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Overview of Energy Efficiency and the IEPR Demand Forecast

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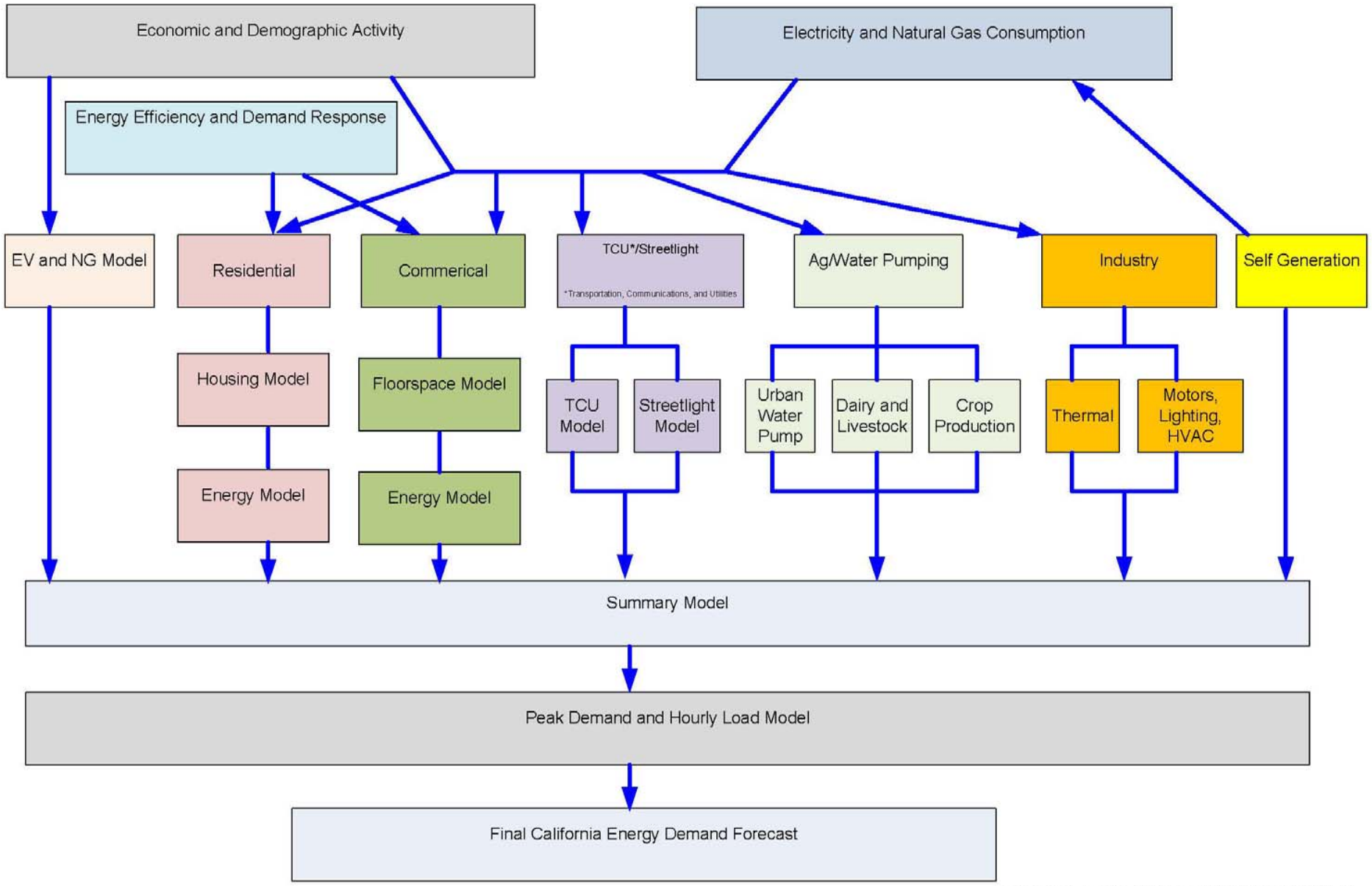
Background: IEPR Demand Forecast

- Forecasts for electricity consumption and peak, natural gas consumption, self-generation
- Forecasts generated by sector
  - Residential
  - Commercial
  - Industrial
  - Agriculture and water pumping
  - Transportation, communications, and utilities
  - Street lighting
  - On-road transportation
- 8 Planning areas and 20 forecast zones

