

CITY OF ST. LOUIS
RENEWABLE ENERGY PLAN
U-16632

JULY 1, 2011

- Based on this Renewable Energy Plan (REP) the City of St. Louis (City) will have the required Renewable Energy Credits (RECs) for the REP time period of 2012-2029 thereby complying with PA 295.
- The primary source of RECs is participation in the Michigan Public Power Agency (MPPA) Granger and North American Natural Resources (NANR) Projects, and the City's existing hydro electric generation. 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 additional Granger and NANR projects to begin commercial operation between 2011 and 2014.
- The City will have a REC deficit starting in 2018 and beyond. This deficit of RECs will be covered by the purchase of RECs.
- The City will not exceed the renewable energy surcharge caps specified in PA 295.
- The financial impact of this REP to the City's customers will be minimized.
- The City will comply with Sections 45 and 51 of PA 295 which refers to methods of notification to customers charges, if any, for costs associated with its REP.

ATTACHMENT C - RENEWABLE ENERGY PLAN SURCHARGE SUMMARY FOR MUNICIPAL UTILITIES

ITEM	2008	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
BASELINE													
Sales Forecast - 3 yr running average			37,956	37,771	37,868	37,646	37,520						
10% Compliance Factor				0.10									
RPS Requirement				3,777	3,787	3,765	3,752	3,752	3,752	3,752	3,752	3,752	3,752
RPS Required RECs				3,777	3,787	3,765	3,752	3,752	3,752	3,752	3,752	3,752	3,752
(-) REC's from Existing Renew. Energy Supply				680	680	680	680	680	680	680	680	680	680
RECS - Incremental Difference				3,097	3,107	3,085	3,072	3,072	3,072	3,072	3,072	3,072	3,072
FACTOR													
Required New RECS				0.20	0.33	0.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00
				619	1,025	1,542	3,072	3,072	3,072	3,072	3,072	3,072	3,072
RPS Renewable Energy Credit Compliance													
Total RPS Required RECs				765	1,250	1,882	3,752	3,752	3,752	3,752	3,752	3,752	3,752
Required New RECS				619	1,025	1,542	3,072	3,072	3,072	3,072	3,072	3,072	3,072
RECS Obtained from New Resources				329	846	2,361	2,527	2,465	2,465	2,465	2,465	2,465	2,465
RECS Over / (Short) without carryover				805	1,009	819	(545)	(614)	(614)	(626)	(630)	(630)	(630)
REC Purchases / (Sales)										134	530	530	530
Cumulative RECS Compliance Balance				2,041	2,779	3,598	3,053	2,465	1,852	1,360	1,360	1,360	1,360
%				137%	172%	153%	82%	61%	80%	80%	80%	80%	80%
Compliance % with Cumulative REC Balance				430%	371%	333%	198%	160%	144%	144%	144%	144%	144%
Revenue Requirements for New Renewables													
Build				4,312	2,663								
PPA				63,800	134,098	182,412	204,621	213,335	216,717	224,250	225,944	235,799	241,837
REC Purchases (Sales)										1,120	5,420	5,582	5,750
Total				68,112	136,762	182,412	204,621	213,335	218,717	225,370	235,364	241,362	247,577
New RECs Obtained													
Generation Based													
Build				35.14	37.17	38.64	43.05	65.24	68.10	71.08	73.65	76.11	79.12
PPA													
Subtotal				721	1,500	2,000	2,192	2,231	2,231	2,231	2,231	2,231	2,231
Purchase (Sold) From New RECS				288	288	288	288	288	288	288	288	288	288
RECS				14	125	329	41	227	254	216	212	212	212
Incentive (SB 213 Sec 39(2))				125	846	329	2,361	2,465	2,592	3,076	3,072	3,072	3,072
Total				37.95	33.46	38.64	43.05	65.24	68.10	71.08	73.65	76.11	79.12
Forecasted Transfer Price per MWH - SUGGESTED													
Amount recovered through PSCR				25,337	55,754	77,266	94,379	145,523	151,911	156,552	164,274	169,761	176,479
Transfer price x volume of energy				16,607	47,518	66,607	110,242	67,812	66,805	66,818	71,080	71,601	71,088
Incremental Cost of Compliance													
Non-Volumetric Surcharge													
Meter (or customer) Forecast (Number)													
Residential				1,638	1,638	1,638	1,638	1,638	1,638	1,638	1,638	1,638	1,638
Secondary (Commercial)				278	278	278	278	278	278	278	278	278	278
Primary (Industrial)				22	22	22	22	22	22	22	22	22	22
Total				1,938	1,938	1,938	1,938	1,938	1,938	1,938	1,938	1,938	1,938
Maximum Surcharge (all rate classes at cap)													
Residential				58,968	58,968	58,968	58,968	58,968	58,968	58,968	58,968	58,968	58,968
Commercial				55,311	55,311	55,311	55,311	55,311	55,311	55,311	55,311	55,311	55,311
Industrial				49,500	49,500	49,500	49,500	49,500	49,500	49,500	49,500	49,500	49,500
Streetlights													
Unmetered													
Total				163,779	163,779	163,779	163,779	163,779	163,779	163,779	163,779	163,779	163,779
Planned Surcharge													
Residential				25,289	25,289	25,289	25,289	25,289	25,289	25,289	25,289	25,289	25,289
Commercial				23,730	23,730	23,730	23,730	23,730	23,730	23,730	23,730	23,730	23,730
Industrial				21,237	21,237	21,237	21,237	21,237	21,237	21,237	21,237	21,237	21,237
Streetlights													
Unmetered													
Total				70,266	70,266	70,266	70,266	70,266	70,266	70,266	70,266	70,266	70,266

