



Massachusetts Department of Energy Resources

*Creating A Greener Energy Future For the Commonwealth*

## **Evaluation, Monitoring and Verification: Massachusetts Approach**

EPA Webinar

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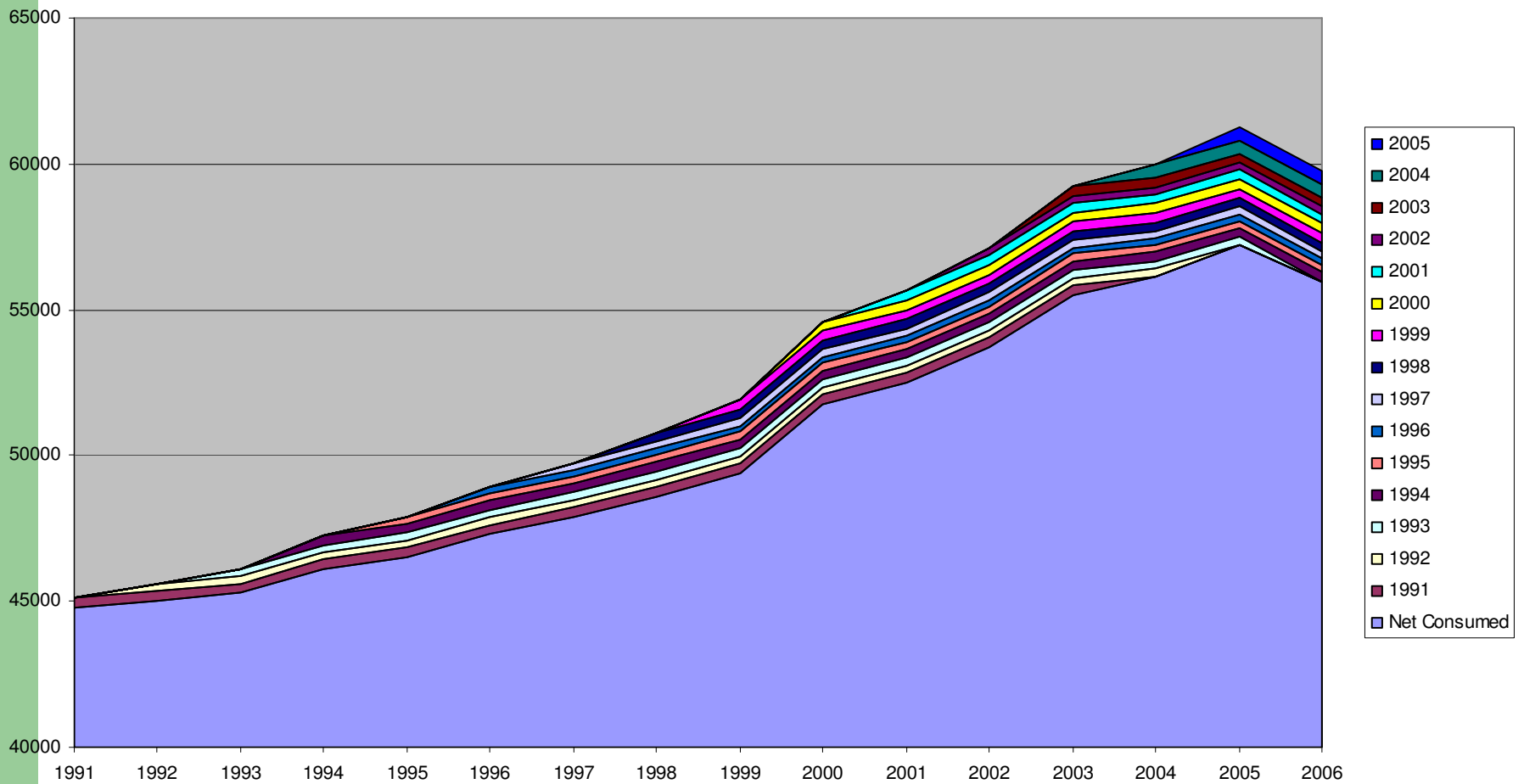
## **Massachusetts has more than 20 continuous years in energy efficiency**

- High Cost State with no fossil fuels, heavy dependence on natural gas for generation;
- Long history of efficiency programs – continuous Collaborative settlement process since 1989.
- Experienced consultants advising Non Utility Parties and DOER
- Well developed utility capabilities in energy efficiency, EM&V
- Unusual roles for state energy office (DOER) and utility commission (DPU)



