Report

To the Village of Morrisville Water & Light

Business Plan

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Introduction

The Village of Morrisville Water & Light, ("MWL") retained Whitfield Russell Associates ("WRA") to provide consulting services in connection with developing business plans involving the future of the municipal utility and its hydroelectric generation assets. MWL is the municipally-owned electric, water, and sewer utility of the Village of Morrisville, Vermont. This report provides WRA's analysis of available options open to MWL.

This report will first describe MWL. Then the report discusses the advantages and disadvantages of (1) retaining the status quo, (2) selling the municipal system or portions thereof, and (3) outsourcing certain services provided by MWL. Finally, the report examines whether MWL would be better served by utilizing its hydro assets in their present contractual status, or changing their contractual status to load reducers under the Independent System Operator of New England ("ISO-NE") rules, or creating a limited liability corporation with the assets.

Executive Summary

This Report concludes that:

1. MWL should continue operating as a municipal power system, either independently or in combination with other municipal power systems. MWL offers power at very competitive rates to its residential customers, can finance expansions and improvements at tax-exempt interest rates, and has a century-long record of prudent management under local control. Municipal ownership of the electric system is accompanied by many advantages. Local control provides high-value jobs for local residents and many other intangible values to the community. Municipal ownership insulates MWL's customers from the considerable risks of buying power from an investor owned utility. Moreover, sale of the system would be unlikely to yield high prices owing to MWL's lack of large commercial and industrial customers and the tax-exempt status of many of MWL's interests in generating resources (which could severely restrict the pool of potential buyers for MWL's entire system - which might render them unmarketable - or which would invite offers from investor owned utilities solely for MWL's distribution assets). MWL also benefits from cost sharing between the utility departments that would be lost if any individual utility department were sold. Finally, should the utility acquiring MWL's system later encounter difficulties (e.g., bankruptcy) or impose unreasonable rate increases, recreating a municipal power system would be an expensive, long-term undertaking for the Village with substantial risks of failure.

2. MWL's rates are lower than those of all of its neighboring utilities for water, while its sewer rates are lower than those of all but Stowe. Other than remaining a stand-alone water and sewer utility, merging with Stowe would appear to be the only other attractive and cost-effective scenario. Merging with or selling its water/sewer departments to any of the other neighboring utilities would not lower rates to MWL's customers at this time, unless combined staff could be reduced and rates lowered for all participants. All of MWL's utility departments achieve cost-sharing benefits as a result of sharing general utility employees, as well as customer account, billing and payroll efficiencies, which could be lost in any merger or sale.

3. If MWL chooses to remain its own, separate municipal utility, WRA recommends that MWL's management continue its efforts with other Vermont utilities to create pools of line workers that can operate as needed in any one of the participating communities. On the whole, MWL's electric department compares favorably to other municipal utilities in terms of number of employees, salaries, and expenses. Pooling resources with other utilities could allow MWL's more experienced line workers to train others, perform work as needed, and MWL could share savings with all participating utilities. Furthermore, as various employees retire or leave, economies could be achieved by reducing the number of line workers needed by the participating utilities. WRA recommends that MWL create a proposal that could be shopped to other utilities, not just those in Lamoille County, that describes and quantifies pooling and savings options. Because MWL has just lost one line worker to retirement, MWL will need to analyze whether four line workers are sufficient, which WRA believes should be the optimal number for MWL as a stand-alone operation.

4. In 2006, MWL transferred operation of its wastewater treatment facility to a third party operator, but is now considering returning operations to in-house employees. In connection with bringing operations back in-house, MWL would need at least two employees devoted to operations at the facility. MWL should carefully analyze whether it could share job duties between its other general utility workers so that at least one existing worker could devote a substantial amount of time to the treatment facility, in addition to hiring one new employee. If adding such tasks to an existing employee's job duties would be too onerous to that employee, MWL should instead continue its present practice of contracting out operation of the wastewater treatment facility. If MWL must hire two new employees in order to return to in-house operation of the wastewater treatment facility, any savings would probably disappear. The record of the present contract provider has been acceptable, and MWL avoids the risk of violations by maintaining the current contract provider.

5. MWL should continue to employ local personnel to operate its water, sewer and electric systems other than the wastewater treatment facility. Wages and salaries of MWL's union and non-union employees are reasonable and consistent with those paid by other Vermont utilities. WRA also believes that MWL should keep its customer account, billing and payroll operations in-house. With three separate utility departments, disparate customers, and the need to allocate the costs of employee hours worked to different departments, having this work done in-house as it is currently done appears to be the best option.

6. MWL should carefully consider whether it can forecast New England's peak loads in order to benefit from changing the designation of its hydro facilities from generation assets selling output into the capacity and energy markets ISO-New England to load reducers, which act as behind-the-meter generation. At this time, the primary benefit arising from using the hydro units as load reducers is related to the ability to reduce MWL's high and growing payments for transmission service. The present contractual structure for the hydro units is producing benefits that currently exceed those presently achievable through converting to status as a "load reducer," unless MWL can forecast its peak usage in every month. However, as transmission costs rise, and if capacity

payments stay low, the benefits of having the units act as load reducers increase substantially, especially if load can be reduced during the highest peak periods.

7. It does not appear to be cost-effective for MWL to sell off the hydro plants either to a newly formed corporation owned by the Village or to an entirely independent power producer. In addition, the Morrisville community would realize little if any net proceeds from a sale of the hydro plants to a newly-formed corporation controlled by the Village because the Village would almost certainly be required to issue debt to buy the hydro plants from MWL and would incur substantial transaction costs in setting up and operating as an independent power producer or Qualifying Facility under the Public Utility Regulatory Policies Act of 1978. Sale to an independent power producer would enable the community to gain net proceeds, but the market value of the hydro units is at its near all-time historic low and, over time, MWL would be required to replace the capacity and energy it now receives from the hydro plants. The net present value of the replacement power costs would almost certainly exceed the net proceeds from the sale of the hydro units.

Background

The Village of Morrisville, Vermont, was incorporated in 1888. Located in the north-central part of the State in Lamoille County, the Village is part of the larger community of Morristown, the main commercial center in the county. The Village itself is composed of approximately 2,000 residents and has a Trustee-Treasurer form of government. The Village of Morrisville provides electric, water, and wastewater utility services, as well as general administrative services to the surrounding area. The bulk of the revenues and costs associated with running the Village involve the utility services. The entity that operates the utility departments is called the Village of Morrisville Water & Light ("MWL") Department and is run by a General Manager, who reports to a Board of Trustees. The Board of Trustees can include up to five elected people, but is currently operating with only four Trustees.

The Electric Department of the Village of Morrisville is regulated by the Vermont Public Service Board ("PSB") and the Federal Energy Regulatory Commission ("FERC"). As a municipal utility in New England, the Electric Department is also a member of the ISO-New England, Inc. ("ISO" or "ISO-NE"), which operates the New England bulk electric power system, administers the wholesale electricity marketplace, and plans for the future transmission needs of the region. The MWL serves approximately 4,000 electric customers located not just in the Village of Morrisville, but also in neighboring communities of Morristown, Stowe, Elmore, Wolcott and Hyde Park.

MWL's water department serves approximately 800 customers, while the sewer department serves approximately 100 fewer customers than does the water department. The service territories for the water and sewer systems are not as large as that for the electric department. The water department serves only Morristown and Morrisville, while the sewer department is primarily restricted to the Village of Morrisville. These departments are not regulated *per se*, but are subject to rules and regulations of the State of Vermont and of the Department of Environmental Conservation.

The need for this Report arises out of the desire by the Board of Trustees to examine possible future scenarios for utility operations for MWL.

MWL is one of seventeen electric distribution systems in the State of Vermont, nearly all of which are municipal utilities. The dominant utility in the state is Green Mountain Power, which recently merged with Central Vermont Public Service Company to form the largest utility in the state. Along with eleven other municipal utilities, MWL is a member of the Vermont Public Power Supply Association ("VPPSA"). As noted on its website:

> Vermont Public Power Supply Authority ("VPPSA") is a private authority of the State of Vermont empowered under 30 VSA, Chapter 84 with broad authority to contract to buy and sell wholesale power within Vermont and wholesale and retail power outside Vermont, as well as to issue tax-free debt on behalf of municipal and cooperative electric utilities within Vermont. VPPSA has broad statutory authority to provide such services as may be required in support of the activities of its member municipal utilities and to market its services to non-member utilities as is deemed appropriate.
>
> VPPSA has been a member of the New England Power Pool for over 20 years and has been active in the New England power market for that entire period of time. VPPSA currently operates a central "dispatch pool" for its members and other interested parties as aggregated loads within that pool. VPPSA currently provides power transactions for approximately 120 MW of load annually.[1]

MWL currently has 15 employees who, in concert, provide water, electric, and sewer services. Currently, MWL has two open positions, one for an electric operations superintendent and one for superintendent of the water/sewer side of the business, including MWL's hydro facilities.

The following table provides the revenue and expense statements of MWL over the most recent five-year period.

[1] See http://www.vppsa.com/index.html

Table 1

Village of Morrisville, VT					
FUND FINANCIAL STATEMENTS					
STATEMENT OF REVENUES, EXPENDITURES AND CHANGES IN NET POSITION-PROPRITARY FUNDS					
	FY 2008	**FY 2009**	**FY 2010**	**FY 2011**	**FY 2012**
Operating Revenues					
Charges of Services	$7,315,841	$7,512,812	$8,035,041	$8,371,554	$8,362,724
Other Operating Revenue	$88,637	$80,566	$93,388	$139,802	$140,047
TOTAL OPERATING REVENUE	$7,404,478	$7,593,378	$8,128,429	$8,511,356	$8,502,771
Operating Expenses					
Production	$4,894,821	$5,128,418	$5,008,456	$5,285,154	$5,436,516
Transmission	$18,785	$31,451	$58,472	$12,561	$17,197
Distribution	$389,684	$427,237	$411,747	$428,878	$445,022
Customer Account Expenses	$279,086	$314,391	$275,774	$270,114	$297,106
Administrative & General	$545,357	$731,446	$723,361	$684,431	$806,245
Depreciation Expense	$655,841	$658,690	$907,301	$971,067	$995,870
Taxes	$250,870	$278,862	$299,777	$309,547	$312,198
TOTAL OPERATING EXPENSES	$7,034,444	$7,570,495	$7,684,888	$7,961,752	$8,310,154
INCOME FROM OPERATIONS	$370,034	$22,883	$443,541	$549,604	$192,617
Non-Operating Revenues (Expense)					
Investment Income	$43,140	$41,775	$62,946	$82,055	$66,647
Gain on Sale of Assets	$1,835	$5		$272,432	$870,938
Rental Income	$49,774	$50,800	$50,796	$50,796	$50,796
Interest and Dividend Income	$519,611	$418,461	$423,271	$548,184	$558,211
Interest Expense	($494,014)	($604,316)	($550,267)	($502,699)	($484,007)
Reserve Allocation Fees	$26,509	$17,884	$11,736	$63,574	$38,696
Outside System Revenue	$22,087				
Outside System Expense	($22,047)				
Grant Income		$1,981,654	$1,396,423	$965,048	$176,885
Miscellaneous Expense				($16,447)	
Total Non-Operating Revenue (Expense)	$146,895	$1,906,263	$1,394,905	$1,462,943	$1,278,166
Increase (Decrease) in Net Position	$516,929	$1,929,146	$1,838,446	$2,012,547	$1,470,783
Net Position, Beginning of Year	$10,957,194	$11,474,124	$13,403,271	$15,241,715	$17,254,263
Net Position, End of Year	$11,474,123	$13,403,270	$15,241,717	$17,254,262	$18,725,046

As is evident from this table, MWL has increased its revenues in spite of the difficult economic times of the last few years. Income from Operations has fluctuated over the past five years, but has remained positive, in part because of rate increases in both the water and electric departments in the last few years. The wastewater department expects to need a rate increase in 2013. However, a large part of MWL's increase in Net Position has been caused by substantial grant income, received under the federal government's American Recovery and Reinvestment Act of 2009 ("ARRA"). From a high of $1.98 million in FY 2009, grant income has dropped

substantially to $176,885 in FY 2012 and will end in 2013. MWL used this grant income to fund improvements including automation and smart grid work on the electric system and wastewater treatment facility ("WWTF") upgrades, which are fully reflected in net plant. Furthermore, in FY 2012, MWL's net position was increased from the sale of 280 acres of land to the Trust for Public Lands.

Currently, the electric department provides the bulk of MWL's revenues (83.5%) and of its operating expenses (84.6%), while the water department maintains a smaller profile in the overall scheme of MWL. The electric and sewer departments share responsibility equally for the bulk of MWL's outstanding debt (each with approximately 40% of the total $12.5 million in liabilities). The water department is the smallest of the three departments in each of the four categories listed.

Below is a table that illustrates the percentages each department holds in operating revenues, operating expenses, net assets and liabilities.

Table 2

Village of Morrisville, Vermont				
Department Percentages				
For the Year Ended December 31, 2012				
Category	Electric	Water	Sewer	Total
Total Net Assets	$14,964,126	$5,572,061	$10,794,696	$31,330,883
%	47.8%	17.8%	34.5%	100.0%
Liabilities	$5,020,904	$2,513,889	$5,071,044	$12,605,837
%	39.8%	19.9%	40.2%	100.0%
Operating Revenues	$7,097,750	$581,527	$823,494	$8,502,771
%	83.5%	6.8%	9.7%	100.0%
Operating Expenses	$7,030,188	$468,242	$811,724	$8,310,154
%	84.6%	5.6%	9.8%	100.0%

Currently, MWL allocates administrative and general costs between the three departments in an 84%/7%/9% split between electric, water and sewer departments. The split is roughly based on each department's contribution to MWL's operating revenue.

Electric Department

As a distribution and generation electric utility, MWL produces a portion of its energy requirements from its own hydro assets. For the remainder of its generation requirements, MWL relies primarily on Hydro Quebec and its membership in VPPSA. MWL holds small participation shares in numerous resources, including power plants and power purchase

agreements, and participates in the ISO bulk power markets. The breakdown of MWL's resources for 2012 is as follows:

Table 3

Village of Morrisville, Vermont									
Resource Table									
Year Ended 2012									
								ISO Revenue	
Resource	KWH	Energy $	KW-mo	Demand $	Other $	Total $	$/MWH	Settlement	Net $
Hydro Assets									
Cadys Falls	2,433,294	0	18,480			0		(99,255)	(99,255)
Morrisville Plant 2	3,669,299	0	21,600			0		(150,369)	(150,369)
Morrisville Sanders	759,493	0	22,800			0		(79,702)	(79,702)
Total Hydro Assets	6,862,086	0	62,880		0	0		(329,325)	(329,325)
			5,240						
HQ Schedule B	13,282,460	442,319	25,632	479,205	1,987	923,512	69.53	(539,997)	383,515
HQ Schedule C1	107,720	3,581	220	3,367		6,948	64.50	(3,614)	3,334
HQ Schedule C2	2,982,210	99,129	6,094	93,270		192,398	64.52	(54,354)	138,044
HQ Schedule C2 Sellback	(1,154,610)	(38,379)	(2,000)	(33,671)		(72,051)	62.40		(72,051)
HQ Schedule C3	18,730	624	36	674	3	1,301	69.45	(675)	626
HQ Schedule C4	3,106,400	103,446	6,000	114,566	465	218,477	70.33	(110,167)	108,310
McNeil	5,960,923	373,292	15,864	432,271		805,563	135.14	(299,928)	505,635
NYPA-Niagara	3,136,467	15,734	6,132	45,229	391	61,354	19.56	(143,870)	(82,516)
NYPA-St. Lawrence	105,778	528	128	443	886	1,857	17.56	(4,263)	(2,406)
Project 10	28,725	4,794	43,200	308,135	(10,800)	302,129	10,517.99	(187,085)	115,044
Standard Offer	239,566	41,124			2,002	43,125	180.01	(2,413)	40,713
MMWEC Stonybrook	423,001	24,055	14,959	48,083	601	72,738	171.96	(79,756)	(7,018)
VEPPI	1,629,196	192,573	3,659	24,710	59,710	276,993	170.02	(66,239)	210,754
Vermont Yankee	2,640,703	121,452	4,218			121,452	45.99	(100,649)	20,803
Ryegate	252,813	24,270			37	24,307	96.14	(12,630)	11,677
Fitchburg Waste Mgmt.	3,774,660	371,126	5,823			371,126	98.32	(236,324)	134,802
HQ Energy Services	27,328	1,587	56			1,587	58.07	(1,413)	174
Market Contracts	2,243,878	170,691	0			170,691	76.07	(98,086)	72,605
Total	45,668,034	1,951,944	198,140	1,516,282	55,281	3,523,507	77.15	(2,270,786)	1,252,721
Sales to ISO	3,543,201					Load Settlement @ LMP			1,873,140
Settlement Load	49,211,235					Other Load/Market Charges			464,173
Transmission Loss	65,885					Transmission Charges			1,088,528
Distribution Loss	(5,078,110)					Other Charges			72,811
Retail Sales	44,199,010					Total Power Charges			4,751,373
						Total Power Cost, inc. Hydro			4,943,031

For each of these resources, MWL receives from the ISO revenue settlement dollars, which offset the costs of these resources. Settlement dollars include ISO payments to MWL for its contracted resources used to serve MWL's load at the locational marginal price ("LMP"), as well as any capacity payments that might be due MWL. MWL must also pay to the ISO the LMP for its load, as well as transmission charges, and other charges relating to reliability of the bulk power system, such as ancillary service charges for reserves. Based upon the table above, MWL paid an average LMP of $38.06/MWH as the energy cost of meeting load during 2012. This price does not include the cost of capacity, reserves, or other reliability charges. When all costs except for transmission costs are rolled in, MWL paid approximately $78/MWH.