California Energy Demand Model System



G:\ANDREA\Data Collection 2014 BCP\Training\California Energy Demand Model System.pdf

Efficiency Impacts Incorporated within *Baseline* IEPR Forecast

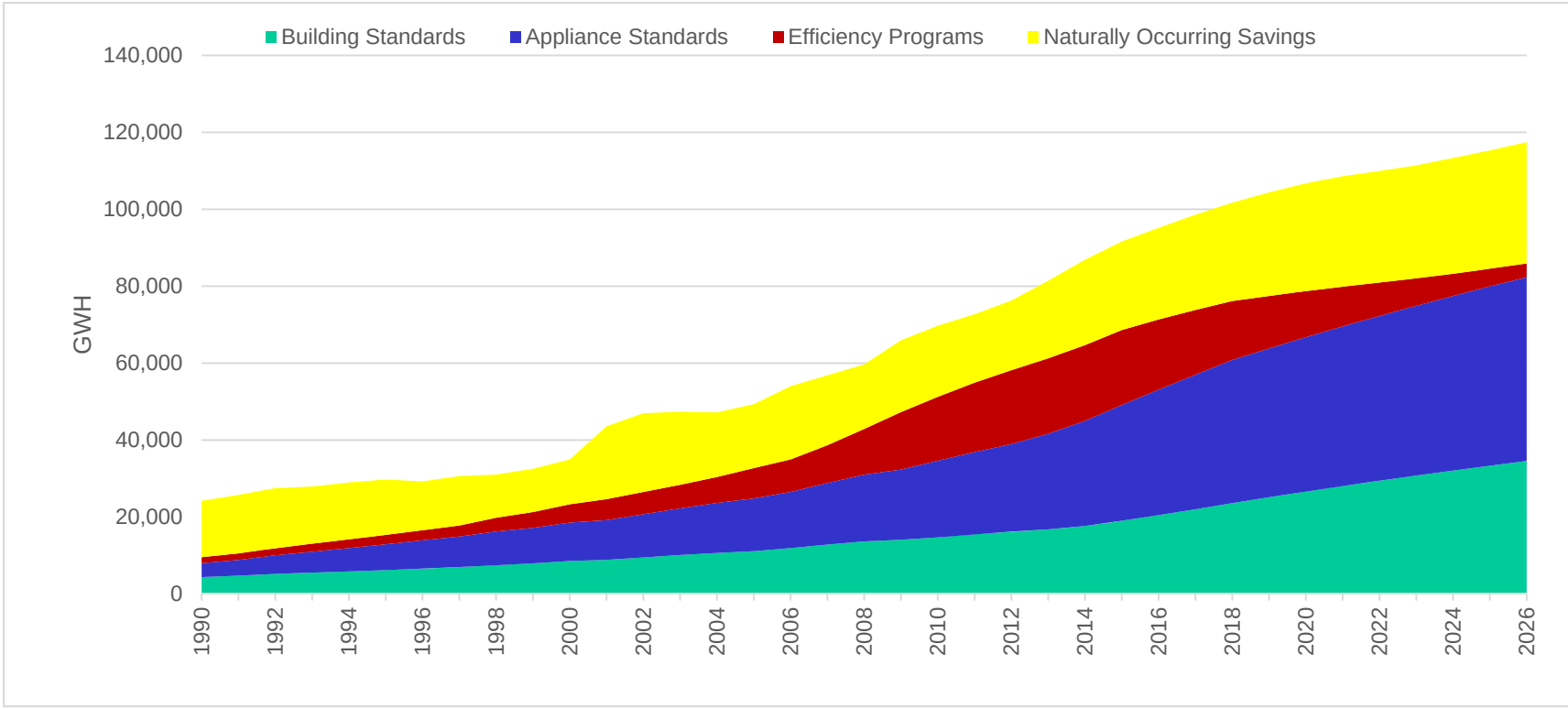
- Implemented or approved building codes and appliance standards
  - From 1975 forward
  - Based on impact analyses from Efficiency Division
  - Incorporated directly in end-use models for residential and commercial sectors through changes in consumption at the end-use level

Efficiency Impacts Incorporated within *Baseline* IEPR Forecast

- Utility programs approved and funded
  - Ex-ante reported or ex-post evaluated estimates, depending on availability
  - Currently post-processed by adjusting sector results
- Naturally occurring/price effects
  - Based on sector price elasticities

