

# The Big Squeeze: Meeting Higher Savings Targets as Baselines Rise

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# Overview



- Background—EERS and program planning
- Purpose—to assess the “savings gap” between EERS and current portfolios, and examine options to fill it
- Methodology—modeling a typical DSM portfolio against a typical EERS target
- Results
- Future directions

# Background

- Some 26 states have EERS with a macro-level, long-term energy savings target
- Program managers in some states see a “savings gap” between EERS and current plans
- Rising baselines constrain savings from conventional program designs
- New measures and program designs hold promise for new savings
- New programs will have to meet economic tests, and then show results

# Purpose of the “Big Squeeze”



- ICF provides EE program planning and delivery services in several EERS-driven states
- As a practitioner, we wanted to assess the savings gap, and identify potential new program solutions
- Unless we start now to develop the measures and programs that can fill the “savings gap”, some states may experience pressure to weaken/ignore/repeal EERS

# Methodology

1. ICF's EEPM model used as the "engine"
2. Built a generic DSM portfolio based on ICF client experience
3. Used ACEEE data to calculate a typical EERS target
4. Established a baseline scenario and "savings gap"
5. Re-estimated the baseline and gap with federal lighting and appliance standards
6. Developed several "gap-filler" scenarios

# Potential Gap-Fillers



- ENERGY STAR® Most Efficient products
- Residential electronics products
- Residential Smart Grid/customer feedback
- Residential whole-building retrofits—varied savings levels and participation rates
- Commercial whole-building performance—varied savings levels and participation rates
  - Embraces prescriptive, customer and RCx program models

# Broader Issues

- Many practitioners acknowledge conventional program designs are limited
- New approaches may be needed
  - Robust models for behavior-based programs
  - Whole-building, performance-driven programs
  - Integrating broader policies such as building codes with DSM program design
  - Developing financing and other program features that encourage larger customer investment while limiting program costs and rate impacts
- This analysis stays within conventional DSM program design limits

