
Borough Of Madison:
**Strategic Planning Committee on
the Utilities**

January 12, 2015

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Committee Members

■ Community Volunteers

- ❑ Martin Barbato –Chair
- ❑ John Formica
- ❑ Gary Ruckelshaus
- ❑ Carmela Vitale
- ❑ Herb Worthington

■ Staff Support

- ❑ James Burnet
- ❑ Robert Kalafut
- ❑ Michael Piano
- ❑ Bob Vogel
- ❑ Ray Codey

Overview

- Developed Mission Statements, to answer the question: What are the intended ends of owning a utility?
- Reliability – How do we define it? How do we achieve it? How do we measure it? How do we compare with other alternatives?
- Rates – What is the approach to comparing with other alternatives? How do we compare with other alternatives?
- Surplus – Why do we generate a surplus? When is it desirable to do so? What is the projected surplus under different conditions?
- Developed tools for planning and management of the utilities
- Next Steps – How do we make decisions and plan from here?

Mission Statements - Electric Utility

- To provide the residents of Madison with the highest level of reliability in electric power attainable, and in no event, less than the reliability available from any of the major providers of electric power in the State of New Jersey; it being expressly understood that service is a critical component of achieving such a level of reliability.
- To maintain rates that are comparable to those that would be payable to other providers of electric power in the State of New Jersey.
- Where the circumstances are such that the resident taxpayers are benefited thereby, to generate surplus funds (through the charging of rates that exceed the costs of operation of the Electric Utility), which are to be used in the municipal operations of Madison.

Mission Statements - Water Utility

- To provide the residents of Madison with the highest level of water quality and the highest level of reliability in the distribution of water attainable, and in no event, less than the quality and reliability available from any of the major suppliers of water in the State of New Jersey; it being expressly understood that service is a critical component of achieving such a level of reliability.
- To provide this level of quality and reliability at comparable rates to those that would be payable to other suppliers of water in the State of New Jersey.
- Where the circumstances are such that the resident taxpayers are benefited thereby, to generate surplus funds (through the charging of rates that exceed the costs of operation of the Water Utility) that are to be used in the municipal operations of Madison.

Mission Statements-Recommendations

- Adopt the Mission Statements via Ordinance
- Use in decision making regarding capital investment, reliability analysis, rate setting, surplus generation

Mission Statements-Fulfillment

- What does it take to achieve reliability?
 - Need well-maintained physical plant (assets)
- How do we know if we have achieved the highest level reliability?
 - Need to understand our outage experience
 - Need an approach to measure and compare experiences
- How do we know that our rates are comparable?
 - Need an approach for comparing rates
- How do we know if we are realizing a net benefit from surplus?
 - Need an approach to calculate and analyze

Reliability – Capital Assets

■ General

- Prepared Inventory of Capital Assets
- Identified Installation Date, Expected Useful life, and Expected Replacement Date
- Estimated Replacement Costs
- Prepared Estimated Spending for 2015-2017
 - Straight-line (“SL”) Approach
 - Remaining Useful Life (“RUL”) Approach
 - Difference between RUL and straight-line is a measure of how behind we are in setting money aside for future asset replacements
 - RUL level of spending would decline to SL over time

■ Notes

- Spending is directly related to reliability
- Costs go against the Utility’s budget, and before calculation of surplus

Reliability – Capital Assets

- From the Schedule of Assets, the spectrum on spending:

Capital Spending	2014 Budget	Average Annual Spend – SL Approach	Annual Spend (2015) – RUL Approach
Electric		\$410,517	\$1,601,295
Water		\$325,119	\$3,201,095

Reliability – Electric Outage Analysis

■ General

- ❑ Created spreadsheet database and analyzed outage history from 2002 through 2014
- ❑ Categorized outages by causes (e.g., external, infrastructure, weather)
- ❑ Calculate the Average Customer Hours per Outage
- ❑ Established Nomenclature for Outage Information
- ❑ Identified industry index to track reliability

Reliability – Electric Outage Analysis

- SAIDI
 - System Average Interruption Duration Index
 - Total sum of customer minutes of interruption/Total number of customers served
 - Outage period analyzed: July 2002 to January 2014
 - Number of outages: 228
 - Average annual customer minutes of interruption: 588,026
 - Number of customers: 6,435
 - Madison SAIDI: 91.4 minutes
- How does Madison compare?

