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# **Borough Of Madison: Strategic Planning Committee on the Utilities – Recommendations**

**August 10, 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

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# 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?

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# 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.

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# 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.

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# Mission Statements-Recommendations

- Adopt the Mission Statements
- Use in decision making regarding Capital Asset Investments, Reliability Analysis, Rate Setting, and Surplus Generation

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# Mission Statements-Fulfillment

## ■ Reliability Management

- How do we know the reliability of Madison's utilities? By understanding Madison's outage experience, and measuring it against other alternatives.
- How does Madison maximize reliability? One component is to invest in and maintain the capital assets of the utilities.

## ■ Rate Management

- How do we know how Madison's compare? With an objective approach for comparing rates, and with regular monitoring.

## ■ Surplus Management

- How do we know if Madison is realizing a net benefit from utility surplus? With an objective approach for determining the net benefit from surplus.

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# Reliability – Capital Assets

- **What is Needed?**

- Capital assets in optimum condition
- Approaches for minimizing out-of-service time

- **How can we manage these capital assets?**

- With planned investment and maintenance
- With comprehensive information on the capital assets:
  - Installation date, expected useful life, and expected replacement date
  - Estimated replacement costs and a funding plan

- **Borough has study underway**

- Recommend including capital asset information in the study

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# Reliability – Electric Outage Analysis

## ■ Committee Activities

- ❑ Prepared spreadsheet database of Madison's outage history from 2002 through 2014
- ❑ Categorized outages by causes (e.g., External, Infrastructure, Weather)
- ❑ Established nomenclature for categorizing and recording outage information
- ❑ Identified an industry index to evaluate reliability

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# Reliability – Electric Outage Analysis

- Electric utility industry has developed several measures of reliability. These reliability indices include measures of outage duration, frequency of outages, system availability, and response time.
- Most common indices include the System Average Interruption Duration Index (SAIDI), Customer Average Interruption Duration, System Any Interruption Frequency, Momentary Average Interruption Frequency, Customer Average Interruption Frequency, Customers Interrupted per Interruption, and the Average Service Availability
- Committee selected SAIDI – used by Sussex Rural Utility

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# Reliability – Electric Outage Analysis

- **SAIDI Index**

- Total sum of customer minutes of interruption for a period of time (e.g., day, month, year)/Total number of customers served

- **Madison's SAIDI**

- Outage period analyzed: July 2002 to January 2014
- Average annual customer minutes of interruption: 588,026
- Number of customers: 6,435
- Madison SAIDI: 91.4 minutes

- **How does Madison's SAIDI compare?**

# Reliability – Electric Outage Analysis

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

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# Rates - Analysis

## ■ General Approach

- ❑ 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 a resident’s projected annual spending under each rate schedule, and then compared the projections with Madison

## ■ Considerations in the 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	

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# Rates - Analysis

- **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

- **Adopt and Implement:**
  - ❑ Outage database and nomenclature system
  - ❑ SAIDI reliability index
  - ❑ Regular monitoring of reliability performance
  - ❑ Prepare and implement a planned investment and maintenance schedule for capital assets
- **Evaluate Annually the Combined Value of Reliability and Rates**
  - ❑ Reliability and rates are interdependent - annually, determine how combination of SAIDI result and rate comparison analysis compares with the Mission
  - ❑ Make adjustments as appropriate (e.g., investigate and increase investments to increase reliability, adjust rates)

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# Reliability & Rates - Recommendations

- **Additional Next Steps:**
  - Create Rosenet access to SAIDI and to outage database
  - Investigate outages by cause and by circuit, and determine reliability improvement plans
  - Create an approach for measuring reliability of water utility

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# Surplus - Analysis

- **Important consideration:** the role of utility surplus in municipal finances
- **Objective:** compatibility with Municipal Finance Planning Committee findings and guidelines
- **Municipal Finance Planning Committee Finding**
  - A \$30M budget will require a \$7-8M annual utility transfer, in order to avoid material increases in property taxes or other fees.

# Surplus - Analysis

- **Municipal Finance Planning Committee Guidelines**
  - Utility budgets should recognize that future municipal budgets will likely require utility transfers up to 22% of total municipal appropriations (7% for operations and 15% for capital) [No. 3A]
  - Utility Surplus should be transferred only to the extent that the remaining surplus is sufficient for working capital, capital expenditures, and a reasonable cushion for contingencies [No. 3B]
- **How determine if the combined surplus from the utilities meet these guidelines?**

# Surplus - Analysis

- **Information is still needed**
  - Capital plans for the utilities
  - Guidelines on working capital and contingency
- **With the above information, projections of transferable surplus can be prepared, and then compared with the guidelines**
  - Prepare pro forma income statements for the utilities, reflecting capital plan and guidelines
  - Requires assumptions on rates - current? different scenarios?
  - Compare projections of transferable surplus with Municipal Finance surplus guidelines

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# Surplus - Analysis

- **Municipal Finance Planning Committee observations**
  - In recent years there has been an increasing dependency upon utility transfers and less reliance upon property taxes
  - Critical question: would residents be better off with lower electricity rates, but higher property taxes and/or fees for services for which there currently is no charge
- **How should these observations be addressed?**
  - Need a methodology to determine the net benefit of a surplus (i.e., as a net benefit over less tax relief)
  - Methodology would enable “what if” scenarios on rate changes

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# Surplus - Recommendations

- Complete capital plans
- Prepare guidelines on working capital and contingency
- Prepare projections of transferable surplus
- Compare projections with Municipal Finance guidelines
- Determine plans for addressing gaps
- Develop net benefit guidelines and/or methodology

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# Additional Recommendations

- **To enhance reliability**, investigate:
  - Automated meter readings (for immediate outage reporting)
  - Self-generation opportunities (for backup)
- **To enhance utility surplus generation**, investigate:
  - Updated billing software (for electronic invoicing and payment)
  - Automated meter reading (to enable time of use billing)
  - Self-generation opportunities (for peak shaving)
- **To enhance utility surplus predictability**:
  - Complete and adopt power procurement guidelines

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# Additional Recommendations

- **To enhance utility surplus management:**
  - Implement business unit financial reporting (quarterly and annually, with year over year comparisons and custom customer analysis, e.g., large customers)
- Consider establishing a standing role for the Utility Advisory Committee concerning on-going oversight of all recommendations