# Results

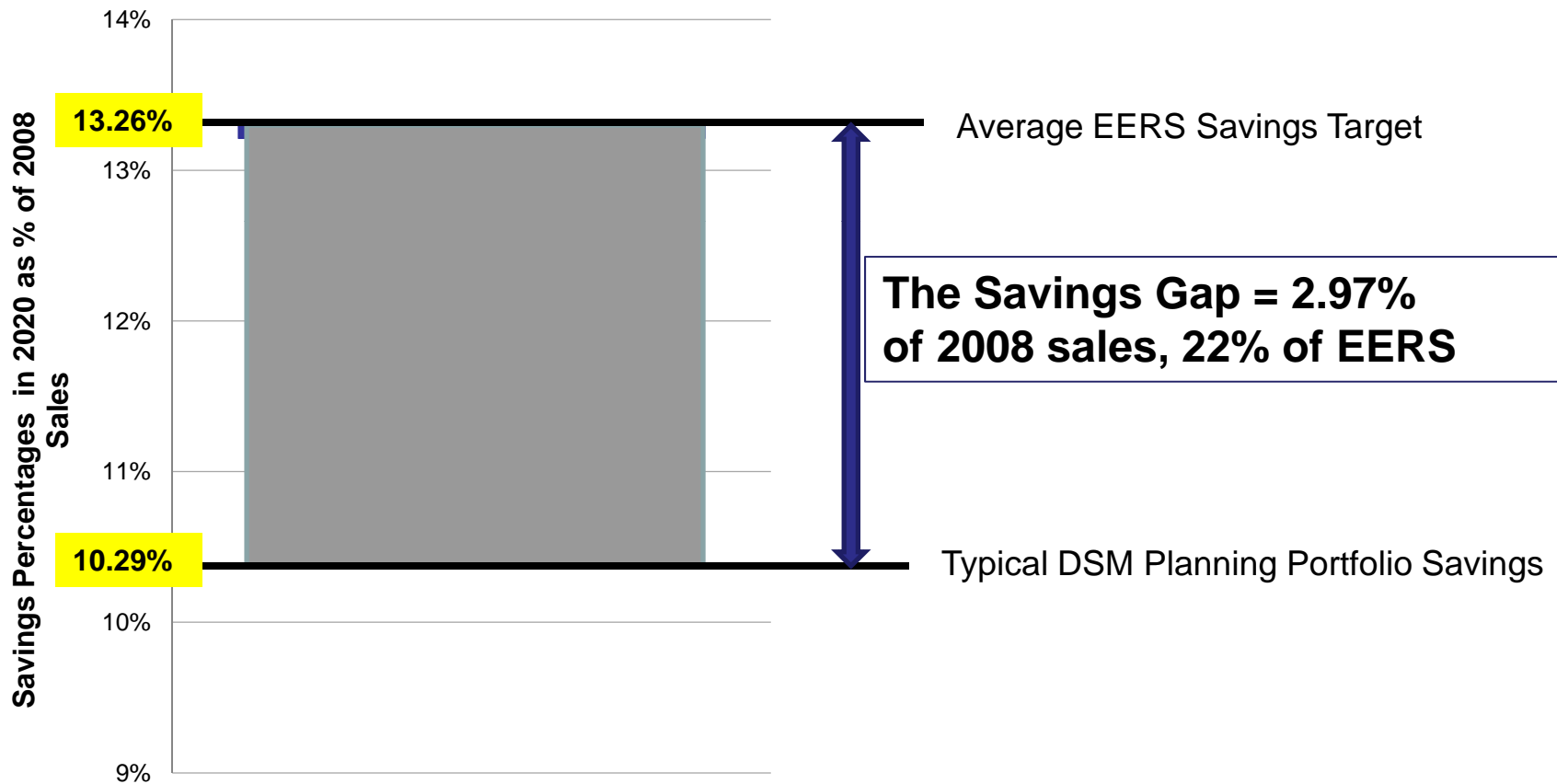


## Highlights:

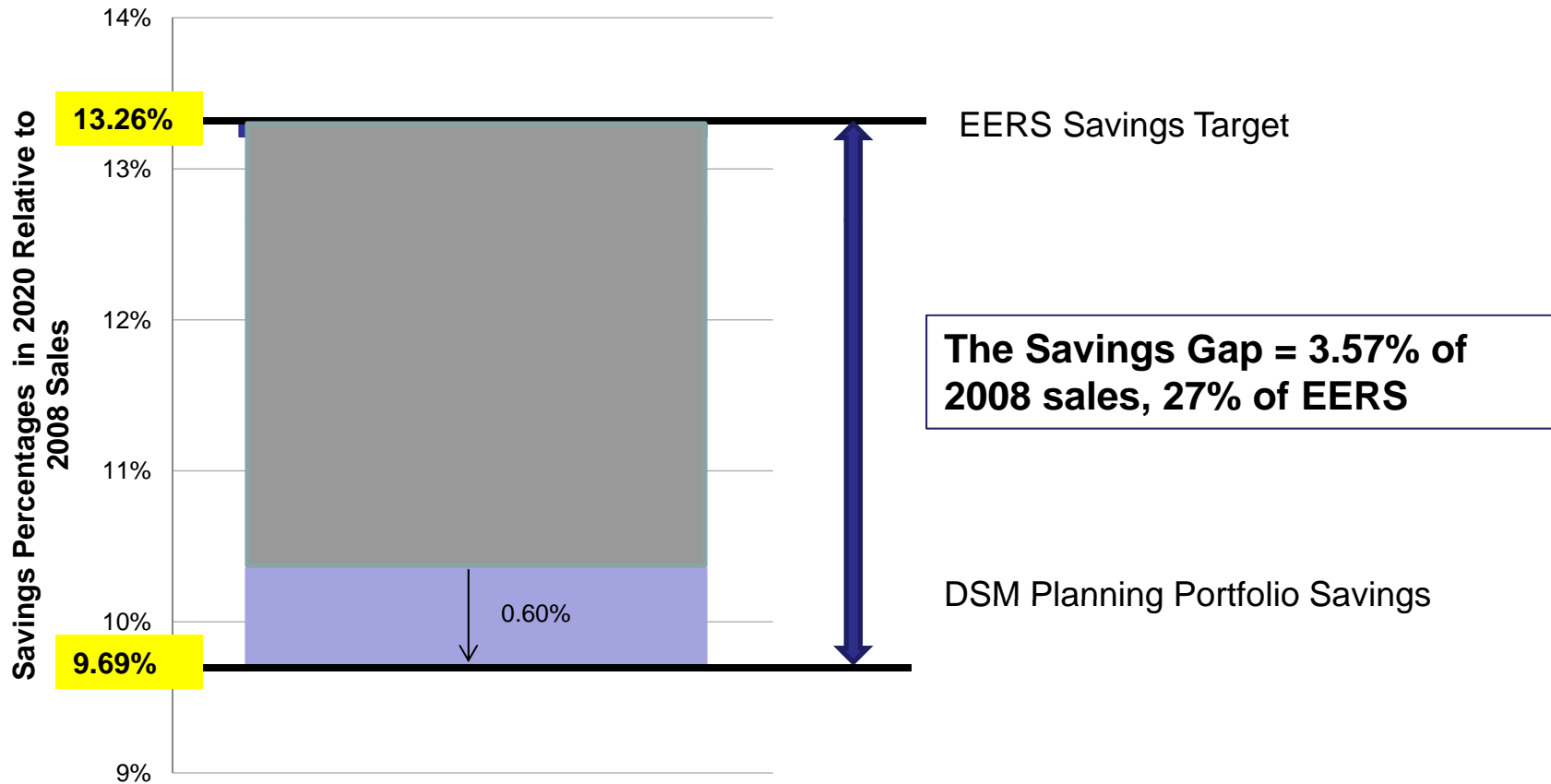
- Baseline shows ~18% shortfall of 2020 goal
- Federal standards widen gap to ~25%
- Residential programs can collectively fill the gap, but only if all perform exceptionally well
- Commercial whole-building programs can fill the gap, but only at high levels of savings and participation



