

Welcome

Association of Energy Engineers New England Chapter



Utility Night 2013



Agenda & Speakers

- **3-year Plan – The PA Perspective** - Frank Gundal, NU
- **Statewide Goals, Budgets, and Focus** - Thomas Coughlin, NGRID
- **EE Technology Assessment (MTAC)** - Hale Powell, H Powell Energy Associates
- **Customer Outreach - How PA are Engaging Customers** - Richard Kazarian, NU
- **NSTAR Goals & Budgets, Electric & Gas Integration, Key Objectives** - Andrew Coffin, NU
- **Questions & Open Discussion**



3 Year Plan – The Program Administrator Perspective

Frank Gundal, Northeast Utilities

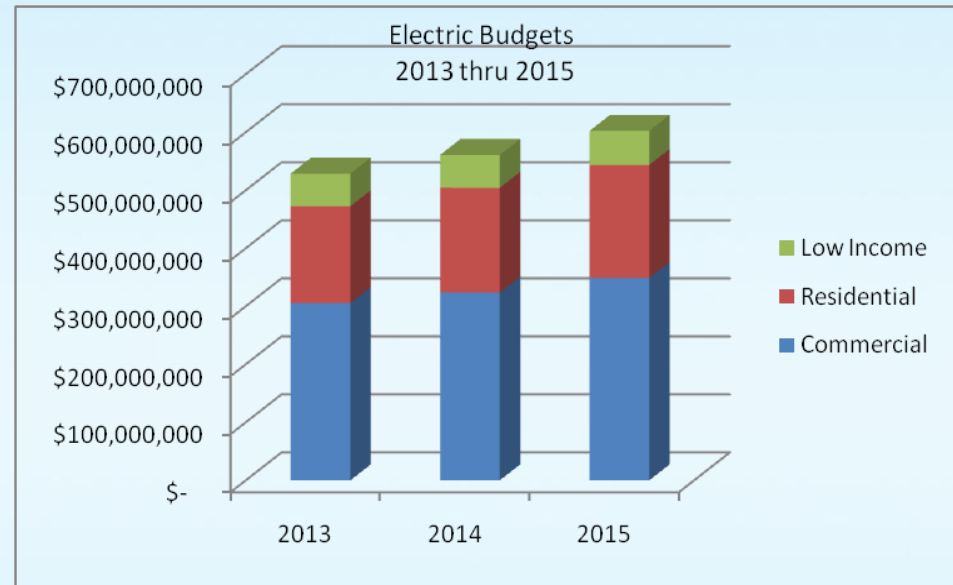
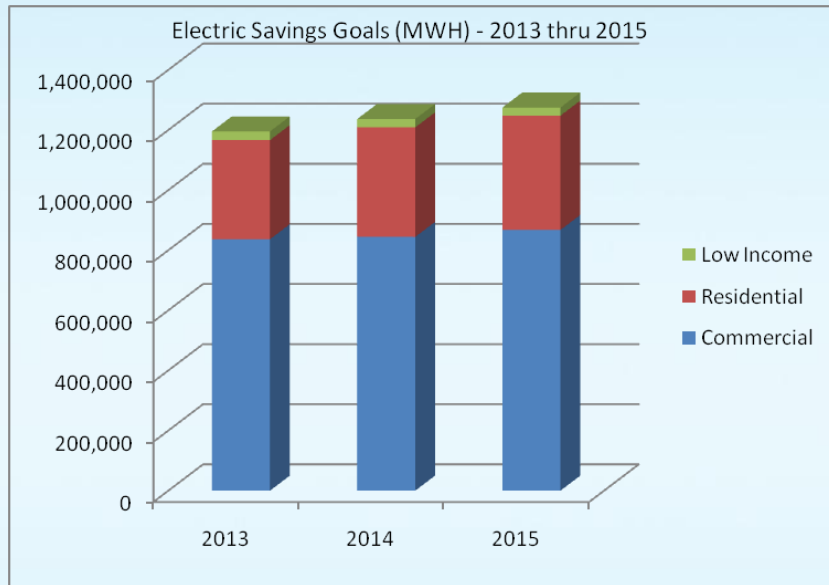


