



ONTARIO POWER AUTHORITY

March 31, 2009



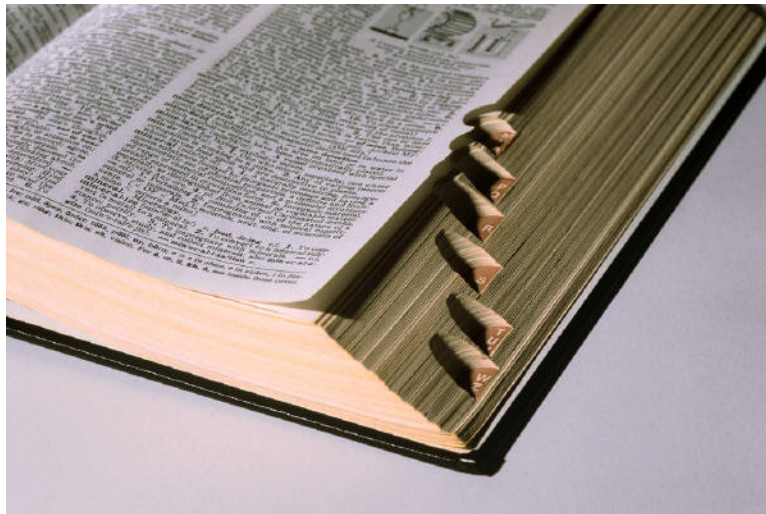
Linking Programs with Codes: Long-Term Conservation Planning at the OPA

Julia McNally, Manager

Introduction

- Ontario Power Authority
- Canadian & Ontario Codes Context
- Long Term Planning
 - Starting Point
 - Plan development process
 - Plan Overview
- Conclusions

OPA Terminology



- **Conservation = Demand Side Management**
- **Conservation includes:**
 - **Energy efficiency**
 - **Demand response/conservation behaviour**
 - **Self-generation**
 - **Fuel switching**

The Ontario Power Authority Mandate



- Created as an independent authority by the provincial government in 2005
- Mandate is to ensure reliable, long-term electricity supply for Ontario
- Three key areas of focus:
 - Power system planning
 - Procurement of supply resources
 - Procurement of conservation resources
- 80 percent of current generation capacity to be replaced within 20 years

Integrated Power System Plan

- A road map for Ontario's electricity future
- Has a 20-year outlook, updated every three years
- Four key results:
 1. Growth in demand is reduced by 75 percent through conservation.
 2. Coal is replaced in the supply mix with renewable energy and natural gas.
 3. Nuclear power is restored through refurbishments and new builds.
 4. Transmission is reinforced for reliable service and to connect renewable energy to population centres.

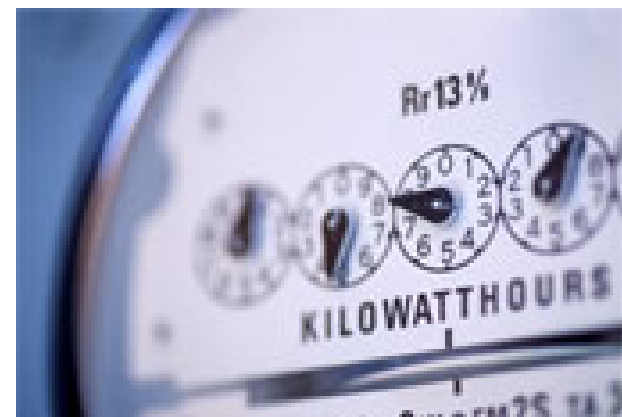


- **Conservation**
 - **\$10 billion to be invested in conservation**
 - **Culture of Conservation**
 - **6300 MW conservation by 2025**
 - **Directive to accelerate achievement of goal**



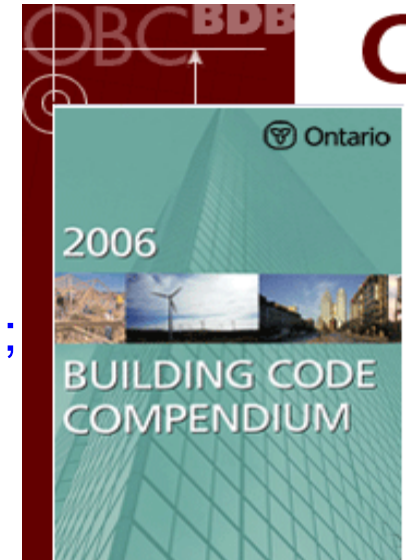
OPA & Conservation

- **Broad & Evolving Role**
 - Planning & Portfolio Management
 - Emerging technology support
 - Program design
 - Support & influence regulatory activity
 - Manage evaluation
- **Work with partners in Market to deliver programs**
- **Funding**
 - Global adjustment mechanism



