Electricity, Conservation and the Conservation Bureau

National Advisory Council on Energy Efficiency
27th Meeting

Peter Love
Chief Energy Conservation Officer
Conservation Bureau
March 24, 2006

FOUR KEY MESSAGES

- Large investments in electricity system and broad public debate required
- Many benefits of Conservation and Demand Management
- Role of the Chief Energy Conservation Officer and the Conservation Bureau
- Our Conservation Challenge

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ONTARIO'S ELECTRICITY CHALLENGE

- 25,000 MW (80% current capacity) going out of service by 2025
- Potential investment of $70 billion likely required
- Status quo not an option

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BENEFITS OF CONSERVATION AND DEMAND MANAGEMENT

- Cost effective (households/public sector reinvest savings, private sector more competitive)
- Economic benefits (labour intensive, local employment)
- Take advantage of low cost of capital
- Environmental/health benefits (GHG, acid rain, smog, siting)
- Resource conservation (natural gas non-renewable high value feedstock)
- Improved system reliability

CONSERVATION BUREAU

- Established in 2005 to provide leadership in planning and coordination of measures for electricity conservation and load management initiatives

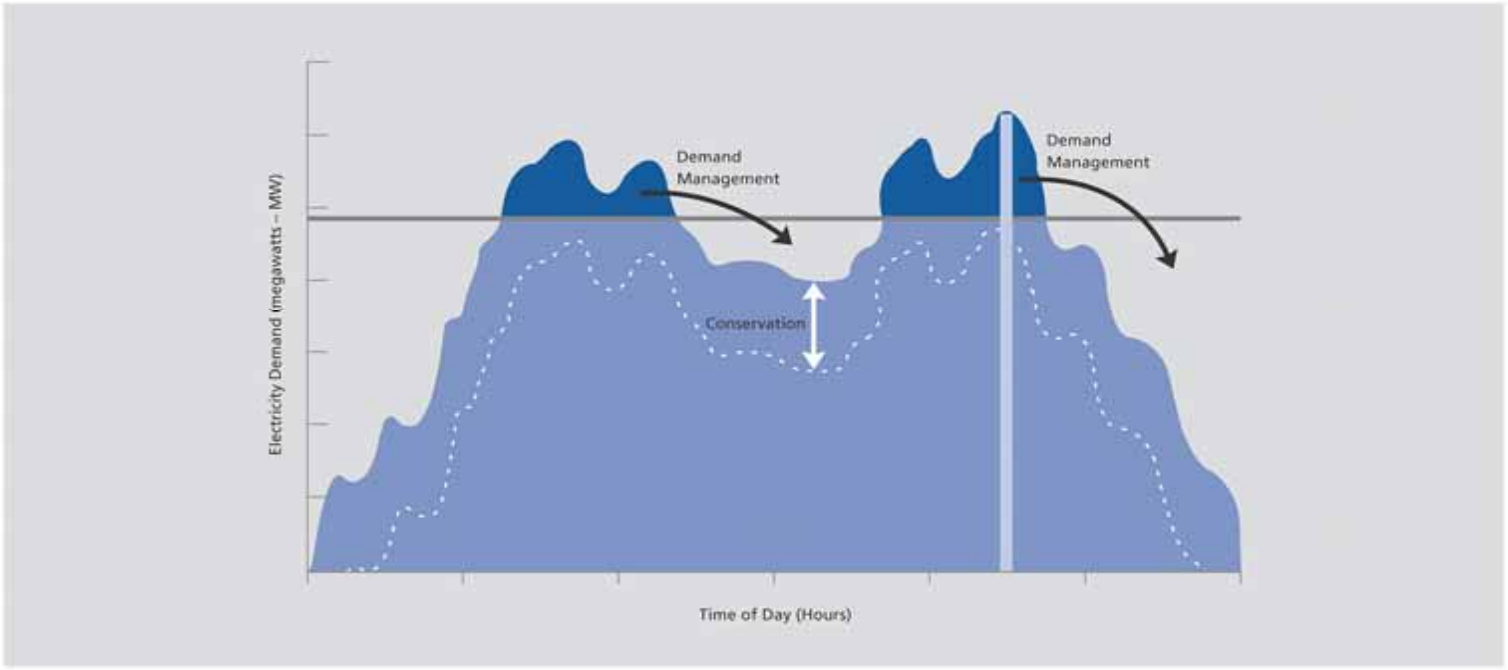
- Bureau is a division of the Ontario Power Authority (the "OPA"), a corporation without share capital created under the Electricity Act

