

MULTI-FAMILY PROGRAM OVERVIEW

Findings and Recommendations

► **November 16, 2016**

PRESENTATION OUTLINE

A large, stylized logo consisting of the letters 'M' and 'A' in a bold, geometric font. The 'M' is light gray and the 'A' is light green. They are positioned in the upper right corner of the slide, partially overlapping the title.

- ▶ **Background, History and Initiatives by Market Segment**
- ▶ **Market Condition Overview**
- ▶ **Initiative Profiles**
- ▶ **Performance Indicators and Cost Effectiveness**
- ▶ **Challenges, Recommendations and Future Development Opportunities**
- ▶ **Conclusions and Next Steps**

Background, History, and Initiatives by Market Segment

BACKGROUND AND DEFINITIONS

► Background:

- Multi-family initiatives are cross-cutting across all Sectors:
 - Residential (Res)
 - Low Income (LI)
 - Commercial & Industrial (C&I)
- Incentives and program support are available for both new construction and retrofit
- 3 stories or less are subject to residential codes
- 4 or more stories are subject to commercial building codes

► Definitions:

- Facilities with 5 or more dwelling units are served by the market rate multi-family retrofit initiative
- Properties with >50% of occupants at ≤60% area median income are served by the Low Income Program
- “Participants” vary by initiative

HISTORY AND RECENT ACCOMPLISHMENTS



1990's-mid 2000's	<ul style="list-style-type: none">• Delivery varied among PA's, some coordination of new construction via Joint Management Committee• Fragmented approaches in retrofit, mostly prescriptive, some whole building
2008-2009	<ul style="list-style-type: none">• Green Communities Act (GCA) Passed• Multi-family Retrofit Working Group (MFWG) forms
2010-2012	<ul style="list-style-type: none">• MF market potential, process evaluation, and program impact studies completed• Stakeholder workshop convened to develop MF strategy across all sectors• Gas and electric programs integrated, 1-4 and MF res retrofit incentives aligned• Multifamily Market Integrator (MMI) introduced to coordinate market rate retrofit customers
2013-2015	<ul style="list-style-type: none">• Consultants recommend integrating C&I and Res MF retrofit• Energy Action Plan report template introduced for market rate retrofit• Low-income Energy Affordability Network (LEAN) completes statewide benchmarking of low income MF buildings• Further enhancements recommended from 2016-18 planning workshops
2016-2018	<ul style="list-style-type: none">• Project Point of Contact (PPC) introduced for market rate MF retrofit• C&I MF retrofit project tracking, budgets, and Benefit Cost Ratios (BCR's) introduced• Performance-based MF High Rise New Construction model deployed• New baseline User Defined Reference Home (UDRH) for low rise new construction• New impact and process evaluation studies for market rate retrofit started