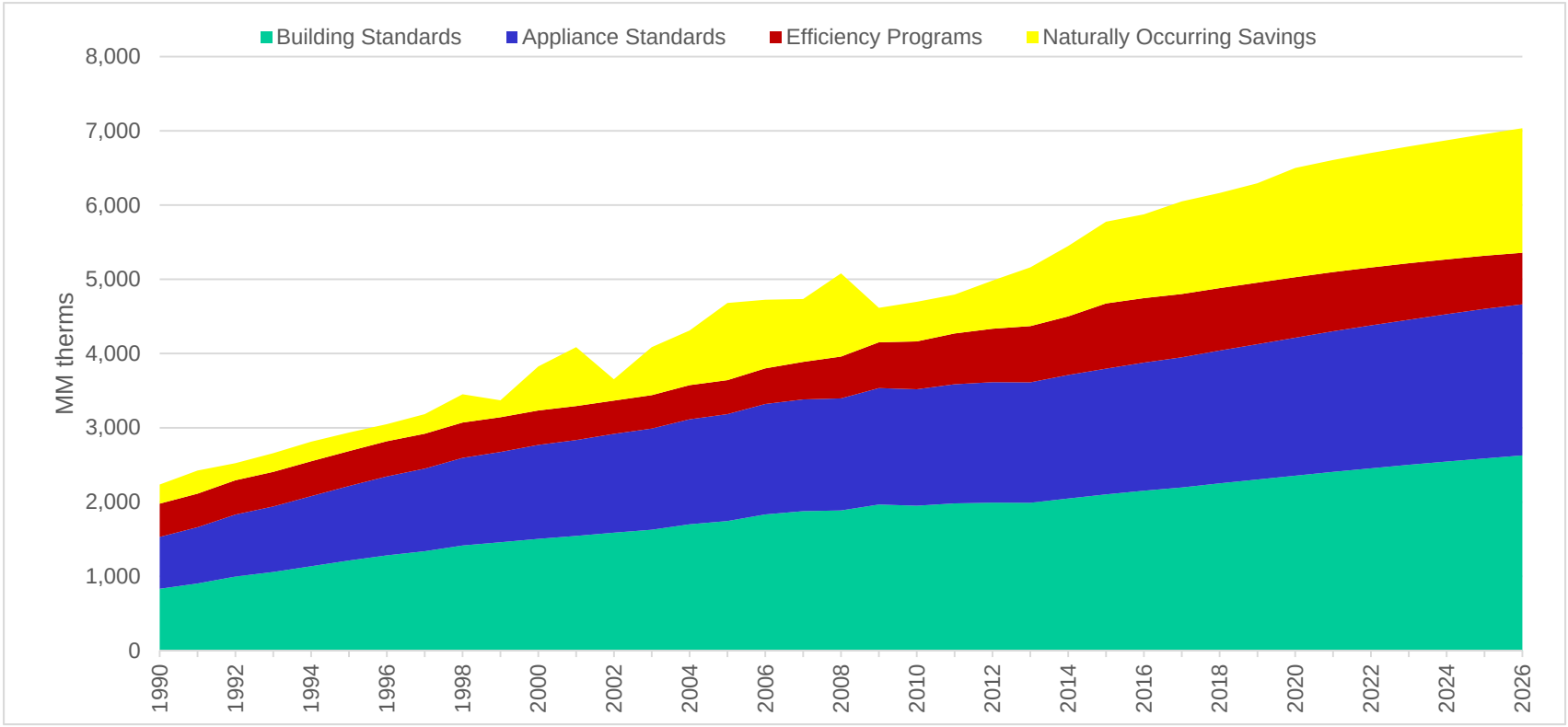
Electricity Efficiency by Category, 2015 IEPR Baseline Forecast (Mid Case)

~ 92,000 GWH in 2015



Natural Gas Efficiency by Category, 2015 IEPR Baseline Forecast (Mid Case)