Ontario Building Code

- Building Code Act, 1992
 - ANSI/ASHRAE/IESNA 90.1-2004 and Supplementary Standard SB-10, or
 - CCBFC, “Model National Energy Code for Buildings” and Supplementary Standard SB-10
- Code Logistics
 - 5 year update cycle;
 - lead by Ministry of Municipal Affairs and Housing;
 - Stakeholder participation; and
 - enforced by municipalities
- 2012 OBC to be 25% better than MNECB 1997



Federal Model National Energy Code for Building

- Current version updated MNECB, 1997
- Lead by Canadian Commission on Buildings and Fire Codes,
 - with input from federal and provincial government, NRC and utilities
 - 5 year cycle
- Ontario is only province to adopt
- In process of being updated
 - 2011 completion date
 - Aim for an objective based format



Proposed Green Energy and Green Economy Act

- Purpose to foster the growth of renewable energy projects and conservation in Ontario
- Amends the Building Code Act, 1992
 - Code improvements for energy every five years
 - Creation of a code energy efficiency advisory committee
- Also,
 - Creates mandatory DSM targets for local utilities
 - Mandatory labelling/audits for buildings
 - Increase renewable and community energy



Long Term Plan Starting Point: IPSP

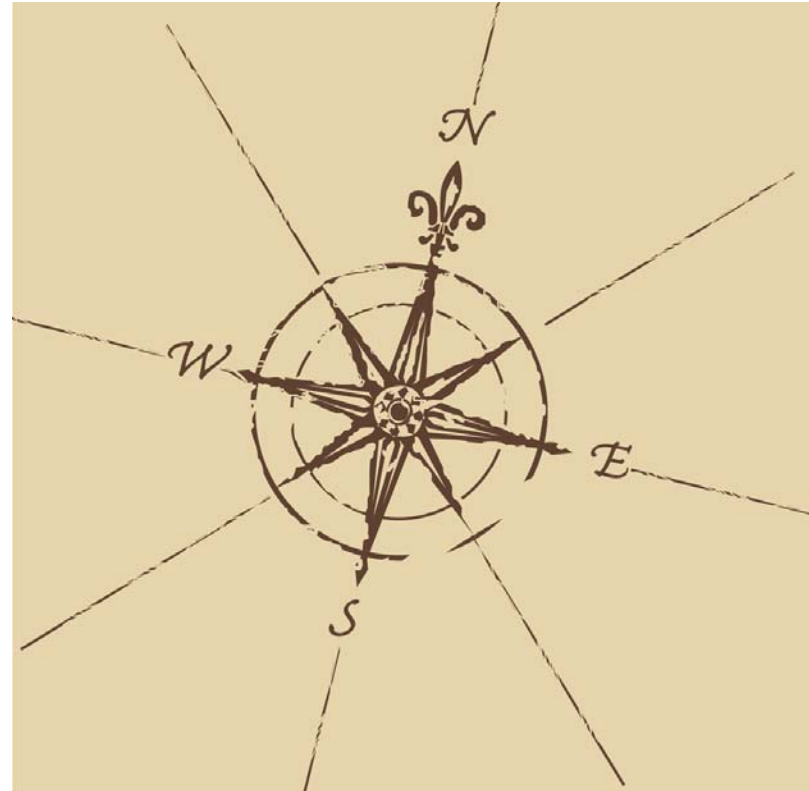
- IPSP Identifies resources by sector and strategy
 - Short term Resource Acquisition
 - Long term Market Transformation
- 2007-2010 portfolio primarily Resource Acquisition



