



BOARD OF PUBLIC UTILITIES

ADDITIONAL MEETING DOCUMENTS

Additional or revised information or documents are often passed out to the Board at the meetings.
Whenever possible, this informational cover page will accompany those documents.

MAKE 20 COPIES OF ANY DOCUMENTS, INCLUDING THIS COVER SHEET, AND RETURN TO JAIME KEPHART PRIOR TO THE MEETING.

MEETING DATE	4/18/2018
AGENDA ITEM	7.A. Discussion of Potential Rate Structure Alternatives
DOCUMENT TITLE(S)	Electric Rate Options Comparison
FROM	Bob Westervelt, Deputy Utility Manager – Finance & Administration
NEW OR REVISED? Is this a revision that is different from what was in the agenda packet or is it something entirely new?	Revised
RECOMMENDED ACTION If you have a new or revised recommended motion for the Board, enter it here.	<u>N/A</u>
ADDITIONAL INFORMATION Please VERY BRIEFLY explain the purpose of this information or document.	Mr. Westervelt revised the attachment to show a sample billing amount for a residential customer with no installed distributed generation and also revised the formatting.

					(1) current net metering	(2) minimum system charge = \$15.00/mo	(3) Buy All/Sell All, VOS	(4) Net metering with distribution charge	(5) Unbundled Rate Structure
retail rate per kWh					\$ 0.1152	\$ 0.1152	\$ 0.1152	\$ 0.1152	\$ 0.0861
per month service charge					\$ 12.00	\$ 12.00	\$ 12.00	\$ 12.00	\$ 12.00
estimated annual cost of power, per kWh					\$ 0.064970	\$ 0.064970	\$ 0.064970	\$ 0.064970	
minimum monthly bill						\$ 15.00		\$ -	
Value of Solar (VOS) rate							\$ 0.0833		
distribution surcharge, per kW of installed solar (from 2017 VOS study)								\$ 4.56	
Distribution Charge									\$ 15.96
Installed DG system capacity (kW)								5.50	
Month	Power taken from the Grid	Power delivered to the grid	total actual power produced	total actual consumption					
Actual system data, 5.5kW rooftop solar installed									
Jul-15	506	-582	860	784	\$ 3.24	\$ 15.00	\$ 30.68	\$ 28.32	\$ 27.96
Aug-15	461	-560	934	835	\$ 0.60	\$ 15.00	\$ 30.39	\$ 25.68	\$ 27.96
Sep-15	320	-613	886	593	\$ (21.75)	\$ 15.00	\$ 6.51	\$ 3.33	\$ 27.96
Oct-15	300	-673	734	361	\$ (30.97)	\$ 15.00	\$ (7.56)	\$ (5.89)	\$ 27.96
Nov-15	408	-502	722	628	\$ 1.17	\$ 15.00	\$ 24.20	\$ 26.25	\$ 27.96
Dec-15	689	-374	442	757	\$ 48.29	\$ 48.29	\$ 62.39	\$ 73.37	\$ 55.07
Jan-16	1238	-596	613	1255	\$ 85.96	\$ 85.96	\$ 105.51	\$ 111.04	\$ 83.22
Feb-16	1021	-30	747	1738	\$ 126.16	\$ 126.16	\$ 149.99	\$ 151.24	\$ 113.26
Mar-16	369	-692	1080	757	\$ (25.21)	\$ 15.00	\$ 9.24	\$ (0.13)	\$ 27.96
Apr-16	306	-773	919	452	\$ (41.80)	\$ 15.00	\$ (12.48)	\$ (16.72)	\$ 27.96
May-16	282	-750	1084	616	\$ (41.91)	\$ 15.00	\$ (7.33)	\$ (16.83)	\$ 27.96
Jun-16	349	-867	1040	522	\$ (47.67)	\$ 15.00	\$ (14.50)	\$ (22.59)	\$ 27.96
"true up"	763	power delivered exceeds power taken			\$ 38.33	\$ -	\$ -	\$ 38.33	\$ -
total for year					\$ 94.43	\$ 395.41	\$ 377.05	\$ 395.39	\$ 503.18