~ 6,000 MM Therms in 2015

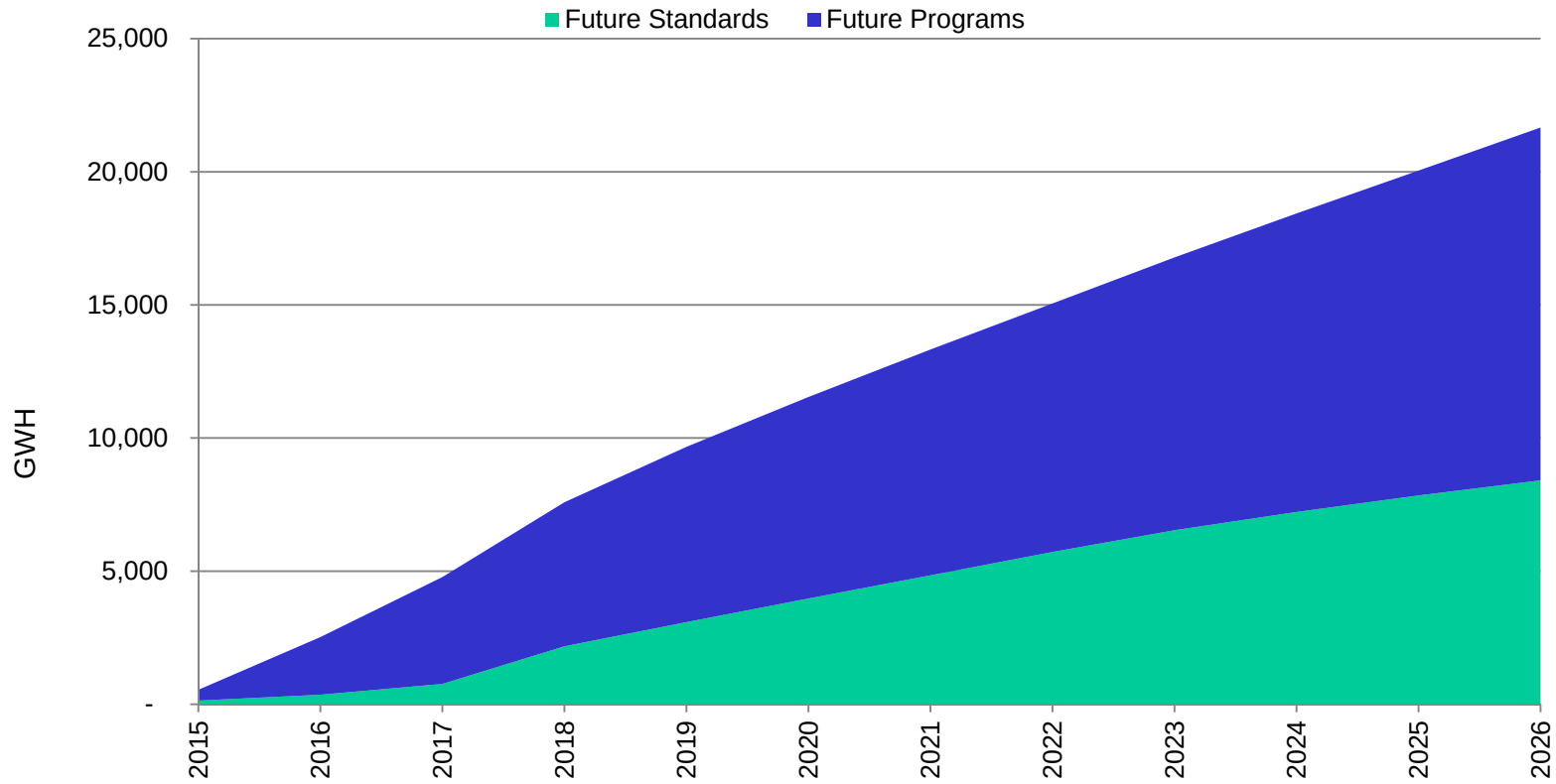


Additional Achievable Energy Efficiency

- Incremental to “committed” savings in baseline forecast
- Expected net savings from future programs and codes and standards
- For IOUs, based on CPUC Potential and Goals Studies
- For POUs, based on utility planning forecasts

