Energy Trust of Oregon's High Performance T8 Market Transformation Study

Conservation Advisory Council
August 10, 2011

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Structure for Today's Discussion

- What is a T-8?
- Review Energy Trust framework for analyzing market transformation
- Discuss the T-8 study

What is a High Performance T8?

- HP T8: 32 watt “skinny tube” has higher lumens/watt and uses more efficient ballast
  - 10-20% savings over “Standard” 32 w T8s for system (bulb/ballast)
  - Greater savings over T-12 “fat tubes”
- “Standard” T8 lamps (i.e.“First Generation” 700-series and “Extended Life” 800-series)

Major Changes in Federal Standards

- Linear fluorescent lamp minimum standard 89 lm/w July 2012:
  - No more “standard” T8 and T-12 bulbs
  - Allowed: High Performance T-12 lamps or HPT8 lamps
  - No impact on ballast efficiency
- Pending linear fluorescent ballast standard in 2014 may eliminate less efficient T-8 and T-12 fixtures- NOT THE SUBJECT OF THIS STAGE OF THE STUDY

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FRAMEWORK TENETS OF ETO MARKET TRANSFORMATION STUDIES

1. Savings are counted over baseline market trends
2. Avoid double-counting with programs or NEEA
3. If ETO was part of a collective effort by CEE or others that had critical influence over a Federal standard, we can claim the impact in our service territory

- If ETO actions and those of our peers were critical to the outcome, we claim all the savings-
  - We are not saying we did it all ourselves.
  - We are saying our investment, in proportion to our service territory, served the outcome.
- If not, we do not claim MT savings.

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How ETO Uses Market Transformation Study Results

- ETO forecasts of savings are used in utility IRP to defer generation.
  - Any savings from standards that are already built into their base forecast are excluded.
- Savings are “trued up” over time based on market sales data.
  - This impacts Energy Trust annual reports, (later) true-up reports, and progress toward goals.
  - For T-8’s we would need to commission periodic market studies to gauge sales by equipment type.

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Key Questions for Market Transformation

- Did market transformation result in more savings than the program's rebated installations?
  - Savings due to program spillover over the life of the program?
  - Savings due to federal standards?
- Would the MT have happened without Energy Trust's influence (and that of our peers)? I.E., What is "critical influence"?

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Major Model Assumptions

- Current MT savings coming from replacing T12 fixtures and lamps
- HPT8 impact from replacing high-bay lighting is not included in study
- MT impacts are due to an earlier adoption of the standard than would have happened without program
- Energy Trust and its peers influenced market adoption and changes in federal standards
- We are counting only savings in Energy Trust service territory

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Influence Piece of the Puzzle- Standard Decision

- Were Energy Trust and its peers highly influential on decisions regarding efficiency and/or timing of the Federal standard?
  - 8 of 9 experts involved in the federal standard change felt that incentive programs *were* influential on decisions regarding the federal standard and *when* it would be implemented
  - Modal response to when the standard would have changed without program efforts was 2017

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Influence Piece of the Puzzle- History of Engagement

Energy Trust:

- participated in the development of CEE specificaton,
- pressed against manufacturer recommendation for inclusion of less efficient products.
- first in the region to support the specification and promoted, trained, and incented heavily.
- stopped incenting less efficient ballasts once supply and price were “ripe”.

Argument: These factors influenced availability, competition, and thus price- pre-conditions for the standard.

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Regional Influence

- Lighting distributors: all 5 felt that ETO influenced market through incentives
- Market experts: 5 of 6 felt that ETO influenced the market though education and training and 4 of 6 felt it was through incentives
- Findings supported by a 2009 survey of 60 lighting trade allies:
  - Over 80 % said ETO was a “major” or the “most important” influence in the adoption of HPT8’s