- OPA is responsible for ensuring an adequate, long-term supply of electricity in Ontario – this includes the integration of generation development, power system planning, and electricity sector development, in addition to the Conservation Bureau

CONSERVATION AND DEMAND MANAGEMENT

Figure 2

Components of Conservation and Demand Management



Source: Conservation Bureau, 2005[3]

Conservation – Reduces consumption and demand at all times
Demand Management – Shifts load from peak to off-peak hours

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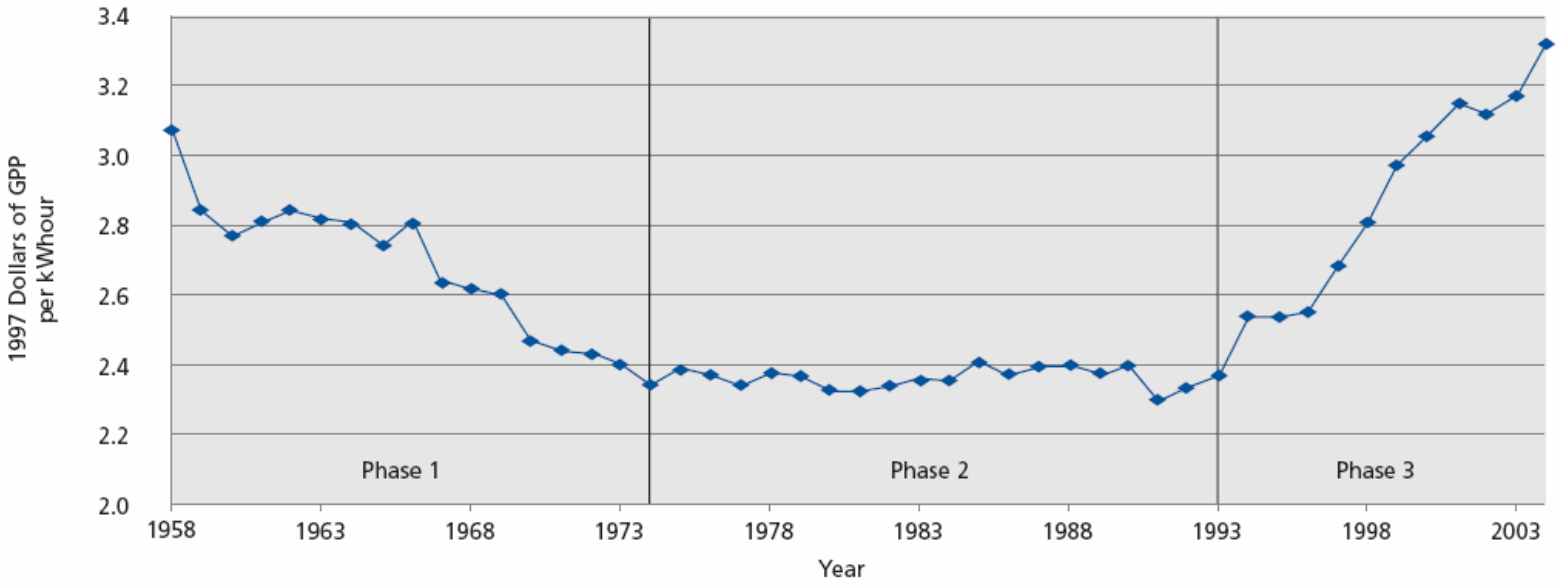
ELECTRICITY PRODUCTIVITY IN ONTARIO: 1958-2004