HISTORY AND RECENT ACCOMPLISHMENTS



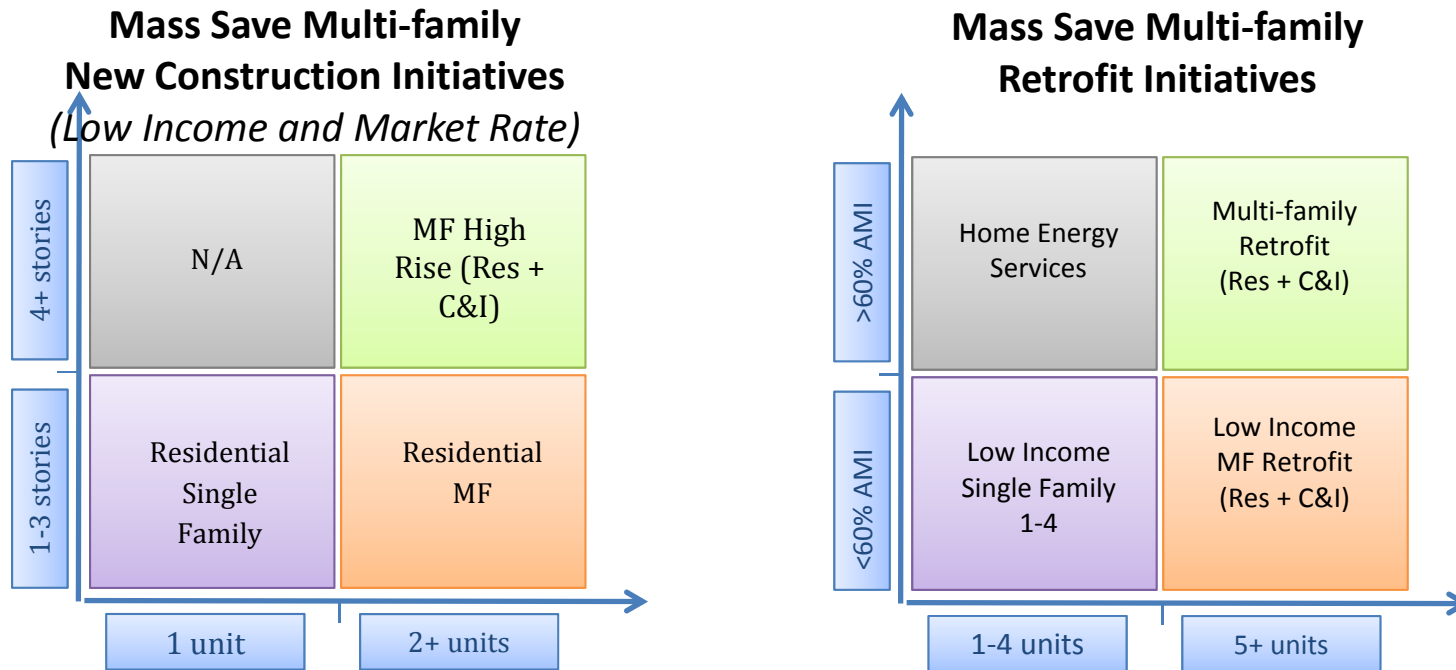
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- Gas and electric programs integrated
- 1-4 and MF res retrofit incentives aligned

- Statewide benchmarking of LI MF buildings

- Project Point of Contact introduced for MR MF retrofit
- C&I MF retrofit tracking, budgets, and BCRs
- Performance-based MF High Rise New Construction model

INITIATIVES BY SECTOR AND MARKET SEGMENT



- ▶ New construction segmentation aligns with code distinction between residential and commercial
- ▶ Retrofit segmentation aligns with traditional weatherization assistance program definitions

