MUNICIPAL ELECTRIC PROVIDER

JOINT FILING

OF THE

RENEWABLE ENERGY PLAN

UNDER PA 295

U-15878

APRIL 3, 2009

PORTLAND
LIGHT & POWER BOARD

RENEWABLE ENERGY PLAN
U-15878

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- Based on this Renewable Energy Plan (REP) Portland Light & Power Board (City) will have the required Renewable Energy Credits (RECs) for the REP time period of 2015-2029 thereby complying with PA 295.

- The primary source of RECs is participation in the Michigan Public Power Agency (MPPA) Granger Projects. These projects will utilize landfill gas for electric power generation from a variety of locations in Michigan and possibly in neighboring states. The current schedule calls for the initial Granger project to begin commercial operation by January 2010.

- The City will have excess RECs to sell during various time periods through out the REP planning period. Selling of RECs represents a source of income to the City which will reduce overall power supply costs. The cost per REC will be determined to a large extent by market forces once the Michigan REC market is designed and implemented. This REP assumes the sale of some of the excess RECs keeping the balance in reserve.

- The City may sell RECs generated in 2009-2011 (carryover RECs) for use in 2012 prior to 2012. This REP does not take into account these advance sales because the Michigan REC market is not yet developed.

- The City will not exceed the renewable energy surcharge caps specified in PA 295 in the event such surcharges are even used.

- The financial impact of this REP is expected to be minor for the City's customers.

- The City will comply with Section 45 of PA 295 which refers to methods of notification to customers charges, if any, for costs associated with its REP.

Renewable Energy Plan

Joint Filing of Small Municipals with less than 15,000 Retail Customers

Background

On October 6, 2008, Governor Jennifer M. Granholm signed into law the "Clean, Renewable, and Efficient Energy Act," 2008 PA 295, MCL 460.1001 (PA 295). PA 295 requires certain electric providers, including those municipals in Michigan with their own electric utility systems, to file proposed Renewable Energy Plans ("REP") with the Commission for its review and approval. In summary, PA 295 requires the Renewable Energy Plan to (1) explain how the electric provider intends to meet the renewable energy targets specified in PA 295, (2) estimate the costs associated with meeting those targets, and (3) propose cost recovery mechanisms to recover costs.

On December 4, 2008, the Michigan Public Service Commission issued a Temporary Order in MPSC Case No. U-15878 ("Temporary Order") in which it established procedures for energy providers to follow in the preparation, submission, and processing of REPs.

This document and its attachments satisfy all of the requirements of Section 25 (2) for the time period running from 2009-2029.

Joint Filing

Section 25 of PA 295 states that two or more municipally owned electric utilities ("Cities") that serve fewer than 15,000 customers may file jointly. As a result, **c**ertain Cities have requested that Michigan Public Power Agency ("MPPA") prepare their REPs as part of this joint filing. Those Cities participating in this section of the joint filing are:

- City of Charlevoix
- Chelsea Electric Department
- City of Eaton Rapids
- Croswell Light & Power Department
- Escanaba Electric Department
- Croswell Light & Power Department
- Grand Haven Board of Light & Power
- Harbor Springs Municipal Utility
- Hart Hydro-Electric
- Lowell Light and Power
- Marquette Board of Light and Power
- Niles Utility Department
- City of Petoskey
- Portland Light and Power Board
- City of St. Louis
- Sebewaing Light & Water Department
- City of Sturgis
- Traverse City Light & Power
- Wyandotte Municipal Services
- Zeeland Board of Public Works

Also, Section 25 states that the municipally owned electric systems shall file a proposed renewable energy plan within 120 days after the MPSC issues its Temporary Order and this filing meets that requirement.

This report is written to comply with the requirements of PA 295 and is written primarily in an aggregated format. The General Report Section applies to all of the previously listed Cities. When specific information for each city is required, then such information will be provided in a section unique for that city.

GENERAL REPORT SECTION

Section 25 in PA 295 specifies that the proposed Renewable Energy Plan address the following requirements as listed below.

Section 25 (2) (a) Describe how the provider will meet the renewable energy standards

Each city's basic plan is to:

- Utilize existing generation, when applicable, that qualifies as a renewable source in accordance with PA 295. In most cases this existing generation is hydroelectric generation or wind generation.
- Acquire additional renewable generation as required
- Sell or purchase Renewable Energy Credits ("RECS") as applicable.

Each City has an on-going process where various potential renewable energy sources are reviewed and evaluated. Certain Cities use MPPA for this process while other Cities work independent of MPPA. Potential renewable projects include windmill, landfill gas, and biomass sources. In addition, the purchasing and/or selling of qualified RECs are an option that varies on a city-by city basis.

MPPA has a signed Master Agreement with Granger Electric of Michigan LLC ("Granger"), a Michigan based landfill company, to provide renewable energy and RECs from various sites in Michigan and possibly other states that qualify as sites for sources of RECs. These sites will use landfill gas as the fuel for generation. Most cities participating in this joint filing have signed agreements with MPPA to purchase the MWHs and RECs from the Granger projects.

The Granger sites are identified as sites 1 through 7 in the REPs and are classified by Granger as category 1 and 2 sites. Category 1 and 2 sites have very high probabilities of becoming operational and contractual arrangements between Granger and other parties are in the final stages.

Once Granger finalizes its agreements with the various landfill owners and accomplished other critical path tasks associated with each site, then MPPA and Granger will execute a Project

Agreement specific to each site. These Project Agreements are the mechanisms that will ultimately lead to landfill gas generation becoming operational.

In addition to the category 1 and 2 sites mentioned above, Granger has identified several other sites, termed category 3 sites, for possible development. Category 3 sites are in earlier stages of development and not included in the City REPs. Consequently, many more renewable MWHs and RECs may be available to MPPA and participating Cities pending outcome of the category 3 sites.

Generation from Granger sites will be base load generation operating seven days per week throughout the year. Therefore, this generation qualifies for "on-peak" generation bonus RECs as defined in Section 39 of PA 295. It is possible that the Granger generation will also qualify for other bonus RECs as defined in Section 39. In particular, the 1/10 REC for using Michigan residents for construction of the renewable energy systems as determined by the MPSC. Also, the 1/10 REC for using equipment made in this state as determined by the MPSC may apply depending on the definition of "equipment made in this state". However, for the purposes of this filing and in the interest of being conservative, until further definition of bonus RECs is forthcoming and until Granger contracts are finalized no additional RECs are being claimed at this time for Granger generation unless specifically noted in the City's section of this REP.

In addition, these units are assumed to operate at a 95% capacity factor. This high capacity factor is based on actual capacity factors obtained from their existing landfill generation sites. Granger has a well tuned preventative maintenance program utilizing a trailer mounted temporary generator when taking a unit down for maintenance. This system reduces down time at the site to mere minutes as the existing unit is disconnected and the temporary unit is connected and brought on line.