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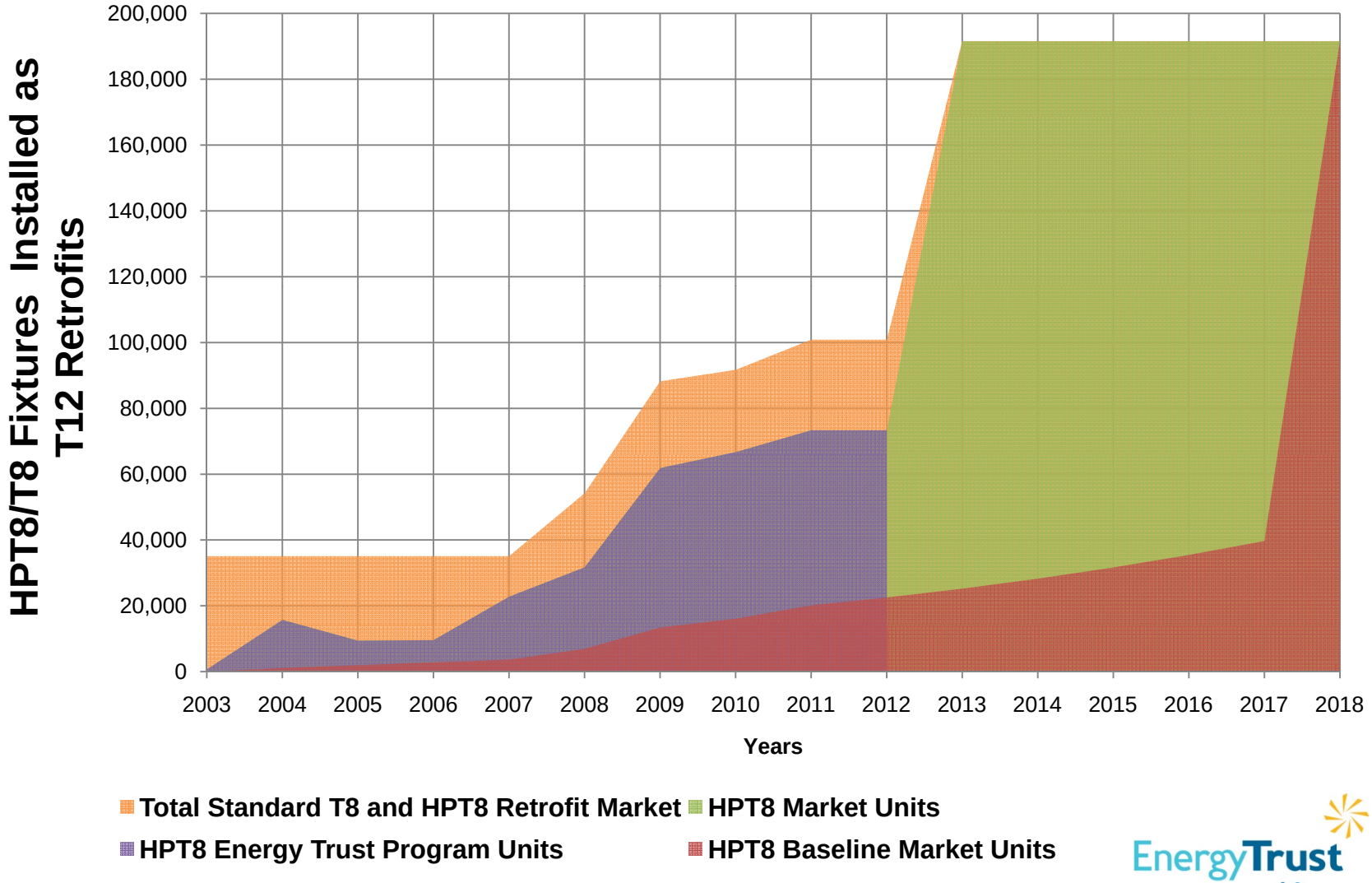
T12 Retrofit Market



Pieces of the Puzzle- Data Sources

- HPT8 sales and fixtures replaced
  - ETO lighting retrofit data and distributor interviews
- T12 installed stock and replacement rates
  - Comprehensive Commercial Building Stock studies 2002 and 2007
- Oregon specific lighting sales and installed base of T12's
  - Lighting Market Assessment 2009
- HPT8 baseline
  - Department of Energy (DOE) Technical Support Document for General Service Fluorescent Lamp Federal Standard 2009

