



Orange & Rockland

Why and How to Perform a Market Potential Study?

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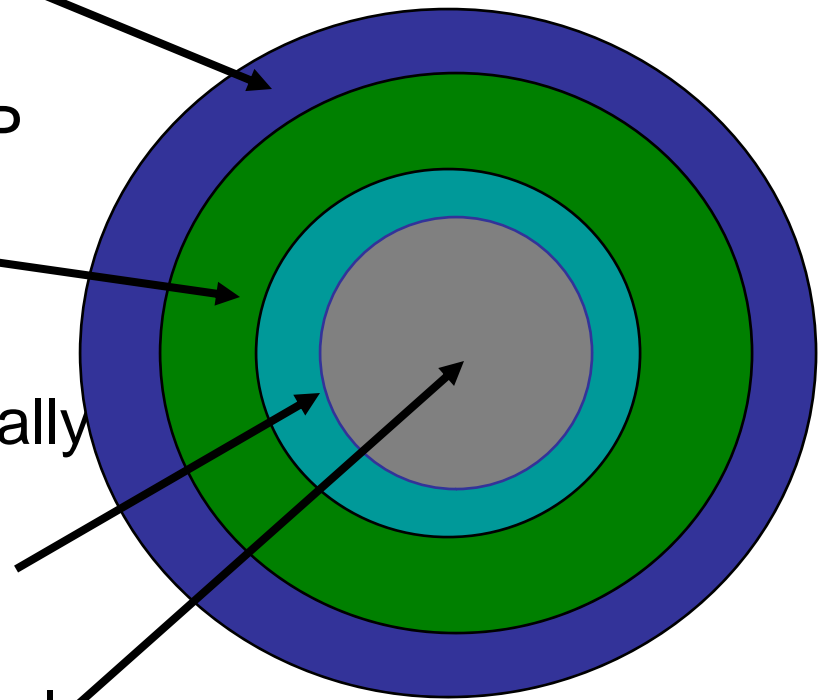
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What is a Market Potential Study?

- Assessment of the realistic potential for energy efficiency and demand reduction in a geographic area
- Identification of the potential savings by energy end-use and market segment
- Quantification of energy efficiency as a resource compared to supply side alternatives

Potential Study Definitions

- **Technical Potential:** theoretical maximum regardless of constraints or cost effectiveness
- **Economic Potential:** subset of TP that is cost effective compared to supply side alternatives
- **Achievable Potential:** amount of energy efficiency that can realistically be achieved assuming the most aggressive program
- **Program Potential:** achievable potential given specific funding levels and design criteria



Residential Lighting Example



Potential Households

\times



Bulbs per House

=



Total # Bulbs

-



Bulbs Already Efficient

=



Potential # of Bulbs



Potential # of Bulbs

\times



kW Demand Savings per bulb

=



Total kW reduction

\times



Hours Use

=



Total kWh reduction

Why do a Market Potential Study?

- Utility Integrated Resource Planning
 - Invest prudently to meet growing demand
 - Improve system reliability
- Policy Makers Establish Goals
 - Design programs that maximize savings, minimize budgets, and best address customer needs
 - Identify achievable goals
 - Design effective performance incentives which are achievable
 - Validate or refute imposed goals

How O&R Performed a MP Study

1. Retained Optimal Energy
2. Identified baseline forecast by market segment
3. Collected on-site data
4. Characterized measures found in segments
5. Quantified energy and demand savings by measure
6. Determined measure costs
7. Developed time differentiated avoided costs
8. Screened for cost effectiveness