Some Cities are in the process of developing other sources of renewable energy—most notably wind generation. Those cities pursuing such projects have them listed in the "RECs" part of their

REP. Based on discussions with developers and the review of other sources of information, a smoothed yearly cost increase for wind power is estimated at 3% per year. Also, as with the Granger projects, no Michigan labor or equipment bonus RECs are claimed at this time unless specifically noted in the City's section of this REP.

Certain Cities had qualified renewable generation in operation during the twelve month period preceding the effective date of Order PA 295. These sources are included in the City's REP as a baseline source listed in the RECs part of the REP. Footnotes provide information regarding these baseline sources.

The selling of excess RECs or purchasing of required RECs is also a part of the individual City REPs. Given the fact that a Michigan REC market is not established, determining the cost of a Michigan REC is problematic. MPPA has had informal discussions with a few different entities regarding the possible price of Michigan RECs. The general consensus is there is a wide range of possible costs depending, in part, on the renewable source providing the RECs. The price range for RECs resulting from these informal discussions is $15-$80 per REC. An investor owned utility in Michigan recently estimated the REC price at about $50 in their REP filing. For purposes of this filing, this report has assumed a $25 price in 2009 dollars and escalating at 3% per year. Most Cities plan to have excess RECs available for sale so the $25 price is considered conservative. To the extent that the REC price exceeds the assumed price, the incremental cost to Cities selling RECs will be reduced.

Detailed information on how each City will meet the renewable energy standards can be found in its specific section included in this report.

Section 25 (2) (b) Specify whether the number of megawatt hours of electricity used in the calculation of the renewable energy credit portfolio will be weather-normalized or based on the average number of megawatt hours of electricity sold by the electric provider annually during the previous 3 years to retail customers in this state.

All of the cities utilize the 3-year average method. Years 2009-2012 were taken from each city's total retail sales forecast used as the basis for their Energy Optimization Plan ("EOP") with years 2013-2015 estimated separately. These forecasted values do not include the effects of sales reductions that may occur as part of the EOP since PA 295 does not specifically state to do so. Therefore, if the effects of a City's EOP are included, then required RECs would decrease.

Section 25 (2) (c) "Include the expected incremental cost of compliance with the renewable energy standards."

The incremental costs of compliance (cost of RECs) are calculated in accordance with Section 47 of PA 295 with details for each City included in their section of this filing. Most of the incremental costs are the result of the Granger projects with upper levels of costs (energy and interconnection) pre-determined in the MPPA/Granger Master Agreement. Since the Granger projects are with MPPA and Cities purchasing the output, estimates for administrative expenses were made by MPPA based on similar expenses for existing MPPA projects. Wholesale Distribution Charges (WDC), if applicable, were estimated based on WDC charges actually paid by cities participating in the MPPA Power Pool Project.

These REPS use the suggested yearly transfer price rates per MWH to calculate the transfer costs that are deducted from each renewable project's total incremental cost calculation. This results in the incremental cost of compliance. Also, the transfer price amounts are allowed for recovery through an electric provider's power supply cost recovery (PSCR).

In general, the transfer price represents an estimate of long term capacity and energy costs avoided by the renewable energy program and most Cities have chosen to use this suggested transfer price as the starting point for the reduction in the total incremental cost. The primary reason for using the suggested transfer prices is because each City's long term capacity and energy needs vary and calculating unique transfer prices for each City would, to a certain extent, reduce the benefits of a

joint filing.

Section 25 (2) (d) "Describe the manner in which the provider will allocate costs"

As stated above, the incremental cost is reduced by the costs allocated to the transfer price. This subtraction is done on a year-by-year basis and then the net present value (NPV) of the yearly differences is calculated for the REP planning period. The next step is to levelize this NPV value over a 20-year period and this levelized amount becomes the yearly cost to be recovered through the surcharges from the various customer classes. The split between customer classes are based, in part, on the maximum surcharges provided in PA 295. However, the predominant factor in the determining the planned surcharges for each customer class is the City's knowledge of its customer base which results in a fair and equitable assessment of surcharges.

For all Cities, surcharges collected (if any) are below the specified levels in Section 45 of PA 295. Several Cities in this joint filing have a negative incremental cost of compliance. For those Cities, no surcharges will be assessed.

Summary

Based on the above, these REPs take a very conservative approach in the calculation of required RECs. In particular, the decision to not claim at this time the Michigan Labor and Michigan Equipment bonus RECs for most projects demonstrates this conservative approach. Another example is to not include at this time the effects of MWH sales reductions resulting from the EOP. Yet a third example is the decision to not include Granger category 3 projects at this time. Therefore, as a City's REP and EOP progress over the next several months the required RECs for each City will most likely be less than those presented in their plan.