(e) Annual Energy Forecast used to calculate 3-yr Average

	2022	2023	2024	2025	2026	2027	2028	2029
\$	3,752	3,752	3,752	3,752	3,752	3,752	3,752	3,752
\$	3,752	3,752	3,752	3,752	3,752	3,752	3,752	3,752
\$	680	680	680	680	680	680	680	680
\$	3,072	3,072	3,072	3,072	3,072	3,072	3,072	3,072
\$	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00
\$	3,072	3,072	3,072	3,072	3,072	3,072	3,072	3,072
\$	3,752	3,752	3,752	3,752	3,752	3,752	3,752	3,752
\$	3,072	3,072	3,072	3,072	3,072	3,072	3,072	3,072
\$	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442
\$	(630)	(630)	(630)	(630)	(630)	(630)	(630)	(630)
\$	630	630	630	630	630	630	630	630
\$	1,360	1,360	1,360	1,360	1,360	1,360	1,360	1,360
\$	80%	80%	80%	80%	80%	80%	80%	80%
\$	144%	144%	144%	144%	144%	144%	144%	144%
\$	-	-	-	-	-	-	-	-
\$	248,043	254,451	261,068	267,845	274,791	281,912	289,219	296,722
\$	5,922	6,100	6,283	6,472	6,666	6,865	7,072	7,284
\$	253,965	260,551	267,349	274,317	281,457	288,778	296,291	304,006
\$	2,231	2,231	2,231	2,231	2,231	2,231	2,231	2,231
\$	2,231	2,231	2,231	2,231	2,231	2,231	2,231	2,231
\$	630	630	630	630	630	630	630	630
\$	212	212	212	212	212	212	212	212
\$	3,072	3,072	3,072	3,072	3,072	3,072	3,072	3,072
\$	82.44	85.48	88.22	90.23	92.16	94.09	96.07	97.99
\$	183,901	190,665	198,024	207,854	214,489	222,379	231,242	240,882
\$	70,065	69,896	69,325	68,963	68,968	68,400	65,048	63,125
\$	1,638	1,638	1,638	1,638	1,638	1,638	1,638	1,638
\$	278	278	278	278	278	278	278	278
\$	1,938	1,938	1,938	1,938	1,938	1,938	1,938	1,938
\$	58,968	58,968	58,968	58,968	58,968	58,968	58,968	58,968
\$	55,311	55,311	55,311	55,311	55,311	55,311	55,311	55,311
\$	49,500	49,500	49,500	49,500	49,500	49,500	49,500	49,500
\$	-	-	-	-	-	-	-	-
\$	-	-	-	-	-	-	-	-
\$	163,779	163,779	163,779	163,779	163,779	163,779	163,779	163,779
\$	25,299	25,299	25,299	25,299	25,299	25,299	25,299	25,299
\$	23,730	23,730	23,730	23,730	23,730	23,730	23,730	23,730
\$	21,237	21,237	21,237	21,237	21,237	21,237	21,237	21,237
\$	-	-	-	-	-	-	-	-
\$	-	-	-	-	-	-	-	-
\$	70,266	70,266	70,266	70,266	70,266	70,266	70,266	70,266

