

ACEEE Intelligent Efficiency Conference

Session 4B: Running a Smart City

Impact of ICT at the MBTA

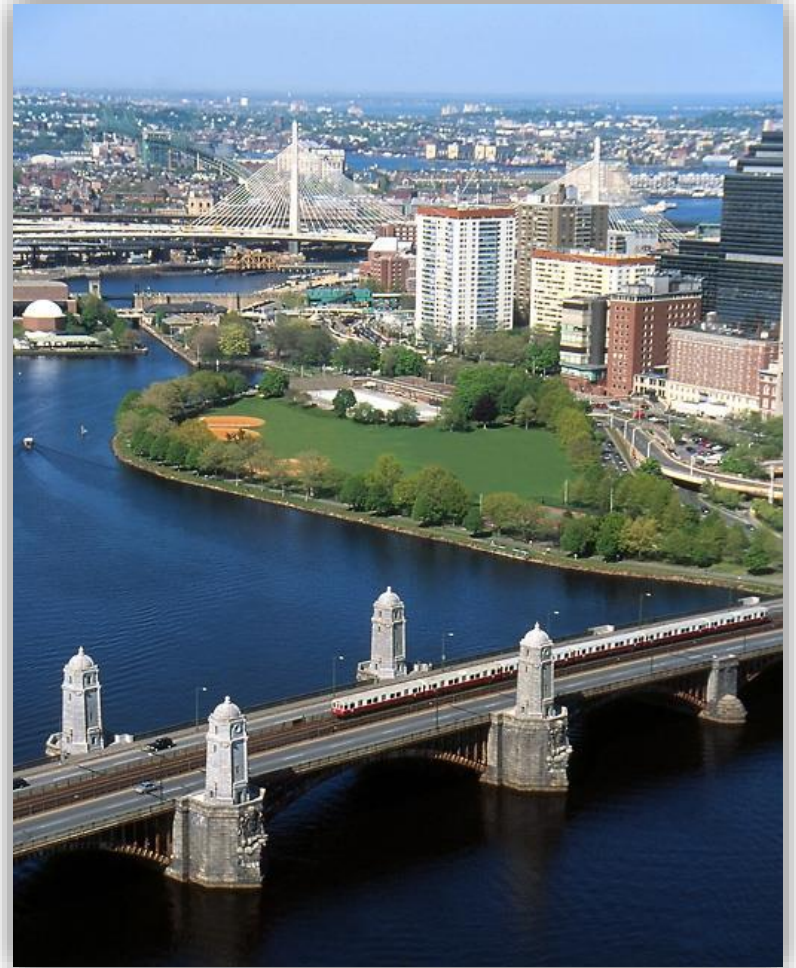
Michael Donaghy
MBTA

Manager of Energy Efficiency

Impact of ICT at the MBTA

AGENDA

1. Assets Under Management
2. Energy Profile
3. ICT Impact on the MBTA
4. Project Highlights
5. Rallying the Team:
Stakeholder Engagement



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ASSETS UNDER MANAGEMENT



Over 2,000 revenue vehicles



275 stations



1,193 miles of track



478 bridges



20 miles of tunnels



27 maintenance shops

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ENERGY PROFILE (ANNUAL)

- Electricity: 446,000,000 kWh
- Natural Gas: 1,554,150 Therms
- Water: 174,000,000 Gallons
- Steam: 26.2K Mlbs.
- Utility Spend: \$39.4M*
- Over 600 utility accounts

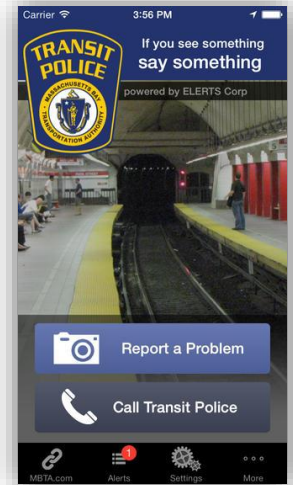
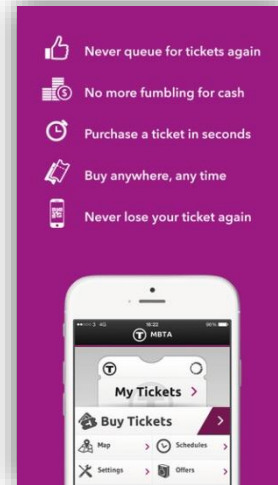
*Excludes the cost of vehicle fuel



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HOW DOES THE MBTA USE ICT TODAY?

- Operations
- Security
- Customer Information
- Fare Collection



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WHERE IS ICT BEGINNING TO EMERGE?