PORTLAND

ATTACHMENT C - RENEWABLE ENERGY PLAN SURCHARGE SUMMARY FOR MUNICIPAL UTILITIES

	ITEM	Units	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
	Sales Forecast - 3 yr running average	MWH	35,864	35,609	35,304	35,000	35,000	35,000	35,000														
	10% Compliance Factor					0.10	0.10	0.10	0.10														
	RPS Requirement	MWH	-	-	-	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500
	RPS Required REC's	RECS	-	-	-	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500
	(-) REC's from Existing Renew. Energy Supply (pre-RPS)	RECS	1,746	1,746	1,746	1,746	1,746	1,746	1,746	1,746	1,746	1,746	1,746	1,746	1,746	1,746	1,746	1,746	1,746	1,746	1,746	1,746	1,746
	RECS - Incremental Difference	RECS	(1,746)	(1,746)	(1,746)	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754
	FACTOR		-	-	-	0.20	0.33	0.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	Required New RECS	RECS	-	-	-	351	579	877	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754
	RPS Renewable Energy Credit Compliance																						
	Required New RECs	RECS	-	(1,746)	(1,746)	351	579	877	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754
*	RECs Optained from New Resources	RECS	-	178	800	1,245	1,956	1,956	2,311	2,311	2,311	2,311	2,311	2,311	2,311	2,311	2,311	2,311	2,311	2,311	2,311	2,311	2,311
	RECs Over / (Short) without carryover	RECS	-	1,924	2,546	894	1,377	1,079	557	557	557	557	557	557	557	557	557	557	557	557	557	557	557
	REC Purchases / (Sales)	RECS	-	-	-	(2,373)	(1,535)	(2,158)	(375)	(557)	(557)	(557)	(557)	(557)	(557)	(557)	(557)	(557)	(557)	(557)	(557)	(557)	(557)
	Cumulative RECs Compliance Balance	RECS	-	1,924	4,470	2,991	2,833	1,754	1,936	1,936	1,936	1,936	1,936	1,936	1,936	1,936	1,936	1,936	1,936	1,936	1,936	1,936	1,936
	Incremental Compliance with New RECs	%	NA	NA	NA	355%	338%	223%	132%	132%	132%	132%	132%	132%	132%	132%	132%	132%	132%	132%	132%	132%	132%
	Compliance % with Cumulative REC Balance	%	NA	NA	NA	953%	589%	300%	210%	210%	210%	210%	210%	210%	210%	210%	210%	210%	210%	210%	210%	210%	210%
	Revenue Requirements for New Renewables																						
*	Build	$	$ -	$ 305	$ 1,220	$ 1,524	$ 2,744	$ 2,744	$ 3,963	$ 3,963	$ 3,963	$ 3,963	$ 3,963	$ 3,963	$ 3,963	$ 3,963	$ 3,963	$ 3,963	$ 3,963	$ 3,963	$ 3,963	$ 3,963	$ 3,963
	PPA	$	$ -	$ 13,111	$ 60,453	$ 96,359	$ 155,165	$ 159,003	$ 192,563	$ 197,329	$ 202,215	$ 207,223	$ 212,356	$ 217,619	$ 223,013	$ 228,542	$ 234,210	$ 240,020	$ 245,976	$ 252,081	$ 258,339	$ 264,754	$ 271,330
	REC Purchases (Sales)	$	$ -	$ -	$ -	$ (64,829)	$ (43,186)	$ (62,533)	$ (11,194)	$ (17,139)	$ (17,654)	$ (18,183)	$ (18,729)	$ (19,291)	$ (19,869)	$ (20,465)	$ (21,079)	$ (21,712)	$ (22,363)	$ (23,034)	$ (23,725)	$ (24,437)	$ (25,170)
	Total	$	$ -	$ 13,416	$ 61,672	$ 33,054	$ 114,723	$ 99,214	$ 185,332	$ 184,153	$ 188,524	$ 193,003	$ 197,591	$ 202,292	$ 207,107	$ 212,040	$ 217,094	$ 222,272	$ 227,576	$ 233,011	$ 238,578	$ 244,281	$ 250,123
	New RECs Obtained																						
	Generation Based																						
*	Build	MWH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	PPA	MWH	-	162	731	1,137	1,786	1,786	2,111	2,111	2,111	2,111	2,111	2,111	2,111	2,111	2,111	2,111	2,111	2,111	2,111	2,111	2,111
	Subtotal	MWH	-	162	731	1,137	1,786	1,786	2,111	2,111	2,111	2,111	2,111	2,111	2,111	2,111	2,111	2,111	2,111	2,111	2,111	2,111	2,111
	Purchase (Sold) From New RECS	RECs	-	-	-	(2,373)	(1,535)	(2,158)	(375)	(557)	(557)	(557)	(557)	(557)	(557)	(557)	(557)	(557)	(557)	(557)	(557)	(557)	(557)	(557)
*	Incentive (SB 213 Sec 39 (2))	RECS	15	69	108	170	170	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
	Total	RECS	-	178	800	(1,128)	421	(202)	1,936	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754
	Forecasted Transfer Price per MWH - SUGGESTED	$/MWH	52	59	62	81	86	92	100	103	105	108	113	117	122	158	134	141	143	148	154	164	171
	Amount recovered through PSCR																						
	Transfer price x volume of energy	$	-	9,580	45,304	92,070	153,612	164,329	211,095	217,427	221,649	227,982	238,537	246,981	257,535	333,530	282,867	297,643	301,865	312,420	325,086	346,195	360,972
	Incremental Cost of Compliance	$	$ -	$ 3,835	$ 16,368	$ (59,016)	$ (38,889)	$ (65,115)	$ (25,763)	$ (33,275)	$ (33,125)	$ (34,979)	$ (40,946)	$ (44,689)	$ (50,428)	$ (121,489)	$ (65,772)	$ (75,371)	$ (74,289)	$ (79,409)	$ (86,508)	$ (101,914)	$ (110,848)
	Non-Volumetric Surcharge																						
	Meter (or customer) Forecast (Number)																						
	Residential	No.	2,191	2,191	2,191	2,191	2,191	2,191	2,191	2,235	2,280	2,325	2,372	2,419	2,467	2,517	2,567	2,618	2,671	2,724	2,779	2,834	2,891
	Secondary (Commercial)	No.	309	309	309	309	309	309	309	315	321	328	334	341	348	355	362	369	377	384	392	400	408
	Primary (Industrial)	No.	17	17	17	17	34	68	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136
	Total	No.	2,517	2,517	2,517	2,517	2,534	2,568	2,636	2,686	2,737	2,789	2,842	2,896	2,951	3,008	3,065	3,124	3,183	3,244	3,307	3,370	3,435
	Maximum Surcharge (all rate classes at caps)																						
	Residential	$ / MO	$ 3.00	$ -	$ 78,876	$ 78,876	$ 78,876	$ 78,876	$ 78,876	$ 78,876	$ 80,454	$ 82,063	$ 83,704	$ 85,378	$ 87,085	$ 88,827	$ 90,604	$ 92,416	$ 94,264	$ 96,149	$ 98,072	$ 100,034	$ 102,035	$ 104,075
	Commercial	$ / MO	$ 16.58	$ -	$ 61,479	$ 61,479	$ 61,479	$ 61,479	$ 61,479	$ 61,479	$ 62,708	$ 63,962	$ 65,242	$ 66,546	$ 67,877	$ 69,235	$ 70,620	$ 72,032	$ 73,473	$ 74,942	$ 76,441	$ 77,970	$ 79,529	$ 81,120
	Industrial	$ / MO	$ 187.50	$ -	$ 38,250	$ 38,250	$ 38,250	$ 76,500	$ 153,000	$ 306,000	$ 306,000	$ 306,000	$ 306,000	$ 306,000	$ 306,000	$ 306,000	$ 306,000	$ 306,000	$ 306,000	$ 306,000	$ 306,000	$ 306,000	$ 306,000	$ 306,000
	Streetlights	$ / MO	$ 16.58	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Unmetered	$ / MO	$ 0.60	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Total	$ / MO		$ -	$ 178,605	$ 178,605	$ 178,605	$ 216,855	$ 293,355	$ 446,355	$ 449,162	$ 452,025	$ 454,945	$ 457,924	$ 460,963	$ 464,062	$ 467,223	$ 470,448	$ 473,737	$ 477,092	$ 480,513	$ 484,004	$ 487,564	$ 491,195
	Planned Surcharge																						
	Residential	$	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Commercial	$	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Industrial	$	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Streetlights	$	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Unmetered	$	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Total			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