Goals, Budgets, and Our Focus

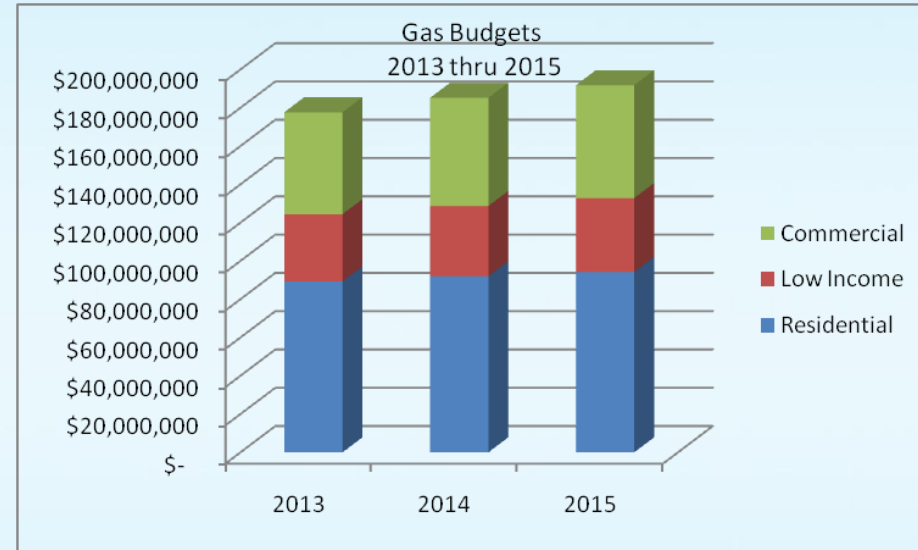
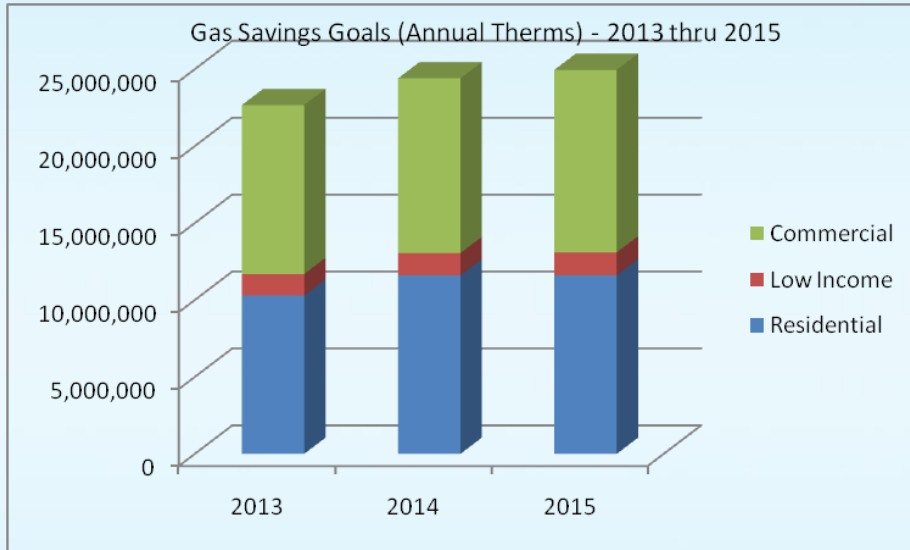
Thomas Coughlin, National Grid



Electric Programs Targets



Gas Programs Targets



Some of our focus this year

- CHP
- Whole building automation and advanced controls
- Comprehensiveness – leveraging gas and electric savings capital projects as well as low/no cost O&M
- Investing in customers strategic energy planning
- Identifying new technologies and a consistent way of handling them across the state (MTAC)



Energy Efficient Technology Assessment in Massachusetts: The MTAC Statewide Process

Hale Powell, H Powell Energy
Associates



MTAC Background

- A uniform statewide assessment process for all eight electric and gas Program Administrators
 - National Grid
 - NSTAR Electric and Gas
 - Unitil
 - Western Mass. Electric Co.
 - Cape Light Compact
 - Berkshire Gas Co.
 - New England Gas Co.
 - Columbia Gas