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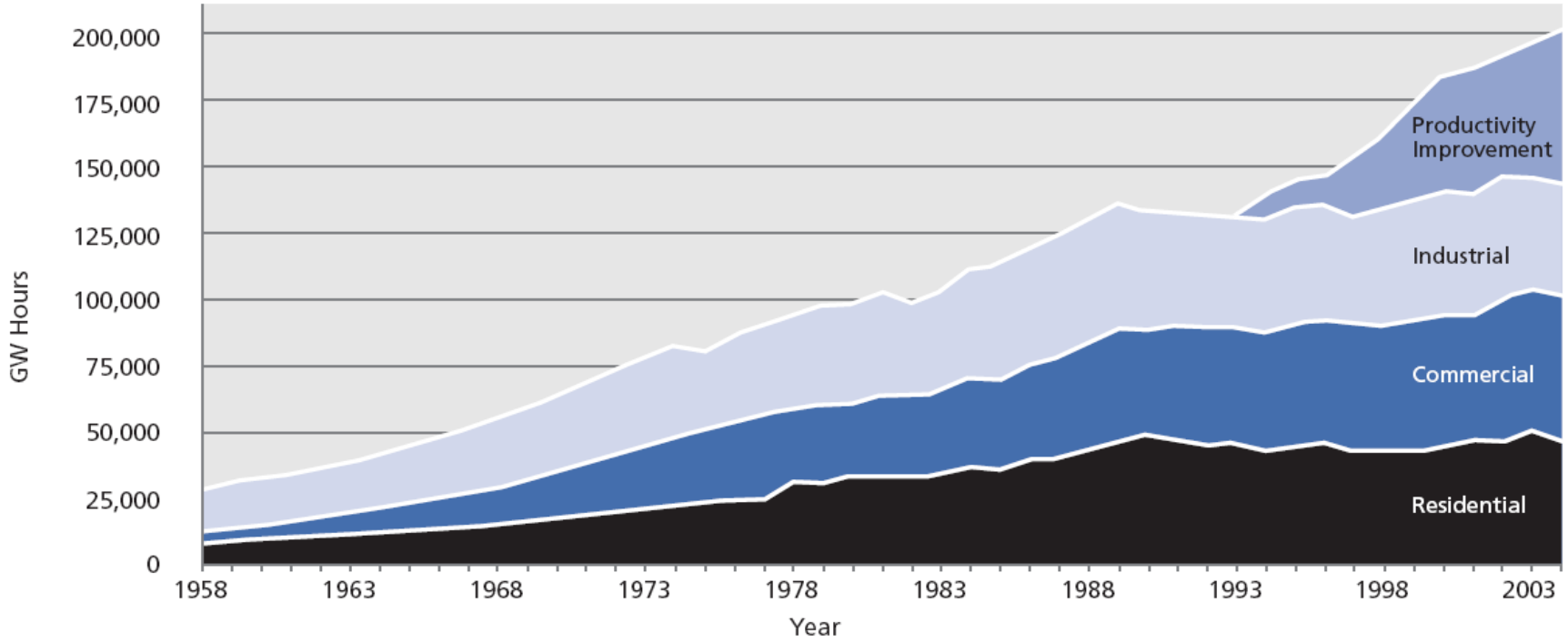
ELECTRICITY CONSUMPTION BY SECTOR WITH IMPACT OF PRODUCTIVITY IMPROVEMENT