Data Collection

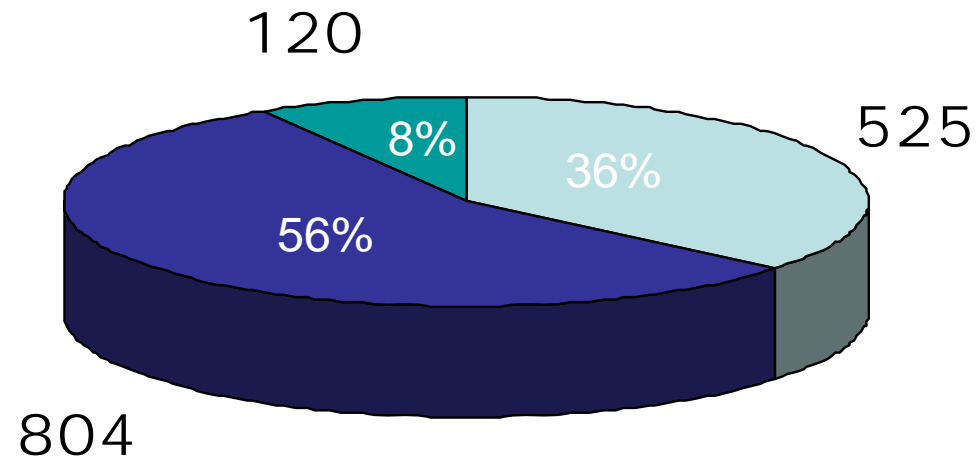
- Performed On-Site Audits
- Analyzed NYISO Zonal Avoided Costs
 - Avoided Energy and Capacity – market prices
 - Avoided T&D
- Estimated measure costs and lives

10 Year Economic Potential

- 27% energy reduction from 2018 forecast
- 36% reduction from 2018 forecast peak summer demand
- Total avoided costs benefits of \$2.4 billion
- Total economic replacement costs over \$800 million
- Net Benefits of \$1.6 billion
- Benefit / Cost Ratio of 2.9

Economic Potential Results

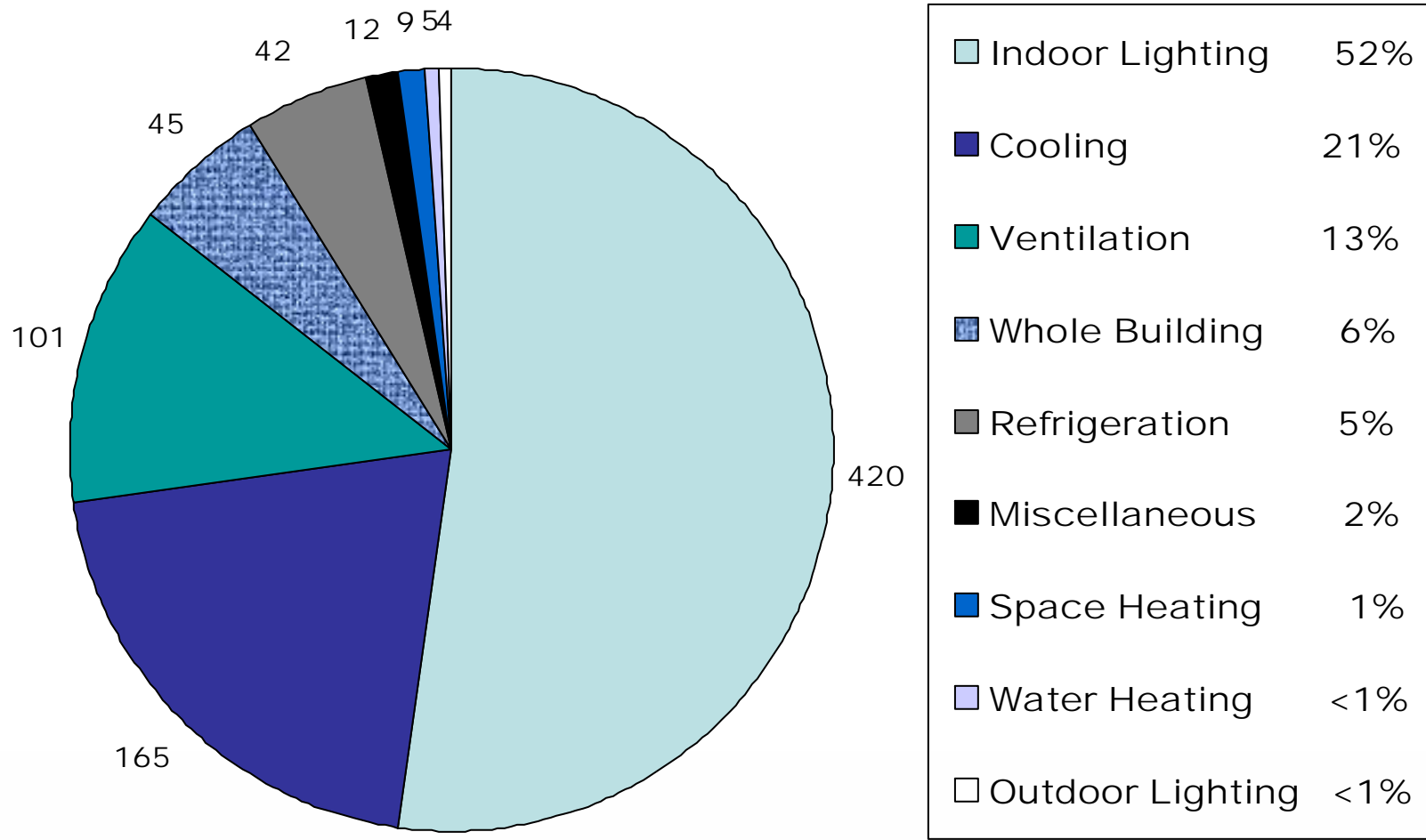
Energy Savings Potential (GWH)



