An increasing portion of electric utility business is conducted in cyberspace.

Letter from Management

An increasing portion of electric utility business is conducted in cyberspace, a world of bits, bytes, computer codes and potential hazards where the tools needed to function efficiently and safely are changing constantly.

The core business functions of MMWEC – power supply, engineering, financing and accounting – rely heavily on information technology to ensure reliable business operations as well as the availability and security of business data. Managing information and the technology required to do so on an enterprise-wide basis brings greater value to the services MMWEC provides to municipal utilities, which is why we are implementing a Strategic Information Technology Plan, starting with a redesign of our financial and accounting systems in 2012.

Strategic Information Technology Plan

In addition to its internal business functions, MMWEC’s business requires cyber interaction with outside entities, including ISO New England (ISO-NE), where increasingly complex wholesale power markets bring new infrastructure requirements and costs.

The data link between MMWEC and ISO-NE is the lifeline for participation in the wholesale marketplace, and compatible systems are required to ensure the timely and accurate exchange of information. Large amounts of data are exchanged daily to bring the resources of MMWEC and its Members to market and settle financial accounts.
Complicating the need for cyber capability are the growing number of attacks on computer systems and data. As a result, cyber security is a national priority, and security of the electric power grid is a top concern. While there is disagreement about how to strengthen national cyber security, the fact remains that ours is the only industry with mandatory and enforceable cyber security standards. As the debate in Washington continues, MMWEC is working to ensure that its electronic assets are protected and that the scope and cost of cyber security requirements do not place an undue burden on municipal utilities.

Finally, there is growing competition in cyberspace from companies using technology to bring energy efficiency and other services directly to customers. In many cases, such services are not restricted by territorial boundaries and may be provided unbeknownst to the resident utility. MMWEC’s new commercial and industrial energy efficiency program is one way municipal utilities can retain their competitive edge in this environment.

In this year’s annual report, we take a look at the cyber realities and challenges facing MMWEC and its municipal utilities, a growing and critical aspect of our business.
Keeping pace with change in the digital age can be a daunting and expensive challenge for an enterprise without a clear roadmap and strong organizational commitment.

For MMWEC, the solution is implementation of its Strategic Information Technology Plan, a comprehensive strategy to transform MMWEC’s information systems and business processes into a sustainable, competitive advantage for municipal utilities.

The MMWEC plan encompasses all of the organization’s business functions, from a broad range of power supply, energy management and engineering functions to a full spectrum of financing, accounting and treasury services. Over time, a key goal of this plan is to replace isolated islands of data and dated technology with a flexible and efficient information systems platform that enables cross-functional collaboration.

With a high-level purpose of improving the quality and value of service to municipal utilities, other objectives of this process are to:

- Improve the security, availability and reliability of business operations
- Improve the quality and reliability of business data
- Expand opportunities for strategic use of information
- Improve staff productivity and skills
- Mitigate business downtime due to infrastructure failure
MMWEC completed the first phase of its strategic plan early in 2013 with implementation of a Financial Systems Redesign (FSR) Project, which has replaced outdated general ledger, accounting, purchasing and financial reporting systems. The FSR Project, launched early in 2012, involved hundreds of specific activities, from the purchase and installation of new hardware and software through configuration, testing and final acceptance of the new business system.

MMWEC’s financial services technology infrastructure has changed fundamentally with the FSR Project, providing a strategically-designed applications platform to build upon. Developing related staff expertise is part of the process, as are physical improvements to enhance the reliability and efficiency of MMWEC’s data center.

Looking ahead, the MMWEC plan calls for extending the efficiencies, security and other strategic benefits of transformed information systems to all of its critical business functions. Plans include integration of power management and investment systems; improvements to budgeting systems; and more efficient use of Internet technologies to improve communication and information sharing with Members. Work on the plan will be continuous as technologies advance and are integrated into the system.