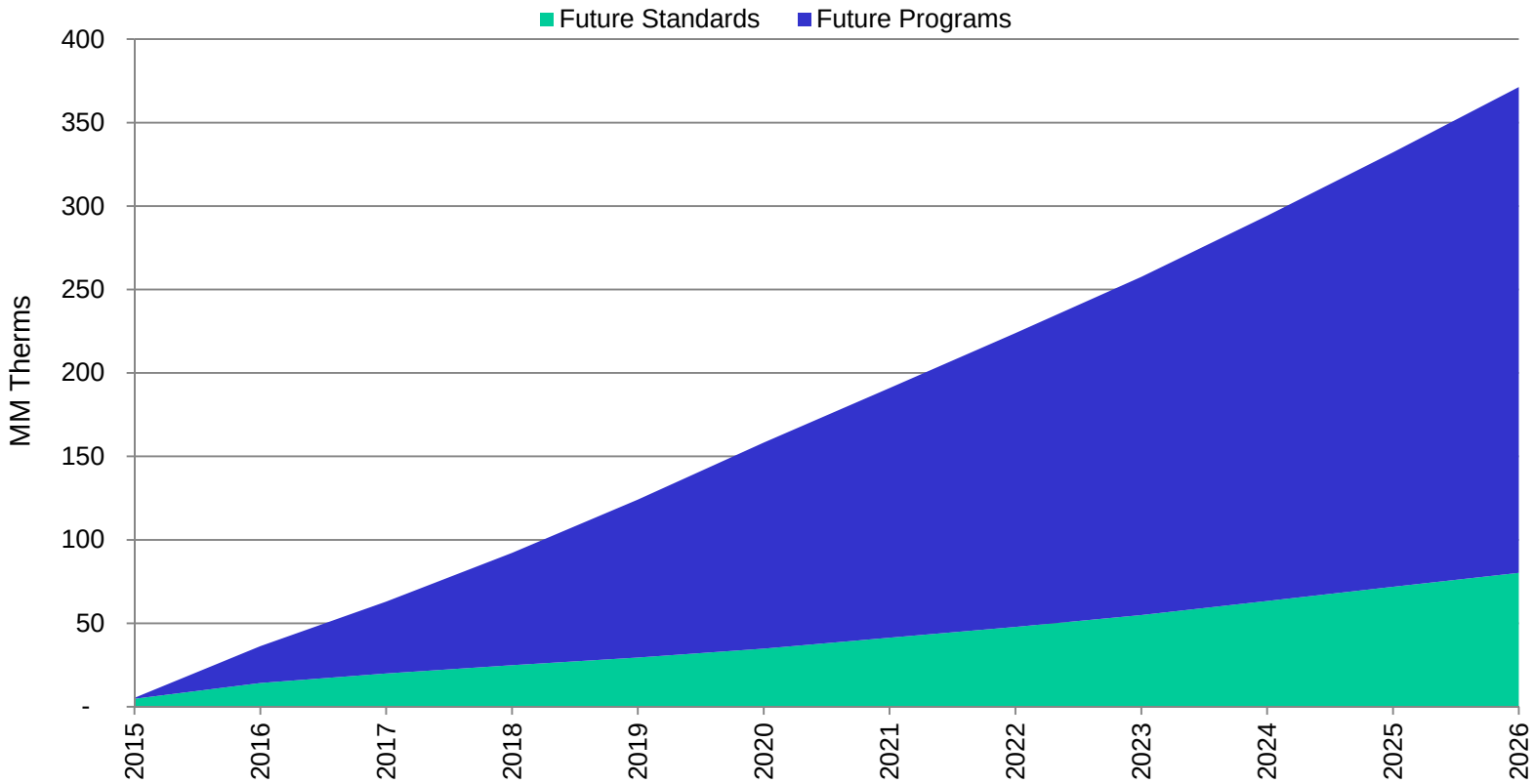
AAEE Electricity Savings

2015 IEPR Forecast, Mid-Mid Scenario



AAEE Natural Gas Savings

2015 IEPR Forecast, Mid-Mid Scenario



Issues in Measuring and Attributing Energy Efficiency Savings

- Baseline savings categories estimated separately; likely to be some double counting and/or overlap
  - For example, if rate increase induces participation in program, could have savings attributed to both program and price effect categories
  - When actual equipment baseline not up to code, above-code program savings understated (and standards savings overstated)

Issues in Measuring and Attributing Energy Efficiency Savings

- Standards and program savings based on "ground up" engineering analyses rather than direct measurement of consumption changes
  - Could be missing significant rebound effect
- Decay rates for program savings
- Compliance rates
- Other naturally occurring savings, market transformation