The power purchased by MWL is delivered over the ISO-NE transmission system. Within Vermont, the Vermont Electric Power Company, Inc. ("VELCO") plans the transmission system, for which all utilities in Vermont bear a proportionate share of the costs. MWL takes power

from the system at several substations on its system (of which all take delivery at 34.5 kV) where the power is transformed down to lower voltages for distribution. These substations connect to Green Mountain Power ("GMP") in Johnson and Stowe, as well as to the Hardwick Electric Department in Wolcott. MWL also invested in the new VELCO substation facilities in Stowe at which it jointly owns a 34.5 kV ring bus. MWL must pay the ISO-NE for transmission costs, and it pays charges relating to VELCO and its affiliate, VT Transco LLC. MWL and other utilities own stock in VELCO and membership shares of VT Transco as part of the arrangement to pay costs related to the construction of transmission facilities within Vermont that support MWL and other utilities' receipt of power.

As noted previously, MWL is a member of VPPSA, which purchases power and plans resources on MWL's behalf. VPPSA prepares MWL's Resource Report for the Vermont regulators, and it acts on MWL's behalf in the ISO-NE markets and settlement process. Furthermore, VPPSA proposes short term transactions to adjust MWL's portfolio so that MWL's resources match its load obligations.

In 2012 the electric department reported a summer peak demand of 8.4 MW and a winter peak demand of 8.3 MW. In 2011 these seasonal peak demands were slightly higher, with the summer peak at 8.9 MW and the winter peak at 8.4 MW.[2] Average hourly consumption in 2012 was 5.6 MW.

Total energy supplied to MWL amounted to 49,211 MWH, and its sales amounted to 44,199 MWH. The difference between energy purchased and sold was accounted for by

51 MWH of energy consumed by MWL without charge and

4,961 MWH of energy line losses, for a loss factor of just over 10%.

The Electric Department reported sales to three classes of customers,[3] as follows:

Table 4

Village of Morrisville				
Sales to Ultimate Customers				
Year Ending December 31, 2012				
	Residential	Commercial	Industrial	Total
Revenue	$ 3,245,000	$ 2,722,000	$ 995,000	$ 6,962,000
kWh	20,630,000	16,493,000	7,076,000	44,199,000
Customers	3,335	579	3	3,917
Cents/kWh	15.730	16.504	14.062	15.751

[2] See MWL's 2012 Form EIA 861 at 2.
[3] *Ibid*, at 7.

In some reports, MWL is listed as not having industrial customers, presumably because the voltage level differentiating commercial service from industrial service differs from report to report. See EIA Form 816, which lists information for industrial customers as shown above, compared to the Vermont Department of Public Service Small Electric Company Annual Report,[4] which designates industrial customers as those with demand above 1,000 kW. The latter report shows no load in the industrial category.

Electric Rates

In the recent past, MWL has tended to be in the middle range of all Vermont utilities in terms of annual revenue per kWh sold. The VPPSA's 2013 Resource Report for the Village of Morrisville noted this summary of 2011 information:

> The following table ranks all utilities in the state from highest Utility Annual Revenue per kWh sold by rate class to the lowest for 2011. The VPPSA member systems are listed individually and in aggregate at the bottom of the table. The data is from the "kWh and Revenue Report" published annually by the Vermont Department of Public Service.

Table 5

Vermont Utility All Customer Class Revenues Annual Revenues/kWh Sales		Vermont Utility Total Residential Class Revenues Annual Revenues/kWh Sales		Vermont Utility Total Commercial and Industrial Class Annual Revenues/kWh Sales	
UTILITY	2011 ($/kWh)	UTILITY	2011 ($/kWh)	UTILITY	2011 ($/kWh)
WEC	$0.1881	WEC	$0.1914	HYDE PARK	$0.1963
HYDE PARK	$0.1827	VEC	$0.1883	READSBORO	$0.1848
HARDWICK	$0.1776	STOWE	$0.1828	HARDWICK	$0.1798
JOHNSON	$0.1764	HYDE PARK	$0.1783	BARTON	$0.1770
BARTON	$0.1748	HARDWICK	$0.1762	JOHNSON	$0.1759
READSBORO	$0.1702	JOHNSON	$0.1746	JACKSONVILLE	$0.1696
JACKSONVILLE	$0.1698	BARTON	$0.1725	LUDLOW	$0.1685
VEC	$0.1622	JACKSONVILLE	$0.1695	WEC	$0.1581
LUDLOW	$0.1587	READSBORO	$0.1663	MORRISVILLE	$0.1551
ENOSBURG FALLS	$0.1557	CVPS	$0.1614	LYNDONVILLE	$0.1544
MORRISVILLE	$0.1555	ENOSBURG FALLS	$0.1605	ENOSBURG FALLS	$0.1499
STOWE	$0.1525	GMP	$0.1592	ORLEANS	$0.1484
LYNDONVILLE	$0.1512	BURLINGTON	$0.1569	STOWE	$0.1392
CVPS	$0.1426	MORRISVILLE	$0.1552	BURLINGTON	$0.1344
ORLEANS	$0.1424	LYNDONVILLE	$0.1464	VEC	$0.1324
BURLINGTON	$0.1405	NORTHFIELD	$0.1389	NORTHFIELD	$0.1323
NORTHFIELD	$0.1360	LUDLOW	$0.1384	CVPS	$0.1272
GMP	$0.1261	ORLEANS	$0.1292	SWANTON	$0.1269
SWANTON	$0.1209	SWANTON	$0.1146	GMP	$0.1110
ALL UTILITIES	$0.1384	ALL UTILITIES	$0.1635	ALL UTILITIES	$0.1218
VPPSA	$0.1525	VPPSA	$0.1504	VPPSA	$0.1536

This table, based upon 2011 data, indicates that a Morrisville customer paid an average rate ($0.1555/kWh), above the average rate per kWh paid by customers of all Vermont utilities ($0.1384/kWh) and above the average rate per kWh paid by all VPPSA customers

[4] MWL's Vermont Small Electric Company Annual Report for 2012 ("VT Annual Report") at 8.

($0.1525/kWh). Morrisville also had a disadvantageous average rate in the combined commercial/industrial class where a Morrisville customer would pay more per kWh than would the average Vermont customer and the average VPPSA customer. However, Morrisville had an advantage compared to the average amount charged by all Vermont utilities in the residential class for which its average rate was $0.1552/kWh compared to the average residential rate for all Vermont utilities of $0.1635/kWh.

GMP customers paid the second lowest average rate overall ($0.1261/kWh), whereas GMP's average residential rate ($0.1592/kWh) is above Morrisville's average residential rate ($0.1552/kWh). GMP's residential rate ($0.1592/kWh) is below the average Vermont residential rate ($0.1635/kWh). This and other anomalies appear to be the result of the heavy weighting of kWh sold by GMP in the commercial/industrial class. That is, GMP's favorable overall rate appears to be held down by the large volume of its low-cost sales in the commercial/industrial class for which GMP's average rate ($0.1110/kWh) is the lowest in Vermont and well below the average Vermont commercial/industrial rate ($0.1218/kWh).

A more recent comparison of residential bills, performed by VPPSA in January of 2013, shows that MWL's customers would face per-kWh costs that are lower than the per-kWh costs faced by 50% of all Vermont utilities.[5] For example, a residential customer using 400 kWh per month in the Village of Morrisville would pay the 6th lowest rate, while a residential customer using 1,500 kWh per month would pay the 8th lowest rate. These statistics indicate that Morrisville has done a remarkably good job of keeping its residential rates low given that it makes relatively few sales in the desirable high-load-factor commercial/industrial classes. Morrisville's relatively low sales volumes in the commercial and industrial classes make it less desirable to other utilities as a candidate for takeover. On the other hand, customers in Morrisville's commercial/industrial classes could expect to benefit from a takeover by GMP.

It is difficult to provide a clear and concise analysis of future rates for MWL and any other competing electric distribution company. Future rates are based upon the costs to a utility of providing power, as well as the costs of transmitting that power over high voltage transmission lines, and then distributing the power over the local, low-voltage distribution system. Although regional network transmission charges imposed by ISO-New England have been rising since 2007 at more than 12% per year (and are projected to continue increasing at a similar rate through 2016),[6] all utilities in Vermont bear a proportionate share of these costs. Because all utilities share these costs, the transmission rates for customers are fairly comparable, and can be ignored when comparing costs between utilities. The primary driver of costs is the cost to supply power. Utilities supply power based upon generation that they own, generation that they purchase from others in bilateral transactions, and from purchases from ISO-New England energy and capacity markets.

[5] See file: Qrtrly Rate Comparison_Q4_2012_052013v1.pdf.
[6] See "A6: Presentation RNS Rates Forecast 2012-2016" found at http://www.iso-ne.com/committees/comm_wkgrps/trans_comm/tariff_comm/mtrls/2012/aug1314152012/index.html

Water Department

As shown in Table 2, the water department plays a smaller role in the total MWL system than does the electric department (water revenues represent 6.8% of MWL's revenues versus 83.5% for electric). The water department is separate from the wastewater (sewer) department, yet relies upon many of the same employees, including administrative and support staff. MWL continues to make water system capital improvements to meet federal regulations on clean water, and to ensure that infrastructure to deliver water is maintained. MWL received American Recovery and Reinvestment Act ("ARRA") funds in 2010 for a new water reservoir and the associated distribution system improvements.

The General Manager of MWL reports that the utility has an abundant water supply, and does not anticipate any concerns about quantity of water. According to MWL's 2012 Annual Report, the electric department began filtering river water to cool the bearings for the hydro generators, instead of purchasing water from the water department as it had done previously. This has caused a reduction in revenues for the water department (a drop of 2.8% from 2011 to 2012).

Because of funding requirements for the upgrades to the WWTF, MWL was required to put in new water meters. Furthermore, MWL continues to replace and rebuild water lines within its service territory, as facilities reach the end of their useful life. Rates have been raised in order to cover costs, and MWL seeks to increase the customer base and/or water usage in order to mitigate increasing rates.

Sewer (Wastewater) Department

MWL also operates a wastewater department, which involves the WWTF. The wastewater department lost money in 2012, down from a positive result in 2011. However, this change in revenue was primarily attributable to the loss of grant income from the U.S. Department of Agriculture ("USDA") for the WWTF upgrade, which dropped from $805,413 in 2011 to $85,517 in 2012. Upgrades were necessitated by State of Vermont regulations. MWL anticipates instituting a rate increase and potential rate re-design for its wastewater customers in 2013.

MWL completed upgrades to its WWTF in 2009, which involved extended aeration to the sequential batch reactor, and it upgraded the headworks at the WWTF in 2012. Prior to the upgrades, MWL received notice of several discharge violations, and the Vermont Agency of Natural Resources threatened fines if further violations occurred. As a result, MWL made the decision to outsource the operation and maintenance of the WWTF, which began in 2006.

In April of 2011, MWL entered into its most recent operation and maintenance ("O&M") agreement with Utility Partners, LLC, of Georgia, for a term of five years. Utility Partners provides the staff to operate the WWTF and pays the expenses for routine service and maintenance of the wastewater treatment facility, up to a set annual limit. However, MWL staff operates and maintains the remainder of the sewer system, including the sewers themselves. MWL also pays all utility costs, including electricity, plant fuel, water and sewage for the WWTF itself. The agreement can be extended for additional, consecutive five-year terms, as mutually agreed by both parties.

The in-house water and sewer employees are linked under the umbrella of the Operations Group, and include a foreman and general utility worker positions. Currently, MWL has four employees filling these positions; however the WWTF is operated by outside contractors, as noted above. Billing clerks and customer service representatives serve all utility departments. MWL wishes to determine whether to extend its operation and maintenance agreement, or return these services to employees of the utility department.

The table below illustrates MWL's current water and sewer rates.

Table 6

Village of Morrisville			
Water & Sewer Rates			
Water Rates			
Meter Size	Cutomer Charge	Usage Rate per Gallon Less than or equal to 10,000	Usage Rate per Gallon Greater than 10,000 Gallon
5/8"-3/4"	$20.89	$0.00188	$0.00430
1"	$40.00	$0.00188	$0.00430
1 1/2"	$84.44	$0.00188	$0.00430
2"	$155.55	$0.00188	$0.00430
3"	$222.22	$0.00188	$0.00430
4"	$933.31	$0.00188	$0.00430
Non-Metered	$29.73	$0.00188	$0.00430
Sewer Rates			
Meter Size	Cutomer Charge	Usage Rate per Gallon Less than or equal to 10,000 Gallon	Usage Rate per Gallon Greater than 10,000 Gallon
5/8"-3/4"	$38.94	$0.006296	$0.008052
1"	$74.57	$0.006296	$0.008052
1 1/2"	$157.42	$0.006296	$0.008052
2"	$290.00	$0.006296	$0.008052
3"	$414.28	$0.006296	$0.008052
4"	$1,740.00	$0.006296	$0.008052
Non-Metered	$68.53	$0.006296	$0.008052

As Table 7 illustrates, MWL is nearly at the median for combined water/sewer costs for a residential customer in neighboring communities.

Table 7

Quarterly Water and Sewer Rate Comparison			
Residential Customer 6300 gallon usage/month			
	Sewer	Water	Combined
Newport	88.12	64.42	152.54
Danville	75.00	100.00	175.00
Claremont	129.68	87.06	216.74
Ashland, NH	132.65	103.44	236.09
Marshfield	122.00	125.00	247.00
St J	137.45	114.45	251.90
Stowe	183.90	142.79	326.69
MW&L	235.81	98.20	334.01
Lyndon/Lydonville	237.11	141.74	378.85
Johnson	260.70	128.27	388.97
Cabot	300.00	110.30	410.30
Hyde Park	306.30	180.00	486.30
Barton	423.35	205.25	628.60

Breakdown of Finances by Service Department

Below is a table that breaks down the Statement of Revenues, Expenses, and Changes in Net Assets for the most recent fiscal year period, ending December 12, 2012, by service department.

Table 8

Village of Morrisville, Vermont				
Statement of Revenues, Expenses and Changes in Net Position				
For the Year Ended December 31, 2012				
Operating Revenues	**Electric**	**Water**	**Sewer**	**Total**
Charges of Services	$6,961,904	$579,567	$821,253	$8,362,724
Other Operating Revenue	$135,846	$1,960	$2,241	$140,047
TOTAL OPERATING REVENUE	$7,097,750	$581,527	$823,494	$8,502,771
Operating Expenses				
Production	$4,943,029	$62,890	$430,597	$5,436,516
Transmission	$17,197			$17,197
Distribution	$336,978	$108,044		$445,022
Customer Account Expenses	$253,138	$20,910	$23,058	$297,106
Administrative & General	$674,472	$76,928	$54,845	$806,245
Depreciation Expense	$504,822	$187,824	$303,224	$995,870
Taxes	$300,552	$11,646		$312,198
TOTAL OPERATING EXPENSES	$7,030,188	$468,242	$811,724	$8,310,154
INCOME FROM OPERATIONS	$67,562	$113,285	$11,770	$192,617
Non-Operating Revenues (Expense)				
Investment Income	$66,647			$66,647
Gain on Sale of Assets	$870,938			$870,938
Rental Income		$50,796		$50,796
Interest and Dividend Income	$549,667	$2,699	$5,845	$558,211
Grant Income	$91,368		$85,517	$176,885
Interest Expense	($189,903)	($80,233)	($213,871)	($484,007)
Reserve Allocation Fees			$38,696	$38,696
Total Non-Operating Revenue (Expense)	$1,388,717	($26,738)	($83,813)	$1,278,166
Increase (Decrease) in Net Position	$1,456,279	$86,547	($72,043)	$1,470,783
Net Position, Beginning of Year	$8,486,943	$2,971,625	$5,795,695	$17,254,263
Net Position, End of Year	$9,943,222	$3,058,172	$5,723,652	$18,725,046

I. Whether to Maintain Status Quo, Merge or Sell

WRA has been asked to examine whether MWL should maintain the current structure of its electric department, or whether to consider merging with or selling to other utilities. In the past, Vermont regulators have discussed the benefits of having one investor-owned utility, and one public power utility. Other participants have raised the idea of merging neighboring public power utilities.