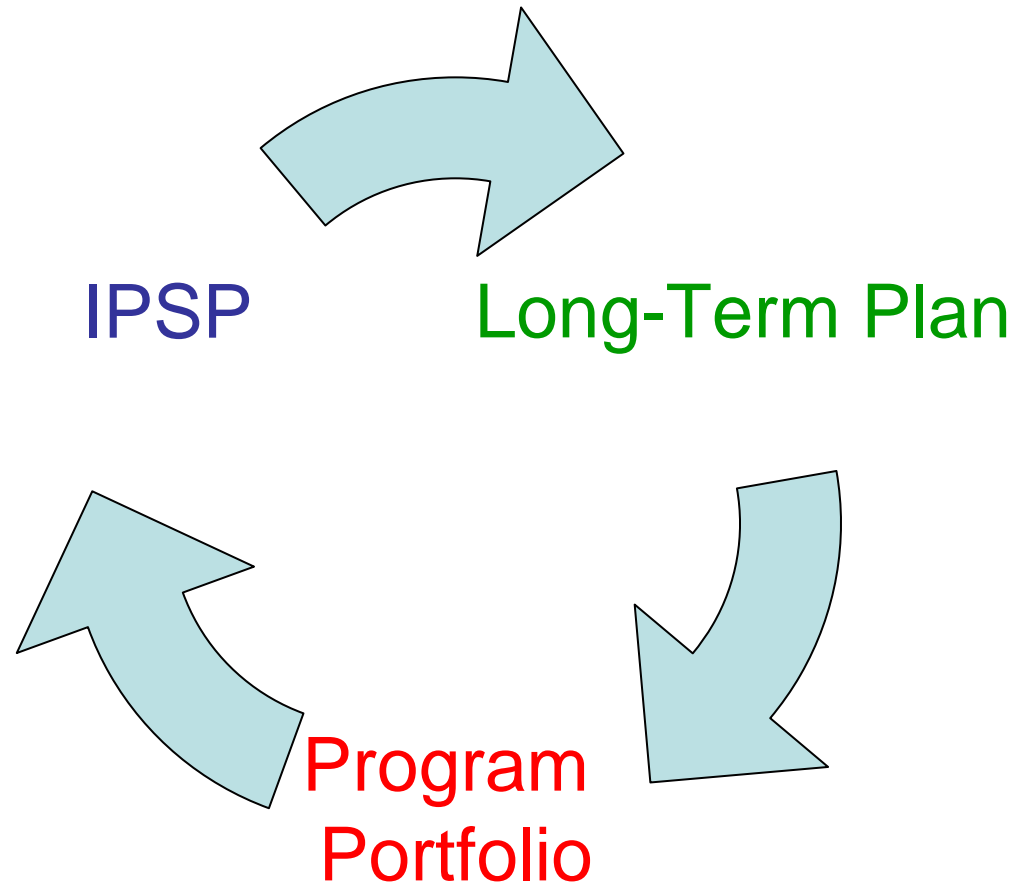
**Challenge: How do we realise the
commitment to a
transformed market?**

NEW Long Term Planning Process

- Plan will
 - Define market transformation objectives; what the world will look like
 - Identify codes and standards & estimate impact
 - Align current activity with codes & standards
 - Identify new OPA activity to support market transformation
 - Define targets
 - Cover all sectors