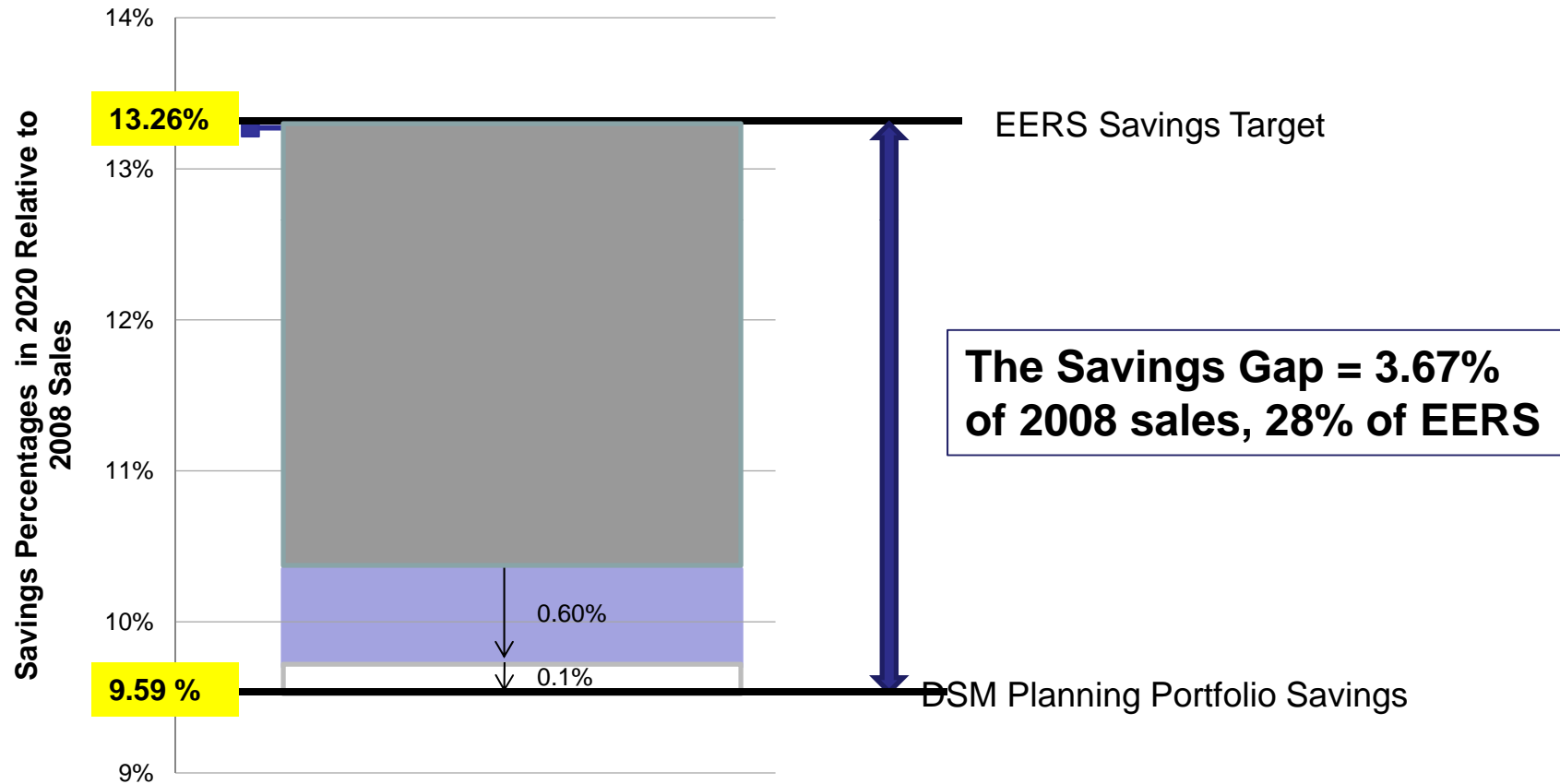
# Baseline Scenario



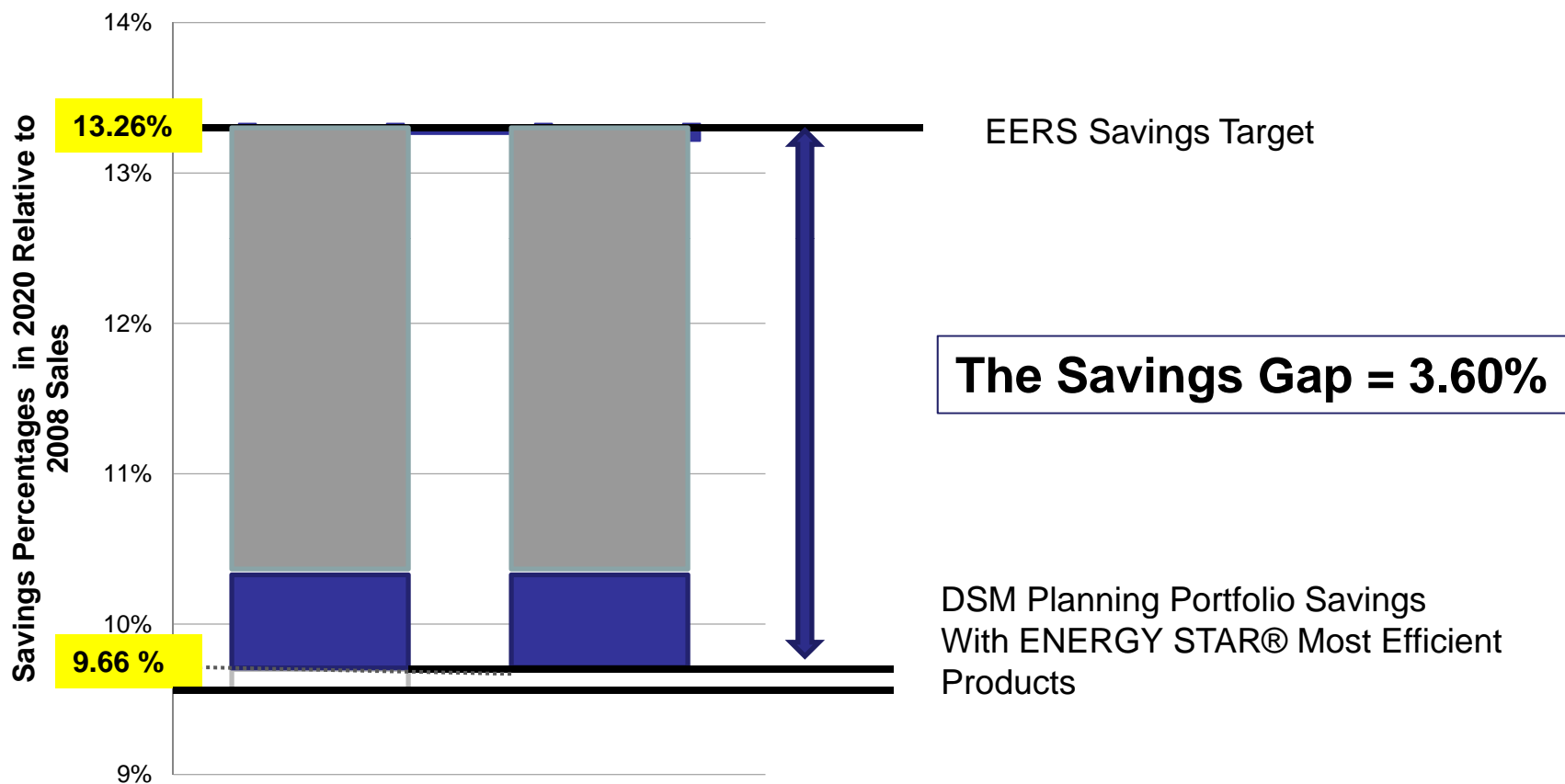
# Scenario 2: Impact of EISA 2007 Lighting Standards