PORTLAND
GRANGER - ALL SITES

				2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
CAPACITY FACTOR				0.95																				
NETGENERATION	MWH	*		-	162	731	1,137	1,786	1,786	2,111	2,111	2,111	2,111	2,111	2,111	2,111	2,111	2,111	2,111	2,111	2,111	2,111	2,111	2,111
CAPACITY	MW	*		-	0.039	0.117	0.137	0.215	0.215	0.215	0.215	0.215	0.215	0.215	0.215	0.215	0.215	0.215	0.215	0.215	0.215	0.215	0.215	0.215
RENEWABLE ENERGY CREDITS																								
BASE GENERATION	RECS			-	162	731	1,137	1,786	1,786	2,111	2,111	2,111	2,111	2,111	2,111	2,111	2,111	2,111	2,111	2,111	2,111	2,111	2,111	2,111
ON-PEAK & MICH INCENT RECS	RECS	*		-	15	69	108	170	170	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
TOTAL	RECS			-	178	800	1,245	1,956	1,956	2,311	2,311	2,311	2,311	2,311	2,311	2,311	2,311	2,311	2,311	2,311	2,311	2,311	2,311	2,311
GRANGER UNIT COST	$/ kWh	*		$ 0.07688	$ 0.07880	$ 0.08077	$ 0.08279	$ 0.08486	$ 0.08698	$ 0.08916	$ 0.09139	$ 0.09367	$ 0.09601	$ 0.09841	$ 0.10087	$ 0.10340	$ 0.10598	$ 0.10863	$ 0.11135	$ 0.11413	$ 0.11698	$ 0.11991	$ 0.12290	$ 0.12598
O & M	$/ kWh	*		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
ADMIN	$/ kWh	*		$ 0.00080	$ 0.00082	$ 0.00085	$ 0.00087	$ 0.00090	$ 0.00093	$ 0.00096	$ 0.00098	$ 0.00101	$ 0.00104	$ 0.00108	$ 0.00111	$ 0.00114	$ 0.00117	$ 0.00121	$ 0.00125	$ 0.00128	$ 0.00132	$ 0.00136	$ 0.00140	$ 0.00144
WDS CHARGES	$/ kWh	*		$ -	$ 0.00001	$ 0.00001	$ 0.00001	$ 0.00001	$ 0.00001	$ 0.00001	$ 0.00001	$ 0.00001	$ 0.00001	$ 0.00001	$ 0.00001	$ 0.00001	$ 0.00001	$ 0.00001	$ 0.00001	$ 0.00001	$ 0.00001	$ 0.00001	$ 0.00001	$ 0.00001
INCREMENTAL UNIT COST	$/ REC			$ 0.07768	$ 0.07964	$ 0.08163	$ 0.08367	$ 0.08577	$ 0.08792	$ 0.09012	$ 0.09238	$ 0.09469	$ 0.09707	$ 0.09950	$ 0.10199	$ 0.10455	$ 0.10717	$ 0.10985	$ 0.11260	$ 0.11542	$ 0.11832	$ 0.12128	$ 0.12432	$ 0.12743
TOTAL INCREMENTAL COST	**$**			**$ -**	$ 12,932	$ 59,649	$ 95,109	$ 153,201	$ 157,039	$ 190,241	$ 195,007	$ 199,893	$ 204,901	$ 210,034	$ 215,297	$ 220,691	$ 226,220	$ 231,888	$ 237,698	$ 243,654	$ 249,759	$ 256,017	$ 262,432	$ 269,008
WITH PILT	$/ kWh		0.0011	$ -	$ 13,111	$ 60,453	$ 96,359	$ 155,165	$ 159,003	$ 192,563	$ 197,329	$ 202,215	$ 207,223	$ 212,356	$ 217,619	$ 223,013	$ 228,542	$ 234,210	$ 240,020	$ 245,976	$ 252,081	$ 258,339	$ 264,754	$ 271,330
INTERCONNECTION COSTS: AMMORTIZED			**SHARE**																					
GRANGER SITES																								
SITE 1	**$**		1.22%	$ -	$ 305	$ 305	$ 305	$ 305	$ 305	$ 305	$ 305	$ 305	$ 305	$ 305	$ 305	$ 305	$ 305	$ 305	$ 305	$ 305	$ 305	$ 305	$ 305	$ 305
SITE 2	**$**		1.22%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
SITE 3	**$**		1.22%	$ -	$ -	$ 305	$ 610	$ 610	$ 610	$ 610	$ 610	$ 610	$ 610	$ 610	$ 610	$ 610	$ 610	$ 610	$ 610	$ 610	$ 610	$ 610	$ 610	$ 610
SITE 4	**$**		1.22%	$ -	$ -	$ -	$ -	$ 305	$ 305	$ 305	$ 305	$ 305	$ 305	$ 305	$ 305	$ 305	$ 305	$ 305	$ 305	$ 305	$ 305	$ 305	$ 305	$ 305
SITE 5	**$**		1.22%	$ -	$ -	$ -	$ -	$ 305	$ 305	$ 305	$ 305	$ 305	$ 305	$ 305	$ 305	$ 305	$ 305	$ 305	$ 305	$ 305	$ 305	$ 305	$ 305	$ 305
SITE 6	**$**		1.22%	$ -	$ -	$ 610	$ 610	$ 610	$ 610	$ 1,220	$ 1,220	$ 1,220	$ 1,220	$ 1,220	$ 1,220	$ 1,220	$ 1,220	$ 1,220	$ 1,220	$ 1,220	$ 1,220	$ 1,220	$ 1,220	$ 1,220
SITE 7	**$**		1.22%	$ -	$ -	$ -	$ -	$ 610	$ 610	$ 1,220	$ 1,220	$ 1,220	$ 1,220	$ 1,220	$ 1,220	$ 1,220	$ 1,220	$ 1,220	$ 1,220	$ 1,220	$ 1,220	$ 1,220	$ 1,220	$ 1,220
TOTAL	**$**		**1.22%**	**$ -**	**$ 305**	**$ 1,220**	**$ 1,524**	**$ 2,744**	**$ 2,744**	**$ 3,963**	**$ 3,963**	**$ 3,963**	**$ 3,963**	**$ 3,963**	**$ 3,963**	**$ 3,963**	**$ 3,963**	**$ 3,963**	**$ 3,963**	**$ 3,963**	**$ 3,963**	**$ 3,963**	**$ 3,963**	**$ 3,963**
PILT INCLUDED ABOVE	**$**		0.0011		**$ 305**	**$ 1,220**	**$ 1,524**	**$ 2,744**	**$ 2,744**	**$ 3,963**	**$ 3,963**	**$ 3,963**	**$ 3,963**	**$ 3,963**	**$ 3,963**	**$ 3,963**	**$ 3,963**	**$ 3,963**	**$ 3,963**	**$ 3,963**	**$ 3,963**	**$ 3,963**	**$ 3,963**	**$ 3,963**
	$ / MWH				$ 1.88	$ 1.67	$ 1.34	$ 1.54	$ 1.54	$ 1.88	$ 1.88	$ 1.88	$ 1.88	$ 1.88	$ 1.88	$ 1.88	$ 1.88	$ 1.88	$ 1.88	$ 1.88	$ 1.88	$ 1.88	$ 1.88	$ 1.88	$ 1.88
	$ / KW-YR				$ 7,813	$ 10,417	$ 11,161	$ 12,784	$ 12,784	$ 18,466	$ 18,466	$ 18,466	$ 18,466	$ 18,466	$ 18,466	$ 18,466	$ 18,466	$ 18,466	$ 18,466	$ 18,466	$ 18,466	$ 18,466	$ 18,466	$ 18,466	$ 18,466
GRANGER ENERGY COST	$			-	13,111	60,453	96,359	155,165	159,003	192,563	197,329	202,215	207,223	212,356	217,619	223,013	228,542	234,210	240,020	245,976	252,081	258,339	264,754	271,330
GRANGER INTERCONN COST	$			$ -	$ 305	$ 1,220	$ 1,524	$ 2,744	$ 2,744	$ 3,963	$ 3,963	$ 3,963	$ 3,963	$ 3,963	$ 3,963	$ 3,963	$ 3,963	$ 3,963	$ 3,963	$ 3,963	$ 3,963	$ 3,963	$ 3,963	$ 3,963	$ 3,963
GRANGER TOTAL COST	$			$ -	$ 13,416	$ 61,672	$ 97,883	$ 157,909	$ 161,747	$ 196,526	$ 201,292	$ 206,178	$ 211,186	$ 216,320	$ 221,582	$ 226,976	$ 232,506	$ 238,174	$ 243,984	$ 249,940	$ 256,045	$ 262,303	$ 268,718	$ 275,293
GRANGER TOTAL COST	$ / MWH				$ 82.62	$ 84.40	$ 86.11	$ 88.41	$ 90.55	$ 93.10	$ 95.36	$ 97.67	$ 100.04	$ 102.48	$ 104.97	$ 107.52	$ 110.14	$ 112.83	$ 115.58	$ 118.40	$ 121.29	$ 124.26	$ 127.30	$ 130.41