MTAC Objectives

- Provide Single Point of Contact for Vendors and Entrepreneurs
- Accelerate Review and Approval of New Technologies for Potential Incentive Program Eligibility (approx. 2% Annual Savings Goals)
- Implement Uniform and Transparent Statewide Review Process
- Conduct Robust Technical Assessments
- Identify Priorities for Additional Research and/or Program Development
- Provide Field Guidance for Appropriate Application of Approved Technologies
- Recommend Program Approaches to Accelerate Deployment
- Collaboration with Other Emerging Technology Entities



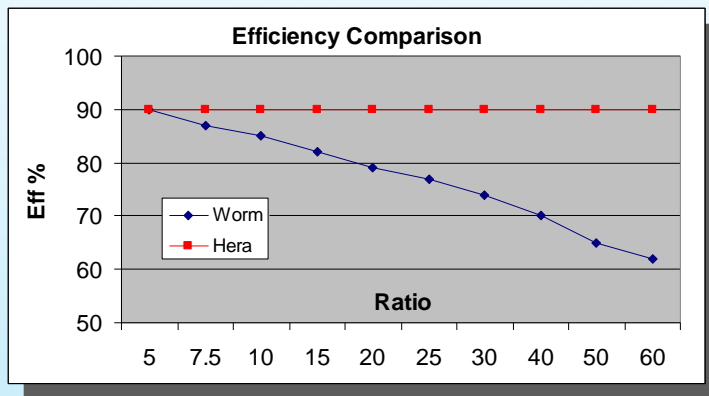
MTAC Technology Requirements

- Be listed, certified, and tested by a recognized national testing laboratory for safety
- Be currently commercially available. (not R&D)
- Meet all applicable local, state, and federal codes
- Not void or conflict with warranties of equipment to which it is applied
- NOT be a maintenance measure
- Be automated, not require manual operation to achieve savings
- Be permanently installed. Plug-in or moveable devices are not eligible
- Not be considered marketplace “standard practice” for replacement or new construction



MTAC Assessment - Non-Residential Technologies

- Monthly MTAC C&I Meetings
- Initial Technology Screening and Eligibility
- Secondary Research (BPA, Vermont, CEE, NEEA etc)
- Input from PA staff engineers
- Input from MTAC's outside engineering firms
- Possible field testing and metering



Example Non-Residential MTAC Technologies: Gas and Electric - (29 considered in 2011 – 2012)

- Integrated Rooftop HVAC Controls
- Boiler Flue Draft Controls
- Enhanced Large Horsepower Pump Refurbishment
- Network Based PC Power Management
- Commercial Laundry Polymer Cleaning Technologies
- High Efficiency Industrial Belt Drives and Speed Reducers
- HID Lighting Dimming Systems and Wireless Street Light Controls
- Liquid Desiccant Cooling Systems
- Commercial Refrigeration Controls and Doors
- Hybrid Refrigeration/Chiller Controls
- High Efficiency Motor Rewinding



Example Technology Decisions (MTAC 2011 – 2012)

- Boiler Flue Gas Controls – Approved for Custom with extensive technical guidance for PA field staff.
- Evaporator Fan Speed Control – Approved for Custom, incorporated into new Custom Express Analytic software.
- HID Dimming Control – Approved for Custom
- Commercial Kitchen Fan VFD Control – Approved for Custom with new Custom Express Analytic software.
- High Efficiency Motor Rewinds – MTAC Authorized Market Research
- Window Film – Approved for Custom with technical guidance for field.
- **Integrated Rooftop HVAC Controls - Conducting field test**



MTAC: Integrated Rooftop HVAC Control

What is the opportunity for improved packaged RTU efficiency?

- Retrofit Market: Constant Volume Packaged Units (approx. 60% of all commercial space)
- Enhanced control produces both Gas (heating) and Electric (cooling) Savings
- Savings from enhanced RTU control can be much higher than those achievable via higher EER packaged units.
- Word of Caution: Improved RTU control will not produce large savings in every application.
- Several control vendors: Catalyst, Enerfit, DigiRtu etc.