Consolidation of utilities can achieve certain economies of scale and/or make more efficient use of resources. Certain of these possible future configurations are described below.

Maintain Status Quo

Under the *status quo* alternative, MWL would keep operating as it has been doing for over the past hundred years – operating as an entity within, but organizationally separate from, the Village, for the provision of electric, water, and sewer services to customers in and around the Village of Morrisville. MWL has been operated profitably for many years, has accumulated a substantial net position and appears to have been fiscally responsible. The benefits to retaining municipal electric utility ownership include the ability to control and formulate utility policy in concert with the community's goals and objectives. This includes responsiveness to local customers and the ability to allow for the support of other utility services as necessary.

In addition to the benefits of municipal utility ownership that can be quantified in monetary terms, such as financial support for other city-provided services like sewer and water service, there are often other benefits. Well-managed municipal electric utilities often provide other support in their communities. In Morrisville's case, an example of the community benefit provided by municipal utility ownership is holiday street decoration and lighting provided annually by MWL employees and equipment.

Municipal utility ownership also provides the benefit of being able to decide and direct the community's own public service priorities and investment decisions rather than being obligated to pay for decisions that are made by utility management groups that are not part of, or controlled by, the local community. These non-quantifiable benefits of municipal ownership should be weighed in evaluating the proceeds the City would obtain from selling the utility.

By retaining its own vertically integrated system, MWL has mitigated the risks associated with deregulation of the generation sector. Deregulated generation markets got off to a rocky start in the 2000/2001 period when generation was short and market manipulation was rampant. Average monthly prices reached as high as $400 per MWH in California versus the average rate of $78/MWH paid by MWL in 2012. It is notable that vertically integrated municipal utilities were the big winners in the California Energy Crisis of 2000/2001 because municipal systems bought low-cost federal hydro power and produced their own supplemental power (including hydro generation in some cases) and, in addition, benefited from sales of surplus energy at the greatly inflated prices then prevailing in bulk power markets. Although opportunities for market manipulation have been greatly reduced, market prices can be expected to resume their historic upward trajectory. In that scenario, a vertically integrated municipal utility such as MWL and its fellow VPPSA members will benefit both by controlling their cost of power and by selling into higher-priced bulk power markets. MWL now possesses a physical hedge against a resumption of high market prices. That physical hedge is inherent in MWL's ownership and long-term purchase of generation with stable costs. This structure enhances MWL's ability to make more profitable off-system sales during spikes in market prices which MWL credits to its costs of power. This physical hedge would be lost if MWL divested its generating assets or was acquired by an entity that did so.

Merge/Sell the Electric Department

A one-time cash infusion and lower electric rates would be the primary benefits that MWL's customers could derive from selling MWL's electric department, or from merging it with another utility (although a merger may not result in a cash infusion). Lower rates are most likely to be achieved by the acquiring entity through gains in efficiencies and advantages arising from economies of scale. In the structure of today's electric utility industry, most of the benefits tend to be gains in efficiency that are achieved through reductions in overhead expense. That is, a larger utility is often able to conduct business for more customers using fewer employees per customer. After merger, the surviving entity typically eliminates redundant personnel (which can have severe and adverse local impacts) and standardizes activities such as accounting, purchasing and cost allocation. Employee retirement plans are often shifted from defined benefit plans to defined contribution plans, such as 401-Ks (lowering costs to the utility and benefits to employees), and medical coverage is frequently reduced by offering fewer benefits and by increasing employee co-payments.

Under the more balkanized, vertically-integrated and cost-based structure common to the industry in decades past, vast economies of scale could also be achieved in connection with generating and purchasing power and in building transmission systems. That is, a larger utility could build or buy power in larger amounts and/or at higher load factors than could a smaller utility. Because the per-unit cost of generation declines with an increase in the size of generating units and with higher load factors - and also because the per unit cost of transmitting declines with the higher voltage (e.g., doubling the voltage would lower the cost by 75% measured in dollars per MW-mile), the larger utility could reduce its per-unit costs of generation and transmission below those incurred by a smaller utility. These attributes of power supply economics drove the decades-long effort by small municipal and cooperative systems to acquire access to and ownership of large generating and transmission facilities through power pooling (e.g., the New England Power Pool) and formation of joint action agencies such as VPPSA.[7]

However, with the restructuring of the industry into an unregulated competitive generation market with a unified independently-managed regulated transmission operator (i.e., the ISO-NE), the cost of generation has become much more competitive (e.g., power prices are roughly the same for all buyers), and the products have become standardized for entities buying in blocks of 25 MW or greater. Moreover, the cost of transmission has remained cost-based and is now set by more fair and standardized methodologies. That is, all entities in New England pay the same rates for regional transmission service and pay standardized rates for sub-regional, sub-transmission service.

Although MWL acquires power in blocks much smaller than 25 MW, it currently achieves some economies of scale through its membership in VPPSA, which builds power plants and purchases power in larger volumes on behalf of 12 municipal and cooperative utilities than any individual VPPSA member could do on its own. For example, VPPSA has a peak demand of 120 MW versus 8.6 MW for MWL.

[7] There are fewer economies of scale in distribution.

Loss of control over management and planning is one danger lurking in the sale of MWL's electrical system. That is, MWL's ratepayers would lose their present management with its long history of prudent planning and operation and take on the risks associated with imprudent behavior by management of the acquiring company. These risks are not few or trivial. The electric utility industry has seen a long series of diversifications into telecommunication and other industries gone bad.[8] There is also a danger associated with large bets on specific facilities such as nuclear power plants or integrated coal gasification plants, some of which have caused utilities to go bankrupt.

A benefit of selling the utility is the possible addition of tax revenue to the Village of Morrisville. Currently, MWL does not make any payments to the Village of Morrisville in lieu of taxes. Nor does it pay any franchise fees. If the electric utility is sold, the purchaser might be asked to pay a franchise fee, property taxes and/or make a payment-in-lieu-of-tax, particularly if the purchaser is an investor owned utility such as GMP. Such payments would bring revenue to the city that it currently does not have (provided that the Village of Morrisville has the authority to charge such fees and taxes).

VPPSA is arguably a possible purchaser of MWL's assets. However, it is not allowed to sell at retail in the State of Vermont, and MWL's distribution assets would have little value for VPPSA. Therefore, an offer by MWL to sell its system would be unlikely to elicit a response from VPPSA because it has no use for MWL's distribution assets. According to its website:

> Vermont Public Power Supply Authority ("VPPSA") is a private authority of the State of Vermont empowered under 30 VSA, Chapter 84 with broad authority to contract to buy and sell wholesale power within Vermont and wholesale and retail power outside Vermont, as well as to issue tax-free debt on behalf of municipal and cooperative electric utilities within Vermont. VPPSA has broad statutory authority to provide such services as may be required in support of the activities of its member municipal utilities and to market its services to non-member utilities as is deemed appropriate.

Based upon information provided by MWL's General Manager, it appears that there has been some discussion within the Vermont regulatory and political world concerning the creation of one large investor-owned utility, and one large municipal utility in the State of Vermont. As of October 2012, the only two investor-owned utilities merged, and are now combined under the GMP name. However, merging of the municipally-owned utilities has not been addressed with any rigor. Typically, municipal utilities cannot acquire another utility, as they are bound by service territory rules and requirements.

MWL's General Manager also informed us that the five municipal power systems within Lamoille County (Stowe, Morrisville, Johnson, Hardwick and Hyde Park) had discussions recently over a one-year period about merging and/or consolidation. According to MWL's General Manager, the idea of merging was unappealing to several of the five utilities, and so that idea was not addressed in detail. However, the idea of functional consolidation was analyzed

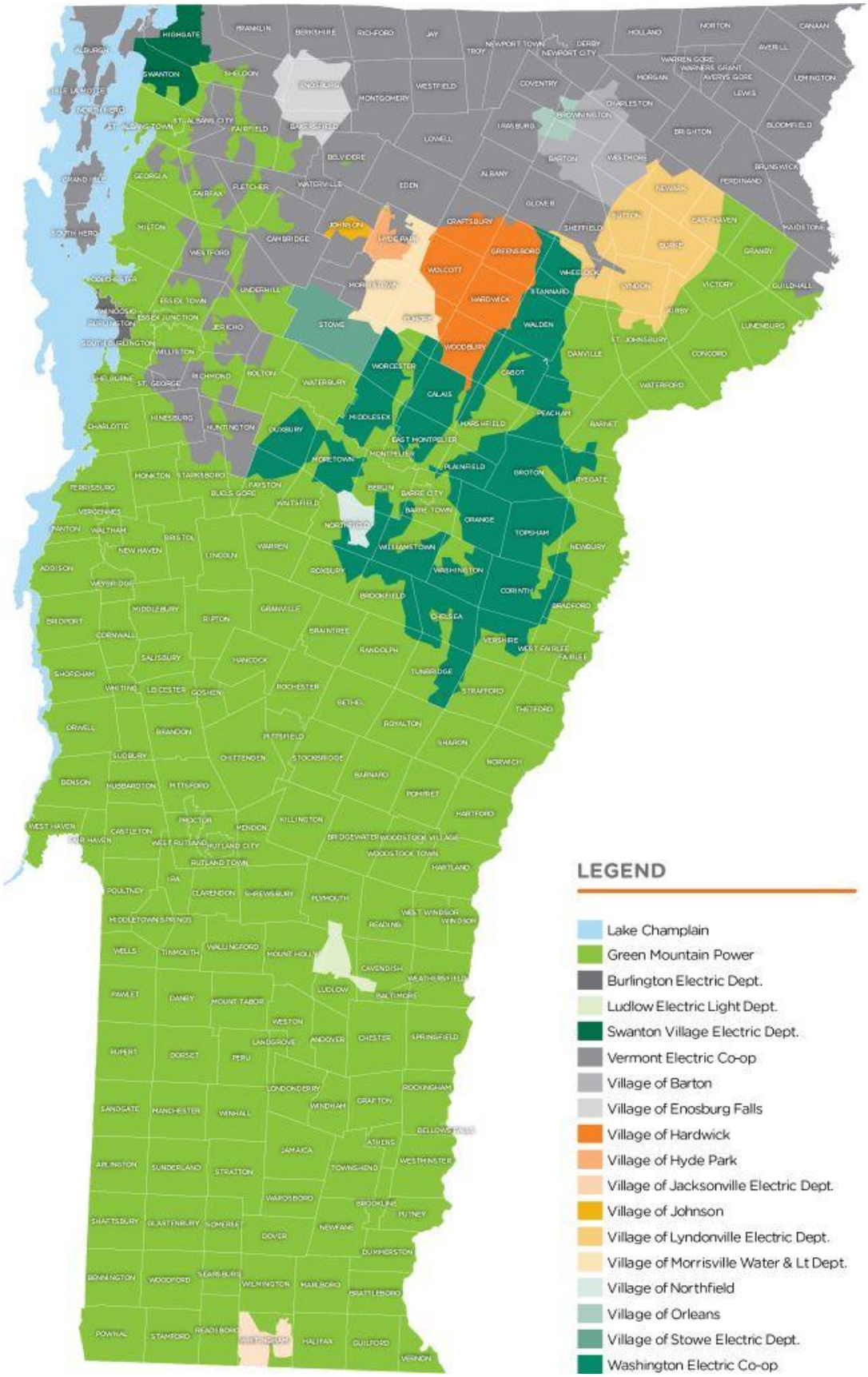
[8] For example, Montana Power Company failed after making large bets on telecommunication, Portland General Electric had to be reconstituted after being acquired by Enron, and American Electric Power is saddled with high-cost coal mines, barge and railcar leases and terminal facilities that are needed less as coal is phased out. Closer to home, Public Service Company of New Hampshire went bankrupt before being acquired by Northeast Utilities.

more closely. This involved particularly the idea of reducing the number of costly, large equipment assets (e.g., bucket trucks), and reducing the number of linemen needed to perform tasks in the approximately 10 square mile area

It is clear that significant benefits could be achieved by consolidation. However, there appears to be reluctance on the part of other municipals to implement - or even consider - consolidation out of concern for loss of jobs, loss of managerial responsibility and other factors. Proposals for functional consolidation also met with resistance. If MWL retains its electric department, it may wish to continue pursuing consolidation, or at least combining electric operations such as electric line maintenance and repair, with other utilities in Vermont. Based upon MWL's experience in the past, this appears to be a possibility which would only come to fruition after considerable effort on behalf of MWL's management and its Board of Trustees.

According to MWL's General Manager, the electric rates of Washington Electric Cooperative ("WEC") and the Vermont Electric Cooperative ("VEC") are higher than those of MWL, which is also clear from Table 5 above. Thus, any attempt by either WEC or VEC to take over or merge with MWL would probably cause the rates of MWL customers to increase, which is obviously not desirable (unless present rate differentials were maintained between MWL and non-MWL customers after the consolidation).

Putting aside a combination with the most logical publicly owned systems proximate to MWL, only GMP is left for consideration as a possible purchaser of MWL's electric department. The map below indicates MWL's location in Vermont, as well as the other electric utilities in the state. Our analysis of GMP as a potential purchaser of MWL is discussed below.


LEGEND
Lake Champlain
Green Mountain Power
Burlington Electric Dept.
Ludlow Electric Light Dept.
Swanton Village Electric Dept.
Vermont Electric Co-op
Village of Barton
Village of Enosburg Falls
Village of Hardwick
Village of Hyde Park
Village of Jacksonville Electric Dept.
Village of Johnson
Village of Lyndonville Electric Dept.
Village of Morrisville Water & Lt Dept.
Village of Northfield
Village of Orleans
Village of Stowe Electric Dept.
Washington Electric Co-op

Market Value of Electric Department

As of the preparation of this report, no utility has approached MWL and offered to purchase its electric department. Because MWL serves no large industrial customers or other high-load-factor customers, it is less attractive as an acquisition prospect for a utility such as GMP, especially after GMP's recent acquisition of the largest utility in Vermont, Central Vermont Public Service Corporation ("CVPS"). However, after GMP has time to absorb CVPS, it may become more inclined to consider acquiring smaller utilities within Vermont. WRA is aware that GMP has in the past sought to acquire other Vermont municipal systems.

The first step in considering the potential sale of an electric department is to determine its fair market value. This value may be significantly different from the economic value to the Village and its residents of retaining ownership of the utility. The value to the community of retaining ownership (or the financial cost to the community and its residents of giving up ownership) may include considerations that would not influence the utility's market value to a potential buyer. Factors such as subsidies that the electric department now provides to other utility services or the payment of proceeds to the Village fall into this category. The estimated market value of the electric utility is our estimate of the fair value that could be expected to be paid to the Village of Morrisville for the electric utility as a going business enterprise, under prevailing public utility market conditions in Vermont.

Often, purchasers of a utility hope to purchase the utility at close to net book value. Net book value represents a minimum purchase amount. However, market value is the better valuation method, as a selling utility does not bring only assets to the purchaser. The selling utility also provides the purchaser with a source of continuing revenues over the foreseeable future from its electricity customers.

Several different methods can be used to estimate the market value of the Village of Morrisville's electric utility. These include:

- Net Plant
- Energy Sales
- Number of Customers
- Potential Income

Based upon a previous analysis of acquisition premiums analyzed in 2011, we estimate that the market value of the Morrisville electric utility would be in the range of $11.7 million to $15.9 million if the business, together with its public utility service franchise and electric plant and equipment, were to be sold to a willing buyer.[9]

Net Plant Valuation

Net plant investment is an important indicator of the business value of an electric utility. Utility business profits, especially under regulatory rate setting practices employed in Vermont and elsewhere in the United States, are closely correlated with net plant investment. Regulators

[9] A prospective purchaser would apply a variety of analytical techniques to estimate the market value. In periods of low interest rates, like the present, one would expect an acquirer to pay more than it would when rates are normal.

allow utilities to earn a rate of return on their rate base. Utility rate base is composed primarily of gross plant investment minus accrued plant depreciation, or "net plant." Indeed, most jurisdictions do not allow a utility to earn a rate of return on any premium it may pay. In Vermont, all electric utilities are regulated monopolies whose rates and policies are subject to review by the Vermont Public Service Department ("PSD") with approval by the Vermont Public Service Board ("PSB"). Municipal and electric cooperatives do not tend to include a rate of return on rate base, *per se*, but instead include margins, or extra revenue, in their revenue requirement in order to satisfy covenants in their bond resolutions and to maintain acceptable cash reserves for unforeseen events.

On the numerous occasions during the past decade when electric utilities have been purchased or merged, the market value of the acquired utility has generally been established in a price range of 1.2 times to 1.9 times the utility's net plant value. GMP had a market premium to net plant of 1.24.