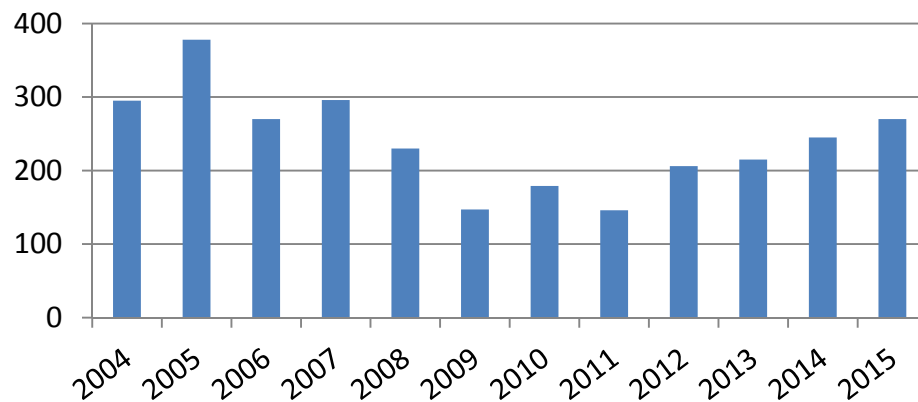
Multi-family Market Conditions



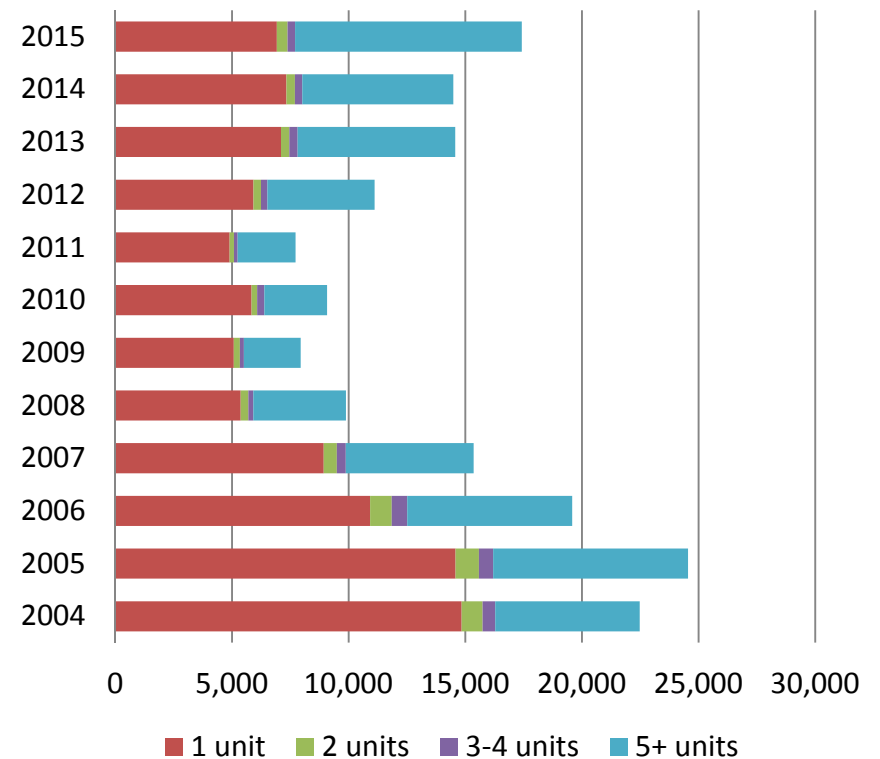
MARKET CONDITION: NEW CONSTRUCTION

- ▶ **Expect growth trend to continue for next several years:**
 - 10,000 new units per year
 - >300 5+ unit buildings per year

MA MF New Construction
(# of 5+ unit structures permitted)



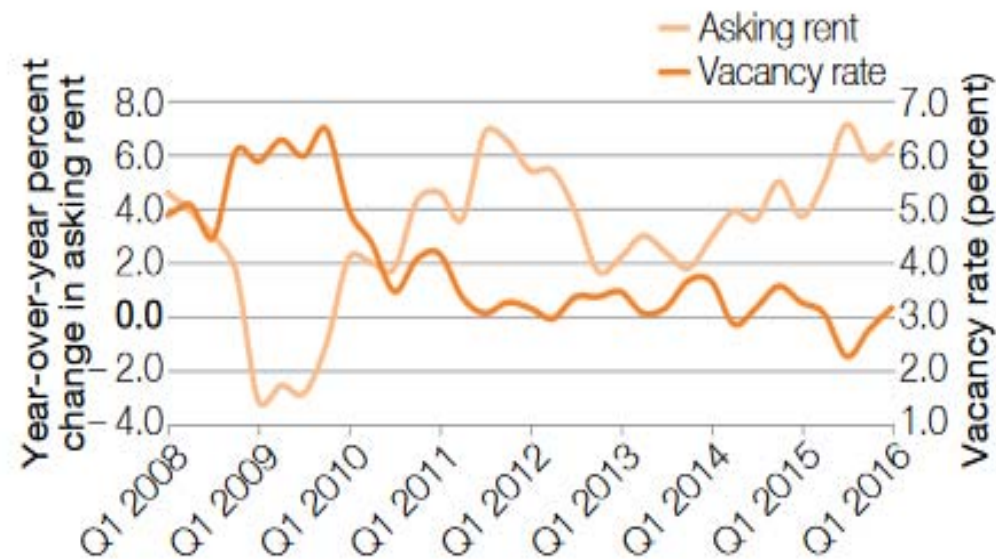
MA Residential New Construction
(# of Dwelling Units Permitted)



MARKET CONDITION: RETROFIT

- ▶ **Low vacancy rates lead to**
 - Higher housing costs for renters
 - Less motivated building owners
- ▶ **Expect split incentive issue to be emphasized:**
 - Increasing need for MF retrofit
 - Challenging market for creating demand among building owners

The apartment vacancy rate in the Boston area has been below 5 percent for 25 consecutive quarters.