MTAC: Integrated Rooftop HVAC Control

Potential Savings: Enhanced Control of Constant Volume RTU

- Consensus Savings Estimate = 25% for baseline CV systems
- Highest energy savings in facilities with variable occupancy loads
- Differential Economizer Control
- Multi-speed supply fan
- Demand Control Ventilation
- Some Capacity Control Options



Catalyst RTU Control: MTAC Test Site Big Box Store – Hyannis



MTAC: Catalyst RTU Control Testing

MTAC / Cape Light Compact Collaboration

- December 2012 - Catalyst RTU control installation on five 25 ton Carrier RTUs
- Intensive data monitoring and metering protocol
- Four-season monitoring to capture annual heating and cooling savings estimates
- Likely 2013 NGRID Catalyst pilot in RI small commercial facilities



Contacting MTAC for Technology Assessment

- Non-Residential Technologies: CI_MTAC@masssave.com.
- Residential Technologies: Residential_MTAC@masssave.com
- Internet URL at Mass Save:
<http://www.masssave.com/professionals/training-and-certifications/assessment%20of%20new%20efficiency%20technologies>
- Hale Powell (C&I MTAC) (978) 337-4284

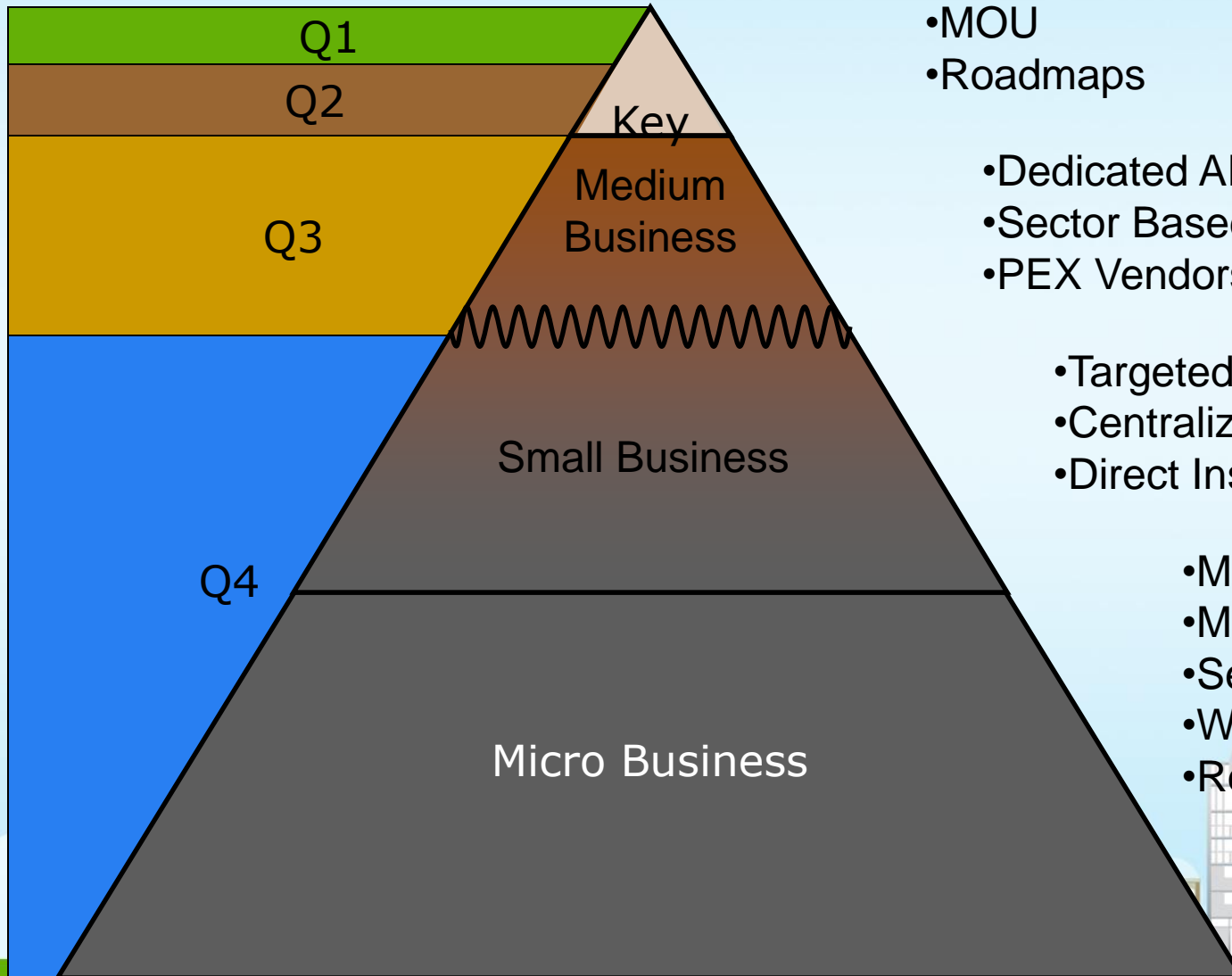


Customer Partnership & Outreach

Rich Kazarian, Northeast Utilities



Typical PA Customer Go-To-Market Model



- Dedicated AEs
- MOU
- Roadmaps

- Dedicated AEs
- Sector Based Strategy
- PEX Vendors

- Targeted Marketing
- Centralized Marketing
- Direct Install

- Mass Marketing
- Mainstreets
- Self Assessment
- Web Portal
- Rebates

How are we reaching our customers?

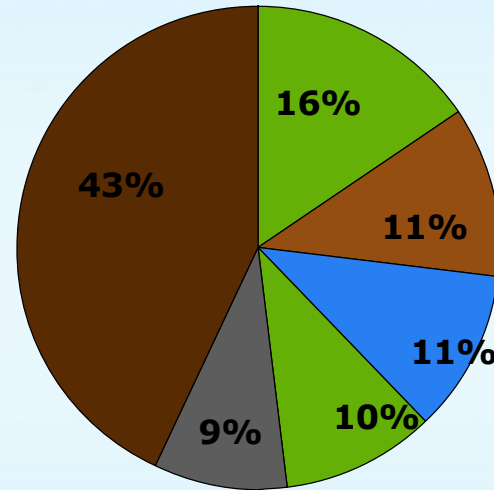