MWL's net electric utility plant value, inclusive of VELCO investments, inventories and prepaid expenses at December 31, 2012, was $11,998,257. Applying the range of 1.2 times to 1.9 times net plant value noted above to MWL's net plant value would produce a market value ranging between $14.4 million and $22.8 million. If one applies the average ratio of market price to net plant value of 1.244 times that resulted from GMP's acquisition, MWL's market price would equal $14.92 million.

Number of Customers Valuation

A second valuation method is based on the number of customers served by the electric utility. In order to obtain a baseline value per customer, we again examined electric utility sales during the past decade, and we also examined stock and debt market values per customer for publicly traded electric utility companies. Since a company's stock and debt prices reflect the market value of capital invested in the company, they are a good proxy for market valuation of the enterprise, keeping in mind that, in most utility company sales, there is a premium paid over the stock price prior to announcement of the transaction.

In applying the value per customer method, it is essential to limit the comparison companies to those that are wholly or predominantly in the electric utility business. In the case of "combination" companies that provide both electric and gas utility service or diversified companies with substantial unregulated enterprises, a significant part of the stock or market acquisition price may be related to factors other than the number of electric customers served. The market value per customer varies widely, from close to $2,000/customer up to more than $8,000/customer. Companies at the upper end of this range are large, vertically integrated utilities with substantial generation and transmission plant investment that result in a higher market value per customer than is typically the case for an electric utility like MWL's Electric Department that purchases the bulk of its generation supply in wholesale markets. The higher-value companies also tend to have more large industrial customers, thus increasing their market value per customer. MWL does not have any large industrial customers. Furthermore, MWL, as a member of VPPSA, has interests in a large number of generating plants, which may pose serious concerns relating to asset transfer to another party, particularly an investor-owned utility, which cannot assume MWL's tax-exempt debt without threatening the non-taxable status of interest received by bondholders. GMP's 2007 acquisition by Northern New England Energy

Corp., and its recent acquisition of CVPS, both resulted in market value per customer of just over $3,000/customer.

MWL serves about 3,900 electric customers. Using a value of $3,000 per customer, we derive an estimated market valuation of $11.7 million. The range from $2,000/customer to $8,000 customer would produce a market price ranging from $7.8 million to $31.2 million.

Energy Sales Valuation

An electric utility's energy sales volume is sometimes regarded as a more direct valuation measure than its number of customers. While the number of customers served by a company is an indicator of its likely sales volume, examining sales directly eliminates issues such as variation in customer size and differences in customer mix between utilities.

The same group of comparable electric utility companies that was used above in deriving the valuation estimate based on customer count was used to estimate a kWh sales valuation metric. Again, the differences noted above between MWL's electric utility and the electric utility companies in the comparison group should be taken into account.

As in the case of per-customer valuations, there is a wide range of valuations based on kWh sales. This range tends to be from about $0.11/kWh up to $0.28/kWh. GMP's market price per kWh sold was $0.126/kWh, while CVPS' ratio was $0.159/kWh. MWL's electricity sales are in the range of 45 to 50 million kWh annually. Thus, the per-kWh valuation could range from $5 million to $14 million. Using $0.13/kWh as an approximate valuation metric, similar to that associated with GMP's acquisition of CVPS, the kWh valuation method indicates a market value for MWL's electric utility business of approximately $5.7 - $8.0 million. However, this amount is substantially lower than MWL's net book value. WRA considers this an outlier in the range of valuation methodologies.

Potential Income Valuation

Valuing MWL's electric department business on the basis of actual earnings in recent years would not be appropriate because the utility has not been operated as a profit-maximizing enterprise. However, a potential earnings-based valuation for the MWL electric department can be developed by assuming that MWL's electric utility operations would be acquired by a regulated electric utility and that its net plant costs would be incorporated into the utility's rate base. Because the rate base on which regulated utilities are permitted to earn a rate of return is composed largely of net plant value, this approach should be expected to produce an end result similar to that associated with the net plant valuation method described above.

The addition of MWL's Electric Department to a regulated utility's rate base would directly increase that acquiring company's electric rate base by about $12 million. This rate base estimate is comprised of net plant, transmission investments, inventory and working capital inclusive of prepaid expenses, all at December 31, 2012, levels, plus 5 percent growth. Assuming a typical utility capital structure of 50% debt and 50% equity, with an 11% equity return and a price/earnings multiple of 15 times equity earnings[10] and with full debt cost

[10] The average stock Price/Earnings ratio ("P/E") for publicly traded electric utilities was 15.4 in both 2008 and 2009.

recovery, this rate base addition would have a valuation based on projected income of $15.9 million:

$12,000,000 x 0.11 x 15 x ½ + $12,000,000 x ½ = $15,900,000

In the case of a municipal or cooperative utility wishing to acquire MWL, a probable value would be based upon MWL's net plant, inventories, transmission investments and prepaid expenses, which is approximately $12 million.

Summary of Business Market Value Estimate

As described above, there are multiple ways of estimating the probable market value of an electric utility enterprise. The estimates derived here for the potential sale of MWL's electric department, similar to the calculations for GMP and CVPS acquisitions, are as follows:

Net Plant Valuation	$14.9 million
Number of Customers Valuation	$11.7 million
Energy Sales Valuation	$6.5 million
Potential Income Valuation	$15.9 million

If MWL enters into negotiations to sell its electric department, it should arrange for a more complete evaluation of the value of the department to a potential purchaser.

Prospective Purchaser – Green Mountain Power

Green Mountain Power is the largest utility in Vermont. Unlike MWL and the majority of utilities within the State, GMP is an investor-owned utility in that it has shareholders and operates as a for-profit business. As of 2007, all of the issued and outstanding capital stock of GMP is held by GMP's parent company, Northern New England Energy Corporation. In turn, this parent company is owned, directly or indirectly, by Gaz Métro Limited Partnership, a limited partnership organized under the laws of the Province of Québec ("Gaz Métro"). On October 1, 2012, GMP merged with the largest of Vermont's utilities, Central Vermont Public Service Corporation ("CVPS"), thereby putting approximately 70% of all Vermont customers under one corporate umbrella.

Financial Status of GMP

GMP's 2012 financials show a partial year with the integration of CVPS. GMP is an investor-owned utility company, but it no longer files and maintains public records at the Securities and Exchange Commission ("SEC"). Instead of using SEC filings, we have reviewed the information from GMP's 2012 FERC Form 1. Based upon this information, GMP appears to be a financially sound company, with substantial proprietary capital ($590 million), total assets of $1.6 billion, net utility plant of $935 million, and long-term debt of $533 million.[11]

[11] The seemingly conservative capital structure of GMP may be misleading. WRA has not analyzed the financial information of GMP's owner, which may have financed the acquisitions of GMP and CVPS largely with debt and

As shown in Table 5 above, GMP and CVPS had lower commercial and industrial rates than did most of the other Vermont utilities in 2011. However, the two companies ranked 9th and 11th overall for residential customers, compared to MWL's 7th place ranking. GMP's lower rates are largely possible because it can achieve economies of scale as a purchaser of large quantities of bulk power. Below is a table comparing several aspects of MWL and GMP for the most recent year available (2012).

Table 9

	MWL and GMP Comparison					
	2012 Operating Statistics					
	Revenues and Operating Expenses					
		MWL			GMP	
	Description	kWh or $	$/kWh		kWh or $	$/kWh
1	Total kWh Sales	44,199,011			2,780,155,000	
2						
3	Operating Revenue	$7,097,750	0.1606		$367,095,259	0.1320
4						
5	Cost of Electric Service					
6	Production/Purchased Power	$3,854,502	0.0872		$189,964,517	0.0683
7	Transmission	$1,105,727	0.0250		$46,821,786	0.0168
8	Other Operating Expense	$2,069,959	0.0468		$107,659,920	0.0387
9	Total Operating Expense	$7,030,188	0.1591		$344,446,223	0.1239
10						
11	Total Operating Expense					
12	Excluding Purchased Power	$3,175,686	0.0718		$154,481,706	0.0556
13						
14	Operating Margins	$67,562	0.0015		$22,649,036	0.0081

This table indicates that MWL had more revenue per kWh than did GMP, by 2.86 cents/kWh, but that its cost of purchased power/generation was higher by 1.89 cents/kWh. GMP's Total Operating Expenses was 3.5 cents/kWh lower than that for MWL. Therefore, even though MWL had higher revenue per kWh than GMP, GMP's lower costs allowed GMP to achieve a higher operating margin. MWL's margin for 2012 was lower than GMP's by 0.66 cents/kWh. In essence, while MWL pays more for its power, and its other expenses are slightly higher as well, MWL adds a smaller mark up to its costs when charging customers. Comparing Table 9 to Table 5 on Revenues per kWh, it is clear that while MWL may be operating at a higher cost, it is managing to keep revenues in-line with its largest competitor, at least for residential customers.

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thus may be more leveraged and more risky than GMP standing alone. It is typical for holding companies to include a substantial debt component at the holding company level. For example, by issuing debt at 4% to acquire an asset yielding 10%, the acquirer can boost earnings but puts itself at greater risk if earnings decline. The holding company may be forced to cut outlays for operations and maintenance and increase dividends of its affiliates in order to service excessive levels of holding company debt.

Power Supply of GMP

As is the case with MWL, GMP purchases a substantial portion of its power needs from Hydro Quebec. And, like MWL, it had a long-term contract to purchase power from the Vermont Yankee Nuclear Power Plant. The Vermont Yankee contract ended in April of 2012. GMP has an interest in several of the other plants in which MWL holds interests, including the McNeil Plant and Stony Brook. In addition, GMP purchases power from NextEra's Seabrook Nuclear Power Plant. GMP owns several small combustion turbine ("CT") plants and many small hydro projects. It appears that GMP purchases nearly 90% of its power, while the remaining 10% comes from its owned CTs, hydro assets, and its share of the Millstone #3 Nuclear Plant.

Physical Interconnection

As described above in the discussion of the Electric Department, MWL has connections to several substations on the Vermont 34.5 kV grid. After the merger of CVPS and GMP, MWL is now connected to GMP at both the Johnson and Stowe substations. MWL could also receive power from GMP through its interconnection with Hardwick. Therefore, no new interconnections would be needed if GMP were to acquire MWL.

Other Factors

Another important issue regarding the sale of the electric department is that such a sale would cause an increase in support costs to be recovered through billings by the other MWL utility departments. This increase would occur because the electric department has been allocated the largest share of administrative and general costs recovered through billings by the three departments (84%). With a sale of MWL's electric department, the water and wastewater departments would no longer receive those cross subsidies and would be required to bear a substantial portion of overhead costs that are now allocated to, and borne by, the electric department (and reflected in electric rates). To some extent, divestiture of the electric department should enable MWL to reduce headquarters staffing and other administrative and general costs, but it seems unlikely that 84% of those costs could be eliminated.

A final issue is that, in the event of a sale, MWL could also be at risk of losing to the purchasing utility those employees who are cross-trained to provide skills needed by both the electric department and one or more of MWL's other utilities. Such an outcome could leave the non-electric utility departments with unfilled needs for skilled employees.

Merge/Sell the Water/Sewer Departments

The water utilities in Vermont must abide by Vermont's environmental rules. According to Ms. Jean Nicolai of the Vermont Department of Environmental Conservation, Drinking Water & Groundwater Protection Division, a municipal utility in MWL's position has several options with respect to its water utility. First, it can maintain employees with state certification to run the utility's water department (which MWL has done historically). Second, it could contract out operation of the water department to an independent operator that maintains employees with state certification. The Division offers guidance on how to contract out to an independent

operator.[12] Third, it could determine whether a neighboring system would be willing to take over its service territory and serve its customers.

After discussion with MWL's management, it was determined that there were no water companies in the neighboring areas, other than those of other municipal utilities that also have water and/or sewer departments. MWL could contact one of the neighboring utilities to see whether it would be interested in merging or taking over MWL's water and/or sewer departments. In addition, it could issue a Request for Proposals for an outside operator. MWL would then have to compare whether either of these two options would be less costly than keeping its water and/or sewer departments. The main cost components would be the cost of staff and up-keep costs of the system.

MWL currently has five employees that perform the majority of the water department operations, as well as the bulk of the sewer distribution operations. As discussed previously, MWL currently has an outside contractor operating and maintaining its WWTF. Presumably, even if MWL merged or sold its WWTF to another utility, its customers would still bear the burden of the operating costs of the facility, as it serves the residents of the community, and presumably its costs could not be allocated in part to others outside of MWL's service territory

The table below shows a comparison of water and sewer rates for a residential customer using 6,300 gallons per month. As this table indicates, MWL's rates are lower than those of all of its neighboring utilities for water, while its sewer rates are lower than those of all but Stowe. The communities that the Village of Morrisville is closest to, and to which the area is connected, are Stowe, Hyde Park and Johnson. See the map below. Based upon Table 10, merging with Stowe would appear be an attractive and cost-effective scenario. Other than this potential merger, it does not appear that merging with or selling its water/sewer departments to any of the other utilities would lower rates to MWL's customers at this time, unless staff could be reduced and rates lowered for all participants.

[12] See http://drinkingwater.vt.gov/opcert/pdf/howtohireanoperator.pdf

Table 10

Quarterly Water and Sewer Rate Comparison
Residential Customer 6300 gallon usage/month

	Sewer	Water	Combined
Newport	88.12	64.42	152.54
Danville	75.00	100.00	175.00
Claremont	129.68	87.06	216.74
Ashland, NH	132.65	103.44	236.09
Marshfield	122.00	125.00	247.00
St J	137.45	114.45	251.90
Stowe	183.90	142.79	326.69
MW&L	235.81	98.20	334.01
Lyndon/Lydonville	237.11	141.74	378.85
Johnson	260.70	128.27	388.97
Cabot	300.00	110.30	410.30
Hyde Park	306.30	180.00	486.30
Barton	423.35	205.25	628.60

As noted above, the only neighboring utility with cheaper residential rates is Stowe, and by only 2.25%. For the fiscal year ending June 30, 2012, Stowe's sewer department suffered a net loss of $279,661, so it may need to raise rates (or may have already done so). More analysis of Stowe's water and sewer departments and financial status would need to be done before a determination could be made as to whether a merger with Stowe would be beneficial.

As noted previously, MWL has received substantial grant income in recent years under the federal government's American Recovery and Reinvestment Act of 2009 ("ARRA"). From a high of $1.9 million in FY 2009, grant income has decreased substantially to $176,885 in FY 2012 and will end in 2013. MWL used a portion of this grant income to fund improvements to its wastewater treatment facility. To the extent MWL were to merge its water and sewer operations with those of an adjacent municipal system, MWL would be likely to experience revised rates based on new cost allocations and revenue requirements of the merged entity that would dilute the benefits flowing from past grant income - benefits that are now being enjoyed exclusively by MWL's ratepayers.

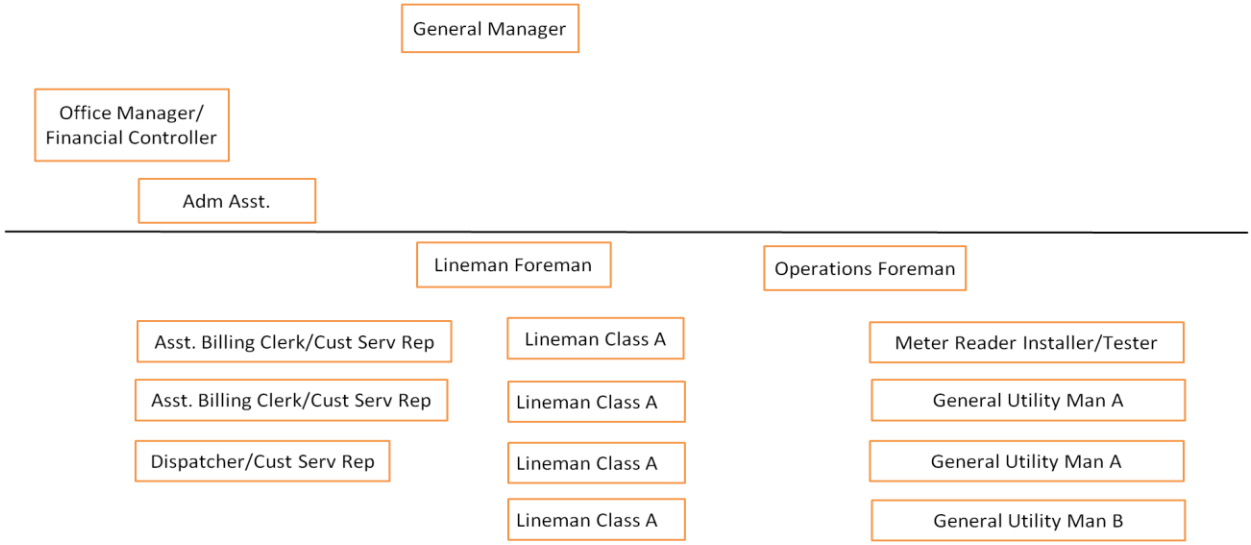
Another source on water and sewer rates is the Vermont League of Cities and Towns ("VLCT") 2012 Vermont Municipal Water and Sewer Rate Information document, dated April 2013. This document contains comparisons based upon 5,000 gallons of usage for various municipalities in Vermont, although MWL is not included in the list. However, the cities covered by the VLCT report appear to be largely comparable to those on the list above. The average quarterly usage rate for water service of 5,000 gallons per month totaled $125.55, above MWL's rate of $98.20 for 6300 gallons shown in Table 10. No separate amounts were provided for sewer usage. However, based upon both of these sources, it appears that MWL's water and sewer rates and charges are in the average range. WRA has not been able to obtain financial information for the water and sewer departments located close to MWL. However, since rates charged by the majority of the utilities near MWL indicate that their operations are more expensive than those of MWL, MWL's customers could not expect to gain any significant benefit by merging with, or selling its water and/or sewer departments to, a neighboring utility.