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per month service charge					\$ 12.00	\$ 12.00	\$ 12.00	\$ 12.00	\$ 12.00
estimated annual cost of power, per kWh					\$ 0.064970	\$ 0.064970	\$ 0.064970	\$ 0.064970	
minimum monthly bill						\$ 15.00		\$ -	
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distribution surcharge, per kW of installed solar (from 2017 VOS study)								\$ 4.56	
Distribution Charge									\$ 15.96
Installed DG system capacity (kW)								5.50	
Month	Power taken from the Grid	Power delivered to the grid	total actual power produced	total actual consumption					
year two, same customer, installed a large pumped water feature.									
Jul-16	867	-419	1005	1453	\$ 63.61	\$ 63.61	\$ 95.67	\$ 88.69	\$ 66.52
Aug-16	983	-300	864	1547	\$ 90.68	\$ 90.68	\$ 118.24	\$ 115.76	\$ 86.75
Sep-16	1183	-342	919	1760	\$ 108.88	\$ 108.88	\$ 138.20	\$ 133.96	\$ 100.34
Oct-16	1356	-230	917	2043	\$ 141.72	\$ 141.72	\$ 170.97	\$ 166.80	\$ 124.87
Nov-16	1388	-204	704	1888	\$ 148.40	\$ 148.40	\$ 170.85	\$ 173.48	\$ 129.87
Dec-16	1443	-223	609	1829	\$ 152.54	\$ 152.54	\$ 171.97	\$ 177.62	\$ 132.97
Jan-17	1565	-166	536	1935	\$ 173.16	\$ 173.16	\$ 190.26	\$ 198.24	\$ 148.37
Feb-17	1217	-282	756	1691	\$ 119.71	\$ 119.71	\$ 143.83	\$ 144.79	\$ 108.44
Mar-17	1079	-444	1053	1688	\$ 85.15	\$ 85.15	\$ 118.74	\$ 110.23	\$ 82.61
Apr-17	972	-435	983	1520	\$ 73.86	\$ 73.86	\$ 105.22	\$ 98.94	\$ 74.18
May-17	914	-411	1108	1611	\$ 69.95	\$ 69.95	\$ 105.29	\$ 95.03	\$ 71.25
Jun-17	981	-396	1084	1669	\$ 79.39	\$ 79.39	\$ 113.97	\$ 104.47	\$ 78.31
"true up"	0	N/A - power taken equals or exceeds power delivered			\$ -	\$ -	\$ -	\$ -	\$ -
total for year					\$ 1,307.06	\$ 1,307.06	\$ 1,643.22	\$ 1,608.02	\$ 1,204.48

	(1) current net metering	(2) minimum system charge = \$15.00/mo	(3) Buy All/Sell All, VOS	(4) Net metering with distribution charge	(5) Unbundled Rate Structure
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estimated annual cost of power, per kWh	\$ 0.064970	\$ 0.064970	\$ 0.064970	\$ 0.064970	
minimum monthly bill		\$ 15.00		\$ -	
Value of Solar (VOS) rate			\$ 0.0833		
distribution surcharge, per kW of installed solar (from 2017 VOS study)				\$ 4.56	
Distribution Charge					\$ 15.96
Installed DG system capacity (kW)				5.50	

Month	Power taken from the Grid	Power delivered to the grid	total actual power produced	total actual consumption					
<u>Actual residential SFR customer without any DG, in Ponderosa Estates</u>									
Jul-16	284		284		\$ 44.72	\$ 44.72	\$ 44.72	\$ 44.72	\$ 52.40
Aug-16	248		248		\$ 40.57	\$ 40.57	\$ 40.57	\$ 40.57	\$ 49.31
Sep-16	373		373		\$ 54.97	\$ 54.97	\$ 54.97	\$ 54.97	\$ 60.06
Oct-16	321		321		\$ 48.98	\$ 48.98	\$ 48.98	\$ 48.98	\$ 55.59
Nov-16	339		339		\$ 51.05	\$ 51.05	\$ 51.05	\$ 51.05	\$ 57.14
Dec-16	482		482		\$ 67.53	\$ 67.53	\$ 67.53	\$ 67.53	\$ 69.45
Jan-17	558		558		\$ 76.28	\$ 76.28	\$ 76.28	\$ 76.28	\$ 75.99
Feb-17	341		341		\$ 51.28	\$ 51.28	\$ 51.28	\$ 51.28	\$ 57.31
Mar-17	308		308		\$ 47.48	\$ 47.48	\$ 47.48	\$ 47.48	\$ 54.47
Apr-17	306		306		\$ 47.25	\$ 47.25	\$ 47.25	\$ 47.25	\$ 54.30
May-17	265		265		\$ 42.53	\$ 42.53	\$ 42.53	\$ 42.53	\$ 50.77
Jun-17	307		307		\$ 47.37	\$ 47.37	\$ 47.37	\$ 47.37	\$ 54.38
					\$ 620.01	\$ 620.01	\$ 620.01	\$ 620.01	\$ 691.16

