SHOWCASE PROJECT DRIVES SMART GRID FOUNDATION FOR CENTRAL MAINE POWER

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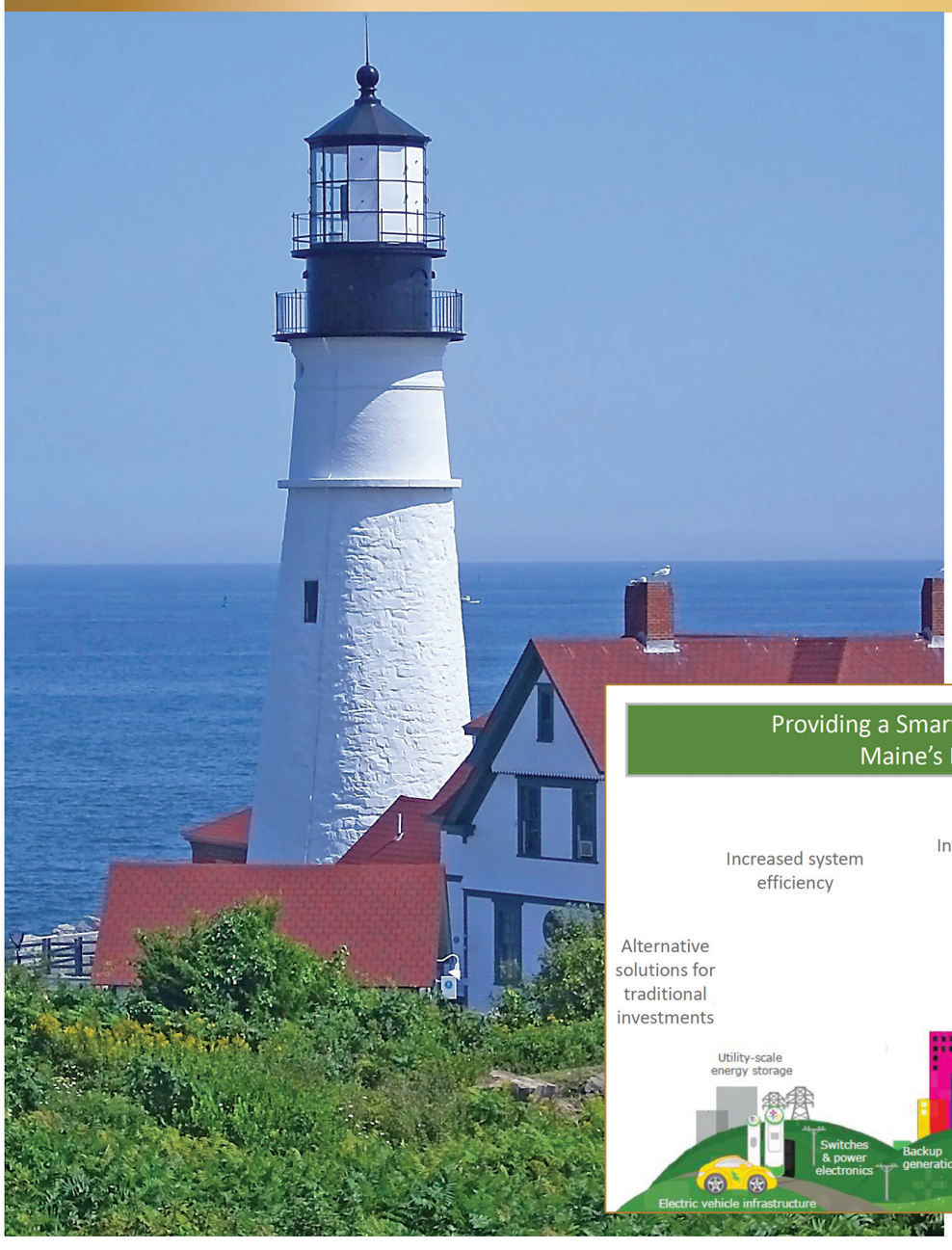
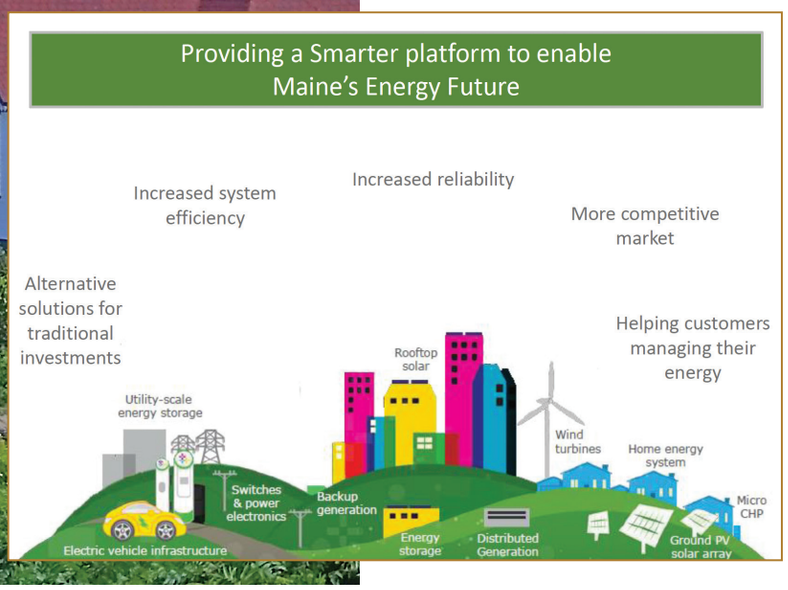


The Central Maine Power (CMP) smart grid project showcases a smart grid implementation that delivers real benefits to a utility's operations, customers and the environment.