ST LOUIS
GRANGER - ALL SITES

	2009	2010	2011	2012	2013	2014	2015	2016	2017
CAPACITY FACTOR	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
NET GENERATION	-	111	288	490	1,000	1,385	1,461	1,461	1,461
CAPACITY	-	0.037	0.037	0.088	0.166	0.185	0.185	0.185	0.185
RENEWABLE ENERGY CREDITS									
BASE GENERATION RECS	-	111	288	490	1,000	1,385	1,461	1,461	1,461
ON-PEAK & MICH INCENT RECS	-	14	41	60	166	241	216	154	139
TOTAL RECS	-	125	329	571	1,166	1,626	1,677	1,616	1,600
GRANGER UNIT COST	\$ -	\$ 0.07860	\$ 0.08077	\$ 0.08279	\$ 0.08486	\$ 0.08698	\$ 0.08916	\$ 0.09139	\$ 0.09367
O & M	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
ADMIN	\$ -	\$ 0.00082	\$ 0.00549	\$ 0.00333	\$ 0.00163	\$ 0.00118	\$ 0.00112	\$ 0.00112	\$ 0.00112
WPS CHARGES	\$ -	\$ 0.00002	\$ 0.00001	\$ 0.00001	\$ 0.00001	\$ 0.00000	\$ 0.00000	\$ 0.00000	\$ 0.00000
INCREMENTAL UNIT COST	\$ -	\$ 0.07965	\$ 0.08627	\$ 0.08612	\$ 0.08650	\$ 0.08616	\$ 0.09028	\$ 0.09250	\$ 0.09479
TOTAL INCREMENTAL COST	\$ -	\$ 9,195	\$ 24,883	\$ 42,231	\$ 86,492	\$ 122,065	\$ 131,932	\$ 135,189	\$ 138,527
WITH PILT	\$ -	\$ 9,195	\$ 25,879	\$ 43,920	\$ 89,952	\$ 126,948	\$ 137,209	\$ 140,596	\$ 144,088

INTERCONNECTION COSTS: AMMORTIZED

GRANGER SITES	SHARE	2009	2010	2011	2012	2013	2014	2015	2016	2017
SITE 1	1.22%	\$ -	\$ -	\$ 366	\$ 366	\$ -	\$ -	\$ -	\$ -	\$ -
SITE 2	1.22%	\$ -	\$ 506	\$ -	\$ 3,048	\$ -	\$ -	\$ -	\$ -	\$ -
SITE 3	1.22%	\$ -	\$ 762	\$ -	\$ 732	\$ 732	\$ -	\$ -	\$ -	\$ -
SITE 4	1.22%	\$ -	\$ -	\$ -	\$ -	\$ 305	\$ -	\$ -	\$ -	\$ -
SITE 5	1.22%	\$ -	\$ -	\$ -	\$ -	\$ 1,524	\$ -	\$ -	\$ -	\$ -
SITE 6	1.22%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
SITE 7	1.22%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
SITE 8	1.22%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
SITE 9	1.22%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TOTAL	1.22%	\$ -	\$ 1,268	\$ 366	\$ 4,146	\$ 2,561	\$ -	\$ -	\$ -	\$ -
WITH PILT	1.04	\$ -	\$ 1,319	\$ 380	\$ 4,312	\$ 2,663	\$ -	\$ -	\$ -	\$ -
\$ / MWH		\$ -	\$ 11.88	\$ 1.32	\$ 8.79	\$ 2.86	\$ -	\$ -	\$ -	\$ -
\$ / KW-YR		\$ -	\$ 36,053	\$ 10,400	\$ 49,111	\$ 16,059	\$ -	\$ -	\$ -	\$ -
GRANGER ENERGY COST		\$ -	\$ 9,195	\$ 25,879	\$ 43,920	\$ 89,952	\$ 126,948	\$ 137,209	\$ 140,596	\$ 144,088
GRANGER INTERCONN COST		\$ -	\$ 1,319	\$ 380	\$ 4,312	\$ 2,663	\$ -	\$ -	\$ -	\$ -
GRANGER TOTAL COST		\$ -	\$ 10,514	\$ 26,259	\$ 48,232	\$ 92,615	\$ 126,948	\$ 137,209	\$ 140,596	\$ 144,088

GRANGER TOTAL COST

\$ / MWH	\$ 94.71	\$ 91.04	\$ 98.36	\$ 92.62	\$ 93.89	\$ 96.20	\$ 98.58
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ST LOUIS