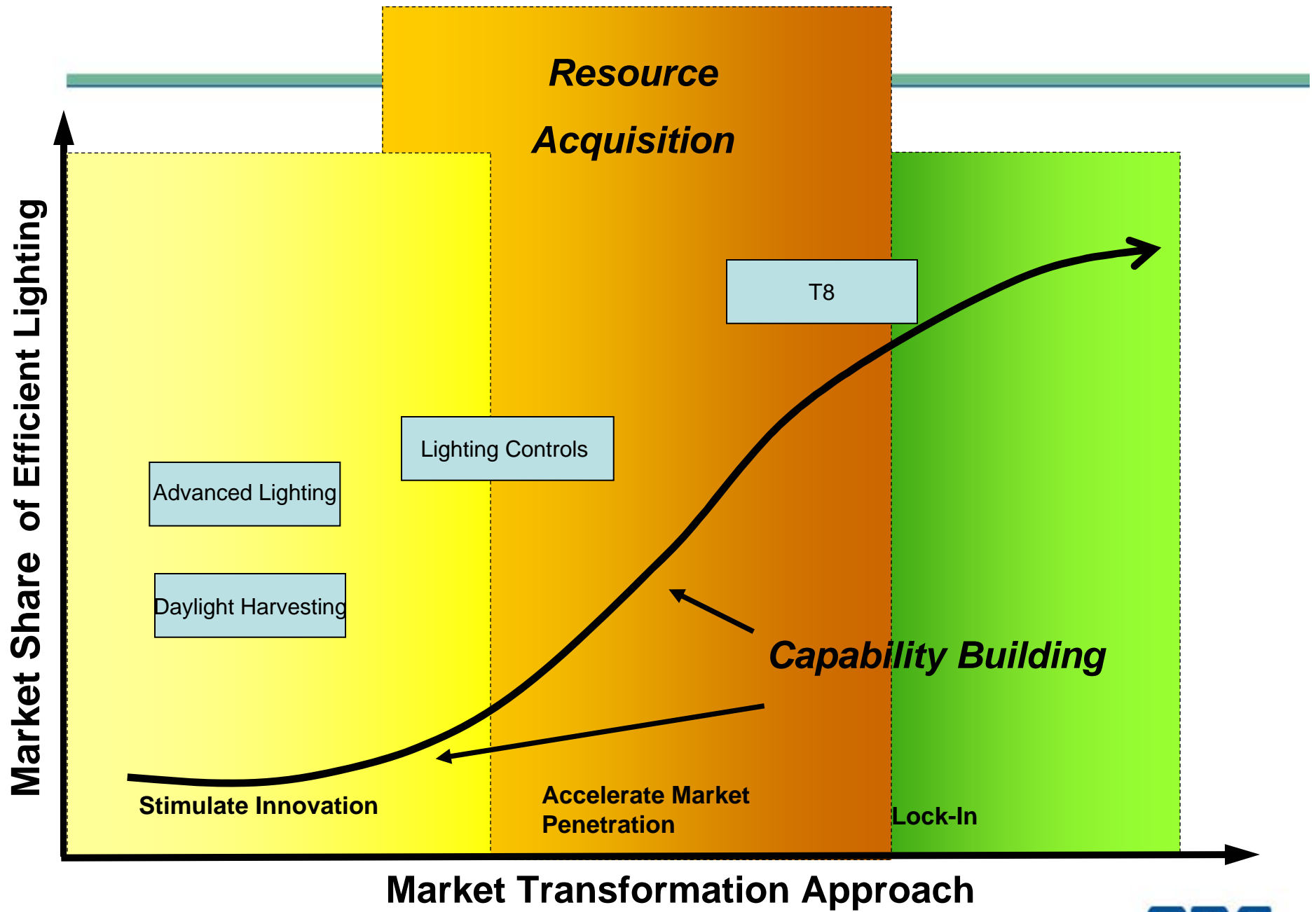


Role in the Planning Cycle



Development Process

- Starting point: IPSP and related consultation process
- Supplemented with research re strategy and potential of various policy tools
- Consultation within the OPA
- Seek input of the government
- Seek input of stakeholders as part of broader OPA consultation