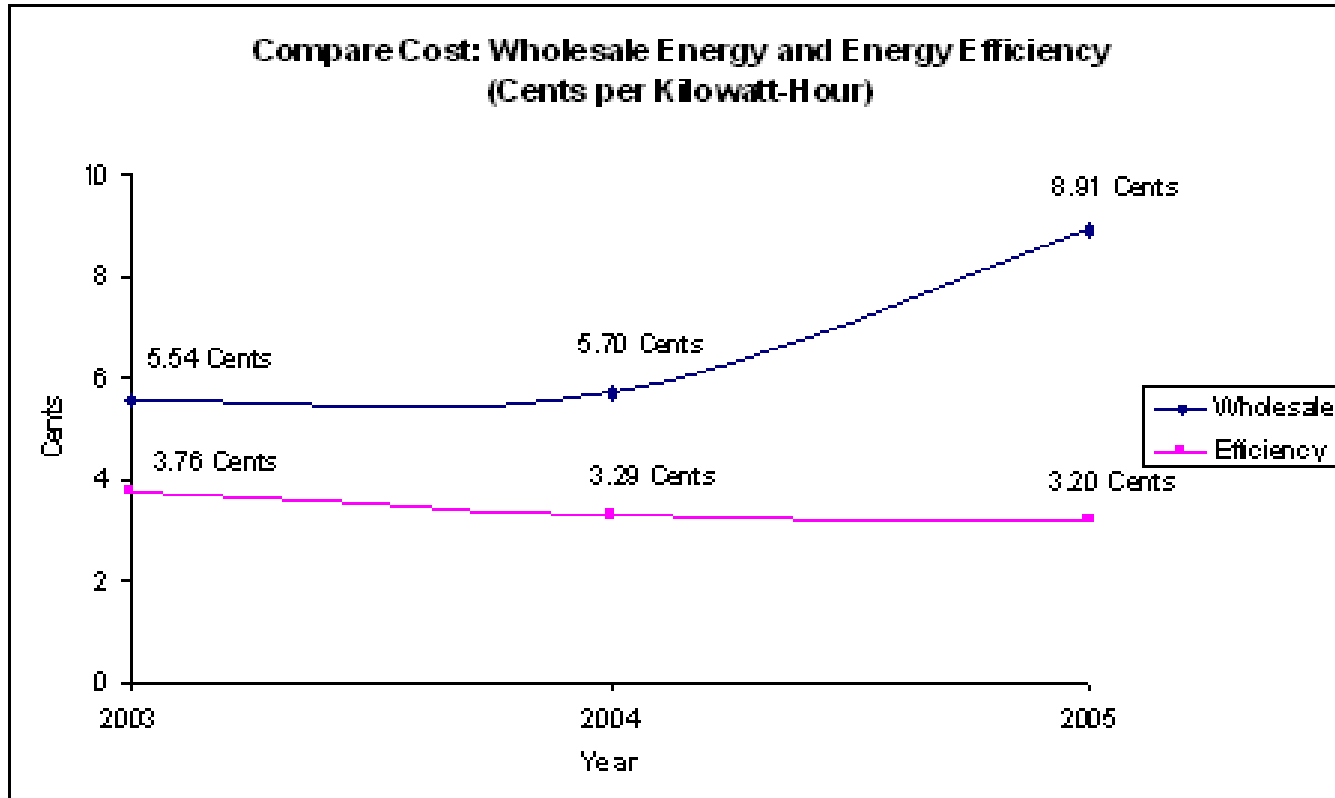
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# Energy Efficiency provides 8% of electric need