Source: MPF Research

MARKET CONDITION: LOW INCOME

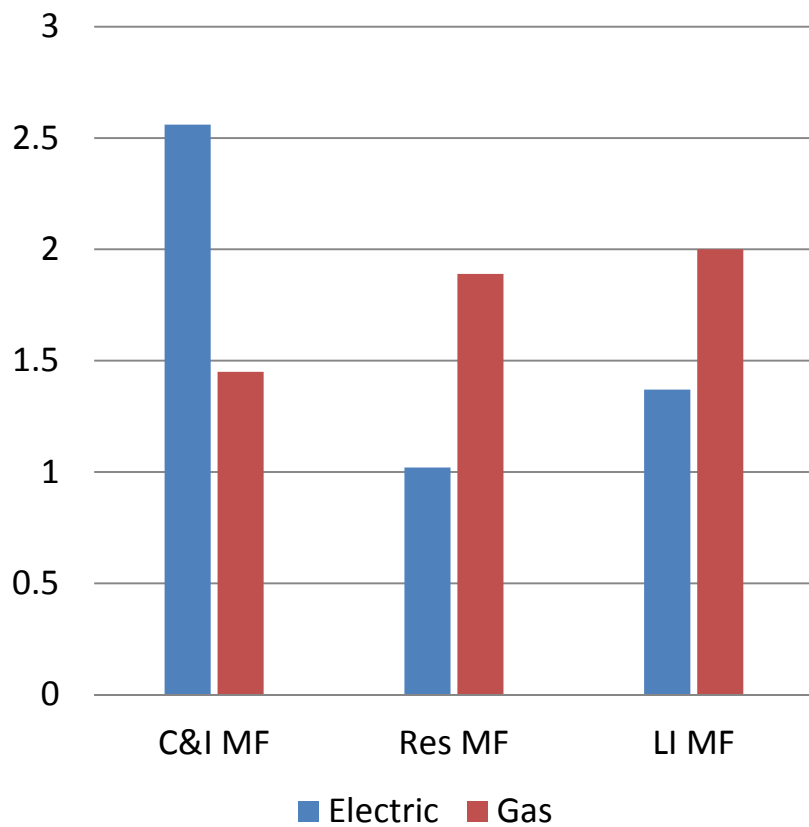
- ▶ **~15,000 existing low income MF buildings in MA**
- ▶ **Benchmarking results:**
 - 75% were benchmarked using energy consumption data
 - 4,031 buildings identified with potential to increase from 2 lowest performing quartiles to median levels
- ▶ **Market penetration indicator:**
 - 71% of 3,100 units in 2016 agency refinance pipeline for tax credit buildings are prior participants in Mass Save (market rate or low income)
- ▶ **Other potential opportunities:**
 - Buildings with fewer than 50% residents at $\leq 60\%$ Area Median Income (AMI) are considered on a case-by-case basis
 - In past pipeline often exceeded budget for gas projects, resulting in wait-listing; 2016-2018 budget increased