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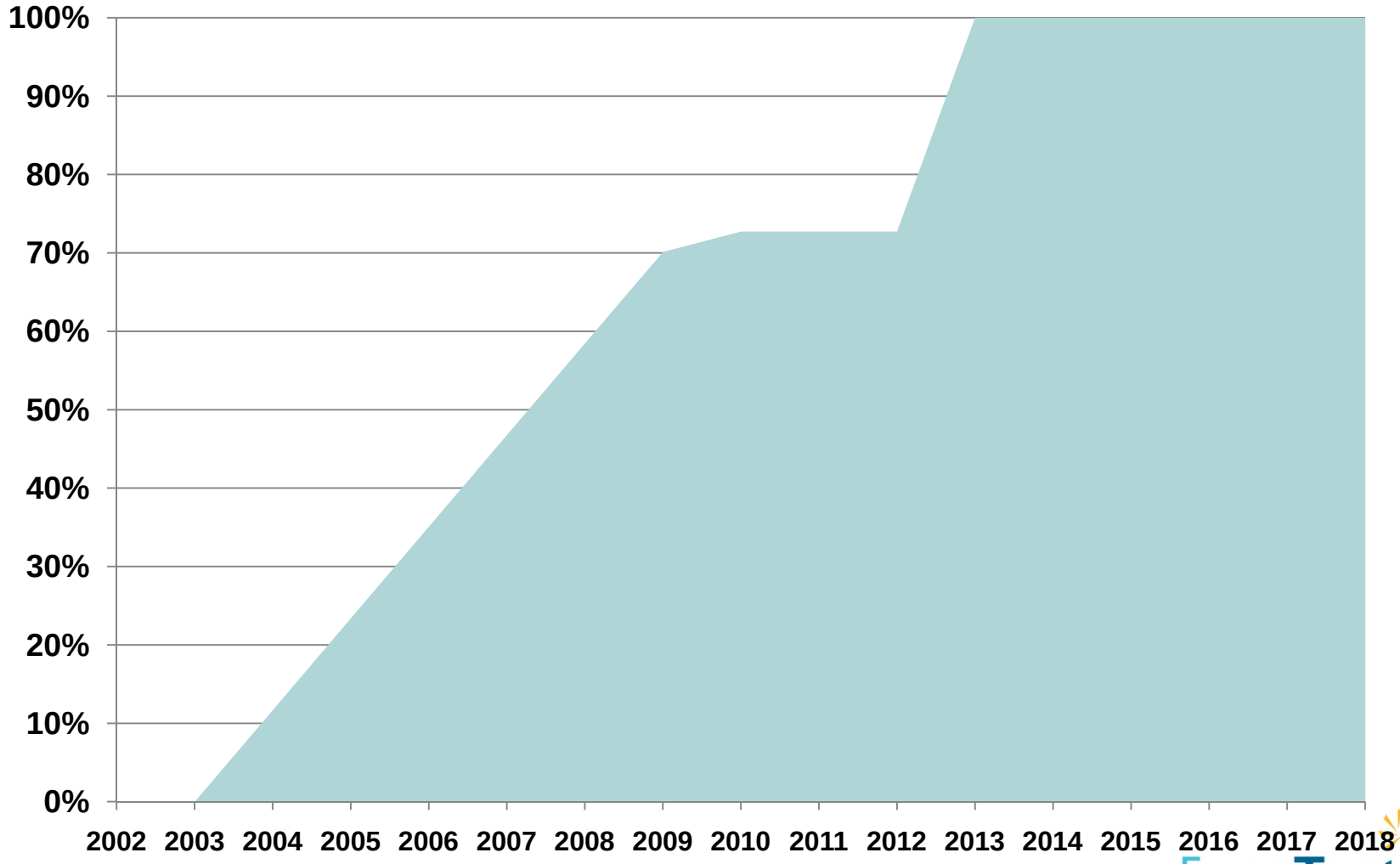
HPT8 Oregon Market Share
(% of T12 retrofits/year)