Reliability – SAIDI Index Comparison

Utility	SAIDI Score
Sussex Rural 2013 Score	184.5 minutes (their goal is 120 minutes)
IEEE Median value for Small (i.e., <= 100,000 customers) North American Utilities (2013)	179 minutes
IEEE Median value for Large (i.e., over 1 million customers) North American Utilities (2013)	209 minutes
Madison: July 2002 – 2014	91.4 minutes

Reliability – Recommendations

- Adopt by Ordinance and Implement the following:
 - Schedule of Assets
 - Implement and regularly maintain
 - Determine investment approach (SL, RUL or combination)
 - Outage Database and Analysis Approach
 - SAIDI
- Implement the following:
 - Create Rosenet Access to SAIDI and Outage Tracking
 - Monitor performance from recommendations in period 2015-2017; adjust the forgoing as necessary for subsequent years
 - Determine improvement plans by cause and by circuit; certain causes of outage should be investigated for potential to improve reliability (Infrastructure and Weather)
 - Determine approach for measuring reliability of water utility

Rates – Analysis

■ General

- ❑ Obtained rate schedules for nine other Municipal Owned Utilities (“MOU”) and four major Investor Owned Utilities (“IOU”)
- ❑ Applied rate schedules to an average monthly residential electric consumption in Madison of 855kWh (2013)
- ❑ Determined projected annual spending under each rate schedule, and then compared projections with Madison

■ Considerations in Conducting Analysis

- ❑ Not all MOUs generate surplus for use in municipal operations
- ❑ Needed to adjust for reliability differences, where known (i.e., JCP&L)

Rates – Analysis

■ Electric:

	Annual Projected Customer Spending	How Madison compares
Average of MOUs (without Madison)	\$1,702.95	21.6%
Average of MOUs that transfer surplus	\$2,110.02	1.8%
Average of IOUs	\$1,795.39	15.4%
Average of IOUs (without JCP&L)	\$1,902.71	8.9%
Madison	\$2,071.13	

Rates – Analysis

■ Water:

	Annual Projected Customer Spending	How Madison compares
Average of MOUs (without Madison)	\$939.62	54.6%
Average of IOUs	\$528.42	19.3%
Madison	\$426.29	

Rates - Analysis

- **Findings**

- **Madison Electric Rates:**

- Comparable with MOUs that generate surplus
 - Less comparable with IOUs (excluding JCP&L)

- **Madison Water Rates:**

- Substantially under comparable suppliers

Reliability & Rates - Recommendations

- Determine at the end of 2015, 2016 and 2017 the combined value of Reliability and Rates, and make appropriate decisions
 - Reliability and Rates are interdependent; independent analysis would be inconsistent with Mission
 - Annually, the Council should use SAIDI and the rate analysis in order to determine whether the combination of Mission principles are acceptable, and whether any changes are warranted
- Historically Speaking
 - Electric Utility – with a favorable SAIDI and comparable Rates with comparable suppliers, the combination appears consistent with the Mission
 - Water Utility – with no history of significant service interruption, but with rates that are substantially below market, the combination may not be consistent with the Mission

Surplus

■ General

- ❑ Calculated projected surplus for 2015-2017. Different pro forma statements were prepared, assuming different rate schedules and capital spending amounts
- ❑ Base Scenario pro forma was prepared. This scenario assumed current rate schedules, no change in consumption, operating costs based upon historical spending, and the SL capital funding approach
- ❑ Other scenarios assumed different rates, and the use of RUL
- ❑ Surplus calculations would be needed to perform net benefit analysis, but was also needed for municipal finance analysis.

Surplus

- **Findings/Conclusions**

- Net benefit can only be determined in conjunction with property tax analysis
- Projected surpluses can only be understood and evaluated in light of the need for surplus in municipal finances.
- Need pro forma Municipal Budgets for 2015-2017 in order to evaluate surplus scenarios

Surplus – Sample Comparison

Scenario Description	Projected 2015 Surplus (\$000)	Projected 2016 Surplus (\$000)	Projected 2017 Surplus (\$000)
Base	7,039	6,932	7,005
Base, but with Average of IOU rates (without JCP&L)	5,226	5,119	5,192
2014 Transfer	6,246		

Next Phase Work

- In addition to the items noted above, the following open areas of investigation should be pursued
- **Surplus – Generation**
 - Develop methodology to assessing surplus as a net benefit (over less tax relief)
 - Implement a standard approach to evaluating rate changes in light of impact on municipal finances
- **Surplus – Use in Municipal Operations**
 - Determine and Adopt by Ordinance a Target for Amount of Surplus to be Generated for Municipal Operational Expenses purpose only (i.e., excluding Capital spending)
 - Would enable rational, structured rate setting
 - Would establish controls on municipal spending and tax rate setting
 - Recommend target of 10%: Analysis of municipal budgets for 1999-2014 indicates a municipal revenue short fall of less than 10% of municipal operational expenses

Next Phase Work

- **Surplus – Use in Municipal Operations**
 - Adopt Ordinance that prioritizes the use of remaining surplus for capital (for pay as go or for debt service)
 - Develop approach to determining amount of surplus that can be transferred safely from Utility operations, without negatively impacting working capital needs of utilities, but maximizing amount that can be transferred
- **Schedule of Assets**
 - Determine what steps should be taken to close the gap between SL and RUL capital funding levels
- **Procurement**
 - Complete and adopt power procurement guidelines.