However, MWL and its Board of Trustees may want to consider the pooling of resources with some of the neighboring utilities, a matter that was addressed in similar manner with respect to electric operations. MWL and others may desire to work toward sharing general utility workers that perform services such as maintaining sewers, reservoirs, wells, control systems, etc. Again, this type of negotiation will depend upon the willingness of neighboring entities to enter into such agreements and resolution of any labor union objections to doing so.

II. Should Certain Tasks Be Outsourced or Retained In-House

As noted in the RFP, MWL is interested in examining whether certain tasks should be performed by permanent staff, or whether these tasks should be outsourced to contractors. The tasks to be examined include payroll and operations. Operations tasks include duties performed by electric linemen and general operations for water, sewer, generation and meter reading.

MWL currently has 15 full time employees. The General Manager, Office Manager/Financial Controller and Administrative Assistant are non-union—all others are union employees. There are basically three groups: the billing and customer account area, the electric linemen area, and the general utility area. An organizational chart is shown below, although since this chart was formulated one Lineman Class A employee has retired:



The three employees above the line are non-union employees. The remaining twelve employees are union members of the International Brotherhood of Electrical Workers ("IBEW"). MWL desires an analysis of its staffing, and a determination of the competitiveness of its salaries. In part to answer these questions, MWL recently received a report from Gallagher Flynn Human Resource Services, LLC, on the competitiveness of pay and benefits for positions in MWL. In brief, this report found that MWL's salary and benefits were at the median for the comparison

group surveyed, which included 40 municipal utilities within Vermont with populations between 2,000 and 6,000 people.[13]

Another survey conducted by VPPSA of various Vermont public power utilities also indicated that salaries and benefits paid by MWL were, by and large, within the range of salaries and benefits paid by ten other municipal utilities in Vermont.[14] Based upon this survey of Vermont municipal utilities, salaries and benefits for the bulk of MWL's staff positions are squarely within the range of salaries and benefits surveyed by VPPSA (e.g., the lineman and general utility man positions). Half of the Vermont municipal utilities surveyed were union, while half were not.

Therefore, analyses of Vermont utility salaries and benefits indicate that MWL's salaries and benefits are not out of line with those received by persons in comparable positions within the State of Vermont. It does not seem prudent to re-analyze this situation with two other analyses having been performed so recently. Instead, it would be more cost-effective to turn our attention to the question of whether to outsource some of the tasks performed by the employees of MWL.

WWTF Operations

Prior to completing upgrades at the WWTF in 2009 and 2012, MWL encountered a number of problems in operating the WWTF, some of which resulted in discharge violations. These violations and the issues surrounding them were the cause of MWL's decision to outsource the WWTF operations and maintenance, beginning in 2006. In connection with the upgrades and the grants providing a portion of the funds for the upgrades, MWL has installed new water meters that serve the needs of both the water and wastewater departments. Also, as noted in its Staffing Overview (Response to Data Request #22), MWL's sewer and collection system is old, and MWL is planning a program to replace portions of the system gradually.

MWL is considering terminating its service contract with Utility Partners, LLC, as operator of MWL's WWTF, and having plant operations performed in-house. The current service contract with Utility Partners costs $17,845 per month ($211,677 in 2013), with Utility Partners paying the costs of expenses such as chemicals, replacement parts, routine maintenance and other operating costs. Non-routine costs, including capital expenditures, are the responsibility of MWL, as are all utility costs such as electricity, heating fuel, potable water and sewage disposal. MWL personnel must also maintain and repair sewers, cleanouts and other items not associated with the WWTF. Based upon what WRA has seen in other regions of the nation, this is a cost-effective contract.[15]

In 2012, MWL incurred $430,000 in expenses related to the actual operation of the wastewater department (not including administrative and general expense, depreciation, or customer account expenses). Over the past five years, this amount has climbed in all but one year as follows:

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[13] See "An Analysis of the Competitiveness of Pay and Benefits For Positions in Morrisville Water & Light, Morrisville, Vermont," by Frank Sadowski, SPHR of Gallagher Flynn Human Resource Services, LLC, March 2013 at 14 ("Competitive Analysis").

[14] See file "12 1231 2012 VPPSA Salary Survey.xls."

[15] Another waste water contract for a comparably sized municipal utility in Delaware (in terms of revenue and employee size) runs over $300,000 annually, with the utility picking up the regular costs of operations and maintenance.

Year	Production Expense	% Increase
2008	$370,804	
2009	$361,728	-2.4%
2010	$381,378	5.4%
2011	$408,831	7.2%
2012	$430,597	5.3%

According to MWL's General Manager, costs at the WWTF have increased in part because of the completed upgrades and as a result of increased costs of electricity consumed in running the facility. In 2012, the contractor's cost was approximately $206,000, with the remainder being funds spent on MWL staff expenses and supplies to repair and maintain sewers and other facilities. If MWL could replace the employees now provided by Utility Partners to service the WWTF, and pay for chemicals and the other expenses borne by the contractor, for a cost less than that imposed by Utility Partners, it would be economically effective to terminate the contract and move these operations in-house.

With the onset of outsourcing the WWTF operations, MWL eliminated one full-time employee position (the employee went to work for Utility Partners' predecessor company). The other WWTF employee stayed on-staff. According to Vermont requirements, if MWL were to take back operations of the WWTF, it would need to devote 2 full-time staff personnel to its operation. Employees need to be on call at all times, but the plant does not run every hour of the week. MWL has some capability currently for remote monitoring of the plant and accessing of its recorded data, but, when running, the plant needs to be staffed. Also, if MWL wishes to transfer the operations and maintenance of the WWTF back to its own employees, it must employ someone with Vermont Wastewater Operator (Level II) Certification. Based upon the staff comparison data provided in response to Data Request #22, these two employees would cost MWL approximately $40,000-$70,000 each, not including benefits. With benefits, the costs of two new employees could range from $150,000 to $250,000 annually.[16] This in-house labor cost is very close to the current costs incurred by MWL under the Utility Partners' contract. After adding in the costs of routine chemicals and supplies, as well as the other expenses borne by Utility Partners, MWL might incur operating costs close to the current $211,667 cost it incurs under the contract with Utilities Partners. If MWL can get by with adding only one new employee and instead re-assigning an existing employee to WWTF operations, it may be beneficial to bring the WWTF operations in-house. For example, if MWL could hire one employee at a cost of $100,000 per year, and if its other costs were to be less than $100,000, then it makes sense to return control of the WWTF to MWL. However, if hiring two new employees would be necessary, and if routine maintenance and chemical costs would be substantial, the savings would disappear.

Other than cost efficiencies, another factor in deciding whether to retain a contractor or return the WWTF in-house is the risk of violations. MWL may decide that it would prefer having another

[16] According to MWL's Financial Controller, pension and benefits costs are estimated using a multiplier of 1.85.

party responsible for meeting regulations, as Utility Partners is responsible for regulatory compliance, and must pay all fines related to process upsets and violation of discharge limits.[17]

Electric Operations

Currently, MWL is searching for a Superintendent of Electric Operations and operates with a lineman foreman and three line worker A positions reporting to him. Based on an examination of the organizational chart, this amount of line workers appears sufficient. Prior to the recent retirement of one line worker, it appeared that MWL may have been too heavily weighted with linemen. Evidence that five line workers was too many was management's practice of using linemen to perform vegetation management and other tasks in order to keep them busy. According to the job descriptions provided in response to Data Request #22, the linemen maintain and repair substations and the distribution facilities. They also perform tree trimming and other tasks which could be outsourced to others at a lower hourly cost.

With nearly 4,000 customers, MWL's current staffing level of four line workers is in line with the average of line workers per customer, based upon a survey performed by the American Public Power Association ("APPA") in 2011.[18] APPA's survey indicated that the average and median number of customers per line worker was 1,283 and 1,083, respectively. With MWL's 3900 customers, the APPA rule of thumb calls for between 3 and 4 line workers. Another source described an average Massachusetts municipal utility had 3.94 linemen on staff per 10,000 residents served.[19] Based upon WRA's estimates of residents, it appears that MWL serves an area with a population possibly less than 10,000. Again, this statistic argues for having four line workers. Normally linemen work in pairs, and at least one extra is needed to fill in when others are off for vacation or sick leave. Thus, a baseline amount of linemen needed would be at least three, in addition to the Lineman Foreman.

Other statistics indicate that MWL's current line worker number is right on target. Information from the Vermont Annual Reports (supplemented as indicated by other information) allows a comparison of several utility's miles of line, number of line workers, and number of customers.

[17] See Section 1.07 of the Operations and Maintenance Agreement for Wastewater Treatment Facilities between the Village of Morrisville and Utility Partners, LLC, dated April 29, 2011.

[18] See Evaluation of Data Submitted in APPA's 2011 Distribution System Reliability & Operations Survey page 27 at http://www.publicpower.org/files/PDFs/2011DSReliabilityAndOperations_Report_Final.pdf

[19] Written testimony of Patrick Mehr, Massachusetts Alliance for Municipal Electric Choice, c. November 16, 2011, at www.massmunichoice.org

Table 11

Transmission Information							
	MWL	Stowe	Swanton	Hardwick	Lyndonville	WEC	GMP
Miles of Distribution Line	193.90	120.00	122.00	333.00	398.33	1,285.00	11,109.00
Miles of Transmission Line	30.20	14.00	3.70	4.70	11.82	25.90	998.53
No. of Customer	3,917	3,993	3,640	4,420	5,621	10,654	256,878
Transmission Expense	17,198	0	22,894	39,769	32,295	33,839	46,821,786
Distribution Expense	336,977	704,459	555,685	451,202	745,351	3,336,512	19,244,215
Customer Account Exp	253,138	519,417	166,162	196,296	305,416	927,780	7,516,896
A&G Expense	674,470	900,795	925,560	682,977	904,464	1,380,416	22,502,179
No. of Lineworkers	4.0	5.0	6.0	5.0	6.0	10.0	90.0
Dist. Exp/Miles	1,737.89	5,870.49	4,554.80	1,354.96	1,871.19	2,596.51	1,732.31
Cust. Acct. Exp/No. of Cust.	64.63	130.08	45.65	44.41	54.33	87.08	29.26
A&G Exp/No. of Customers	172.19	225.59	254.27	154.52	160.91	129.57	87.60
Trans. Exp/Miles of Trans.	569.47	0.00	6,187.57	8,461.49	2,732.23	1,306.53	46,890.72
Miles of line per Worker	56.0	26.8	21.0	67.5	68.4	131.1	134.5
Customers per Worker	979.3	798.6	606.7	884.0	936.8	1065.4	2854.2
Dist. Tree Maint.	62,281	78,248	60,072	114,360	33,010	726,132	2,576,480
Dist. Tree Maint. Miles	29.39	10.66	6.00	21.02	9.53	133.92	352.00
$/Dist. Mile Maintained	2,118.82	7,340.34	10,012.06	5,440.53	3,463.77	5,422.13	7,319.55
Info from VT Annual Reports (except Stowe Transmission mile info, from UDI Directory)							
No. of Lineworkers from CM 083013 email and GMP from Facebook post on 6/2/13;							
WEC line workers only from employee list (other technicians cited).							

This table shows that MWL's cost of distribution expense per mile of distribution line is lower than that of all but Hardwick, and that MWL's dollar cost in 2012 of tree trimming and removal was the lowest among all those covered by the survey.[20] MWL also appears to be the most cost-effective small utility in the sample for number of customers per line worker (after WEC and GMP). In other categories, MWL falls in the middle.

MWL's linemen are currently paid approximately $29.36/hour, according to the Competitive Analysis at page 3. The comparable hourly wage ranges between $26.00 and $33.00 per hour. While the neighboring utilities have some non-union linemen being paid at a lower rate of less than $22.00/hour, most municipal utilities in Vermont are paying within a range of $25-$32 per hour. As far back as 2006, a report titled "Workforce Trends in the Electric Utility Industry" noted that:

> Electric lineworkers are one of the highest paid professions in the United States that does not require a post secondary education. In May 2005, electric lineworkers earned a mean hourly wage of $25.14/hr or $52,290 per year. Experienced electric lineworkers earned well above $32.54/hr and during overtime, based on this pay, could earn $48.81/hr.[21]

[20] This result may be due to other utilities outsourcing these costs, rather than performing tree trimming in-house, as MWL does. Differences may also be attributable to variations in how costs are booked.

[21] "Workforce Trends in the Electric Utility Industry," U.S. Department of Energy, August 2006, at 5, found at http://energy.gov/sites/prod/files/oeprod/DocumentsandMedia/Workforce_Trends_Report_090706_FINAL.pdf

Therefore, it does not appear that MWL's wages for linemen are out of line.

Utilities realize a benefit from maintaining staff that is familiar with the local area. In case of outages, local employees tend to know the likely causes, alternative backup feeder routes and best methods of getting to and from the scene. Local personnel are inherently more motivated than strangers to keep the lights on, as their families and neighbors are their customers. In the case of catastrophic failures that affect large areas, large utility companies normally rely upon electrical workers from around the country to come and help out—such out-of-area personnel would help a utility such as GMP get back up and running following a major ice storm. GMP and VELCO would mostly be responsible for getting the large transmission facilities back in service, while the local municipalities can prioritize their own customers first.

The Vermont Public Service Department's Utility Facts 2013 contains a table that shows that MWL has met Vermont reliability standards in each of the last three years.[22] MWL's record is better than that of the former CVPS area (GMP-South) which missed targets in each of the last three years, while GMP-North met standards in two out of the last three years. Other municipally-owned utilities such as Swanton, Burlington Electric Department, and Ludlow also performed well, managing to meet all the standards over the last three years. In general, public power in Vermont has an admirable record by these measures.

Although MWL has tried without success in the past to interest neighboring utilities in forming a pool of labor, it should consider re-initiating such discussions, possibly with other utilities outside of the immediate region. It would be much more cost-effective to share line workers and equipment with neighboring utilities. While each utility's employees would be most familiar with their own territory, any utilities who wish to participate could work on an agreement to share services and people to perform tasks, as well as share in any savings resulting from pooling resources. Any loss of jobs imposes burdens on workers and the local community (particularly the loss of high-paying linemen jobs). Accordingly, it might be possible to accomplish the reduction in force through attrition so that no new linemen would be hired as existing employees retire or leave. Adjoining utilities in combination are likely to have sufficient staff to serve the combined area. Some method for cost allocation and work sharing would need to be developed. In emergencies, each utility's employees would presumably work to repair its own system first or work on the most essential piece of equipment, and then turn to helping neighbors.

Water/Sewer Operations

As illustrated in the organizational chart shown above, MWL has three general utility workers overseen by an operations foreman, as well as a meter reader/installer. These five people perform tasks for the water, sewer, and electric departments. After researching general utility worker comparisons and/or surveys, WRA has been able to discover little readily available data on benchmarks on water and/or sewer workers.[23]

[22] See pages E.15 and E.16 of http://publicservice.vermont.gov/sites/psd/files/Pubs_Plans_Reports/Utility_Facts/Utility%20Facts%202013.pdf.

[23] See availability of the 2012 Rate Survey from the American Water Works Association for $295, described below.