- Targeted customer approach by quartiles (Q1, Q2, Q3, & Q4)
- Leveraging internal and external resources to meet customer energy efficiency requirements
- Vertical market teams approach



Targeted Segments for Key Accounts Cluster

• Top Five Segments

- Real Estate Management
 - Residential
 - Commercial
- Government Agency
 - City Departments
 - State Departments
 - Federal Departments
- Hospital
- Retail
 - Large retail chains
 - Large restaurant chains
- Educational
 - Colleges & Universities
 - Public Schools



NSTAR Goals, Electric & Gas PA Integration, Key Objectives

Andrew Coffin, Northeast Utilities



2013 Portfolio Production Goals

2013 NSTAR ELECTRIC	Estimated Incentive Budget	Net Lifetime Goal	Gross Annual kWh
New Construction Program	\$17,695,269	1,238,125,000	95,437,128
Retrofit Program	\$43,360,667	3,486,021,000	233,980,702
Total Medium Large Prgm	\$61,055,936	4,724,146,000	329,417,830
Direct Install Program	\$25,430,582	562,374,000	55,153,051
Total Comm & Indus	\$86,486,518	5,286,520,000	384,570,881

- Increase of 2.8% kWh production goal across the electric portfolio from 2012
- 18% decrease from 2012 in the customer incentive budget
- More kWh with less \$\$\$



2013 Portfolio Production Goals

2013 NSTAR GAS GOALS	Estimated incentive Budget	Net Lifetime Therms	Working Gross annual therm
New Construction Program	\$3,605,466	24,517,305	2,479,428
Retrofit Program	\$6,602,166	20,310,612	3,520,498
Total Medium Large Prgm	\$10,207,632	44,827,917	5,999,926
Direct Install Program	\$178,499	1,134,459	129,234
Total Commercial & Industrial	\$10,386,131	45,962,376	6,129,160