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
1	**PORTLAND**																									
2	REQUIRED RECS	RECS		**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**		
3																										
4	LOAD - 3 YEAR AVERAGE		***	35,864	35,609	35,304	35,000	35,000	35,000	35,000																
5	FACTOR			-	-	-	0.10	0.10	0.10	0.10																
6	**RECS - REQUIRED**						3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500		
7																										
8	RECS - PRE-REP RECS (BASELINE)			1,746	1,746	1,746	1,746	1,746	1,746	1,746	1,746	1,746	1,746	1,746	1,746	1,746	1,746	1,746	1,746	1,746	1,746	1,746	1,746	1,746		
9	RECS - INCREMENTAL DIFFERENCE						1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754		
10																										
11	FACTOR						0.20	0.33	0.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
12	**RECS - NEW REQUIRED**						351	579	877	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754		
13																										
14																										
15	**SOURCES**			**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**		
16																										
17	**EXISTING RENEWABLE SOURCES**																									
18	HYDRO	RECS		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
19	XXX	RECS		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
20	XXX	RECS		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
21	TOTAL	RECS		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
22																										
23				-	-	-																				
24				-	-	-																				
25																										
26																										
27	**NEW RENEWABLES:**																									
28	GRANGER	RECS		-	178	800	1,245	1,956	1,956	2,311	2,311	2,311	2,311	2,311	2,311	2,311	2,311	2,311	2,311	2,311	2,311	2,311	2,311	2,311		
29	NEW SOURCE	RECS		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
30		RECS																								
31	TOTAL NEW RENEWABLES	RECS			178	800	1,245	1,956	1,956	2,311	2,311	2,311	2,311	2,311	2,311	2,311	2,311	2,311	2,311	2,311	2,311	2,311	2,311	2,311		
32																										
33	**TOTAL SOURCES**			-	178	800	1,245	1,956	1,956	2,311	2,311	2,311	2,311	2,311	2,311	2,311	2,311	2,311	2,311	2,311	2,311	2,311	2,311	2,311		
34																										
35																										
36																										
37																										
38																										
39	**USES**		**TOTAL**																							
40	EXISITNG SITE - 2009	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
41	EXISITNG SITE - 2010	RECS	351	-	-	-	351	-																		
42	EXISITNG SITE - 2011	RECS	579	-	-	-	-	579	-																	
43																										
44	GRANGER SITES - 2010	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
45	GRANGER SITES - 2011	RECS	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
46	GRANGER SITES - 2012	RECS	877	-	-	-	-	-	877	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
47	GRANGER SITES - 2013	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
48	GRANGER SITES - 2014	RECS	1,754	-	-	-	-	-	-	1,754	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
49	GRANGER SITES - 2015	RECS	1,754	-	-	-	-	-	-	-	1,754	-	-	-	-	-	-	-	-	-	-	-	-	-		
50	GRANGER SITES - 2016	RECS	1,754	-	-	-	-	-	-	-	-	1,754	-	-	-	-	-	-	-	-	-	-	-	-		
51	GRANGER SITES - 2017	RECS	1,754	-	-	-	-	-	-	-	-	-	1,754	-	-	-	-	-	-	-	-	-	-	-		
52	GRANGER SITES - 2018	RECS	1,754	-	-	-	-	-	-	-	-	-	-	1,754	-	-	-	-	-	-	-	-	-	-		
53	GRANGER SITES - 2019	RECS	1,754	-	-	-	-	-	-	-	-	-	-	-	1,754	-	-	-	-	-	-	-	-	-		
54	GRANGER SITES - 2020	RECS	1,754	-	-	-	-	-	-	-	-	-	-	-	-	1,754	-	-	-	-	-	-	-	-		
55	GRANGER SITES - 2021	RECS	1,754	-	-	-	-	-	-	-	-	-	-	-	-	-	1,754	-	-	-	-	-	-	-		
56	GRANGER SITES - 2022	RECS	1,754	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,754	-	-	-	-	-	-		
57	GRANGER SITES - 2023	RECS	1,754	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,754	-	-	-	-	-		
58	GRANGER SITES - 2024	RECS	1,754	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,754	-	-	-	-		
59	GRANGER SITES - 2025	RECS	1,754	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,754	-	-	-		
60	GRANGER SITES - 2026	RECS	1,754	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,754	-	-		
61	GRANGER SITES - 2027	RECS	1,754	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,754	-		
62	GRANGER SITES - 2028	RECS	1,754	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,754		
63	GRANGER SITES - 2029	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
64	**TOTAL USES**	RECS	28,117	-	-	-	351	579	877	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754		
65	**REMAINING NEEDED**						-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
66																										