The U.S. Bureau of Labor Statistics ("BLS") describes generally the Utilities sector, which includes establishments engaged in the provision of various utility services including electric, natural gas, steam, water and sewage removal. A BLS source describes generally the average hourly earnings of all such utility workers, which was approximately $35/hour in the Spring-Summer months of 2013. The earnings of production and non-supervisory employees were lower at approximately $32/hour.[24]

A document developed by or for the U.S. Environmental Protection Agency, called "*Effective Utility Management: A Primer for Water and Wastewater Utilities*," examined measures of resource use efficiency, including labor and material per unit of output or miles of collection/distribution system. Sample calculations include customer accounts per employee, million gallons per day delivered/processed per employee, and O&M cost per volume delivered/processed.[25]

Information provided by the City of Salina, KS demonstrates how that utility compared to the 2007 benchmark data of the American Water Works Association ("AWWA").[26] As one example, Salina provided information on the number of customers per employee, as follows:

Performance Measure:	Number of Customer Accounts per Employee Water System
Benchmark:	Median quartile or better
Benchmark Source:	2007 AWWA Benchmarks
	Top Quartile= 715 Median=414 Bottom Quartile = 343

Performance Measure:	Number of Customer Accounts per Employee Wastewater System
Benchmark:	Median quartile or better
Benchmark Source:	2007 AWWA Benchmarks
	Top Quartile= 545 Median=396 Bottom Quartile =226

As MWL has approximately 1500 water and sewer customer accounts, MWL would need to determine the amount of full-time equivalent ("FTE") employees it devotes to its water and sewer operations. One FTE employee assumes 2080 hours per year of employee time equivalent. While MWL has five employees that devote time to water and sewer, these same employees also provide services to the electric department. Assuming that MWL devotes 3 FTE employees to water/sewer, then its benchmark would be 1500 customer accounts/3 employees, or 500, which is between the median and top quartile described above for water, but closer to the top quartile for wastewater. However, MWL also has outside contractors providing employee services to the WWTF. Taking account of contract labor would lower the customer account/employee statistic for the wastewater department.

[24] See http://www.bls.gov/iag/tgs/iag22.htm
[25] "Effective Utility Management: A Primer for Water and Wastewater Utilities," June 2008, page 31 at http://www.amwa.net/galleries/default-file/Effective-Utility-Management-4color.pdf
[26] See http://salina.ks.us/content/14534/13310/13312/default.aspx

Another benchmark that could be used is the amount measured in million gallons of water per day ("MDG") delivered per employee. At this time, WRA does not have the information necessary to estimate MWL's comparison to this benchmark.

Performance Measure:	Million Gallons Water Delivered per Day per Employee Water System
Benchmark:	Median quartile or better
Benchmark Source:	2007 AWWA Benchmarks
	Top Quartile= .29 Median= .19 Bottom Quartile = .15

Performance Measure:	Million Gallons Water Processed per Day per Employee Wastewater System
Benchmark:	Median quartile or better
Benchmark Source:	2007 AWWA Benchmarks
	Top Quartile= .19 Median= .15 Bottom Quartile = .10

An update to the 2007 benchmark on MGD/employee for 2012 was discovered on the AWWA website, which stated that the 2012 Rate Survey results show that the median water sold per employee per day is 0.26 MGD and the median wastewater treated per employee per day is 0.26 MGD.[27] The full survey is available for $295 from AWWA. A link to a Texas municipal's water benchmark data in 2007 and 2008 is also provided below.[28] Finally, there is an updated textbook available for approximately $115 that is specifically directed at municipal governments, titled "Municipal Benchmarks: Assessing Local Performance and Establishing Community Standards" by David Ammons, that might directly assist MWL in analyzing its comparability to other municipal utilities:

http://www.amazon.com/Municipal-Benchmarks-Assessing-Performance-Establishing/dp/0765626608/ref=sr_1_2?s=books&ie=UTF8&qid=1377630637&sr=1-2

Based upon information and discussion with MWL's General Manager, it may be useful to restructure and reorganize the water/sewer staff. One key player missing in both the electric and water side is someone with responsibility for the hydro plants. Especially important if MWL attempts to change its usage of the hydro power from the ISO-NE markets to acting as a load reducer, a hydro technician would be responsible for all compliance requirements and could work in concert with VPPSA staff to run the plants for the most economic outcome for MWL. Currently, the Operations Foreman has responsibility for the hydro units on top of other supervisory duties. Under the restructuring, the Foreman would turn over the hydro operations responsibility to the hydro technician, but continue to oversee all staff on the water/sewer side, including the hydro technician. One or two general utility workers would oversee water/sewer operations and maintenance, backing each other up, while a third would have primary responsibility for meter reading and testing. With training, the last three would support one

[27] See page 11 of http://www.awwa.org/portals/0/files/publications/documents/samples/2012waterandwastewaterratesurvey.pdf
[28] See http://www.bryantx.gov/departments/?id=497

another and perform tasks as necessary. Such reorganization of the MWL water/sewer staff would depend upon the ability to find a competent hydro technician.

Other Tasks

MWL currently has five individuals working in administrative/customer service positions, not including the General Manager. The basic office and customer service tasks are currently distributed among four people reporting to the Office Manager/Financial Controller. The Office Manager/Financial Controller has overall responsibility for the customer service and financial reporting. The Office Manager/Financial Controller is directly responsible for preparing monthly financial reports, the annual capital/expense budgets and the successful annual audit of Morrisville's financial records. In addition, the Office Manager/Financial Controller has various monthly, quarterly and annual reports to complete in addition to personally handling the escalated customer billing issues. Finally, the Office Manager/Financial Controller is responsible for following all Public Service Board rules for the electric department, implementing billing for laws passed regarding renewable energy, assisting the General Manager in negotiating/enforcing the terms of the Union contract, staying abreast of health care and performing various human resource duties. The duties and responsibilities of the position appear to be burdensome for one person. The situation is exacerbated by the limited abilities and skills of those reporting to the position.

As for customer accounts and billings, many companies now outsource payroll and other tasks to third-party contractors. However, as a utility, MWL is responsible for preparing bills for electric, water and sewer customers. It also must allocate employee man-hours between the various departments. Outsourcing this kind of work is possible, but would involve training the third party in any unique complexities related to MWL's meter readings, billing adjustments, rate classes, etc. Furthermore, in order to respond to customer needs, utility customer representatives must have the ability to review bills and discuss them with affected customers. These types of discussions will be more difficult if the tasks are separated between in-house and contract employees, especially if the contract employees are based in a phone bank thousands of miles away from Morrisville.

Payroll is commonly outsourced by companies, as it also involves filing tax forms and making tax payments. This is a fairly standardized and routine task that could be removed from the responsibilities of others if the affected MWL employees are overwhelmed at this time. The Financial Controller must also file the required state and federal forms relating to utility service, such as the EIA Form 861 and the VT Annual Report, and presumably the tax forms related to the PSB.

According to MWL's Office Manager/Financial Controller (Ms. Jones), MWL has already looked into outsourcing payroll. She noted that:

> "…due to our accounting/work order system we would be unable to upload data from the company into our system and it would not work as efficiently because of this….The task that takes the majority of the time is the compilation of the hours worked and their breakdown, which would have to be done regardless if it was outsourced…. However as I mentioned, in the end it wouldn't help because the payroll costs would not be integrated

> into our financial system and would have to be manually input and then for our work order system, there is no way to get the payroll costs into the work orders.

She went on to describe the issues with billing and customer account activities:

> Keeping in mind that "billing" starts with the loading of the handhelds [devices] for the meter readers, to unloading them, performing analysis on the readings, bringing them over to billing, calculating the billing and then finally printing the bills….The majority of the work is customer service work with billing inquiries, setting up new accounts, finalizing old accounts, and processing payments.

Ms. Jones stated that if MWL upgraded its financial and work order tracking system, outsourcing payroll and/or billing might be possible.

Based upon the information provided by management of MWL, it does not appear cost-efficient to turn over payroll or customer billing to outside contractors. In fact, few staff hours seem to be spent on actually performing payroll—four to six hours a week is spent on keying in data from timesheets and matching that data with work orders. Quarterly reports to the State of Vermont and Internal Revenue Service involve another four hours per quarter. And, as noted above, developing the customer bills is not the bulk of the work performed by the customer service representatives.

However, information provided by the General Manager suggests that restructuring the administrative/customer service area may be useful. Suggestions include hiring an Assistant Manager to gain experience and support the General Manager in all duties, as well as a Staff Accountant to reduce the burden on the Office Manager/Financial Controller. Like the Office Manager/Financial Controller, the current duties of the General Manager appear too burdensome for one position. Adding an Assistant Manager will allow the General Manager to be relieved of day to day management of field staff. In addition, the Assistant Manager will take over electric system restoration and share in the compliance of the sewer discharge permit, the water permit and FERC regulations related to the hydro generation. Finally, the position will assist in succession planning for the eventually retirement of the current General Manager.

It also appears that the work load could be better balanced through the addition of a Staff Accountant. This will allow the Office Manager/Financial Controller to off load certain duties to focus on the timely completion of the monthly financial reports and focus on broader strategic issues for the financial and customer service improvements needed while improving the overall efficiency of the remaining office positions. WRA supports the examination of the best methods to satisfy the job requirements in the administrative/customer-service area.

Final Note on Outsourcing

Finally, the loss of jobs to a community is always a consideration when considering outsourcing. According to MWL's management, the Village of Morrisville has handled the Great Recession fairly well, with unemployment numbers below the national numbers, albeit higher than those of Vermont itself. In the first six months of 2013, Morrisville's unemployment ranged from 5.0%

to 6.1%, while national numbers dropped from 7.9% to 7.6%. Therefore, outsourcing may not raise a public outcry. However, our conclusions would suggest that retaining the provision of services in-house is the better method for the immediate future. Prior to learning that one line worker had retired, WRA estimated that eliminating one lineman position would appear to be justified. WRA would also suggest returning WWTF functions to the utility if only one new employee would be needed.

III. Best Use of Hydro Resources

One of the primary reasons for developing the Village of Morrisville Water & Light's business plan is to focus on the best usage of its hydro resources. MWL owns three hydro plants with a combined capacity of approximately 5 MW (the combined nameplate rating is actually 4.99 MW). Two of the three plants are run-of-the-river and generate electricity only when stream flow is available. The third plant has a reservoir behind it, which makes it less susceptible to low stream flow because the reservoir enables the utility to store some water and then pass it through the hydro turbine to produce electricity when it is most valuable. MWL is correct to retain its hydro generation and to give special attention to its staffing, upkeep and maintenance. Hydro generation is renewable, its "fuel" has no incremental cost and causes no emissions of greenhouse gases, SO_x or NO_x, its location proximate to MWL loads reduces losses and adds to MWL's reliability, while operation of the hydro generation is under MWL's sole control. As opposed to thermal generation, hydro generators require no high-temperature combustion chambers, rotate at relatively low RPMs, can start up and ramp quickly and tend to experience forced outage rates that are a fraction of those associated with fossil-fueled and nuclear-fueled generators.

A short description of each MWL hydro plant follows. WRA has not conducted an analysis of the costs/benefits related to each individual hydro unit. It may be useful for MWL to conduct such an analysis in the future to determine if maintaining all three units is the most economic choice.

Morrisville

The Morrisville project was originally built in 1924 and has two turbines with a total capacity of 1.8 MW. Morrisville is operated manually and is a run-of-the-river facility. The project generates an average annual energy output of 5,000 MWH, for a plant factor of 31.7%. In 2012, Morrisville generated less than normal—only 3,669 MWH. In 2012, MWL installed an automatic crest control system.

Cadys Falls

This run-of-river project was originally developed in 1894, but has been the subject of several upgrades and refurbishments, most recently in 1947. Also consisting of two units, the total installed capacity of the facility is 1.3 MW. The average annual energy produced is 3,000 MWH, for a capacity factor of 26.3%. In 2012, the project produced 2,433 MWH.

Green River

The Green River project (also called the Sanders Plant) was constructed in 1947 as a hydro storage facility. It has a 632-acre reservoir, and its 1.89 MW of generation was installed in 1984. The Green River facility can be operated in either manual or automatic mode and is monitored with surveillance equipment. In 2012, the plant generated 759 MWH of energy, but on average the annual generation is closer to 1,000 MWH, for a capacity factor of 6.0%. MWL operates this plant in order to reduce peak demand and when market prices are high during the winter months of November through March. The plant is not operated fully during summer months, because the maximum allowable drawdown of water from the full pond elevation is limited to six inches from May 1 to August 1 in order to preserve loon habitat. By comparison, the winter maximum allowable drawdown from the full pond elevation is 10 feet (with a normal drawdown of 6 feet).

In the ISO-NE markets, these plants receive capacity payments from the Forward Capacity Markets ("FCM"), for which auctions occur three years in advance of the year of service. For the current season, MWL is receiving capacity payments based upon the following amounts:

Forward Capacity Auction Results for 2013-2014

ID	Name	Summer Qualified Capacity	Winter Qualified Capacity MW	FCA Qualified Capacity MW
1165	CADYS FALLS	0.272	0.443	0.272
1166	MORRISVILLE PLANT #2	0.399	0.630	0.399
1168	H.K. SANDERS	1.791	1.668	1.791
	TOTAL	2.462	2.741	2.462

Source: http://www.iso-ne.com/markets/othrmkts_data/fcm/cal_results/ccp14/fca14/index.html

MWL also receives energy payments for the energy produced from the hydro plants. The ISO energy payments offset the load payments that MWL must make to the ISO as a member. In essence, any energy that the hydro plants produce is offset (or consumed) by load on MWL's system. If the plants produce more energy in an hour than MWL's load in that same hour, then MWL will receive payment from the ISO for the excess generation. However, the hydro assets represent only a portion of MWL's entire portfolio, and their output rarely, if ever, exceeds MWL's load.

In Table 3, MWL's information on generation and loads is set out for 2012. The second to last column shows "ISO Revenue Settlement." The negative dollars represent payments from the ISO to MWL for its resources, irrespective of whether these resources represent the hydro resources or MWL's purchases from others. At the bottom of the table, there is an indication that these negative amounts are offset by payments MWL must make to the ISO for load settlement and other market charges. The numbers indicate that MWL paid, on average, $38.06/MWH for its load in 2012. In contrast, MWL was paid by the ISO $46.14/MWH on average for each

MWH of resources it obtained to serve its total load.[29] This higher amount includes the capacity payments the ISO makes to MWL for the hydro resources. MWL's total resources include the hydro units, Hydro Quebec purchases, its purchases of shares of other plants arranged by VPPSA, and market purchases from the ISO as well. However, one must add in the costs that MWL pays directly to purchase these resources—costs that are incurred in addition to the costs incurred in the market. With these costs added, the final cost of power per MWH in 2012 was $78.33/MWH, or 7.833 cents/kWh. With the additional cost of transmission added in, the final Power Production Expense per MWH for 2012 was $100.45/MWH ($4,943,031/49,211 MWH).

Currently, the hydro assets are bid into the ISO's FCM auctions and receive capacity credits, as described above. In the past, the prices that resulted from the FCM auctions are as follows:

Table 12

Forward Capacity Auction Prices	
Auction	**Price**
FCA #1 (2010-2011)	$4.50/kW-mo.
FCA #2 (2011-2012)	$3.60/kW-mo.
FCA #3 (2012-2013)	$2.95/kW-mo.
FCA #4 (2013-2014)	$2.95/kW-mo.
FCA #5 (2014-2015)	$3.21/kW-mo.
FCA #6 (2015-2016)	$3.43/kW-mo
FCA #7 (2016-2017)	$3.15/kW-mo.

After the auction results are finalized, the ISO normally adjusts these prices downward based upon the amount of capacity offered. Without this adjusted information, and based upon the auction prices shown in this table, it appears that MWL received approximately $95,000 in 2012 for capacity payments. The $329,300 in Total ISO Revenue Settlement for the hydro units shown in Table 3 includes capacity payments; by deduction, the remainder of $234,000 was derived from energy revenues. Assuming that each MWH of output from the units received the annual average price of energy settled in the ISO Load, the amount of energy revenue would have been approximately $260,000, not far off the amount indicated above. This result is calculated as:

$38.06/MWH * (1 MWH/1000 kWh) * 6,862,086 kWh = $261,193

MWL also receives Renewable Energy Credits ("RECs") for its hydro resources. According to the VT Annual Report, the amount of revenues received from the sale of hydro RECs is minor (around $3,000 in 2012).[30] According to MWL's General Manager, MWL is attempting to recertify these hydro RECs as "low impact," which would increase the amount of revenue

[29] Referring to Table 3, MWL paid $1,873,140 in Load Settlement @ LMP, which, divided by 49,211 MWH, equals $38.06/MWH. But MWL received $2,270,786 in ISO Revenue Settlement dollars, which equals $46.14/MWH when divided by the same number of megawatt-hours.

[30] See VT Annual Report at 42.

available from these RECs. Success in the recertification effort is dependent upon the hydro facilities' relicensing results at FERC and MWL's reaching agreement with the Vermont Agency of Natural Resources on the bypass flows at Cadys Falls and Morrisville. That effort is currently underway.

MWL is interested in examining alternative ownership structures and uses for its hydro plants. These alternatives include: (1) using the units as load reducers, rather than as generating units in the ISO markets; (2) creating a limited liability corporation and selling the units to this corporation, which would run them independently of VPPSA and MWL; or (3) qualifying as a PURPA small hydro facility. WRA will examine each of these below.