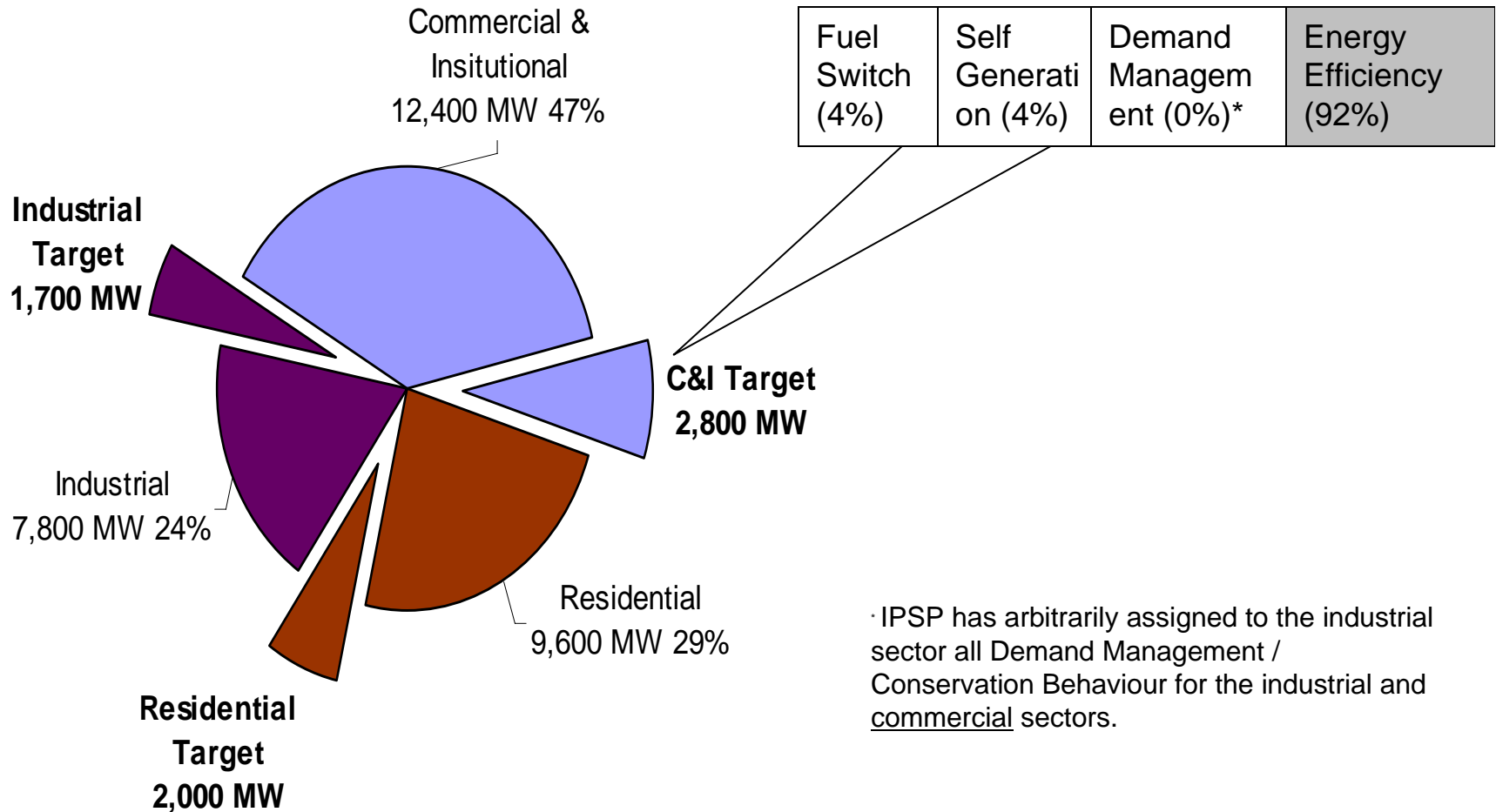
Tools in the Long Term Plan

- The Long Term Plan relies on full spectrum of tools to reduced or eliminate barriers:
 - Incentives
 - Information
 - Capability building
 - Emerging technology
 - Time of use prices
 - Codes & standards



Commercial & Institutional Potential: 2800MW

· IPSP identifies the potential for all sectors.
 Long term Plan builds on this potential



· IPSP has arbitrarily assigned to the industrial sector all Demand Management / Conservation Behaviour for the industrial and commercial sectors.

Assessment of Commercial Sector

To guide the Plan, we begin with an assessment of the sector. Key points include:

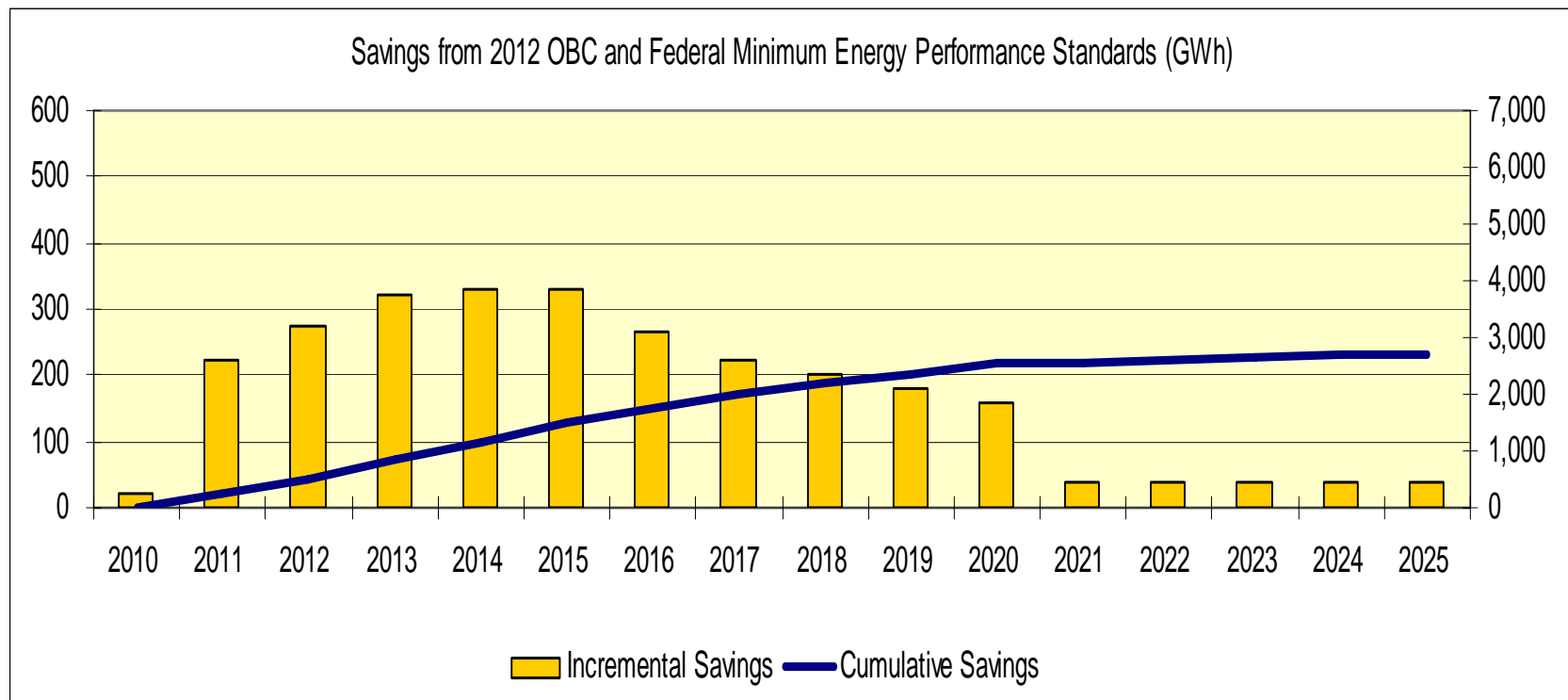
- Electricity demand rising faster than floor space growth
- Efficient equipment and envelope not enough; need an integrated approach to design and maintenance, smart systems and self-generation
- There is no silver policy bullet for this complex sector.

2025 Commercial MT Objectives

- **30% electricity intensity improvement over 2005 levels**
- **Buildings EFFICIENT, SMART and INTEGRATED,**
- **Buildings are efficiently managed, and regularly re-commissioned.**
- **Supply chain is able to deliver energy efficiency needs of this sector, including design, operation retrofit and commissioning.**

Currently Planned Codes & Standards

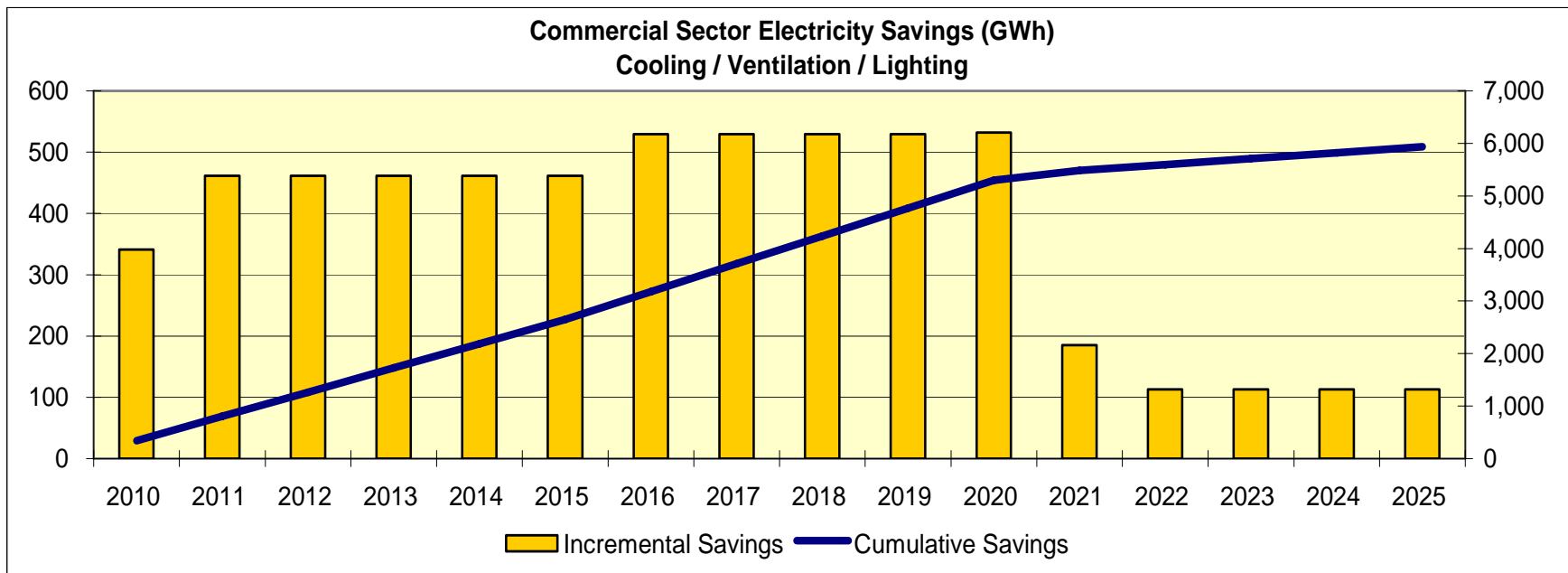
- Plan begins by identifying currently planned changes to codes and standards and estimating their impact



