1					
13	Total Energy Related Cost	\$142.41	Line 11 - Line 12					
14	Demand Component	71%	Line 6 / (Line 6 + Line 13)					
15	Energy Component	29%	100% - Line 14					



- Compares the costs for a simple cycle combustion turbine (SCCT) to a combined cycle combustion turbine (CCCT)
- Capacity defined as ½ SCCT fixed cost plus fuel cost to operate for 200 hours
- Energy defined as fixed and fuel costs for CCCT
- Produces a classification of 32% demand and 68% energy



	PacifiCorp			
	State of Washir			
	Classification of Generation and	d Transmission	Costs	
	Simple Cycle Combus	stion Turbine		
1	Fixed Cost per kW @ 2.28% Capacity Factor	\$132.96		
2	One-half of SCCT Fixed Costs	\$66.48	Line 1 X 50%	
3	Fuel Cost per MWh	\$21.37		
4	Hours of Operation	200		
5	Total Fuel Costs	\$4,274	Line 3 X Line 4	
6	Total Cost 1 MW, 200 Hours	\$70,754	Line 2 X 1000 + Line 5	
	Combined Cycle Comb	oustion Turbine		
7	Fixed Cost per kW @ 72.1% Capacity Factor	\$121.69		
8	Fuel Cost per MWh	\$15.74		
9	Hours of Operation	6,316	Fixed Cost per kW @ 72.1% Capacity Factor	
10	Total Fuel Costs	\$99,396	Line 8 X Line 9	
11	Fixed Cost per kW @ 72.1% Capacity Factor	\$221,086	Line 7 X 1000 + Line 10	
12	Demand Component	32%	Line 6 / Line 11	
13	Energy Component	68%	100% - Line 12	

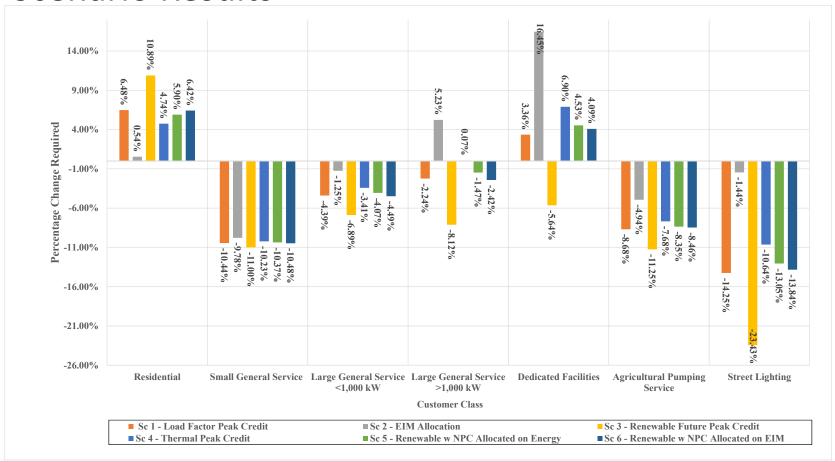
Scenario 5 - Renewable Future Peak Credit w NPC Allocated on Energy

- Same as Scenario 3 except NPC accounts are allocated on energy
- This includes
 - Account 447 Sales for Resale
 - Account 501 and 547 Fuel
 - Account 503 Steam from Other Sources
 - Account 555 Purchased Power
 - Account 565 Transmission of Electricity by Others

Scenario 6 - Renewable Future Peak Credit w NPC Allocated on EIM

 Same as Scenario 5 except energy allocation is based upon average hourly EIM prices applied to class energy usage

Scenario Results



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