MMWEC’s Strategic Information Technology Plan is bringing fundamental change to the organization, not only to its cyber technologies and systems, but also to its culture and vision of the future. It is aligned with a goal to provide greater efficiency and value in MMWEC services, and with a vision of municipal utility competitiveness far into the future.
The ISO New England (ISO-NE) wholesale power market is not a place for entities with limited cyber capabilities. In fact, without the right technology, market participation is impossible.

MMWEC manages its Members’ interactions with ISO-NE, operator of the region’s bulk power system and wholesale power marketplace, where the buying and selling of electricity used in New England takes place. ISO-NE’s responsibilities entail the creation, oversight and seemingly endless refinement of ever-expanding markets, market rules and market mechanisms.
A few of the related MMWEC tasks include:

- Collecting and reporting the hourly electricity usage for Member utilities
- Submitting each Member’s daily load and generation bids into the day-ahead or real-time energy markets
- Bidding Members’ generation and demand resources into the forward capacity, forward reserves and demand response markets
- Reconciliation, financing and payment of each Members’ ISO-NE interchange bill, which balances the income and various expenses of participating in the markets
- Extracting data from the ISO-NE database to provide Members with real-time information on dispatch of their generation and loads

All of this business, and more, is conducted in cyberspace.

New England’s wholesale power markets grow in dimension and complexity almost daily, and compliance with an expanding realm of market rules and reliability regulations is required. Such growth is reflected in the ISO-NE budget and staff, with the budget increasing from $28 million in 1997 to $165 million in 2013 and the staffing level increasing from 180 to 563 over the same time. Much of the money and many of the people support ISO-NE’s information technology infrastructure.

For example, ISO-NE’s two most recent capital project budgets reach about $30 million each, the bulk of which goes for IT infrastructure maintenance and upgrades, not including salaries and other costs. According to an ISO-NE report to federal regulators on its $29.3 million 2013 capital budget, the primary deliverable for the budget is “application software and requisite hardware needed to maintain and improve bulk-power system reliability and/or wholesale electric markets.”

As ISO-NE grows, so grow the costs and infrastructure requirements associated with participation in the wholesale power markets. As the owners of electric generation with responsibility for serving customer loads, participation in the markets for MMWEC, its Members and Project Participant utilities is not an option; it is an obligation.

In addition to implementing new markets, many of ISO-NE’s digital upgrades are a reflection of changes in the computer languages and protocols that enable different software programs and platforms to communicate effectively with each other via the Internet. In recent years, MMWEC has upgraded a number of its computer systems to keep pace with these changes, a process that will become more efficient and reliable with full implementation of MMWEC’s Strategic Information Technology Plan.

This is the evolving language of the Internet, and MMWEC needs to be speaking the same language in order to interact effectively with ISO-NE on behalf of its Member utilities.
Cyber Security

Cyber attacks that could damage or disable critical parts of the electric power grid are a national security concern, given the potential economic, safety, public health and other impacts of a widespread, extended power outage.

Securing the nation’s critical information systems is not a simple task, and the difficulties extend beyond hardware, software, and firewall fixes. There also are policy debates in Congress and elsewhere about what needs to be protected, how to protect it and what level of regulation is required. After Congress failed to pass cyber security legislation in 2012, President Obama issued an Executive Order on improving cyber security early in 2013. Many believe the need for legislation remains, and the debate in Congress continues.

Meanwhile, the electric sector is the nation’s only critical industry sector that is subject to mandatory and enforceable cyber security standards, first approved by the Federal Energy Regulatory Commission in 2008. As the owner and operator of the Stony Brook power plant and electric transmission facilities, MMWEC is subject to standards for electric reliability and cyber security.

MMWEC works closely with others in the electric industry, through the North American Electric Reliability Corporation (NERC) standards development process, to improve cyber security standards for the nation’s bulk power facilities. Among other things, the NERC process determines the applicability of standards to utilities of different size and assets with different impacts on the bulk power system.
In addition to ensuring compliance with NERC standards, MMWEC’s NERC and Regulatory Services Compliance Officer works to ensure that the scope and cost of NERC requirements do not place an undue burden on MMWEC and its Member utilities. MMWEC has argued successfully that small municipal utilities with assets not critical to operation of the bulk power system should be exempt from many standards.