Performance Indicators and Cost Effectiveness

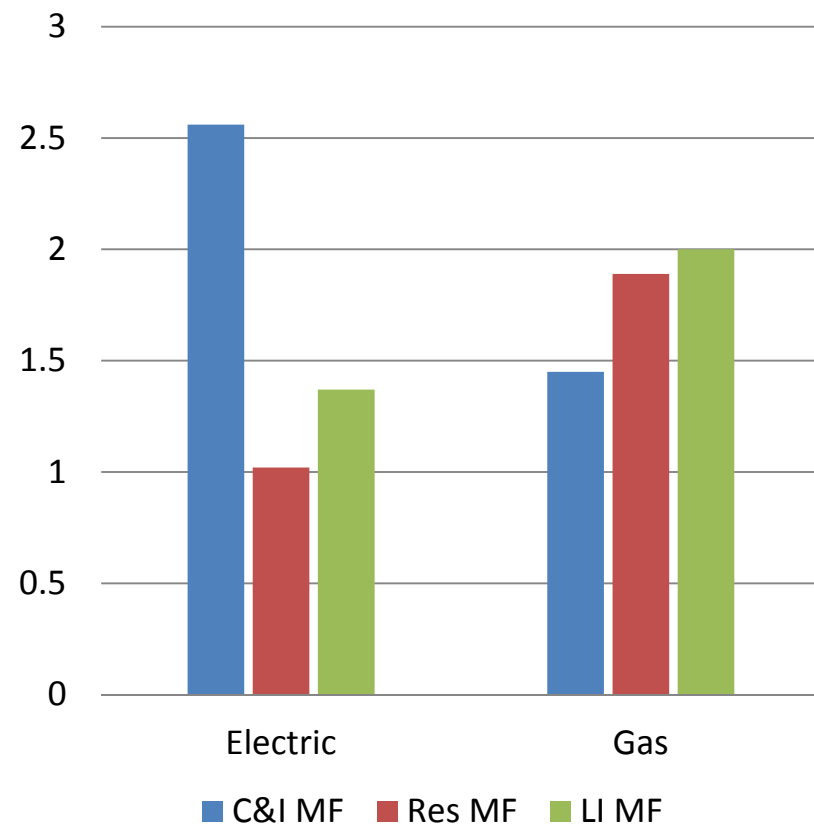


RETROFIT BENEFIT COST RATIOS

Benefit Cost Ratios by Initiative

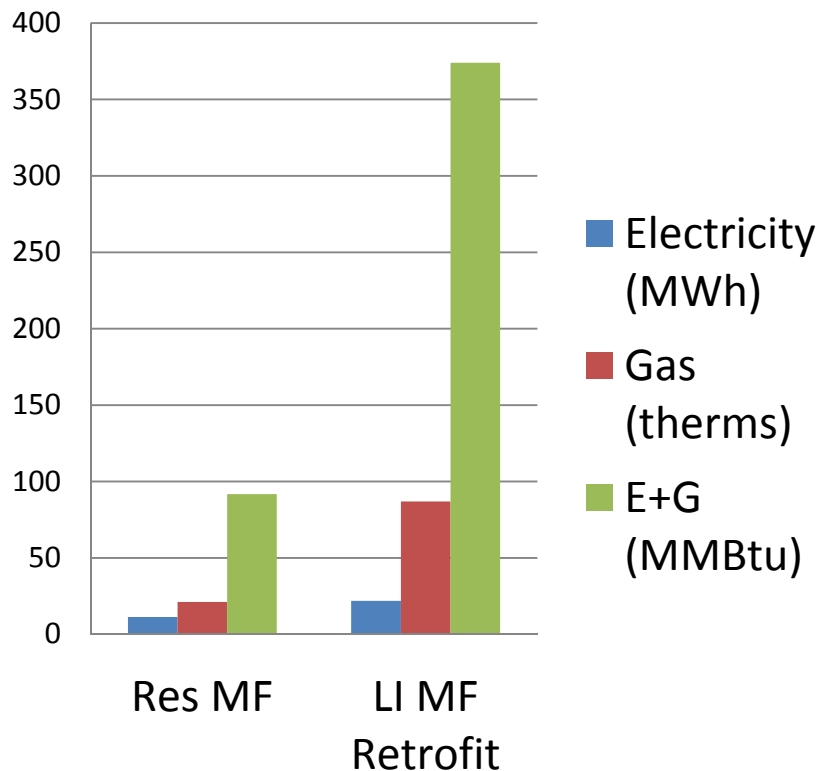


Benefit Cost Ratios by Fuel



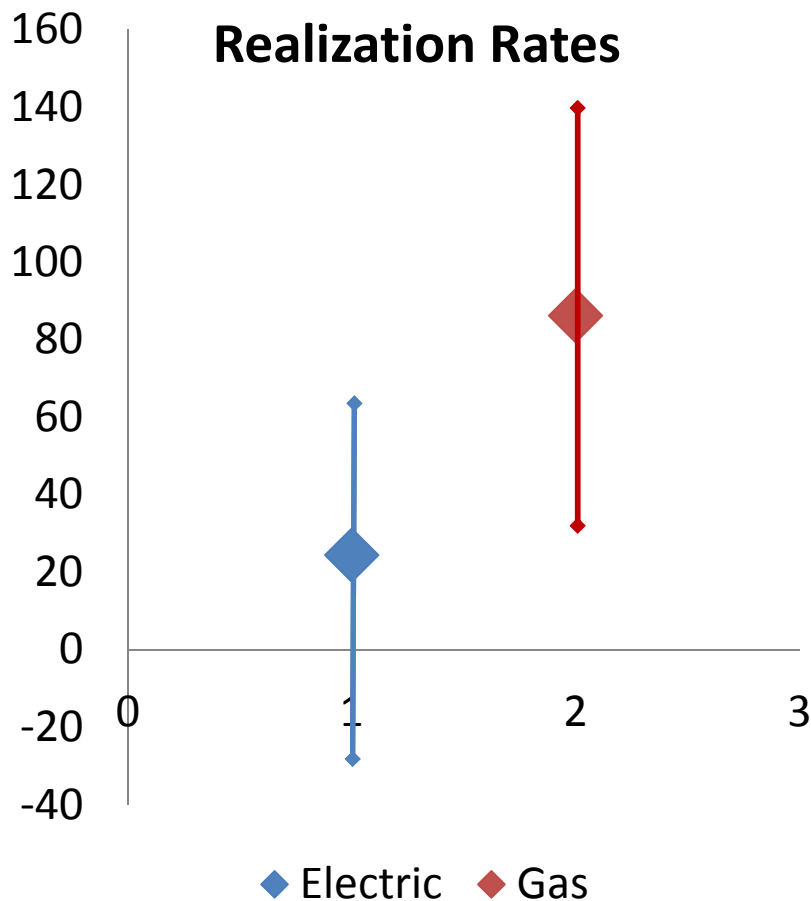
PERFORMANCE INDICATORS ANALYSIS

Lifetime Energy Savings per Participant (MF Retrofit)



- ▶ **New construction participant data not available to analyze**
- ▶ **“Apples to apples” comparison between Low-income/Market-rate, C&I/Res and Gas/Electric not possible**
 - C&I MF retrofit counts by commercial meter only
 - Gas participant counts co-mingle master meters and individual meters, in some situations

MARKET RATE MF RETROFIT IMPACT EVALUATION



- ▶ Study used post-retrofit consumption data to determine realized energy savings for retrofit measures
 - *Electric RR = 24.4% +/-49.3*
 - *Gas RR = 86.2% +/-64.1*
- ▶ 92% of savings for retrofit electric comes from in-unit lighting
- ▶ Market Rate electric program is using 60% RR as a placeholder until study results can be further investigated
- ▶ **PAs have taken initial actions to determine root cause and mitigate, but issue will require on-going investigation**

Challenges, Recommendations, and Future Development

CHALLENGES



- ▶ **Challenge 1:** No independent tracking of MF new construction activity
- ▶ **Challenge 2:** Limited participant tracking and inconsistent participant definitions
- ▶ **Challenge 3:** BCR models and Total Resource Cost (TRC) test do not accurately represent the multi-family market opportunity
- ▶ **Challenge 4:** Electric multi-family retrofit may not be cost effective in its current form
- ▶ **Challenge 5:** Negative participant costs suggest additional review is needed

RECOMMENDATIONS FOR IMPROVED PARTICIPANT COUNTING

- ▶ **Review current practices by PA for possible inconsistencies in MF participant counting and reconcile as appropriate**
- ▶ **Replicate retrofit segmentation in new construction so MF projects are identifiable and results trackable**
- ▶ **Provide unique site identifiers within the PAs' data systems to enable services tracking at the facility, building, and dwelling unit levels across sectors**