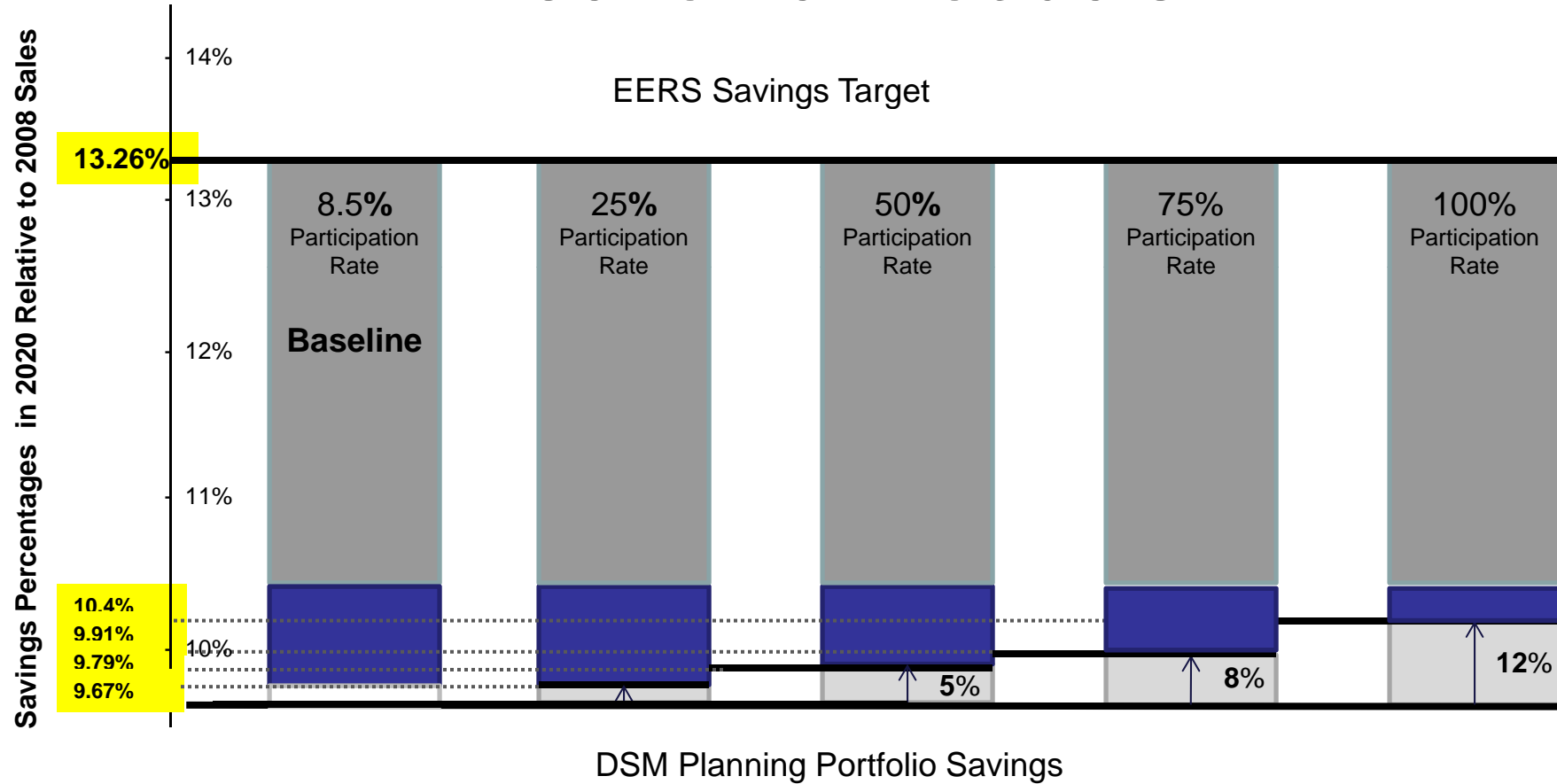
# Scenario 3: Impact of Pending HVAC and Appliance Standards