- Energy Management
- Asset Management
- Inventory Management
- Control Systems



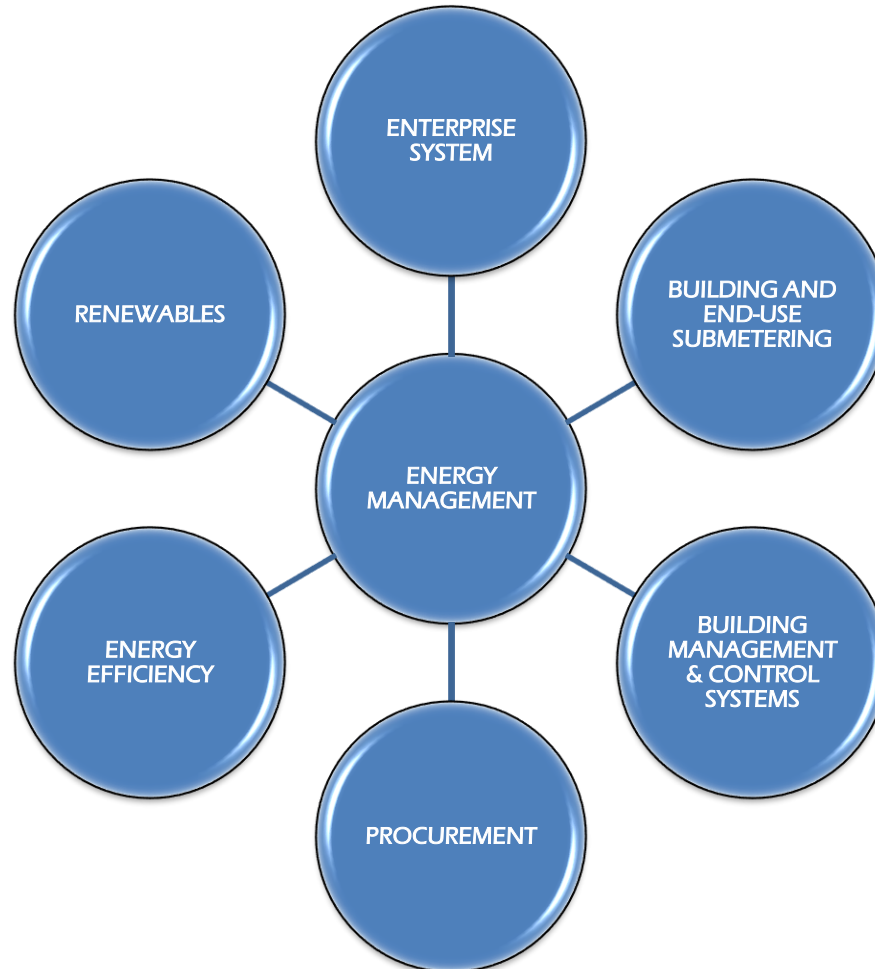
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ENERGY MANAGEMENT STRATEGY		
OBJECTIVES	CONSERVE	USE LESS
	OPTIMIZE	USE IT MORE EFFICIENTLY
	REGENERATE	PRODUCE IT FROM RENEWABLE SOURCES
TARGETS	RELIABILITY	MAINTAIN OR IMPROVE SERVICE DELIVERY (OPERATIONS)
	ENVIRONMENTAL	CREATE THE LOWEST POSSIBLE ENVIRONMENTAL IMPACT
	SAFETY	MAINTAIN OR IMPROVE SAFETY AT ALL MBTA LOCATIONS
	RISK	MITIGATE PRICE AND SUPPLY VOLATILITY
	SUSTAINABLE DESIGN	INCORPORATE ENERGY & ENVIRONMENTAL FUNDAMENTALS IN CAPITAL PLANNING



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ICT IS THE CATALYST OF PROACTIVE ENERGY MANAGEMENT



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Energy Efficiency and Controls: 3rd Rail and Track Switch Heaters



- Require heat in Winter months to prevent snow & ice build up
- Efficient Heaters
 - 4,000W per element from 8,000W (50% Reduction)
 - Projected Annual Savings: 6,000,000 kWh
- Heater Controls
 - Reduce run time from 24hrs/180 days to on demand remote control (estimate 60% reduction)
 - Projected Annual Savings: 19,000,000 kWh
- Total Projected Annual Savings: 25,000,000 kWh (\$2,125,000)

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Enterprise Systems: Implementing an EEMS

- Cost Savings, Verification & Allocation
- Environmental Reporting
- Benchmarking
- Low Risk, High Yield Investment
- Impacts Behavior at All Levels
- Outreach – Sets the Example
- ICT Makes It Easier Than Ever!



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ENGAGEMENT – HOW DO WE RALLY THE TEAM?



TARGET AUDIENCE	CONCERNS
Customers/Taxpayers	Transit Fares; Service Reliability
Front-line Employees	Change in Work Duties; Job Security
Middle Managers	Operational Performance; Workforce Harmony
Senior Management	Cost v. Benefit; Competing Projects; Public Perception; Long Term Impacts

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THANK YOU!

Michael Donaghy
Manager of Energy Efficiency
MBTA
617-222-1684
MDONAGHY@MBTA.COM