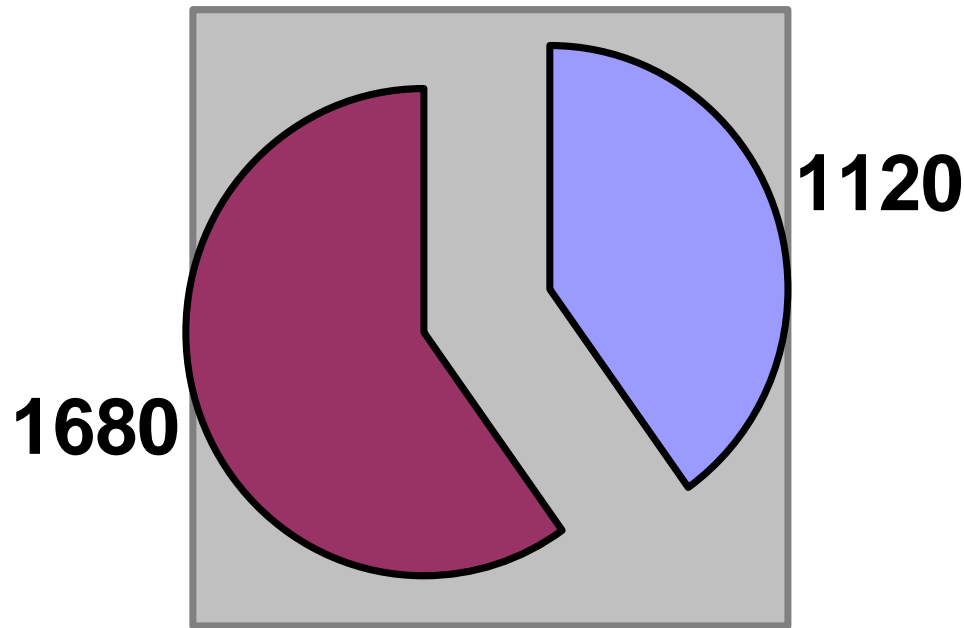
Aggressive Codes & Standards Scenario

- Next, Plan models the savings that could be generated by a more aggressive codes and standards scenario; guided by ASHRAE changes

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Cumulative Savings	341	803	1,264	1,726	2,187	2,649	3,179	3,708	4,238	4,767	5,300	5,485	5,598	5,711	5,824	5,937
Incremental Savings	341	462	462	462	462	462	530	530	530	530	532	185	113	113	113	113