(1) Current Net Metering

power generated can offset 100 percent of annual power used, at the retail rate

excess generation over the annual amount used is paid at average wholesale cost of power, trued up annually

(customer sees a monthly credit equal to excess generation at the retail rate, and at the end of the year receives a bill to adjust that credit to the wholesale cost of power)

Pros:

easy to calculate, understand

most generous of alternatives contemplated regarding benefit to distributed generation owner/operator

Cons:

Encourages "oversizing" systems

Enables customers to remain connected to and rely on the distribution system during periods of low or no generation, but collects nothing from those customers for the service

In the long run this is economically unsustainable

Requires annual true up, which is a manual process.

Customer can offset entire bill, in fact could receive a net payment, for generation in excess of consumption

(2) Current net metering with minimum system charge bill

Same as current net metering, except customer will see a minimum monthly bill

An alternate is to charge both the monthly service charge and the monthly minimum, but that is not the way this example is set up.

This would affect "vacation owners", that stay connected to the system but have very low usage.

Pros:

easy to calculate, understand

there is no annual true up required.

Customers pay at least what it costs to provide "backup" service.

Discourages "oversizing" system, as there is no economic benefit to doing so

Cons:

As presented, still allows offset of customer/account/billing charges.

Lowest income customers most severely impacted.

(3) Buy All/Sell All value of solar (VOS)

one hundred percent of power generated is "purchased" by the utility at the VOS rate
one hundred percent of the power consumed by the customer is "sold" by the utility at the retail rate
Customer/account/billing charges are billed as separate charges.
only exception is "station service" - power used by the generation system itself in front of the production meter is "lost"

Pros:

Costs of operating & maintaining the distribution system are included in the retail rate
Recognizes the value of "local" generation - values at on site avoided cost, not average system cost
for example, the benefit to the utility of reducing coincident peak is included in the VOS calculation and thus inures to the system owners
Allows owners to, and fairly compensates owners for, building systems of whatever size they choose.

Cons:

Would require change to existing metering. Production meters currently exist, but are not read or maintained by the utility.
Does nothing to limit potential system problems created by large generation facilities on stressed distribution feeders.
Considers only identifiable economic factors in VOS. Does not recognize "social benefits". (Same could be said of all proposed alternatives)
As presented, still allows offset of customer/account/billing charges.

(4) Net Metering with distribution charge

Same as existing net metering except adds a distribution charge

Pros:

Better for system economic support than without distribution surcharge

Cons:

Customer can offset entire bill, in fact could receive a net payment, for generation in excess of consumption
Encourages overbuilding of system to generate enough to offset entire bill.
Just like the "wires charge" that has already been "rejected" by broad segment of customer base.

(5) Unbundled Rate Structure

This would change billing for all customers - not just DG owners
Customers pay the "cost of power" rate for the power used, a distribution charge, and a customer account charge
Different from Net metering with minimum bill in that power produced is compensated at "cost of power" rate instead of bundled retail rate.
But, distribution charge is charged in every case, not just as a minimum bill.

Pros:

Most fair for all customers

Cons:

Lowest income customers most severely impacted

Other alternatives become relevant and should be considered upon full implementation of AMI

(6) TOU/Demand Metering - Daytime peak

(7) TOU/Demand Metering - Evening Peak

(6) Demand metering with daytime peak

Highest rate would be at the time of the coincidental peak, thus shift of usage to avoid high demand charges would transfer cost from LAC to LANL.
requires AMI

Pros:

Results in lowest cost of power for the County to the extent demand can be shifted.

Cons:

Highest cost for those users not able to shift their demand.

(7) Demand metering with evening peak

Highest rate would be at the time of LAC's peak
Requires AMI

Pros:

Would relieve some distribution system stress or limits
Attempts to shift load to when most DG is available - resolves "duck curve" effect to some extent

Cons:

May actually increase LAC contribution to coincidental peak, which would increase total cost of power.
This additional cost would most likely be born by all customers that did not shift their load.