RECOMMENDATIONS FOR ALIGNING BCR MODELS TO MORE ACCURATELY REPRESENT THE MF OPPORTUNITY

- ▶ **Review existing BCR inputs and consider alternative approaches for determining cost-effectiveness**
 - May require policy change
- ▶ **Continue review to determine the root cause(s) of low realization rates for electric savings and broad precision bands associated with the realization rate analysis for both electric and gas in market rate multi-family retrofit**
- ▶ **PAs assess further and implement a solution that eliminates negative participant costs**

CONTINUOUS IMPROVEMENT AND FUTURE DEVELOPMENT

- ▶ Leverage in-unit measures to overcome the “split incentive”
- ▶ Continue efforts to mitigate the dichotomy between res and C&I incentives (consider blended BCR)
- ▶ Consider escalating incentives for greater achievement of savings (performance based offer)
- ▶ Modify the existing Energy Action Plan report to be more customer-oriented including a cost benefit analysis from the customer’s perspective
- ▶ Encourage low cost and no cost Operations & Maintenance measures and offer building operator training specific to multi-family
- ▶ Incorporate energy benchmarking using lessons from LI
- ▶ Other opportunities: demand response, renewables and distributed generation, addressing environmental goals

CONCLUSIONS AND NEXT STEPS

- ▶ **The PAs have made strong progress in improving and evolving their multi-family program efforts, but opportunities and challenges remain**
- ▶ **The Consultants see two priority areas for near-term focus:**
 1. Developing basic performance indicators for all multi-family initiatives, with data collection and management that supports accurate tracking and assessment
 2. Collaborative effort between the Consultants and PAs to understand and resolve cost effectiveness challenges, including assessment of alternative program designs and approaches to measuring cost-effectiveness as well as program expansion and enhancement opportunities
- ▶ **Discussions have started and will continue at the RMC**

QUESTIONS AND DISCUSSION