Attribution of commercial Savings in 2025 in MW

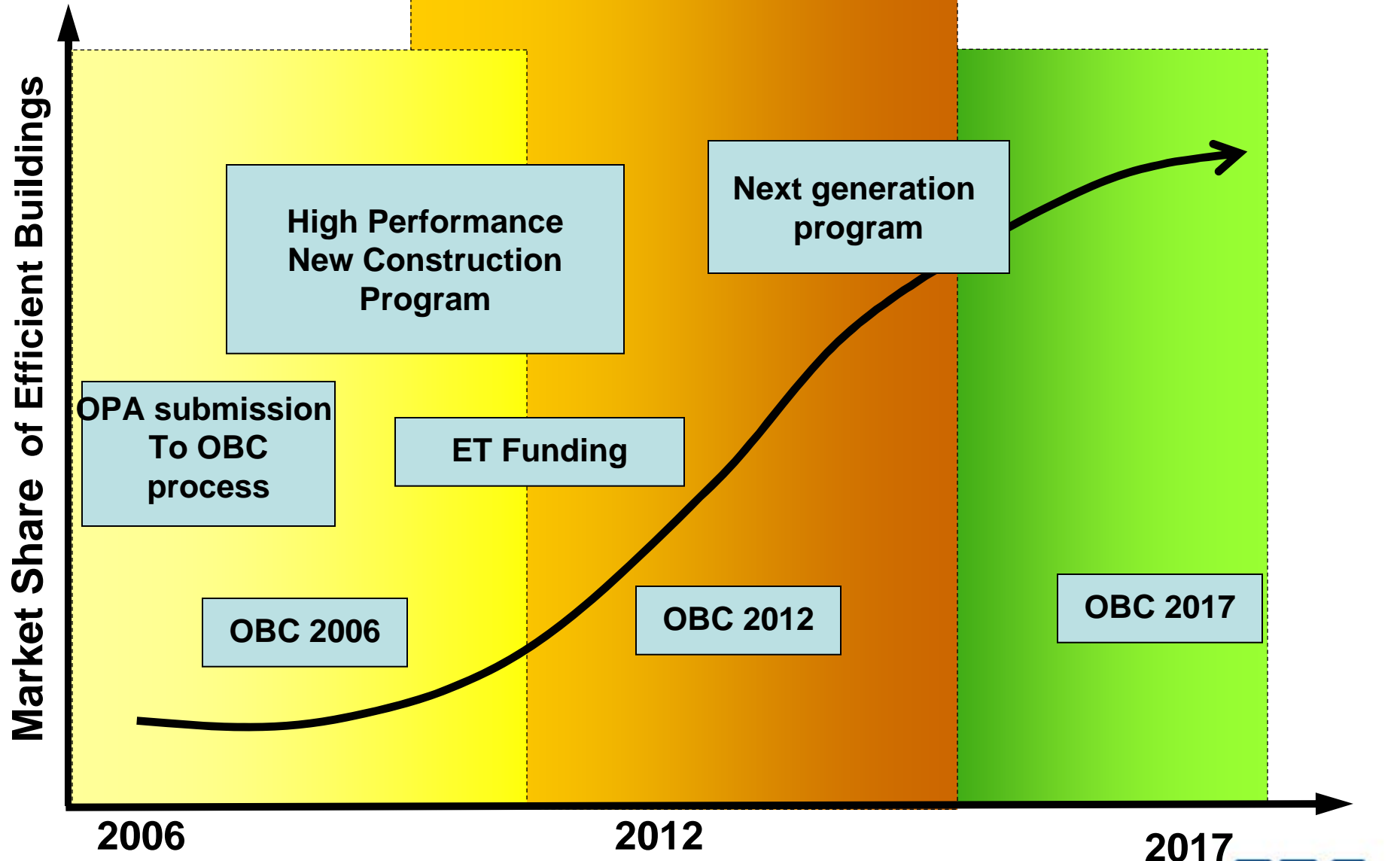


- C&I savings from programs
- C&I savings from C&S

OPA Implementation Plans

- Plan identifies programs and activities to enable market transformation and support codes & standards:
 - **Innovate**, fund emerging technologies
 - **Accelerate**, incentive, information, support programs and other tools for customers and supply chain
 - **Lock-in**, research, standards development, market transformation collaboration to support the regulatory process
- Three time periods: 2009-2010, 2011-2013, 2014 and beyond

Linking Programs to Codes



Targets for New Building Performance

The plan identifies targets for performance of new buildings; these guide OPA activity and help evaluate efforts

Year	Overall energy consumption reduction	Electricity reduction
2012	25%	30-35%
2017	35%	40-45%
2022	40%	50-55%
2025	45%	

Targets for Existing Building Performance

The plan identifies targets for performance of existing buildings; these guide OPA activity and help evaluate efforts

Years	Improvement of Average Performance over 2005 Building Performance
2012	10%
2017	15%
2022	20%
2025	25%

Preliminary Conclusions

- Power in being able to look at long term and big picture
 - Align and coordinate activity to increase productivity and better support Code development;
 - Understand the impact of Codes to determine role for programs, and when to develop program exit strategy

Contact Information

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