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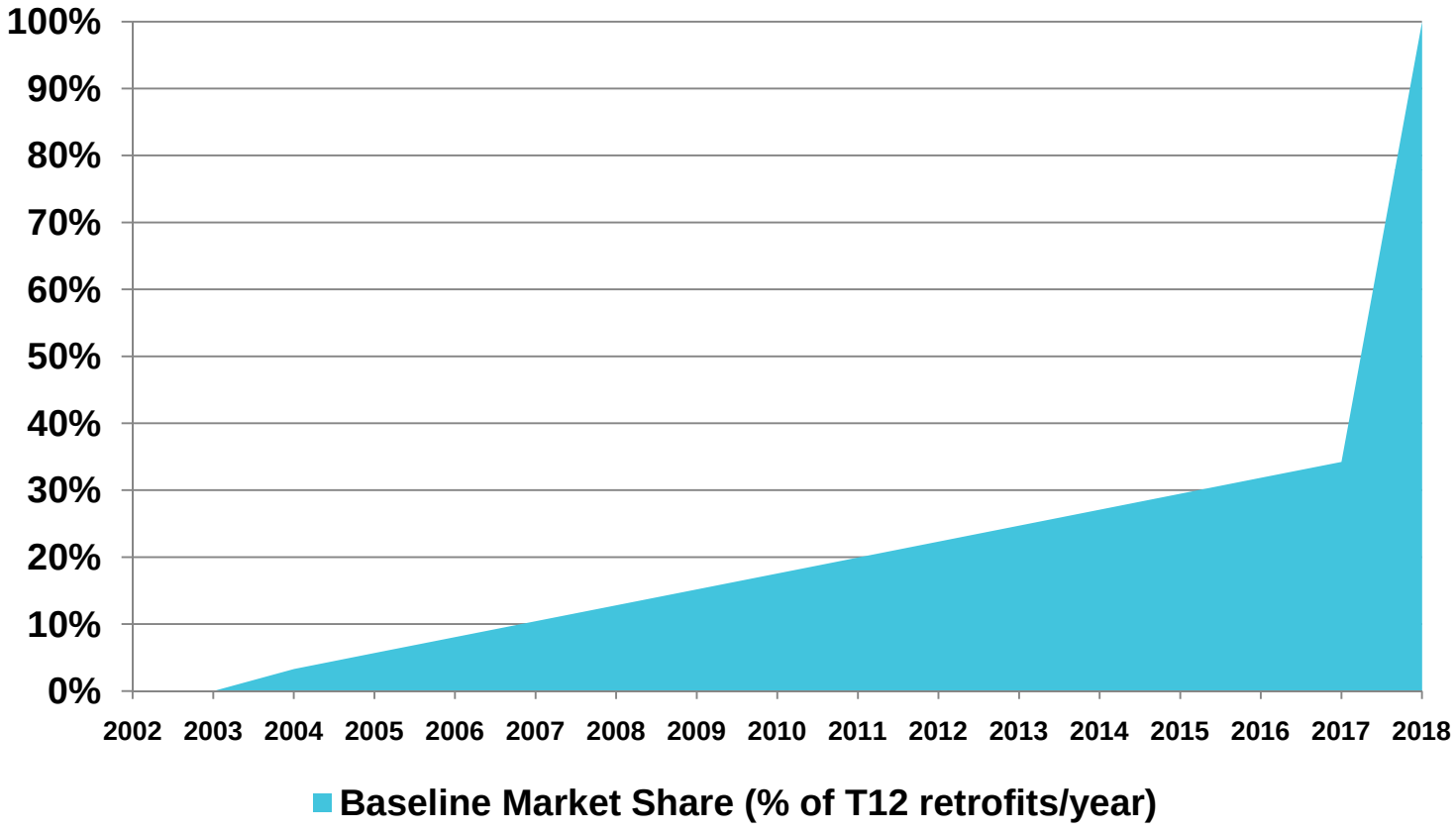
Baseline HPT8 Market Share
(% of T12 retrofits/year)