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
67																										
68	NEW SOURCE - 2010	RECS	-	-	-	-			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
69	NEW SOURCE - 2011	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
70	NEW SOURCE - 2012	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
71	NEW SOURCE - 2013	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
72	NEW SOURCE - 2014	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
73	NEW SOURCE - 2015	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
74	NEW SOURCE - 2016	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
75	NEW SOURCE - 2017	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
76	NEW SOURCE - 2018	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
77	NEW SOURCE - 2019	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
78	NEW SOURCE - 2020	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
79	NEW SOURCE - 2021	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
80	NEW SOURCE - 2022	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
81	NEW SOURCE - 2023	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
82	NEW SOURCE - 2024	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
83	NEW SOURCE - 2025	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
84	NEW SOURCE - 2026	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
85	NEW SOURCE - 2027	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
86	NEW SOURCE - 2028	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
87	NEW SOURCE - 2029	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
88	**TOTAL USES**	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
89																										
90	**RECs - NEW REQUIRED**						351	579	877	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754		
91	**RECS - NEW SOURCES**						351	579	877	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754	1,754		
92	**DIFFERENCE**						-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
93																										
94	**EXPIRING**		**TOTAL**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**		
95	EXISTING	RECS	4,308	-	-	1,746	1,395	1,167	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
96	GRANGER SITES - 2010	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
97	GRANGER SITES - 2011	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
98	GRANGER SITES - 2012	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
99	GRANGER SITES - 2013	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
100	GRANGER SITES - 2014	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
101	GRANGER SITES - 2015	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
102	GRANGER SITES - 2016	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
103	GRANGER SITES - 2017	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
104	GRANGER SITES - 2018	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
105	GRANGER SITES - 2019	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
106	GRANGER SITES - 2020	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
107	GRANGER SITES - 2021	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
108	GRANGER SITES - 2022	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
109	GRANGER SITES - 2023	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
110	GRANGER SITES - 2024	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
111	GRANGER SITES - 2025	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
112	GRANGER SITES - 2026	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
113	GRANGER SITES - 2027	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
114	GRANGER SITES - 2028	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
115	GRANGER SITES - 2029	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
116	**TOTAL EXPIRING**	RECS	4,308	-	-	1,746	1,395	1,167	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
117																										
118	NEW SOURCE - 2010	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
119	NEW SOURCE - 2011	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
120	NEW SOURCE - 2012	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
121	NEW SOURCE - 2013	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
122	NEW SOURCE - 2014	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
123	NEW SOURCE - 2015	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
124	NEW SOURCE - 2016	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
125	NEW SOURCE - 2017	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
126	NEW SOURCE - 2018	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
127	NEW SOURCE - 2019	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
128	NEW SOURCE - 2020	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
129	NEW SOURCE - 2021	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
130	NEW SOURCE - 2022	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
131	NEW SOURCE - 2023	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
132	NEW SOURCE - 2024	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
133	NEW SOURCE - 2025	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
134	NEW SOURCE - 2026	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
135	NEW SOURCE - 2027	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
136	NEW SOURCE - 2028	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
137	NEW SOURCE - 2029	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
138	**TOTAL EXPIRING**	RECS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
139																										
140	**REC TRACKING**																									
141																										
142	**EXISTING**																									
143	**Carryover Start**				-	1,746	3,492	1,746	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
144	**New RECs**				1,746	1,746	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
145	**Use**				-	-	(351)	(579)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
146	**Sell**				-	-	(1,395)	(1,167)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
147	**Carryover End**				1,746	3,492	1,746	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
148																										
149	**GRANGER**																									
150	**Carryover Start**				-	178	978	1,245	2,833	1,754	1,936	1,936	1,936	1,936	1,936	1,936	1,936	1,936	1,936	1,936	1,936	1,936	1,936	1,936		
151	**New RECs**				178	800	1,245	1,956	1,956	2,311	2,311	2,311	2,311	2,311	2,311	2,311	2,311	2,311	2,311	2,311	2,311	2,311	2,311	2,311		
152	**Use**				-	-	-	-	(877)	(1,754)	(1,754)	(1,754)	(1,754)	(1,754)	(1,754)	(1,754)	(1,754)	(1,754)	(1,754)	(1,754)	(1,754)	(1,754)	(1,754)	(1,754)		
153	**Sell**				-	-	(978)	(368)	(2,158)	(375)	(557)	(557)	(557)	(557)	(557)	(557)	(557)	(557)	(557)	(557)	(557)	(557)	(557)	(557)		
154	**Carryover End**				178	978	1,245	2,833	1,754	1,936	1,936	1,936	1,936	1,936	1,936	1,936	1,936	1,936	1,936	1,936	1,936	1,936	1,936	1,936		
155																										
156	**NEW SOURCE**																									
157	**Carryover Start**				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
158	**New RECs**				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
159	**Use**				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
160	**Sell**				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
161	**Carryover End**				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
162																										