# Scenario 4: Impact of ENERGY STAR® Most Efficient Products



# Scenario 5: Impact of Electronic Products



13.26%

10.4%

9.91%

9.79%

9.67%

14%

13%

12%

11%

10%

8.5%  
Participation  
Rate

**Baseline**

25%  
Participation  
Rate

50%  
Participation  
Rate

75%  
Participation  
Rate

100%  
Participation  
Rate

5%

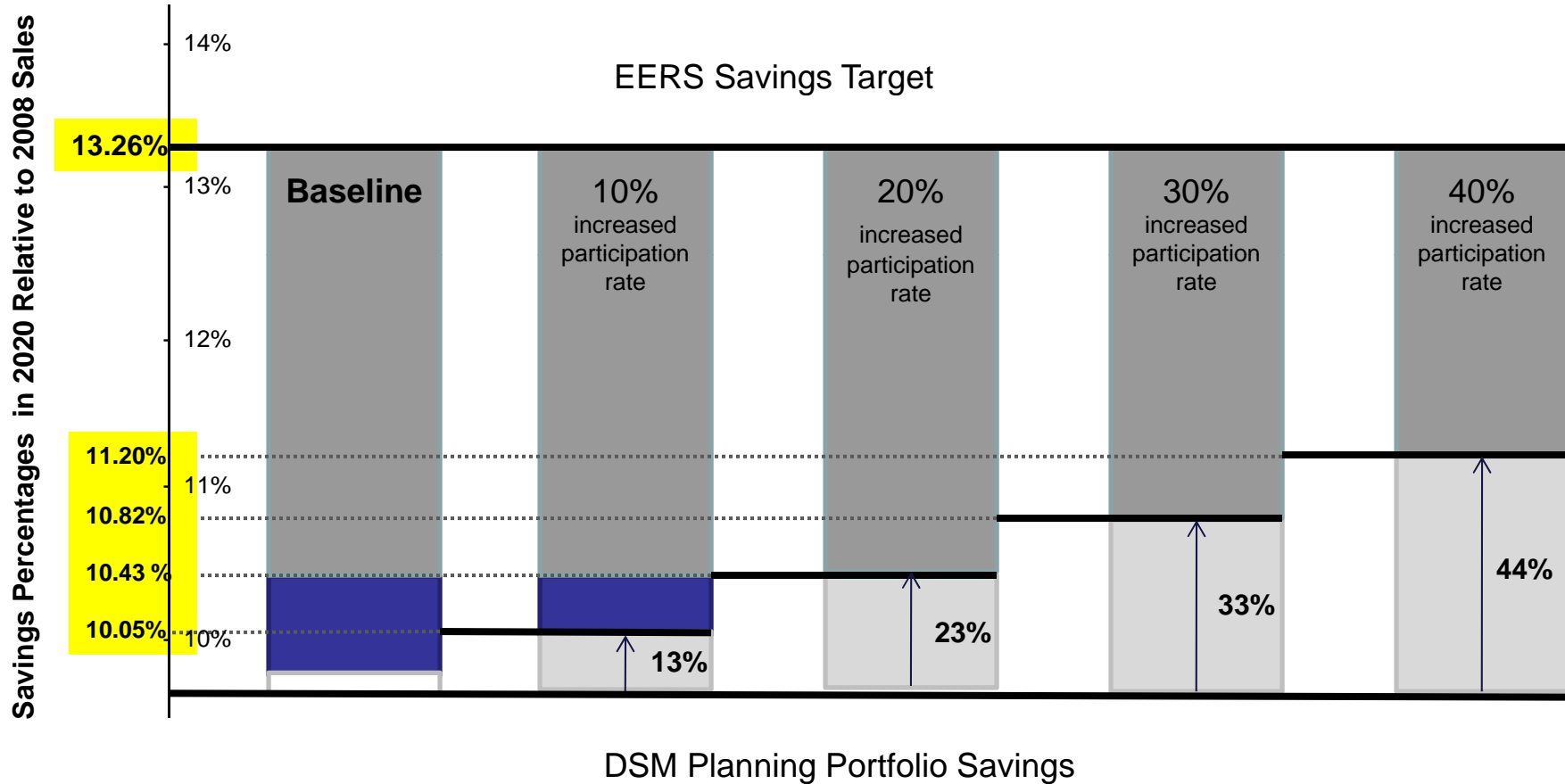
8%

12%

DSM Planning Portfolio Savings

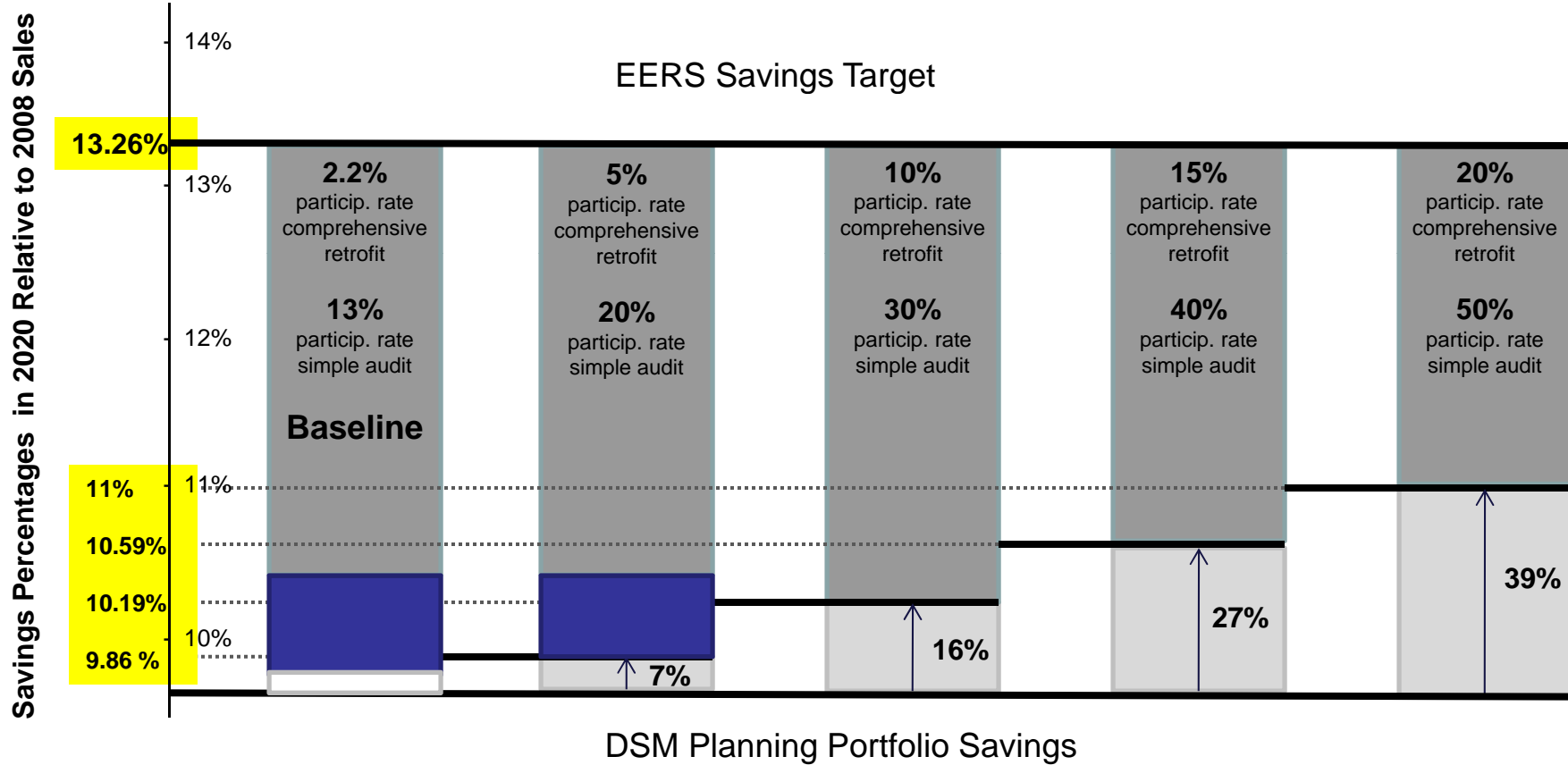
- Participation Rate: 25%-100%