MMWEC’s Information Technology staff is keenly attuned to cyber security threats and has implemented numerous measures to comply with NERC’s cyber security standards for bulk power facilities. Many of these cyber security practices are transferrable to protection of the digital assets associated with MMWEC’s corporate business operations, which are not subject to the NERC standards but are nonetheless at risk of cyber attack, as are all business operating systems.

The future of cyber security requirements is as uncertain as the evolving nature of cyber threats, but protecting its information systems is an intrinsic business function of MMWEC, and that will not change.
Cyber Competition

Among the discernible activities in cyberspace is competition for municipal utilities from the providers of energy management systems, which enable customers to monitor and manage their energy use via the Internet.

With access to technology and the Internet expanding, such competition can represent a challenge to the public power business model, which, among other things, prides itself on being responsive to customer needs. If those customer needs include access to an online energy management system, it is best for the municipal utility to be the trusted advisor and purveyor of innovation in this area. If they are not, there are third parties willing to do it for them.

With energy management systems focused on using energy more efficiently, the energy efficiency programs offered by MMWEC are a good vehicle to initiate and maintain contact with customers. Such contacts can be the conduit to advise and educate customers about the myriad of options available to monitor and manage their energy use.

Energy Management Systems enable customers to monitor and manage their energy use via the internet.

GO delivers customized energy efficiency solutions for commercial and industrial customers of Massachusetts municipal utilities.
MMWEC is working to expand its recently launched Green Opportunity (GO) Program, which delivers customized energy efficiency solutions for commercial and industrial customers of Massachusetts municipal utilities. The GO Program creates opportunities to develop lasting relationships with local businesses, which can use the program services to reduce their energy expenses and environmental impacts.

There are benefits for the community as well. For one of the utilities already participating in the GO Program, a $1 million investment by the utility leveraged an estimated $6 million in additional investment by customers, with much of the money flowing to local contractors and suppliers. In addition, dollars not spent on energy provide local businesses with economic development and employment opportunities.

An important aspect of the GO Program is that municipal utilities maintain local control over various program components, including the budget. In addition to advice on the use of energy management systems and the implementation of efficiency measures, the program can be structured to include marketing assistance, customer intake services, technical assistance, energy audits, rebate processing, and tracking and reporting of energy savings.

For residential customers of municipal utilities, MMWEC offers its Home Energy Loss Prevention Services (HELPS) Program. Established in 1988, the HELPS Program provides a full range of residential energy efficiency services, including education, audits, appliance rebates and assistance with energy improvement projects. Assessment of a home’s solar energy potential is part of a HELPS audit, and turn-key services for solar system design and installation are available.

These programs foster interaction between municipal utilities and their customers, a hallmark of the public power business model that has increasing value in light of smarter power grids, smarter customers and relentless advances in technology.
Directors

Paul Robbins
Director/Gubernatorial Appointee
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Kevin P. Kelly
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Michael J. Flynn
Director/Gubernatorial Appointee
Town of Wilbraham

Luis Vitorino
Director
Town of Ludlow

Cornelius Flynn
Director
Town of Hampden
In Memoriam, with gratitude and sympathy to the family of John M. Flynn, who passed away recently after nearly 14 years as a Director of MMWEC.
2012 Financial Statements

MMWEC’s Financial Statements for the years ended December 31, 2012 and 2011 are contained on the CD included in this year’s annual report. Copies of this report and supplemental financial information can be obtained, free of charge, by contacting:

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The Massachusetts Municipal Wholesale Electric Company (MMWEC) is a not-for-profit, public corporation and political subdivision of the Commonwealth of Massachusetts, created in 1976 through an Act of the Massachusetts General Court. MMWEC provides a broad range of power supply, financial, risk management and other services to enhance the competitiveness of Massachusetts municipal utilities. MMWEC also is the operator and principal owner of the Stony Brook power plant, a 527-megawatt, combined-cycle generating station located at MMWEC’s Stony Brook Energy Center in Ludlow, Massachusetts.
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Annual Report 2012

CYBER REALITIES