North American Renewable Energy - ALL SITES

	2009	2010	2011	2012	2013	2014	2016	2016	2017
CAPACITY FACTOR	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
NET GENERATION	-	-	-	231	500	615	731	769	769
CAPACITY	-	-	-	0.059	0.068	0.088	0.098	0.098	0.098
RENEWABLE ENERGY CREDITS									
BASE GENERATION RECS	-	0	0	231	500	615	731	769	769
ON-PEAK & MICH INCENT RECS	-	-	-	45	97	120	119	100	88
TOTAL RECS	-	0	0	276	597	735	850	869	858
NAWR UNIT COST	\$	\$	\$	\$	\$	\$	\$	\$	\$
O & M	\$	\$	\$	\$	\$	\$	\$	\$	\$
ADMIN	\$	\$	\$	\$	\$	\$	\$	\$	\$
WDS CHARGES	\$	\$	\$	\$	\$	\$	\$	\$	\$
INCREMENTAL UNIT COST	\$	\$	\$	\$	\$	\$	\$	\$	\$
TOTAL INCREMENTAL COST	\$	\$	\$	\$	\$	\$	\$	\$	\$
WITH PILT	\$	\$	\$	\$	\$	\$	\$	\$	\$

INTERCONNECTION COSTS: AMMORTIZED

NAWR SITES	SHARE
SITE 1	1.22%
SITE 2	1.22%
SITE 3	1.22%
SITE 4	1.22%
SITE 5	1.22%
SITE 6	1.22%
SITE 7	1.22%
SITE 8	1.22%
SITE 9	1.22%
TOTAL	1.22%
WITH PILT	1.04

\$ / MWH
\$ / KW-YR

NAWR ENERGY COST	\$	19,880	44,147	55,464	67,412	72,739	74,649
NAWR INTERCONN COST	\$	4,743	2,372	-	-	-	-
NAWR TOTAL COST	\$	24,623	46,519	55,464	67,412	72,739	74,649
NAWR TOTAL COST	\$ / MWH	106.71	83.04	90.14	92.26	94.57	97.05

ST LOUIS

Non-Volumetric Surcharge		2009	2010	2011	2012	2013	2014	2015	2016	2017
Meter (or customer) Forecast (Number)										
No.	1,604	1,604	1,638	1,638	1,638	1,638	1,638	1,638	1,638	1,638
Residential	265	278	278	278	278	278	278	278	278	278
Commercial	22	22	22	22	22	22	22	22	22	22
Industrial	-	-	-	-	-	-	-	-	-	-
Streetslights	-	-	-	-	-	-	-	-	-	-
Unmetered	-	-	-	-	-	-	-	-	-	-
No.	1,891	1,938	1,938	1,938	1,938	1,938	1,938	1,938	1,938	1,938
Total										
1 Meter Forecast Escalation Factor										
\$ / MO	\$ 3.00	\$ 56,968	\$ 56,968	\$ 56,968	\$ 56,968	\$ 56,968	\$ 56,968	\$ 56,968	\$ 56,968	\$ 56,968
Residential	\$ 16.58	\$ 55,311	\$ 55,311	\$ 55,311	\$ 55,311	\$ 55,311	\$ 55,311	\$ 55,311	\$ 55,311	\$ 55,311
Commercial	\$ 187.50	\$ 49,500	\$ 49,500	\$ 49,500	\$ 49,500	\$ 49,500	\$ 49,500	\$ 49,500	\$ 49,500	\$ 49,500
Industrial	\$ 16.58	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Streetslights	\$ 0.60	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Unmetered	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total	\$ -	\$ 163,779	\$ 163,779	\$ 163,779	\$ 163,779	\$ 163,779	\$ 163,779	\$ 163,779	\$ 163,779	\$ 163,779
\$ NPV	\$ 1,943,854									
TOTAL PAYMENT	\$ 165,980									
Planned Surcharge										
\$ / MO	\$ 1.29	\$ -	\$ 1.29	\$ 1.29	\$ 1.29	\$ 1.29	\$ 1.29	\$ 1.29	\$ 1.29	\$ 1.29
Residential	\$ 7.11	\$ -	\$ 7.11	\$ 7.11	\$ 7.11	\$ 7.11	\$ 7.11	\$ 7.11	\$ 7.11	\$ 7.11
Commercial	\$ 80.44	\$ -	\$ 80.44	\$ 80.44	\$ 80.44	\$ 80.44	\$ 80.44	\$ 80.44	\$ 80.44	\$ 80.44
Industrial	\$ 7.11	\$ -	\$ 7.11	\$ 7.11	\$ 7.11	\$ 7.11	\$ 7.11	\$ 7.11	\$ 7.11	\$ 7.11
Streetslights	\$ 0.26	\$ -	\$ 0.26	\$ 0.26	\$ 0.26	\$ 0.26	\$ 0.26	\$ 0.26	\$ 0.26	\$ 0.26
Unmetered	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total	\$ -	\$ -	\$ 6,325	\$ 25,299	\$ 25,299	\$ 25,299	\$ 25,299	\$ 25,299	\$ 25,299	\$ 25,299
Residential	\$ -	\$ -	\$ 5,933	\$ 23,730	\$ 23,730	\$ 23,730	\$ 23,730	\$ 23,730	\$ 23,730	\$ 23,730
Commercial	\$ -	\$ -	\$ 5,309	\$ 21,237	\$ 21,237	\$ 21,237	\$ 21,237	\$ 21,237	\$ 21,237	\$ 21,237
Industrial	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Streetslights	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Unmetered	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total	\$ -	\$ -	\$ 17,567	\$ 70,266	\$ 70,266	\$ 70,266	\$ 70,266	\$ 70,266	\$ 70,266	\$ 70,266
Residential	\$ -	\$ -	\$ 61,061	\$ 61,061	\$ 61,061	\$ 61,061	\$ 61,061	\$ 61,061	\$ 61,061	\$ 61,061
Commercial	\$ -	\$ -	\$ (61,061)	\$ (43,494)	\$ 9,205	\$ 9,205	\$ 9,205	\$ 9,205	\$ 9,205	\$ 9,205
Industrial	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Streetslights	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Unmetered	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total	\$ -	\$ -	\$ 17,567	\$ 70,266	\$ 70,266	\$ 70,266	\$ 70,266	\$ 70,266	\$ 70,266	\$ 70,266
LEVELIZED 20 YR INCR COST OF COMPLIANCE	\$ NPV	\$ 61,061	\$ 61,061	\$ 61,061	\$ 61,061	\$ 61,061	\$ 61,061	\$ 61,061	\$ 61,061	\$ 61,061
OVER / (UNDER) COLLECT	\$	\$ (61,061)	\$ (43,494)	\$ 9,205	\$ 9,205	\$ 9,205	\$ 9,205	\$ 9,205	\$ 9,205	\$ 9,205
NPV OF OVER / (UNDER COLLECT)	\$	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0