# Scenario 6: Impact of Smart-Grid/Feedback Program



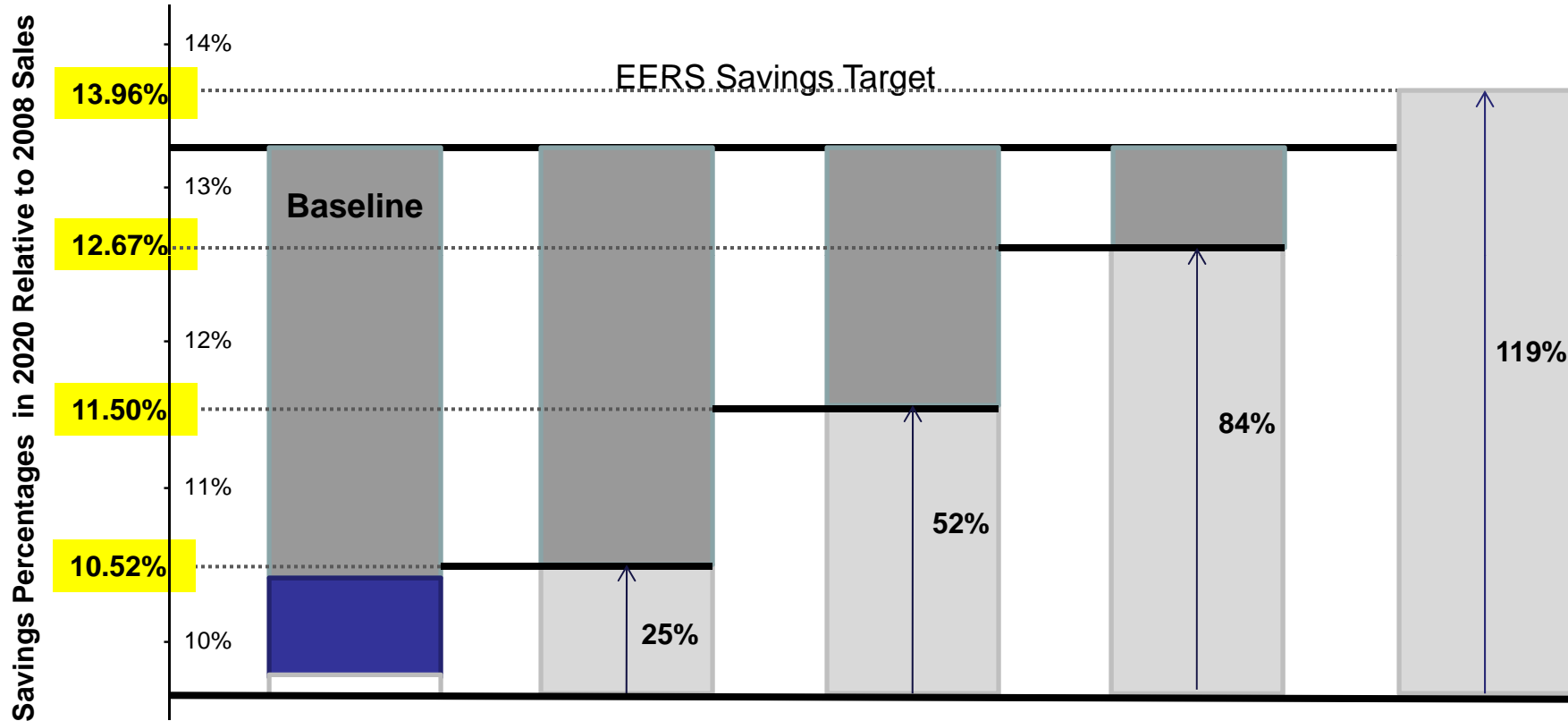
- Increased Savings in Residential Programs: 2%
- Increased Participation Rate for Residential Programs: 10%-40%

# Scenario 7: Impact of Residential Retrofits



- Participation Rate in Comprehensive Retrofit: 5%-20%
- Participation Rate in a Simple Audit: 20%-50%

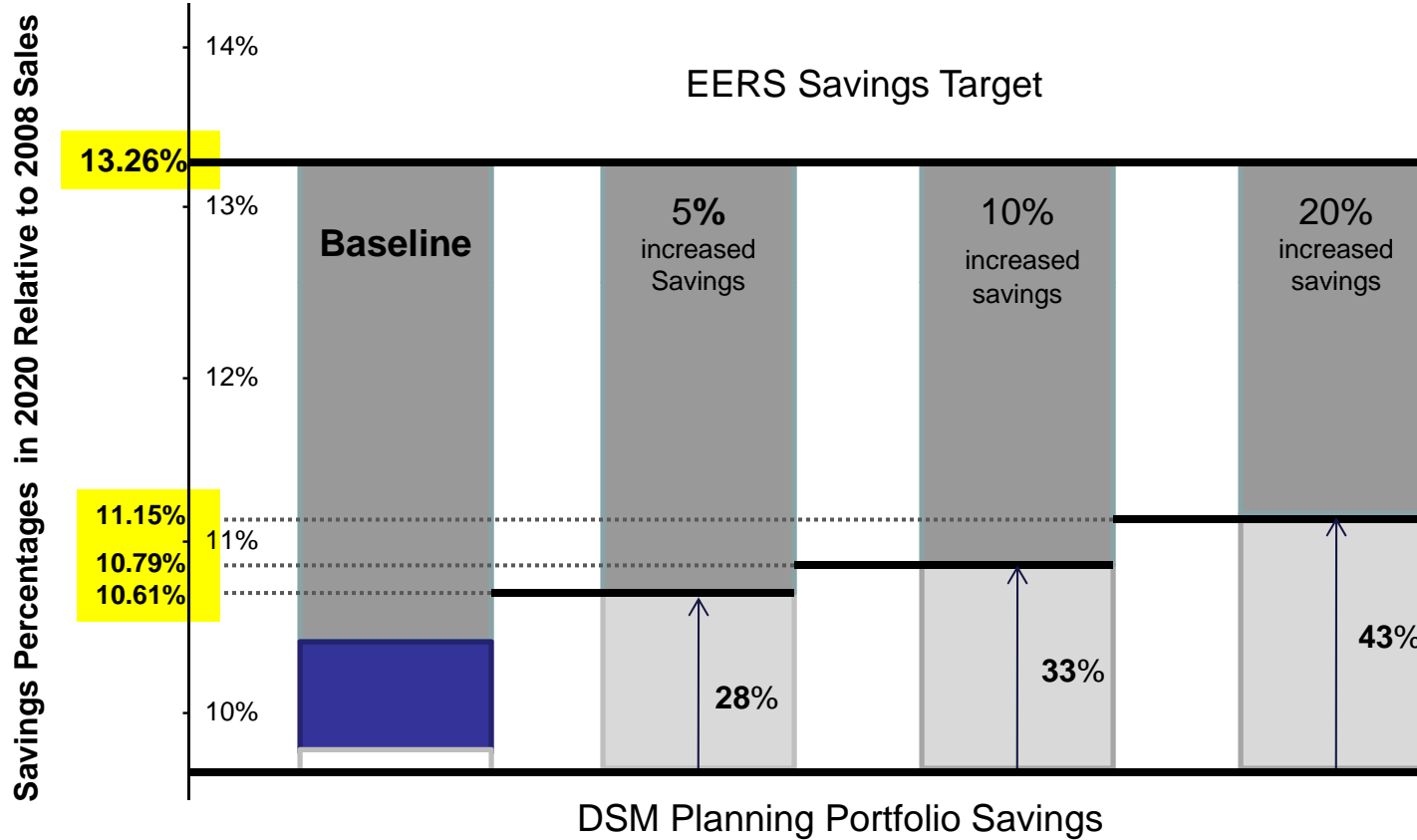
# Scenario 8: Combined Impact of Residential Programs