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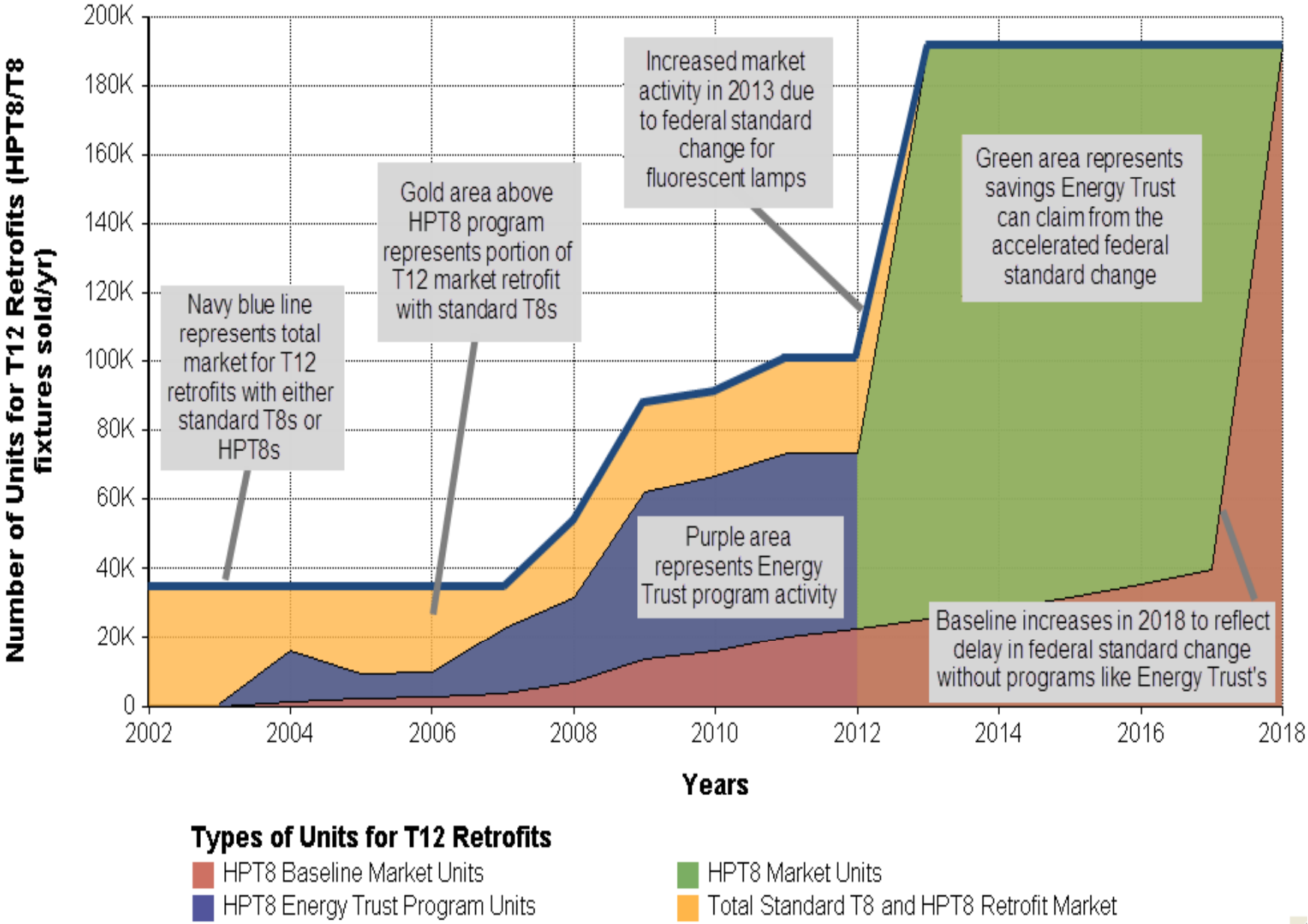
HPT8 MT Model



Timing, Replacement Equipment

- T-12 lamps will be replaced when they burn out over “typical” seven year life.
- Impact starts about six months after manufacturing standard as stocks dwindle.
- Replacement will be a code-compliant T-12 lamp or better.
- ETO will influence the stock that turns over in the years 2013-17.

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MT Savings in aMW

Year	Baseline	T12 Retrofit Market	MT Savings
2013	0.6	4.4	3.7
2014	0.7	4.4	3.7
2015	0.8	4.4	3.6
2016	0.8	4.4	3.5
2017	0.9	4.4	3.5

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