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
163	**Total Carryover**				1,924	4,470	2,991	2,833	1,754	1,936	1,936	1,936	1,936	1,936	1,936	1,936	1,936	1,936	1,936	1,936	1,936	1,936	1,936	1,936		
164																										
165	**PURCHASE / (SELL) OF RECS**			**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**		
166																										
167	REC PRICE - MICHIGAN	$ / MWH		$ 25.00	$ 25.75	$ 26.52	$ 27.32	$ 28.14	$ 28.98	$ 29.85	$ 30.75	$ 31.67	$ 32.62	$ 33.60	$ 34.61	$ 35.64	$ 36.71	$ 37.81	$ 38.95	$ 40.12	$ 41.32	$ 42.56	$ 43.84	$ 45.15		
168	REC PRICE - ESCALATOR				1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03		
169																										
170	BUY	RECS					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
171	EXISITNG	RECS	(2,562)	-	-	-	(1,395)	(1,167)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
172	TOTAL PURCHASE/(SELL) - 2010	RECS	(178)	-	-	-	(178)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
173	TOTAL PURCHASE/(SELL) - 2011	RECS	(800)	-	-	-	(800)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
174	TOTAL PURCHASE/(SELL) - 2012	RECS	(368)	-	-	-	-	(368)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
175	TOTAL PURCHASE/(SELL) - 2013	RECS	(1,956)	-	-	-	-	-	(1,956)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
176	TOTAL PURCHASE/(SELL) - 2014	RECS	(202)	-	-	-	-	-	(202)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
177	TOTAL PURCHASE/(SELL) - 2015	RECS	(557)	-	-	-	-	-	-	(375)	(182)	-	-	-	-	-	-	-	-	-	-	-	-	-		
178	TOTAL PURCHASE/(SELL) - 2016	RECS	(557)	-	-	-	-	-	-	-	(375)	(182)	-	-	-	-	-	-	-	-	-	-	-	-		
179	TOTAL PURCHASE/(SELL) - 2017	RECS	(557)	-	-	-	-	-	-	-	-	(375)	(182)	-	-	-	-	-	-	-	-	-	-	-		
180	TOTAL PURCHASE/(SELL) - 2018	RECS	(557)	-	-	-	-	-	-	-	-	-	(375)	(182)	-	-	-	-	-	-	-	-	-	-		
181	TOTAL PURCHASE/(SELL) - 2019	RECS	(557)	-	-	-	-	-	-	-	-	-	-	(375)	(182)	-	-	-	-	-	-	-	-	-		
182	TOTAL PURCHASE/(SELL) - 2020	RECS	(557)	-	-	-	-	-	-	-	-	-	-	-	(375)	(182)	-	-	-	-	-	-	-	-		
183	TOTAL PURCHASE/(SELL) - 2021	RECS	(557)	-	-	-	-	-	-	-	-	-	-	-	-	(375)	(182)	-	-	-	-	-	-	-		
184	TOTAL PURCHASE/(SELL) - 2022	RECS	(557)	-	-	-	-	-	-	-	-	-	-	-	-	-	(375)	(182)	-	-	-	-	-	-		
185	TOTAL PURCHASE/(SELL) - 2023	RECS	(557)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(375)	(182)	-	-	-	-	-		
186	TOTAL PURCHASE/(SELL) - 2024	RECS	(557)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(375)	(182)	-	-	-	-		
187	TOTAL PURCHASE/(SELL) - 2025	RECS	(557)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(375)	(182)	-	-	-		
188	TOTAL PURCHASE/(SELL) - 2026	RECS	(557)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(375)	(182)	-	-		
189	TOTAL PURCHASE/(SELL) - 2027	RECS	(557)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(375)	(182)	-		
190	TOTAL PURCHASE/(SELL) - 2028	RECS	(557)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(375)	(182)		
191	TOTAL PURCHASE/(SELL) - 2029	RECS	(375)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(375)		
192	**TOTAL PURCHASE / (SELL)**	RECS	(14,245)	-	-	-	(2,373)	(1,535)	(2,158)	(375)	(557)	(557)	(557)	(557)	(557)	(557)	(557)	(557)	(557)	(557)	(557)	(557)	(557)	(557)		
193																										
194	**COST / (REVENUE)**	$				$ -	$ (64,829)	$ (43,186)	$ (62,533)	$ (11,194)	$ (17,139)	$ (17,654)	$ (18,183)	$ (18,729)	$ (19,291)	$ (19,869)	$ (20,465)	$ (21,079)	$ (21,712)	$ (22,363)	$ (23,034)	$ (23,725)	$ (24,437)	$ (25,170)		
195																										
196																										
197			**SUM**																							
198	**TOTAL CROSS CHECK**		Used+sold	Available		Required	Used+Purchased																			
199	EXISITNG	RECS	3,492	3,492																						
200	RENEWABLE SOURCES - 2010	RECS	1,924	1,924																						
201	RENEWABLE SOURCES - 2011	RECS	2,546	2,546																						
202	RENEWABLE SOURCES - 2012	RECS	1,245	1,245		351	351																			
203	RENEWABLE SOURCES - 2013	RECS	1,956	1,956		579	579																			
204	RENEWABLE SOURCES - 2014	RECS	1,956	1,956		877	877																			
205	RENEWABLE SOURCES - 2015	RECS	2,311	2,311		1,754	1,754																			
206	RENEWABLE SOURCES - 2016	RECS	2,311	2,311		1,754	1,754																			
207	RENEWABLE SOURCES - 2017	RECS	2,311	2,311		1,754	1,754																			
208	RENEWABLE SOURCES - 2018	RECS	2,311	2,311		1,754	1,754																			
209	RENEWABLE SOURCES - 2019	RECS	2,311	2,311		1,754	1,754																			
210	RENEWABLE SOURCES - 2020	RECS	2,311	2,311		1,754	1,754																			
211	RENEWABLE SOURCES - 2021	RECS	2,311	2,311		1,754	1,754																			
212	RENEWABLE SOURCES - 2022	RECS	2,311	2,311		1,754	1,754																			
213	RENEWABLE SOURCES - 2023	RECS	2,311	2,311		1,754	1,754																			
214	RENEWABLE SOURCES - 2024	RECS	2,311	2,311		1,754	1,754																			
215	RENEWABLE SOURCES - 2025	RECS	2,311	2,311		1,754	1,754																			
216	RENEWABLE SOURCES - 2026	RECS	2,311	2,311		1,754	1,754																			
217	RENEWABLE SOURCES - 2027	RECS	2,311	2,311		1,754	1,754																			
218	RENEWABLE SOURCES - 2028	RECS	2,311	2,311		1,754	1,754																			
219	RENEWABLE SOURCES - 2029	RECS	2,129	2,311		1,754	1,754																			

PORTLAND
NEW RESOURCE

			2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
CAPACITY FACTOR																							
NETGENERATION	MWH	*																					
CAPACITY	MW	*																					
RENEWABLE ENERGY CREDITS																							
BASE GENERATION	RECS		-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
ON-PEAK & MICH INCENT RECS	RECS	*						-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	RECS		-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOURCE ESCALATOR					1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
UNIT COST	$/ kWh	*	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	-
O & M	$/ kWh	*	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	-
ADMIN	$/ kWh	*	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	-
WDS CHARGES	$/ kWh	*	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	-
INCREMENTAL UNIT COST	$/ REC		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	-
TOTAL INCREMENTAL COST	**$**		**$ -**	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	-
WITH PILT	$/ kWh	0.0011	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	-

CONSTRUCTION COSTS $ - INCLUDED IN UNIT COST
FIXED CHARGE RATE 0.10

CONSTRUCTION COSTS: AMMORTIZED

WIND FARM	**$**	100.00%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	-
SITE 2	**$**	100.00%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	-
SITE 3	**$**	100.00%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	-
SITE 4	**$**	100.00%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	-
SITE 5	**$**	100.00%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	-
SITE 6	**$**	100.00%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	-
SITE 7	**$**	100.00%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	-
TOTAL	**$**	100.00%	**$ -**	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	-
WITH PILT	$/ kWh	0.0011		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	-
	$ / MWH																						
	$ / KW-YR																						

SOURCE UNIT COST	$		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SOURCE CONSTRUCTION COST	$		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
SOURCE TOTAL COST	$		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