- ENERGY STAR® Most Efficient Products
- Electronic Products - Participation Rate: 25%-100%
- Feedback Program - Increased Participation Rate: 10%-40%
- Whole-Building Retrofit - Participation Rate in a Comprehensive Retrofit: 5%-20%
- Whole-Building Retrofit - Participation Rate in a Simple Audit: 20%-50%

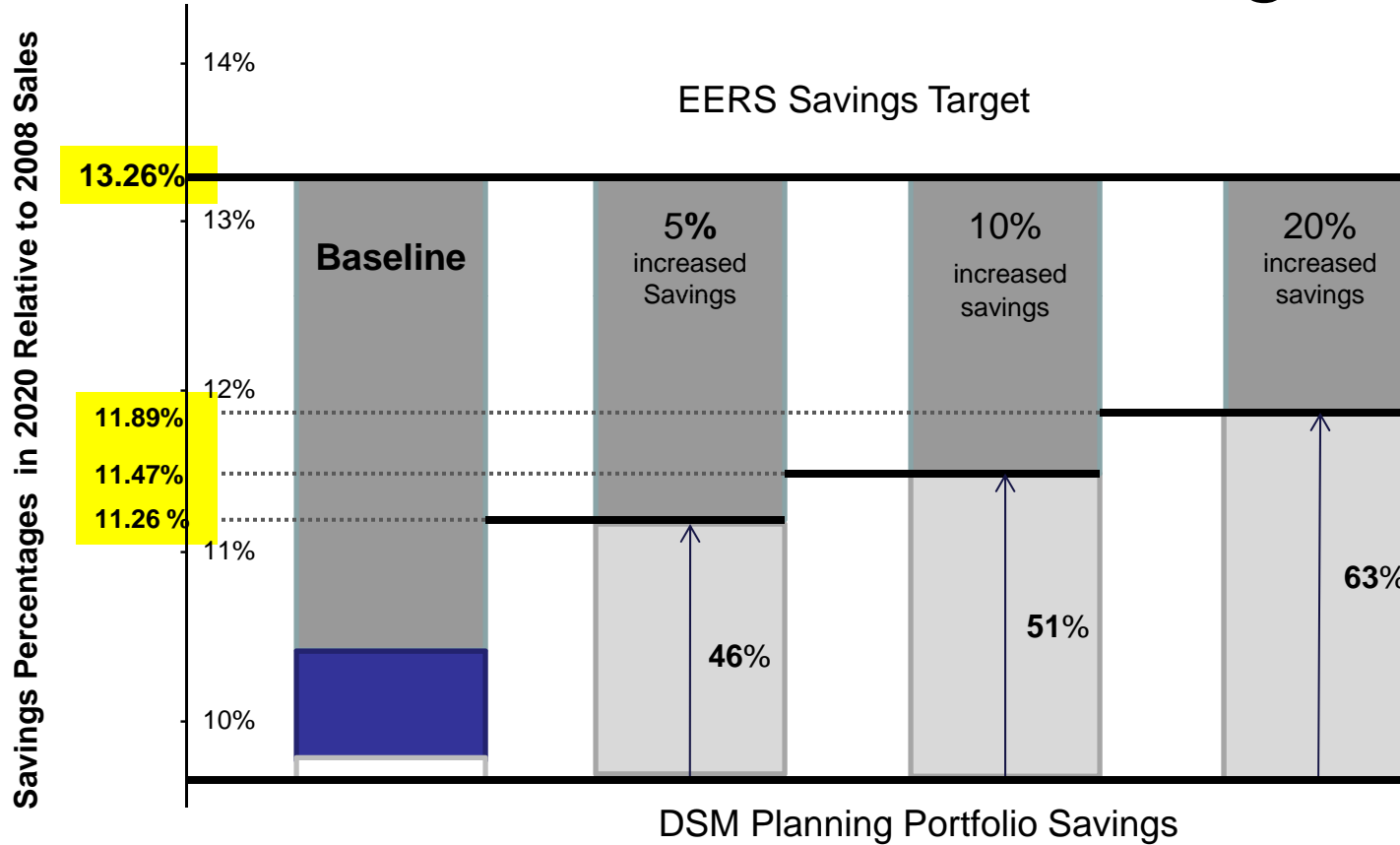


# Scenario 9-A: Impact of Commercial Whole-Building Program



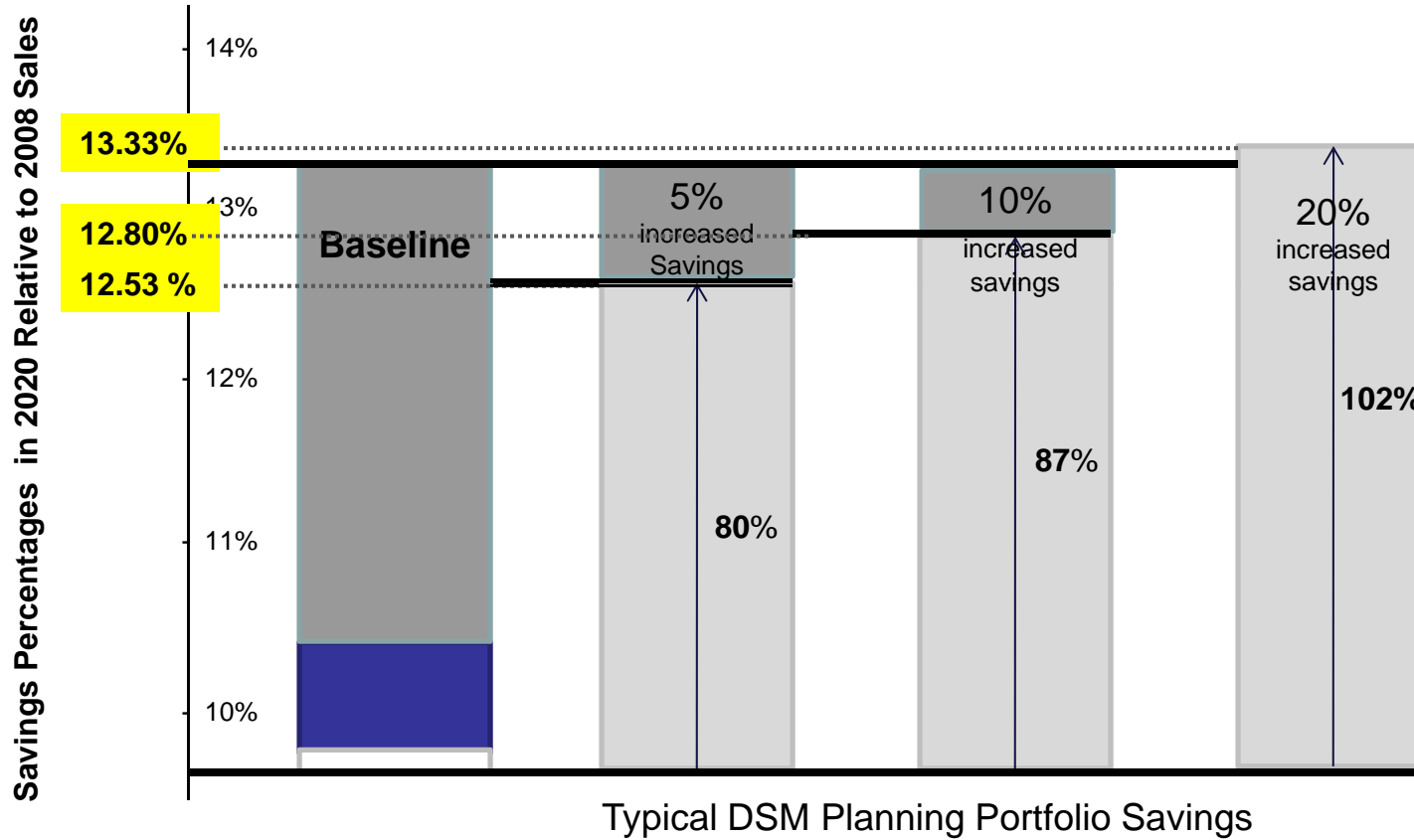
- Custom Program Participation Rate: 10% (50% Higher Participation)
- RCx Program Participation Rate : 0.8% (40% Higher Participation)
- Prescriptive Program Participation Rate : 10% (20% Higher Participation)
- Increased Savings 5%-20%

# Scenario 9-B: Impact of Commercial Whole-Building Program



- Custom Program Participation Rate: 13% (100% Higher Participation)
- RCx Program Participation Rate : 1% (75% Higher Participation)
- Prescriptive Program Participation Rate : 11% (30% Higher Participation)
- Increased Savings 5%-20%

# Scenario 9-C: Impact of Commercial Whole-Building Program



- Custom Program Participation Rate: 20% (300% Higher Participation)
- RCx Program Participation Rate : 1.3% (125% Higher Participation)
- Prescriptive Program Participation Rate : 13% (50% Higher Participation)
- Increased Savings 5%-20%

# Future Directions

- Determining ability of higher-tier products to achieve high market shares
- Going deeper into consumer electronics program models to improve cost-effectiveness, increase participation, and get at STBs
- Advancing Smart Grid/feedback programs to win PUC approval and show sustained savings
- Residential retrofits: demonstrating higher savings and higher participation
- Commercial whole building programs: gain and sustain high savings and participation

# Future Directions



- Attaining higher savings/customer without very high program costs/rate impacts
- Gaining higher participation at acceptable marketing/incentive costs?
- Securing regulatory approval and sustained market impacts for behavior/performance/feedback-based programs
- Advancing the analytics tools needed to realistically assess such strategies

# Future Directions



- Evolving regulatory practices to enable such strategies
  - Adapting cost-effectiveness tests
  - Applying tests at the class/portfolio level
  - Developing program administrator credit for supporting other policies, e.g. building codes
  - Revisiting procurement approaches: DSM bidding, white certificates, etc.

# Contact Information



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## Save the Date

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**AESP's Spring Conference  
Baltimore, MD**

**Oct. 15-17, 2012**

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Long Beach, CA**

**Jan. 28-31, 2013**

**AESP's 23<sup>rd</sup> National Conference  
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