A US Department of Energy (DOE) showcase project, it has won seven JD Power & Associates awards for customer satisfaction and two Edison Electric Institute (EEI) awards for its outstanding role in leveraging the 'smart' platform to help with safe and speedy recovery during emergency outage situations.

CMP's advanced metering infrastructure (AMI) project featured territory-wide deployment of more than 625,000 smart meters, covering all of CMP's residential, commercial, and industrial customers. This project



created a technology platform for providing customers with electricity usage information and alternative electricity rates from third-party energy providers. Customers view their energy consumption through a web portal and can use that information to help manage electricity bills. CMP is constantly assessing the load-shape and consumption impacts of providing customers with different types of information using web portals and proactive bill alert messages.

Implementation requirements

- Two-way communication between customer meters and the CMP control centre
- Cybersecurity requirements of AES 128 encryption, identification and authentication
- All designs to be standards based, with reference to AMI-SEC, CIPS, FCC, IEEE, NERC, NIST and network-based upgrades
- Situational network awareness, auto configuration, fault tolerance and transparent operation
- Message-layer latency of less than three seconds.

Four major programme components were identified for the CMP installation: the AMI network; smart meters; a meter data management system (MDMS); and meter and network installation, along with related field services required for the implementation.

The project deployment commenced with the rollout of the AMI wide area and neighbourhood area networks (WAN/NAN) and the replacement, with smart meters, of all installed electro-mechanical meters. This was coupled with the integration of the customer information system with the meter data management system, a customer Web portal, remote connect/disconnect, outage management, asset management, and the ability to make customer load information available to the power producers. An important element of the implementation was the integration of future-proofing into the grid to support additional applications in the future.

Driving success

In order to drive the success of the project, CMP worked with an AMI project governance plan, held regular project team meetings and identified mitigating measures for eight separate risk areas such as: technology performance, supply chain, IT integration, field exception, records exception, dynamic pricing acceptance, regulatory and financial.

The successful rollout was supported by an educational campaign for customers, community leaders and stakeholders, whereby they were kept abreast of the project development and informed of the benefits.

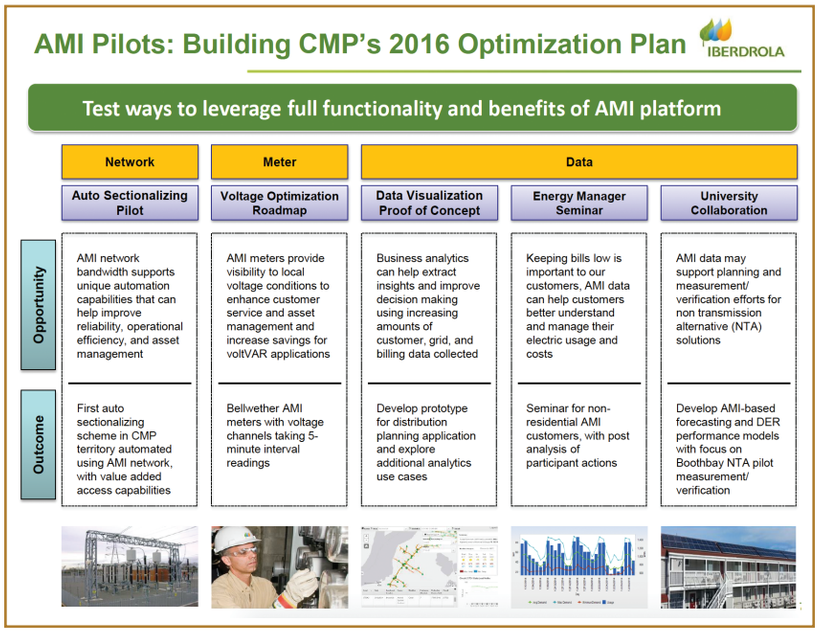
CMP utilised existing infrastructure such as poles, service centres, substations etc, to mount, and simplify the deployment and maximise budget efficiency.

The complete project team included CMP plus vendor partners, Trilliant, GE, Landis+Gyr, Black & Veatch, Itron, IBM and Siemens.

Way forward

An initial investment of $164 million was made into the programme, and the implementation was completed in 2012 — on budget, and on time. Coupled with this, was a $6.5 million investment into grid automation in which 99% of existing substations were automated, along with 38% of reclosers. By 2019, 100% of all CMP's automation goals will be met.

CMP's smart grid project is underpinned by a future proof smart communications platform, which serves the utility's smart metering needs today, along with its advanced distribution automation, demand-side management and renewable/distributed energy integration in the future.



Benefits derived from the implementation:

- **Operational Efficiencies:** $8 million in annual savings, 90% reduction in safety incidents, 87% reduction in estimated meter reads and 50% reduction in high bill calls
- **Customer Satisfaction:** significantly reduced estimated bills, reconnect in less than 30 minutes, faster outage restoration and improved customer communication
- **Reliability:** 7x more information to assess and restore outages, 519K faster assessment of power status, 20% reduced outage time using automation, two EEI Awards for Excellence in Emergency Recovery
- **Market Animation:** 1st in ISO New England to settle on customers' actual usage, over 100,000 supplier requests for historical usage and ICAP tags, $100,000 saved by customers managing ICAP tags
- **Sustainability:** Over 2 million miles saved annually, 65,000 gallons of fuel saved, 569 tons of CO^2 emissions avoided. ●

References:

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