- Aggressive targets for 2013
- Substantial increase in therm production targets and customer incentive dollars
- Custom program primary mechanism for participation
- GasNetworks serves a purpose = small commercial customers



Why Electric & Gas Integration Matters

- Goals require going beyond prescriptive approach
- Electric & gas projects are often Custom, larger, more comprehensive – preferred approach
- More business development teams cover more ground, expand opportunities for both PAs
- Joint PA support maximizes customer return, improves likelihood of projects moving forward



How Integrated Custom Incentives Work

- TA study as needed to develop savings and scope – cost shared with customer
- Project costs are allocated between gas and electric PAs based on statewide-approved formula, using kWh and therm savings
- Each PA buys down its share of the total cost according to their Custom program guidelines
- PAs (and vendors) can jointly review project economics with customer, address potential objections



An Integration Case Study

- Brigham & Women's Hospital – 41 Ave Louis Pasteur
 - Partners Healthcare a key account for NSTAR and NGRID
 - Leased property – property manager didn't have the ear of BWH Utilities
 - 51,000 GSF building, former wet lab building converted to office / admin with a few -80⁰ freezers
 - Recent renovations done on least-cost basis due to short building life – which immediately changed to 10-15 years
 - Four 100% OA AHUs, 31 exhaust fans, no heat recovery, no chiller or boiler plant controls, everything runs 24 x 7



An Integration Case Study (cont'd)

- Opportunity identified by CBRE and NSTAR, BWH and NGRID involved immediately
- Business case qualified at high level – customer willing to invest in leased space, but needs high ROI to do so
- TA study initiated by NSTAR and NGRID with Resource & Energy Consulting, 50/50 cost share with customer.
- Study identified 472,030 kWh (36% reduction) and 44,144 therms (62% reduction) of potential savings, developed detailed project scope for bids
- Measures included full DDC upgrades dedicated split systems for freezer farm to enable unoccupied setback, VSDs for one AHU & two CHWPs, pipe insulation.



An Integration Case Study (cont'd)

- Project results
 - More than \$100K in annual energy cost savings
 - Combined incentives nearly half of \$310K installed cost
 - Electric incentive assigned to controls vendor to reduce capital requisition by BWH
 - Project impossible with gas or electric incentives alone, due to customer's financial criteria for leased space
 - Leads on more work in Partners leased space
 - Making inroads in BWH leased space renovation design



What we are striving for

- Earliest possible PA involvement in the project development process
- Program Administrators can assist with customer objections, barriers, and pain points
 - Technical assistance
 - Multi-PA coordination
 - Identifying additional opportunities



What we are striving for

- Negotiated incentives to meet customer financial criteria, manage budgets
 - Focus on project financials
 - Shortening decision time-frames, understanding if the offered incentive will make the project viable
 - Emphasize value to customer of immediate energy savings



What we are striving for

- Customer comprehensiveness
 - Consistent participation
 - Strategic plans and annual EE budgets
 - Developing a portfolio approach to EE
- Thinking beyond retrofits
 - New Construction – dedicated NC Team
 - Energy Modeling to optimize building energy utilization
 - Overcome “value engineering” syndrome with timely input and incentive offers
 - Additional focus on renovation and smaller NC projects



Project timing is critical

NSTAR Retrofit Program

Period	Number of Projects	Electric Incentives	Annual kWh	Net Lifetime kWh
Quarter 1	213	\$4,401,406	24,978,881	312,701,374
Quarter 2	207	\$4,603,573	23,254,819	311,692,725
Quarter 3	220	\$3,705,329	20,189,398	272,688,279
Quarter 4	617	\$22,443,029	126,629,667	1,767,641,104
Total	1,257	\$35,153,339	195,052,765	2,664,723,482



Project timing is critical

- Table representative of all PAs 4th quarter project implementation & close-out schedules
 - Tremendous impact to resources
 - Adds to risk for all parties involved
- How to pull project implementation forward in calendar year?
 - Earlier PA involvement in projects
 - Better understanding of info required for customer application approvals – joint responsibility
 - Better understanding of customer’s financial criteria – joint responsibility
 - Streamlining approval process – PA responsibility



Questions & Open Discussion

www.masssave.com