SOURCE TOTAL COST $ / MWH

PORTLAND

INCREMENTAL COST FOR NEW RECS

			ESC	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
INCREMENTAL REVENUE REQUIREMENTS																								
GRANGER	$			$ -	$ 13,416	$ 61,672	$ 97,883	$ 157,909	$ 161,747	$ 196,526	$ 201,292	$ 206,178	$ 211,186	$ 216,320	$ 221,582	$ 226,976	$ 232,506	$ 238,174	$ 243,984	$ 249,940	$ 256,045	$ 262,303	$ 268,718	$ 275,293
	$			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	$			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	$			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
NEW SOURCE	$			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	$			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	$			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	$			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
TOTAL	$			$ -	$ 13,416	$ 61,672	$ 97,883	$ 157,909	$ 161,747	$ 196,526	$ 201,292	$ 206,178	$ 211,186	$ 216,320	$ 221,582	$ 226,976	$ 232,506	$ 238,174	$ 243,984	$ 249,940	$ 256,045	$ 262,303	$ 268,718	$ 275,293
RECs PURCHASED / (SOLD)	RECS	*		-	-	-	(2,373)	(1,535)	(2,158)	(375)	(557)	(557)	(557)	(557)	(557)	(557)	(557)	(557)	(557)	(557)	(557)	(557)	(557)	(557)
REC UNIT VALUE	$/REC			25.00	25.75	26.52	27.32	28.14	28.98	29.85	30.75	31.67	32.62	33.60	34.61	35.64	36.71	37.81	38.95	40.12	41.32	42.56	43.84	45.15
REC VALUE	$			$ -	$ -	$ -	$ (64,829)	$ (43,186)	$ (62,533)	$ (11,194)	$ (17,139)	$ (17,654)	$ (18,183)	$ (18,729)	$ (19,291)	$ (19,869)	$ (20,465)	$ (21,079)	$ (21,712)	$ (22,363)	$ (23,034)	$ (23,725)	$ (24,437)	$ (25,170)
SUBTOTAL				$ -	$ 13,416	$ 61,672	$ 33,054	$ 114,723	$ 99,214	$ 185,332	$ 184,153	$ 188,524	$ 193,003	$ 197,591	$ 202,292	$ 207,107	$ 212,040	$ 217,094	$ 222,272	$ 227,576	$ 233,011	$ 238,578	$ 244,281	$ 250,123
TRANSFER PRICE / PSCR	$	1		$ -	$ 9,580	$ 45,304	$ 92,070	$ 153,612	$ 164,329	$ 211,095	$ 217,427	$ 221,649	$ 227,982	$ 238,537	$ 246,981	$ 257,535	$ 333,530	$ 282,867	$ 297,643	$ 301,865	$ 312,420	$ 325,086	$ 346,195	$ 360,972
TOTAL INCREMENTAL COST OF COMPLIANCE	$			$ -	$ 3,835	$ 16,368	$ (59,016)	$ (38,889)	$ (65,115)	$ (25,763)	$ (33,275)	$ (33,125)	$ (34,979)	$ (40,946)	$ (44,689)	$ (50,428)	$ (121,489)	$ (65,772)	$ (75,371)	$ (74,289)	$ (79,409)	$ (86,508)	$ (101,914)	$ (110,848)
NPV INCREMENTAL COST OF COMPLIANCE	$ NPV				$ (574,587)																			
LEVELIZED 20 YR INCR COST OF COMPLIANCE	$ NPV				$ (46,106)																			
NEW RECS OBTAINED			-	-	162	731	1,137	1,786	1,786	2,111	2,111	2,111	2,111	2,111	2,111	2,111	2,111	2,111	2,111	2,111	2,111	2,111	2,111	2,111
FORECASTED TRANSFER PRICE PER MWH (SUGGESTED)	$/MWH	***		$ 52	$ 59	$ 62	$ 81	$ 86	$ 92	$ 100	$ 103	$ 105	$ 108	$ 113	$ 117	$ 122	$ 158	$ 134	$ 141	$ 143	$ 148	$ 154	$ 164	$ 171
AMOUNT RECOVERED THROUGH PSCR WHICH EQUALS	CONTROL	1																						
TRANSFER PRICE X VOLUME OF ENERGY (SUGGESTED)	$			$ -	$ 9,580	$ 45,304	$ 92,070	$ 153,612	$ 164,329	$ 211,095	$ 217,427	$ 221,649	$ 227,982	$ 238,537	$ 246,981	$ 257,535	$ 333,530	$ 282,867	$ 297,643	$ 301,865	$ 312,420	$ 325,086	$ 346,195	$ 360,972
	MULT			1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

PORTLAND

				2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Non-Volumetric Surcharge																								
Meter (or customer) Forecast (Number)																								
Residential	No.			2,191	2,191	2,191	2,191	2,191	2,191	2,191	2,235	2,280	2,325	2,372	2,419	2,467	2,517	2,567	2,618	2,671	2,724	2,779	2,834	2,891
Commercial	No.			309	309	309	309	309	309	309	315	321	328	334	341	348	355	362	369	377	384	392	400	408
Industrial	No.			17	17	17	17	34	68	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136
Streetlights	No.			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unmetered	No.			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	No.			2,517	2,517	2,517	2,517	2,534	2,568	2,636	2,686	2,737	2,789	2,842	2,896	2,951	3,008	3,065	3,124	3,183	3,244	3,307	3,370	3,435
Maximum Surcharge (all rate classes at caps)																								
Residential	$ / MO	$	3.00	$ -	$ 78,876	$ 78,876	$ 78,876	$ 78,876	$ 78,876	$ 78,876	$ 80,454	$ 82,063	$ 83,704	$ 85,378	$ 87,085	$ 88,827	$ 90,604	$ 92,416	$ 94,264	$ 96,149	$ 98,072	$ 100,034	$ 102,035	$ 104,075
Commercial	$ / MO	$	16.58	$ -	$ 61,479	$ 61,479	$ 61,479	$ 61,479	$ 61,479	$ 61,479	$ 62,708	$ 63,962	$ 65,242	$ 66,546	$ 67,877	$ 69,235	$ 70,620	$ 72,032	$ 73,473	$ 74,942	$ 76,441	$ 77,970	$ 79,529	$ 81,120
Industrial	$ / MO	$	187.50	$ -	$ 38,250	$ 38,250	$ 38,250	$ 76,500	$ 153,000	$ 306,000	$ 306,000	$ 306,000	$ 306,000	$ 306,000	$ 306,000	$ 306,000	$ 306,000	$ 306,000	$ 306,000	$ 306,000	$ 306,000	$ 306,000	$ 306,000	$ 306,000
Streetlights	$ / MO	$	16.58	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Unmetered	$ / MO	$	0.60	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total	$ / MO			$ -	$ 178,605	$ 178,605	$ 178,605	$ 216,855	$ 293,355	$ 446,355	$ 449,162	$ 452,025	$ 454,945	$ 457,924	$ 460,963	$ 464,062	$ 467,223	$ 470,448	$ 473,737	$ 477,092	$ 480,513	$ 484,004	$ 487,564	$ 491,195
TOTAL NPV	$ NPV				$ 4,453,184																			
TOTAL PAYMENT	$ NPV				$ 357,335																			
Planned Surcharge																								
Residential	$ / MO	$	-	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Commercial	$ / MO	$	-	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Industrial	$ / MO	$	-	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Streetlights	$ / MO	$	-	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Unmetered	$ / MO	$	-	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total	$ / MO																							
Residential	$				$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Commercial	$				$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Industrial	$				$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Streetlights	$				$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Unmetered	$				$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total	$			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
LEVELIZED 20 YR INCR COST OF COMPLIANCE	$ NPV				$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
OVER / (UNDER) COLLECT	$				$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
NPV OF OVER / (UNDER COLLECT)	0				$ -																			
					0																			
					0																			
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