## Cost of savings v. cost of electricity

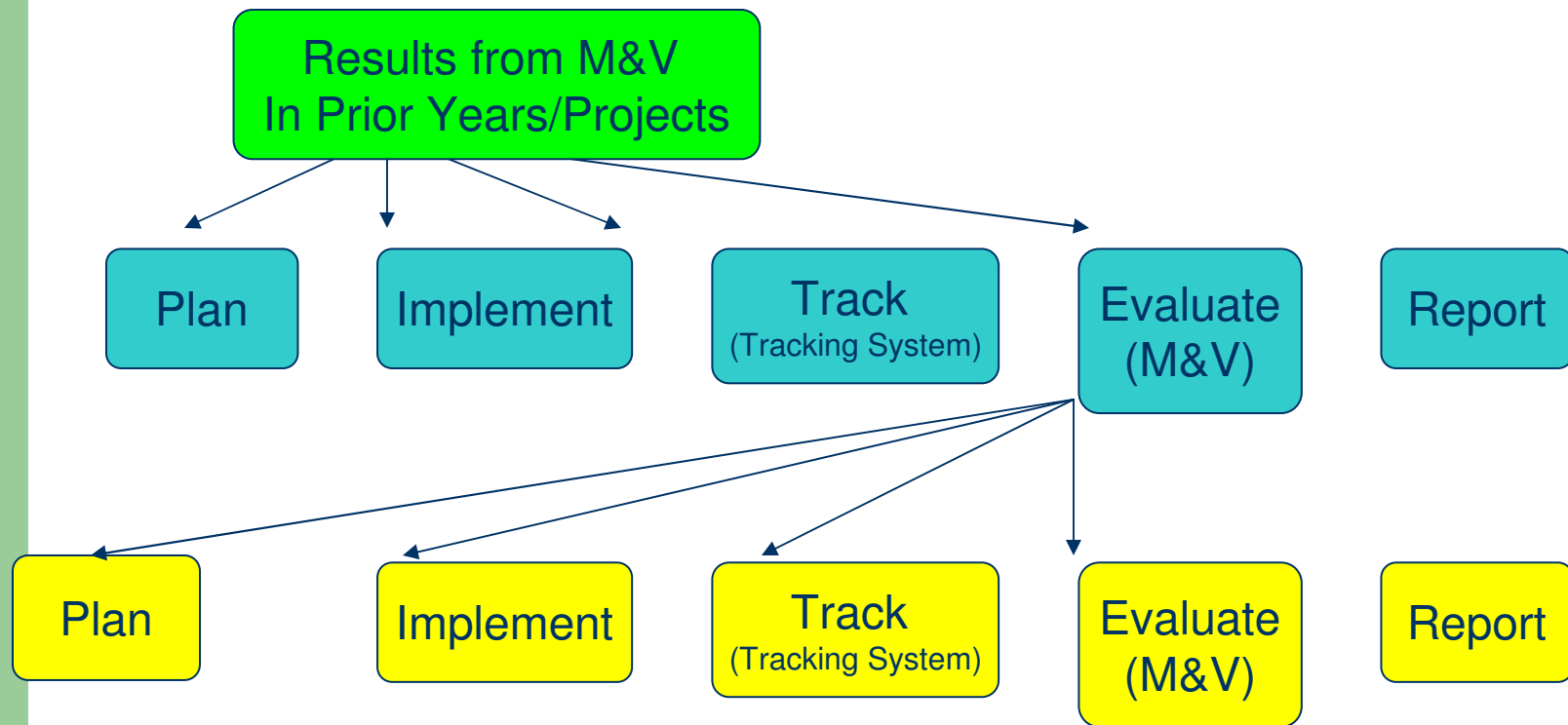
Costs of Electricity Generation and Energy Efficiency  
2003 - 2005



## **Historic Process**

- Evaluation spending ~3% by settlement ~\$4 million annually on EM&V; most studies are now statewide
- Studies are proposed in annual plans and approved by DOER and DPU
- Parties and DOER participate throughout:
  - What studies will be done; est. cost
  - Study scope & RFP, but not contractor selection
  - Finalizing scope with contractor; progress reports
  - Review of draft and final studies

# Evaluations: Feedback Loop and Continuous Improvement Cycle





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## **Key algorithms and values**

- Originally, Each utility calculated their own algorithms and savings values for all EE measures
- Development of a single DOER database fed by the PA's allow comparisons at the measure level of gross savings, measure lives, operating hours, coincidence factors, persistence, etc. Some differences continue, esp in custom C/I programs
- DOER Database led to the development of a common screening tool now in use by all PA's, allowing regular comparison of values
- MA is developing 1<sup>st</sup> Technical Reference Manual – database-oriented to allow for ready updating.



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# How long does it take?

ical Evaluation Planning and Execution	2008				2009								
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Evaluation budgets finalized	█												
Specific Studies determined		█	█	█									
RFP's developed and issued			█	█	█	█							
Contractor's selected				█	█	█							
Final Scopes set					█	█	█						
Studies run						█	█	█	█	█			
Initial results									█	█			
Draft reports										█	█		
Final reports											█	█	
impact factors incorporated into databases												█	█
2008 Annual reports issued net of impact factors													█
Planning for 2010, etc.													█



## **What do we measure and report?**

- Original gross savings are netted by periodic studies including:
  - Free ridership
  - Market factors: market share, spillover
  - Realization rates, in-service rates
  - Persistence losses
- Net factors are iteratively updated as periodic evaluations are performed;
  - New values are substituted in databases and screening models ensuring continuity
  - Periodic reviews of selected values are part of tracking system reviews

## **Free Ridership (personal view)**

Free ridership studies are expensive, time-consuming and often imprecise, although 'precise' values are provided.

Attempting to assess customers' intentions retrospectively, and sometimes retroactively, even with nonparticipant control groups is fraught with opportunities for uncertainty and error

The Real Question is or should be: What value is gained by a monitored, verified, cost-effective efficiency measure?

## **Assess Behavioral and Market effects**

- Realization and in-service rates
- MPER analyses for market-share assessments
- Upstream programs
  - Examples: Providing incentives to CFL manufacturers, distributors, & retailers to reduce retail prices without coupons or rebate forms
- Attribution in changing markets, especially CFLs.