Hydro Units as Load Reducers

According to ISO-NE Operating Procedure No. 14 ("OP 14"), small units with capability less than 5 MW that are not equipped with telemetering can be used as load reducers. See OP-14 - Technical Requirements for Generators, Demand Resources and Asset Related Demands at Section III:

> 3. A generating unit of less than five (5) MW and that does not meet telemetering requirements per ISO-New England Operating Procedure No. 18, Metering and Telemetering Criteria (OP-18) or is less than 1 MW and is therefore not represented in the ISO Energy Management System (EMS), has the following options:
>
> - Registering as a "Settlement Only Generator", which is eligible to participate in the Forward Capacity Market, and in the Energy Market according to MWh generated
> - Treating the unit as a load reducer, in which case the unit is not registered with ISO and has no direct Capacity Supply Obligation (CSO) for an Forward Capacity Market (FCM) commitment period or other market settlement implications
> - A unit is considered a less than five (5) MW unit if the annual average of its seasonal (summer or winter) ratings, or its rating in any month (for a daily cycle hydro or wind unit), as determined in accordance with ISO-New England Manual for Forward Capacity Market Manual M-20, is less than 5 MW[.][31]

This description may possibly require all load reducers to not be capable of meeting the ISO-NE's telemetering requirements. However, page 9 of OP 14 states that "[e]ach Unit that is treated as a load reducer does not need telemetering."[32] This language appears to indicate that a load reducer may have telemetering capability. Furthermore, Operating Procedure No. 18 states:

> No telemetering is required for Generators receiving "Settlement Only" treatment and Generators being treated as load reducers in accordance with ISO-New England Operating Procedure No. 14, Technical Requirements for Generators, Demand Resources and Asset Related Demands (OP-14).[33]

[31] OP-14 - Technical Requirements for Generators, Demand Resources and Asset Related Demands, http://www.iso-ne.com/rules_proceds/operating/isone/op14/op14_rto_final.pdf at page 7.
[32] Ibid, page 9.
[33] See Operating Procedure No. 18, Metering and Telemetering Criteria (OP-18), http://www.iso-ne.com/rules_proceds/operating/isone/op18/op18_rto_final.pdf at page 9.

According to the ISO-NE lists of assets, there are 3 load reducer generation assets in New England. They are:

Asset ID # 194: Four Hills Load Reducer in the New Hampshire zone
Asset ID #737: Simpson G Load Reducer in the Vermont zone
Asset ID #1057: Blackstone Hydro Load Reducer in the Rhode Island zone

These are the only Load Reducer Generators out of 894 Generators listed by ISO-NE.[34]

The "2013-2022 Forecast Report of Capacity, Energy, Loads, and Transmission" ("CELT Report")[35] notes that these three assets have the following attributes:

Name	Summer SCC[36]	Winter SCC	Network Resource Capacity (Sum/Win)
Simpson G Load Reducer	1.382 MW	3.384 MW	3.84/4.85 MW
Four Hills Load Reducer	0.00 MW	0.997 MW	2.091 MW
Blackstone Hydro L.R.	0.208 MW	0.864 MW	1.8 MW

Previous CELT Reports note that the Simpson G Load Reducer is a run-of-river hydro unit owned by CVPS, with summer capacity of 1.9 MW and winter capacity ranging from 4.35-4.85 MW (2010). The 2011 CELT Report showed reduced amounts of Seasonal Claimed Capability ("SCC") for this hydro unit. This load reducer is presumably now one of GMP's resources. The Blackstone Hydro Load Reducer is also a run-of-river hydro unit located in Rhode Island with a 2011 Summer SCC of 0.196 MW and a Winter SCC of 1.8 MW. The 2011 CELT Report noted that this plant had been sold to Macquarie Energy, and its SCC had fallen.[37] The Four Hills Load Reducer is a bio/refuse plant of Public Service New Hampshire.

Furthermore, other material indicates that certain other load reducers have been planned. A Reliability Committee Agenda item dated 1/26/09, Revision 2, describes several small wind projects, primarily QFs. Most of these were proposed wind resources, smaller than 1 MW, and most below 250 kW. However, none of these resources have yet appeared in the ISO CELT Reports.

MWL's hydro units meet the requirements to be considered load reducers in that the capacity of each is below 5 MW and, even after being combined, the three units have an actual installed capacity of 4.99 MW.[38] However, a major concern about this particular alternative is whether MWL would be able to reduce its Network Load in order to reflect the use of the hydro units as load reducers. The definition of Network Load is as follows (emphasis added):

[34] See http://www.iso-ne.com/support/asset_info/customer_and_asset_information.xls
[35] See http://www.iso-ne.com/trans/celt/report/2013/2013_celt_report.pdf at various.
[36] SCC stands for Seasonal Claimed Capability
[37] WRA contacted Macquarie Energy, but was not able to reach anyone with knowledge of this plant.
[38] See Village of Morrisville Project Application for New License ("Hydro License Application"), April 2013, Exhibit A at page 1-1.

> **Regional Network Load** is the load that a Network Customer designates for Regional Network Service under Part II.B of the OATT. The Network Customer's Regional Network Load shall include all load designated by the Network Customer (including losses) and shall not be credited or reduced for any behind-the-meter generation. A Network Customer may elect to designate less than its total load as Regional Network Load but may not designate only part of the load at a discrete Point of Delivery. Where a Transmission Customer has elected not to designate a particular load at discrete Points of Delivery as Regional Network Load, the Transmission Customer is responsible for making separate arrangements under Part II.C of the OATT for any Point-To-Point Service that may be necessary for such non-designated load. [39]

The initial discussion regarding Regional Network Load states that any behind-the-meter generation cannot be used to reduce load in calculating Network Load. The question then becomes whether the hydro units, as load reducers, would be considered behind-the-meter generation. An initial request with the ISO resulted in this response:

> Solution: While behind the meter generation is not modeled in our energy settlement system, it should be included in Network Load. Please contact utilities for their internal procedures.[40]

A further request for clarification as to whether load reducers fit into the category of behind the meter generation resulted in a telephone call with Mr. Tim Peet of ISO-NE on August 2, 2013. Mr. Peet noted that the Transmission Owner ("TO") decides what is to be included in its report of Network Load. He stated that the TO is supposed to add back behind-the-meter generation when reporting Network Load to the ISO; however, he implied that if a TO agreed not to add back the generation, then the payments for transmission service to the associated load could be reduced. He noted that the ISO does not uniformly enforce this rule and that, if he were operating a municipal utility, he would use a hydro unit as a load reducer, even if such use could be construed as being against the rules *per se*. He provided an example of a utility that receives $3.21/kW-month in capacity payments, but must pay $7.38/kW-month in Regional Network Service and Schedule 1 rates.[41] Obviously, the avoidance of the RNS payment would be greater than the lost capacity payments. However, the equation is not so straightforward for MWL, as will be discussed below.

Assuming (a) that the hydro units can be used as load reducers, (b) that the amount of energy served by these units can be deducted from MWL's load, and (c) that the amount of coincident demand met by these units can be deducted in transmission payment calculations, the following paragraphs provide a comparison of the existing operating methodology (participation of MWL generation in ISO markets and payment for transmission on network load served by generation located behind the meter) and the alternative operating methodology (foregoing participation in ISO markets and reducing payment for transmission on network load met from generation located behind the meter).

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[39] ISO-New England Inc. Transmission, Markets and Services Tariff, Section 1, http://www.iso-ne.com/regulatory/tariff/sect_1/sect_i.pdf at page 81.
[40] Email received on July 31, 2013 from ISO-NE Customer Service re: Issue # 19289.
[41] See http://www.iso-ne.com/trans/services/types_apps/rns_through_out_rates.pdf

In essence, it is assumed that MWL would be able to remove the kWh of energy produced from the hydro units from the ISO settlement process—therefore, MWL would not receive energy payments from the ISO for its hydro generation, nor would it have to pay the settlement locational marginal price ("LMP") for that load. In a perfect world, these two changes would offset each other equally. However, that may not be the case in real time. Congestion and losses could cause differences in price, as well as the variation in prices depending upon the hour. In WRA's analysis, however, we will assume that these two changes (hydro energy used by MWL directly and reduced load payments to ISO-NE) offset each other equally. Therefore, the other main difference is to examine whether the loss of capacity payments from the forward capacity auction would be offset by reduced transmission costs, if MWL is allowed to reduce its Network Load by the amount of MWL load met by the hydro units.

This calculation is made difficult by the fact that two of the three hydro units are run-of-the-river. Thus, MWL is not able to choose when to generate from the Cadys Falls or Morrisville projects, and instead must take the energy as it is generated by contemporaneous stream flows. In a wet year, more energy will be produced than in a dry year. The third plant, the Green River/Sanders plant, is able to be used as a peak-shaving plant during the November-March period, albeit within several parameters (described below). MWL's recent Hydro License Application states:

> The hydro station is operated to provide electric power to shave energy demands and when market prices are high during the winter months of November through March. As noted above, during the winter months, the impoundment may be drawn down as much as 10 feet, utilizing 5,400 acre-feet of water stored; however, the typical winter drawdown is only 6 feet.
>
> While maximum drawdown is still allowed in March and April, the Green River Reservoir Development is typically operated to refill the reservoir in order to meet the one-foot maximum drawdown allowable by May 1st.
>
> During May through November, the development is operated with a maximum drawdown of one foot from the full pond elevation of 1220 feet (USGS). This is generally accomplished using only one turbine, however, during periods of excessive precipitation the second turbine may be operated. Discharges during this time are typically done only to prevent spilling water, maintain minimum flow requirements (5.5 cfs below the dam), and to conduct the annual summer period capability testing required by ISO-New England.
>
> At the rated maximum generation of 1,890 kW, the Sanders Plant (the name of the hydroelectric generating facility at Green River Reservoir) discharges 312 cfs. The minimum flow bypass operates with a continuous flow of 5.5 cfs, as required by the License.[42]

[42] Hydro License Application, Exhibit B at 1-4. Note that other information from MWL indicates that Green River must maintain a 6 inch maximum drawdown May 1 to August 1 (Email dated August 20, 2013).

MWL is only able to reduce its transmission costs by the amount that use of its hydro resource enables MWL to reduce its Monthly Network Load. The Monthly Network Load is defined as the hourly load coincident with the aggregate load of all Network Customers served in each Local Network. For MWL, Monthly Network Load would be its hourly load during the same hour when all of Vermont reaches its highest demand each month.

Without more details on MWL's transmission bills, it is apparent from history that MWL's hydro resources provide approximately 20% of MWL's total monthly energy requirement during the winter months, but a much lower percentage in the summer months. Based on the table below, it is apparent that the hydro resources produce about 15-20% of the total monthly energy that MWL needs during October-May, but much less during the summer months of June-September.[43]

Table 13

Morrisville Hydro Unit Generation Versus Total 2012 Use						
	Monthly Peak MW	Total 2012 Hydro Gen	Total kWh Use	2012 Hydro %	10-Yr Avg Hydro Gen	10-Yr Avg Hydro %
January	8,320	281,387	4,538,638	6.20%	832,029	18.33%
February	7,869	346,358	4,047,250	8.56%	582,634	14.40%
March	7,576	803,886	4,016,637	20.01%	778,301	19.38%
April	6,623	879,104	3,750,912	23.44%	1,053,579	28.09%
May	7,093	980,354	3,925,632	24.97%	1,055,496	26.89%
June	8,432	395,354	4,059,014	9.74%	831,844	20.49%
July	8,195	183,227	4,353,921	4.21%	643,116	14.77%
August	8,004	53,551	4,377,934	1.22%	538,901	12.31%
September	7,270	249,626	3,799,907	6.57%	316,304	8.32%
October	6,961	641,931	3,960,067	16.21%	666,137	16.82%
November	7,621	956,255	3,999,819	23.91%	818,299	20.46%
December	8,015	1,091,053	4,447,391	24.53%	915,582	20.59%
		6,862,086	49,277,122	13.93%	9,032,222	18.33%

For 2012, MWL experienced the lack of the Cadys Falls generator during January and February, thus lowering the percentage of generation during those two months from the normal, higher amounts. Also, Green River produced almost no energy during July and August, thereby sharply reducing the hydro contribution to MWL's energy requirement for these two months. It is worth noting that the Green River plant, which is the only plant which enables MWL to actively shave its hourly usage, has its highest output during November-January, and its lowest output during June-September. As the ISO-NE as a whole is summer-peaking, this means that the plant cannot be used to reduce transmission usage by any appreciable amount during those times when market prices are the highest. Furthermore, over the 10-year time period, the Morrisville hydro plants tend to produce the most energy during months which are shoulder periods—e.g., not the months

[43] Sources for the Table include the Hydro License Application, Exhibit B at 2-2, and the VT Annual Report at pages E-8 through E-10.

when the highest peak demands occur (which tend to be July-August for the summer, and January-February in the winter).

Without hourly data on MWL's load and generation, it is difficult to determine with any precision whether, or by how much, operating the hydro units as load reducers would reduce MWL's transmission costs. MWL's 2012 Financial Statements show the following components of MWL's 2012 Transmission Costs:

Table 14

2012 Transmission Costs

Highgate PTF Credit	($28,629)
Highgate Transmission	$27,616
LCSF Fixed Charge	$230,000
LCSF Equity Overbuy Return	$289,996
NEPOOL/ISO Transmission	$550,097
HQ Phase 1	$3,623
VELCO '91	$743
VELCO-Substation Participation	$15,083
Total	$1,088,529

Several of these items would not differ even if MWL's Monthly Network Load was reduced because certain charges are based upon MWL's percentage share of the particular investment established at a specific time in the past. However, the NEPOOL/ISO Transmission component would be directly affected by reduced usage on the system, as would the VELCO '91 Agreement component.[44] Assuming a 15% reduction during November through May, and an 8% reduction during June-October, an estimate of reduced transmission costs is approximately $80,000. This assumes, however, that MWL's coincident peak load of the month would be reduced by 8% or 15%.[45] See Table 16. Because two of the three hydro units are run-of-the-river and are not able to be scheduled in any way, such reductions may or may not occur. The Green River project, on the other hand, can be used to shave the peak load within the operating parameters described above. WRA has used the lower percentages in order to reflect the fact that MWL cannot determine the peak in every month, and therefore run Green River at that time in order to reduce transmission expenses. Therefore, the table below is merely an estimate of how the costs of transmission might be reduced by hydro generation.

[44] The VELCO '91 Agreement costs were abnormally low in 2012 because of credits relating to tax refunds, so WRA has used the average of 2011 and the 2013 budgeted forecasts. See "13-0703 Trans Cost 2011-2017.xls."
[45] Peak Load data from VT Annual Report at 16; slightly different from "Loads Boundary sum MWL.xls" file.

Table 15

	Monthly Peak kW	Trans $ per Month	Reduced $ Hydro Avg
January	8,320	$55,935	$8,390
February	7,869	$55,530	$8,329
March	7,576	$53,311	$7,997
April	6,623	$54,424	$8,164
May	7,093	$47,984	$7,198
June	8,432	$43,483	$3,479
July	8,195	$51,314	$4,105
August	8,004	$53,680	$4,294
September	7,270	$56,065	$4,485
October	6,961	$59,115	$4,729
November	7,621	$63,395	$9,509
December	8,015	$63,910	$9,587
	91,979	$658,145	$80,266
Reduction in Costs			
Nov.-May	15%		
Jun-Oct.	8%		
Source of Monthly Peak = VT Annual Report at 16			
Source of Transmission $ from 2012 Financial Statements at 24.			
Source of Trans $ per Mo. from 13 0703 Trans Cost 2011-2017.xls			

This estimate of transmission impacts (which is not precise, as it is based on averages, and not reductions during the hour of coincident peak on the system), is below the estimate of capacity payments that MWL received in 2012, which was $95,000. Based upon this comparison, it would appear that keeping the hydro units as generators within the ISO markets is a better option. However, using higher percentages, such as 20% during November through May and 10% during June through October, would result in savings of $105,000. These savings would exceed those received by MWL from the FCM market. The question then becomes whether MWL can predict the monthly peaks well enough to produce hydro power at those times to reduce peak usage.

WRA also performed another estimate of transmission impacts which examines how much the hydro capacity could reduce the monthly peak loads. This scenario assumes that MWL could calculate precisely the hour in which the peak load of the month were to occur, and would then operate the Green River hydro plant close to its maximum during that peaking period. As an estimate, WRA has assumed that 1,462 of the 2,462 kW of ISO qualified capacity could be used to reduce each monthly peak. This scenario also assumes that this same reduction has occurred in each of the previous 12 months, so that the 12-month rolling average used to calculate transmission charges already reflects this reduced usage. Based upon this scenario, MWL would save over $125,000 based upon 2012 numbers.