■ Residential ■ Commercial ■ Industrial

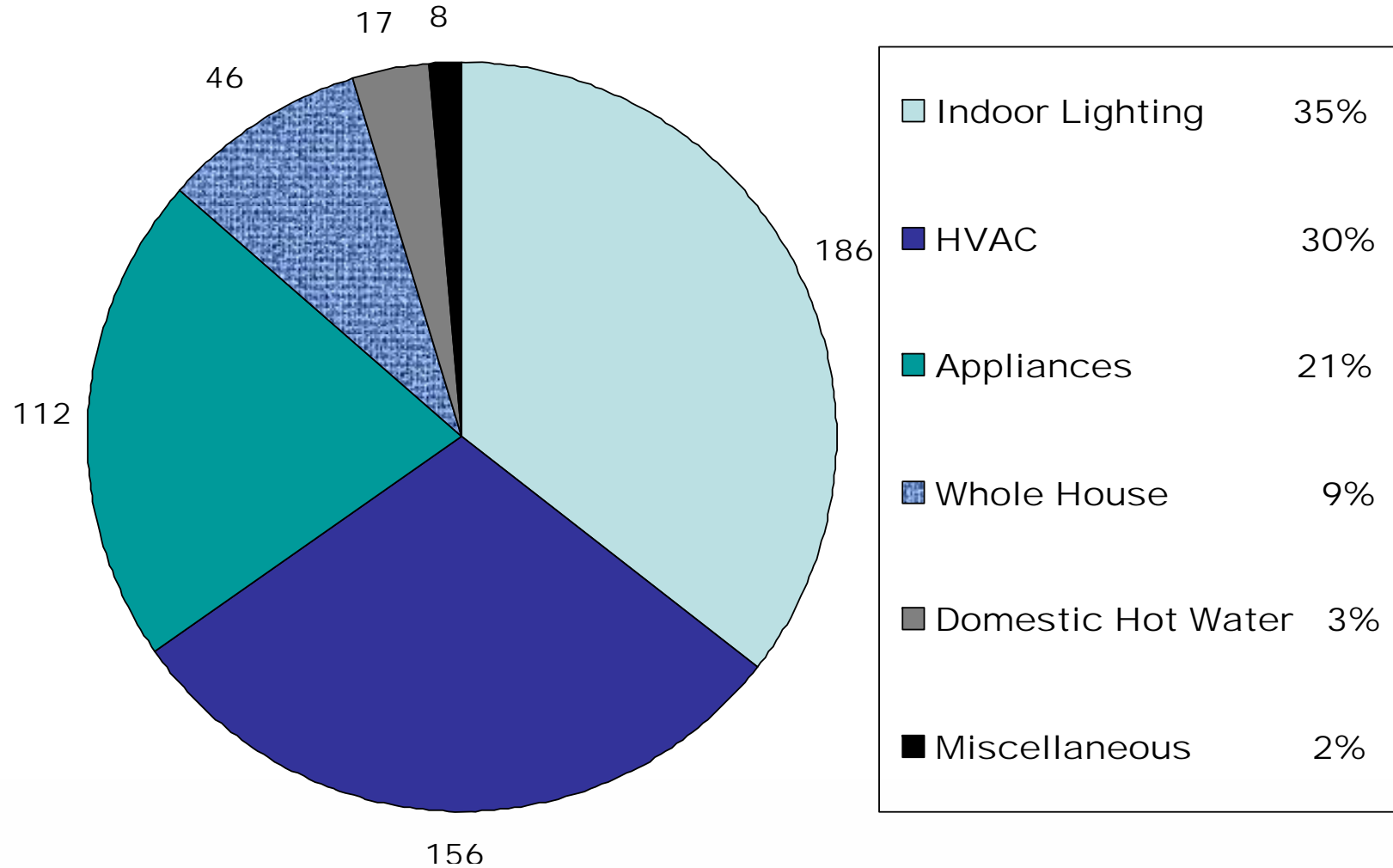
Economic Commercial Results

Energy Savings by End-Use (GWH)



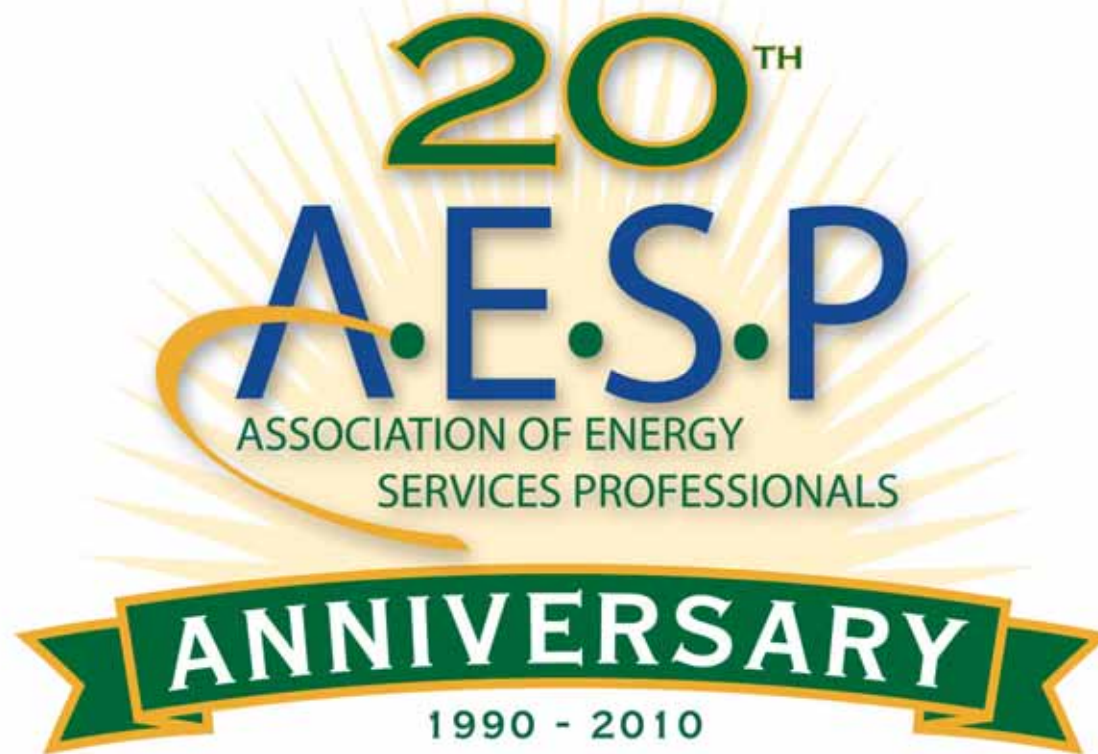
Economic Residential Results

Energy Savings by End-Use (GWH)



Conclusion

- MP Study is essential to:
 - Inform utility integrated resource planning process
 - Maximize performance to enable effective incentive design
 - Design programs that target end-uses with greatest potential
- Primary on-site data collection recommended to develop an accurate baseline
- Avoided Cost Sensitivity
 - Main driver of cost effectiveness and will increase or decrease potential accordingly
- Codes and Standards Impact
 - Increases in C&S will increase baseline and decrease potential



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