Surcharge Scaling Factor 42.803%

MISO Resource Adequacy Capacity	90%
Hours in Year	8760

MPSC Developed Transfer Price Calculation

	From Exhibit A-29 (JSR-5)	From Exhibit A-30 (JSR-6)	Annual Capacity Value (\$/MW-yr)	RAC Value (\$/MWh)	Total Transfer Price (\$/MWh)	Five Year TP	Ten Year TP	Eighteen Year TP
24 X 7 Average								
2011	\$33.46	\$30.00	\$30.00	\$0.00	\$33.46			
2012	\$35.12	\$168.00	\$168.00	\$0.02	\$35.14			
2013	\$37.08	\$899.00	\$899.00	\$0.09	\$37.17			
2014	\$38.14	\$4,829.00	\$4,829.00	\$0.50	\$38.64			
2015	\$40.39	\$25,924.00	\$25,924.00	\$2.66	\$43.05	\$37.49		
2016	\$52.50	\$124,000.00	\$124,000.00	\$12.74	\$65.24			
2017	\$53.72	\$140,000.00	\$140,000.00	\$14.38	\$68.10			
2018	\$55.91	\$147,662.00	\$147,662.00	\$15.17	\$71.08			
2019	\$58.02	\$152,092.00	\$152,092.00	\$15.63	\$73.65			
2020	\$60.02	\$156,654.00	\$156,654.00	\$16.09	\$76.11		\$54.16	
2021	\$62.54	\$161,354.00	\$161,354.00	\$16.58	\$79.12			
2022	\$65.37	\$166,195.00	\$166,195.00	\$17.07	\$82.44			
2023	\$67.89	\$171,180.00	\$171,180.00	\$17.59	\$85.48			
2024	\$71.11	\$176,316.00	\$176,316.00	\$18.11	\$89.22			
2025	\$74.57	\$181,605.00	\$181,605.00	\$18.66	\$93.23			
2026	\$76.94	\$187,053.00	\$187,053.00	\$19.22	\$96.16			
2027	\$79.90	\$192,665.00	\$192,665.00	\$19.79	\$99.69			
2028	\$83.28	\$198,445.00	\$198,445.00	\$20.39	\$103.67			
2029	\$86.99	\$204,398.00	\$204,398.00	\$21.00	\$107.99			\$72.56