Table 16

	Monthly Peak kW	Trans $ per Month	Peak Reduced by Exp. Cap.	Difference	% Exp. Cap to Peak
January	8,320	$55,935	$46,099	$9,836	17.6%
February	7,869	$55,530	$45,206	$10,324	18.6%
March	7,576	$53,311	$43,016	$10,295	19.3%
April	6,623	$54,424	$42,402	$12,022	22.1%
May	7,093	$47,984	$38,087	$9,897	20.6%
June	8,432	$43,483	$35,938	$7,545	17.3%
July	8,195	$51,314	$42,153	$9,161	17.8%
August	8,004	$53,680	$43,868	$9,812	18.3%
September	7,270	$56,065	$44,782	$11,282	20.1%
October	6,961	$59,115	$46,691	$12,424	21.0%
November	7,621	$63,395	$51,225	$12,170	19.2%
December	8,015	$63,910	$52,245	$11,666	18.2%
Total/Average	91,979	$658,145	$531,712	$126,433	19.2%
Expected Cap	1,462				

A sensitivity analysis was also conducted using a much lower capacity reduction number of 500 kW versus 1,462 kW as shown in Table 16. This analysis indicates that the savings would drop to $43,297 from the $126,433 shown above. Thus, the amount of savings is critically linked to whether or not MWL is able to use the hydro plants to shave the peak hours coincident with the peak demand of ISO-NE as a whole and coincident with the peak demand of VELCO, in every month. WRA would submit that perfect foresight is unlikely to occur. Based upon the restrictions of water usage, particularly in the summer months on the Green River hydro plant, it is unlikely that MWL could estimate the peak hour of usage and then run the plant at exactly those times in each month and thereby reduce transmission costs by the assumed amount. However, this example does show how having some control over the units could be beneficial to MWL. WRA has been informed that VPPSA is working on a model to forecast the Vermont and New England peak hours. MWL believes it can run two hydro units at Green River for two hours for every inch of water in the reservoir, giving MWL 24 hours of run time if the peak occurred in August (and only 12 hours if the peak occurs in July). Again, this presumes good forecasting—after several hot days, peaks normally occur, but if rain holds off unexpectedly to the next day, and the expected peak occurs one day after forecast, MWL would lose the benefits of trying to shave its peak.

It is well known that transmission costs have risen sharply over the last six years, as the New England transmission owners invested in large amounts of new transmission plant. In the last three years, MWL's costs of ISO transmission service have increased more than 11% per year. ISO documents indicate that transmission investment may level off after 2017.[46] Fewer large transmission projects are on the horizon, as most reliability must-run generators have been

[46] See http://www.iso-ne.com/committees/comm_wkgrps/prtcpnts_comm/pac/projects/2013/final_june_2013_rsp_project_presentation.pdf

displaced by sufficient transmission. Therefore, it may be that the rate of increase in transmission expenses will begin to moderate in the future, although VPPSA is still predicting annual increases ranging between 5 and 10% for the next five years.

Capacity prices for generation, on the other hand, have not risen to the higher levels expected at the beginning of the Forward Capacity Auction process. Indeed, FCM capacity prices have been at or near the minimum floor for most of the ISO region ever since the capacity auctions began, as shown in Table 15. However, because the FCM capacity prices have been at or near the minimum floor, any need for generation in the future may increase these prices dramatically. Indeed, recent information on the ISO-NE capacity situation indicates that the ISO will be short of capacity for the 2017-18 delivery year, which may cause FCM prices to rise.[47] Working against this is the demonstrated slowing of increased electricity demand in the United States over the past few years, partly because of the Great Recession and partly because of increased energy efficiency and demand side management policies. Because the Forward Capacity Auctions take place three years in advance of the related capacity payments, MWL cannot decide to pull out of the auctions, and then step right back in at the first sign of rising capacity prices. Instead, it would be required to wait at least one year, and then submit its resources for a period three years in the future.

These uncertainties in the forecast of ISO-NE markets leave MWL with the decision as to whether it expects capacity prices to rise more than transmission costs. Another risk involves whether MWL's transmission provider is willing to remove the hydro generation from the Network Load calculation which is reported to ISO-NE. Based upon a reading of the ISO-NE tariff and discussions with ISO-NE personnel, as well as other research performed by VPPSA dated August 17, 2012, MWL has the option of removing its hydro resources from the ISO-NE markets and becoming a load reducer. However, in terms of economics, this option is cost-effective at this time if MWL can guarantee its ability to shave its monthly coincident peak transmission usage.

Potential Benefits of Operating Hydro Resources as an LLC

Another possible option for MWL is to spin off or divest ownership of its hydro units, either to a municipally-owned Limited Liability Corporation ("LLC") controlled by the Village of Morrisville or to a wholly independent entity. Under this option, MWL would presumably retain and operate its distribution assets and retain its existing interests in its other, non-hydro generating resources. This newly-formed generating entity could then operate the hydro units, either as load reducers selling their output directly to MWL, or as a market participant selling into the ISO markets. That is, after MWL's divestiture, the entity that acquired ownership of the hydro plants could choose whether to continue selling its output to MWL or to proceed independently of MWL and sell its output into the ISO markets or enter into a bilateral arrangement with some other sale-for-resale entity.

At first blush, no business purpose would seem to be served if MWL were to divest its hydro plants to a municipally-owned corporation that retained an affiliation with MWL. In that scenario, MWL and its affiliated local government would incur transaction costs and gain no net

[47] See *Megawatt Daily*, December 27, 2013 at page 1 (Platts McGraw Hill).

cash. That is, whatever cash proceeds were received by MWL would have to originate with the Village, and both the buying and selling entities would incur transaction costs in connection with the divestiture. Similarly, the risks and costs of ownership (e.g., the costs of relicensing, insurance, payroll, operating and maintenance expense, servicing debt) would shift away from MWL and its ratepayers but would remain with the Village (and its taxpayers, who would overlap to an extent with MWL's ratepayers).[48] As a separate, for-profit power marketer of hydro power, the newly formed municipal corporation might also be exposed to taxes and costly regulation of its activities as a standalone generator that MWL does not face under the present contractual structure of the hydro units.

However, operating in this scenario could produce some benefits because an independently structured owner of the hydro plant is sometimes treated differently under regulatory law than a municipal utility that owns the hydro plant- even if that owner retained an indirect affiliation with MWL.[49]

Several scenarios might be considered for divestiture of the hydro plant to an independent power producer ("IPP").

1. An IPP could buy the hydro assets, and then negotiate directly with MWL in order to sell the energy back to MWL. In this scenario, the IPP would presumably pay MWL for purchasing the assets (providing a net gain in cash proceeds for MWL), and then the IPP would have to hire people to operate and maintain the plant. MWL would then purchase energy from the IPP, and recover the costs of such purchases in rates charged to customers but would be relieved of the costs of owning and operating the hydro plant. There are separate companies which specialize in owning and operating small hydro plants and they might well be willing to hire employees to operate and maintain the units. There is a question of whether the IPP would be willing to incur the costs of relicensing costs and upgrades necessary, as well as take over MWL's regular employees to operate the hydro plant. There is a further question of whether the IPP would seek to recover those costs solely from MWL or spread the recovery of those costs across all its sales. The IPP could also sell the hydro RECs into the market, and it, rather than MWL, would recover the associated revenue.

2. Another option would be for a separate entity to operate within the ISO-NE markets as an IPP, and sell capacity into the market along with the energy and RECs. Under this scenario, the IPP would avoid direct dealings with MWL almost entirely. Although MWL would be the entity absorbing the energy for the most part, it wouldn't receive any

[48] One problem is that the taxpayers of the Village of Morrisville are presumably a smaller subgroup of the total customers of MWL, which include portions of Elmore, Hyde Park, Johnson, Morristown, Stowe and Wolcott.

[49] If ownership of the hydro units were to be separated from MWL and transferred to a corporation owned by the Village of Morrisville, the net revenues derived from RECs, and from capacity and energy sold into the ISO markets could be credited to the Village general fund (thereby benefiting taxpayers in the Village) instead of being credited to ratepayers located both within the Village and outside the Village. Such a transaction would require the newly formed corporate subsidiary of the Village to purchase the plant from MWL, possibly funded through an issue of tax-exempt debt. All MWL ratepayers (both those located within the Village and those outside) would benefit from the proceeds from the sale which would presumably be reflected in a reduction in net plant value. The feasibility of establishing a municipally-owned corporation for the purposes described, and the mechanics of doing so, are matters of Vermont law beyond the scope of this report.

revenue received by the IPP for its energy payments, capacity payments, or REC sales. MWL would have to replace the energy previously provided by the IPP (although in reality it would be absorbing the energy from the hydro units, but purchasing that energy as if it were produced by generation in the ISO market). MWL would be relieved of the expense of operating and maintaining the units, but would bear additional charges because it would have to acquire capacity to replace that capacity it now provides from the hydro units. It is possible that MWL could increase its revenue by charging the IPP for transmitting its energy to the ISO market and for station service power during outages. Typically, an IPP is required to buy station service power from the local utility at retail rates.

One advantage of selling the hydro plants to a fully independent IPP is that MWL would be relieved of the continuing expense and uncertainty related to relicensing the plants as well as the ongoing costs of financing upgrades and operating and maintenance expense.

One major disadvantage of selling to a fully independent IPP is that MWL would be selling the very valuable hydro units at a time when their market values are unusually low. The market value of all generation is currently at a low level owing to low-cost natural gas, low utility load growth (which suppresses the demand for new generation) and pricing pressure from demand side management, conservation and subsidized solar and wind power. Hydro generation owes its high value in large part to the fact that it has no fuel costs and its cost is insensitive to increases in the market cost of fossil fuel. Although the market values of renewable generation such as the hydro plants have not been adversely affected as much as have fossil-fueled plants (particularly old coal plants), even renewable generation prices are under market pressure. Although MWL could expect to receive a substantial lump sum payment in the form of sales proceeds, that lump sum can be expected to have a present value lower than the present value of the stream of MWL's future payments for power that MWL would need in order to replace the output of the hydro plants and in order to replace the RECs it can expect to receive from the hydro plants. The present value of that stream of payments will obviously increase with a rebound in load growth, fuel costs and prices in the generation market.

Potential Benefits of Operating the Hydro Resources as a PURPA Qualifying Facility

This scenario would involve a hydro plant owned by the Village being permitted under federal law (the Public Utility Regulatory Policies Act of 1978 ("PURPA")) to use its output to meet the retail loads of the Village, reducing the retail loads served by MWL and relieving it of commensurate obligations (a) to pay ISO-NE for transmission service and (b) to build, or buy the output of, generation. MWL would lose retail load to the PURPA Qualifying Utility ("QF") and also lose the associated revenue. But MWL would also be relieved of the obligation to buy generation and to pay for transmission service in order to meet the Village's retail load. The PURPA QF "behind-the-meter" option potentially produces some of the same benefits and faces many of the same difficulties as does operating under the "reduced load" scenario. One benefit of the PURPA QF "behind-the-meter" option is that - unlike a load reducer - it does not create or encounter as many ambiguities in treatment under the ISO-NE Tariff.

Under the original 1978 PURPA, a QF was permitted to interconnect with the local utility and to operate under either or both of two modes. Under the first mode, the QF output could be used to

meet the retail loads of the QF owner (typically a paper or steel mill or a chlor-alkali chemical plant). To the extent the output of the QF exceeded its retail load behind the retail meter of the QF owner (i.e., the Village), the QF could operate in the second mode, selling its electrical output to the utility at the utility's avoided cost (referred to as the utility's "mandatory purchase obligation"). Absent PURPA, the second mode of operation would involve a regulated sale-for-resale subject to the Federal Power Act. However, under PURPA, the QF was exempted from FERC regulation, and the responsibility for setting the rate applicable to its sale-for-resale to the local utility was delegated to the various States. The avoided cost was determined differently in many States, but generally fit the PURPA and FERC definition of being no more than the local utility would have to pay to obtain the energy and capacity from another source, usually the "avoided unit" which the utility would otherwise build or buy. PURPA also required the local utility to provide backup power, maintenance power and supplemental power to the retail loads served by QFs (a utility obligation referred to as the "mandatory sale obligation").

FERC adopted rules in 2006 that allow utilities to file to terminate both the mandatory purchase obligation and the mandatory sale obligation to certain QFs in its orders implementing certain provisions of the Energy Policy Act of 2005 that are applicable to QFs.[50] Section 210(m)(1)(A) of the 2005 statute mandated elimination of the purchase obligation where QFs have "nondiscriminatory access" to "wholesale markets for long-term sales of capacity and electric energy." FERC incorporated this statutory language verbatim into its regulations.[51] FERC specifically noted that each of PJM, Midwest ISO, ISO-New England, and New York ISO had markets that met the statutory requirements, so that utilities located in those markets would be eligible to eliminate PURPA's mandatory purchase obligation. The U.S. Court of Appeals for the D.C. Circuit upheld the Commission's regulations in *American Forest & Paper Ass'n v. FERC*, 550 F.3d 1179 (D.C. Cir. 2008). As discussed in more detail below, even though MWL is relieved of the "obligation" to buy power from PURPA Qualifying Facilities at avoided cost under FERC Order No. 688, MWL retains the option - and can still agree - to do so.

If the MWL hydro units were to be reconstituted as a PURPA QF, the resource would fall into the condition of being less than 20 MW, and therefore still be able to sell power directly to the local utility (MWL). The best estimate of MWL's avoided costs would be that of the ISO LMP (possibly including the FCM capacity payments and avoided transmission costs as well), and therefore MWL would pay for energy received from the QF at the same price it would pay the ISO.

Under PURPA, QF generation is netted against the retail loads of the owner of the QF (the Village in our example) located behind the QF owner's retail meter. While MWL (and possibly VELCO) should benefit by being relieved of the obligation to buy transmission service for load met by a behind-the-meter PURPA QF generator, it appears that the ISO would still expect the QF generation to be reported as part of Network Load, similar to its policy toward load reducers discussed above.[52] To the extent that the capability of the QF generation behind the meter exceeds its load, the QF looks

[50] *New PURPA Section 210(m) Regulations Applicable to Small Power Production and Cogeneration Facilities*, Order No. 688, FERC Stats. & Regs. ¶ 31,233 (2006), *order on reh'g*, Order No. 688-A, FERC Stats. & Regs. ¶ 31,250 (2007), aff'd sub nom. *American Forest and Paper Association v. FERC*, 550 F.3d 1179 (D.C. Cir. 2008).
[51] 18 C.F.R. § 292.309(a)(1)(ii) (2008).
[52] Based on a telephone call with an ISO-NE representative, the ISO rules require such reporting of behind the meter generation, even though the representative indicated that he believed some participants did not do so.

like generators to the utility and to ISO-NE even though such net deliveries to MWL would be a composite of network load and QF cogeneration. For purposes of reporting to ISO-NE, MWL's network load ordinarily would not include a behind-the-meter load served by a QF except possibly to the extent that - and during the times that - MWL provides standby or maintenance power to the QF.[53]

When an owner of a PURPA QF consumes its output in meeting the QF owner's retail load, there is no "retail sale" for the Vermont Commission to regulate because the "buyer" and the "seller" are the same entity. Some States permit a third party to own the QF (a structure which would involve a "retail sale" from the QF to the Village) yet enables all participants to still receive preferential QF treatment under State law. At this point, we do not know whether this third-party ownership of QFs is permitted under Vermont law. If a third party QF owner is permitted under Vermont law, the value of the QF approach increases because the third party would presumably buy the hydro asset and provide a cash infusion to MWL, thereby avoiding any need for the Village to issue debt to buy the hydro asset.

Although the economics of this approach are appealing, implementing it will not necessarily be simple. The trick under this approach is to transfer ownership of one or more of the hydro assets from MWL to the Village, to reconfigure the output terminal of that hydro asset so that it is located behind the retail meter of the Village and to assemble enough retail load in the name of the Village (and behind its retail meter) to absorb all or most of the output of the hydro plant. At this point in WRA's analysis, we do not know how difficult and costly it would be to reconfigure the MWL transmission and distribution system so that the output terminals of the hydro plants can be located behind the retail meter of the Village loads. Moreover, the Village may have to issue debt to buy one or more of the hydro assets from MWL. An issuance of debt by the Village and purchase of a hydro asset will involve transaction costs for legal research and documentation of the transaction. If the Village does not have enough retail load to absorb all or most of a hydro asset, the Village may have to establish some sort of special purpose entity to bring some residential and commercial load. Therefore, at this time, WRA is not recommending that MWL pursue this option.

[53] The California ISO tried and failed to impose charges for transmission and ancillary services on the gross load of each QF, not just on the net load seen by the local utility in the form of standby service or maintenance service. FERC rejected that attempt and determined that each QF should be allowed to interact with the Cal ISO on the basis of its net generation and net load (usually the load associated with standby service taken by the QF). *Opinion No. 464*, 104 FERC 61,196 (August 12, 2003).