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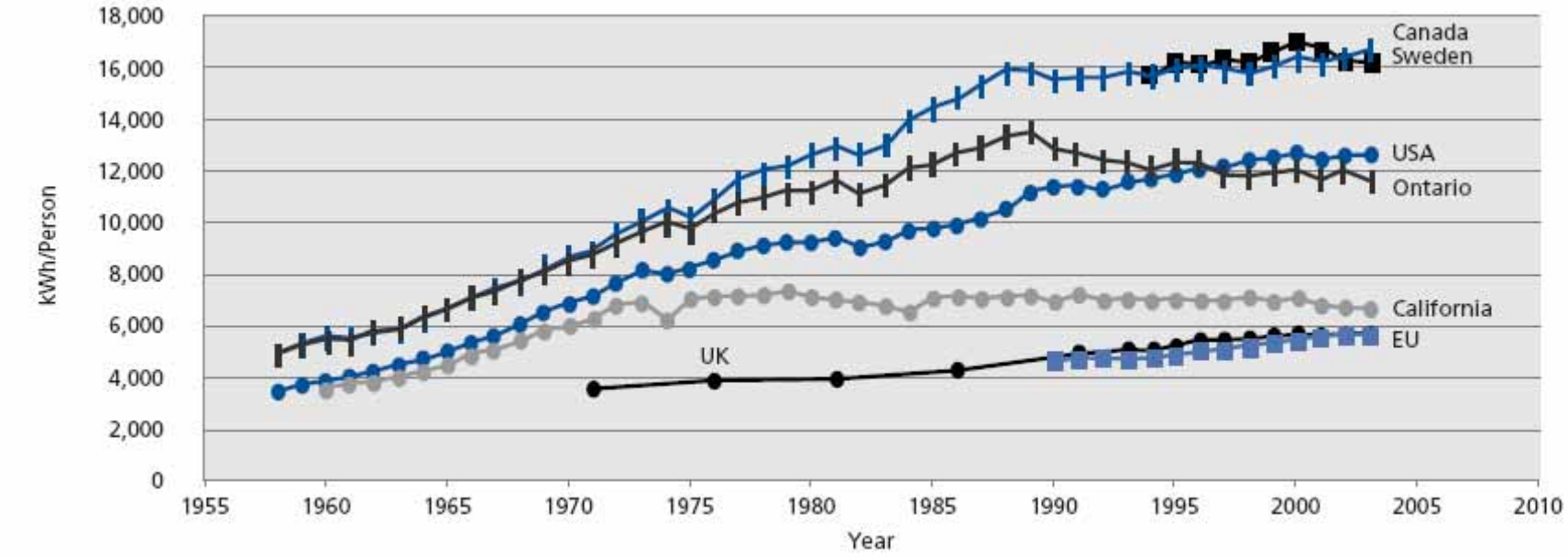
PER CAPITA ELECTRICITY CONSUMPTION



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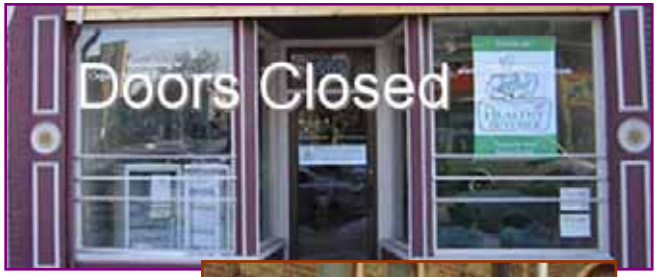
SUCCESS STORIES

- Reduce the Juice – Shelburne
- Doors Closed Ontario – Conservation Council of Ontario
- Energy Smarts – Clean Air Foundation and Home Depot
- 10MW Demand Response Program – Loblaws
- Energy Drill at Robert Baldwin Public School – Milton Hydro
- Energy Retrofit – Thunder Bay Catholic School Board and Honeywell
- 250MW (5%) Demand Reduction Target – Toronto Hydro
- Power Play Program – INCO
- 10% Target for reduction in electricity consumption – Owens Corning and Roxul



Loblaws

www.loblaws.ca

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MESSAGE FROM CECO

Electricity Conservation Challenge

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CURRENT INITIATIVES

- **Directives:**
  - 1000 MW Combined Heat and Power
  - 500 MW DM / DR
  - 100 MW Low Income / Social Housing
  - 100 MW Lighting / Appliances
  - 300 MW Toronto
  - 150 MW Commercial Buildings/MUSH Sector
  - 150 MW Electrically Heated Houses and Other Residential Upgrades
- **Standard Offer:**
  - Up to 10 MW Renewable
    - $0.11 for wind, biomass, small hydro $0.14.5 for peak)
    - $0.42 for solar photovoltaic
- Conservation Fund & Conservation Awareness Program

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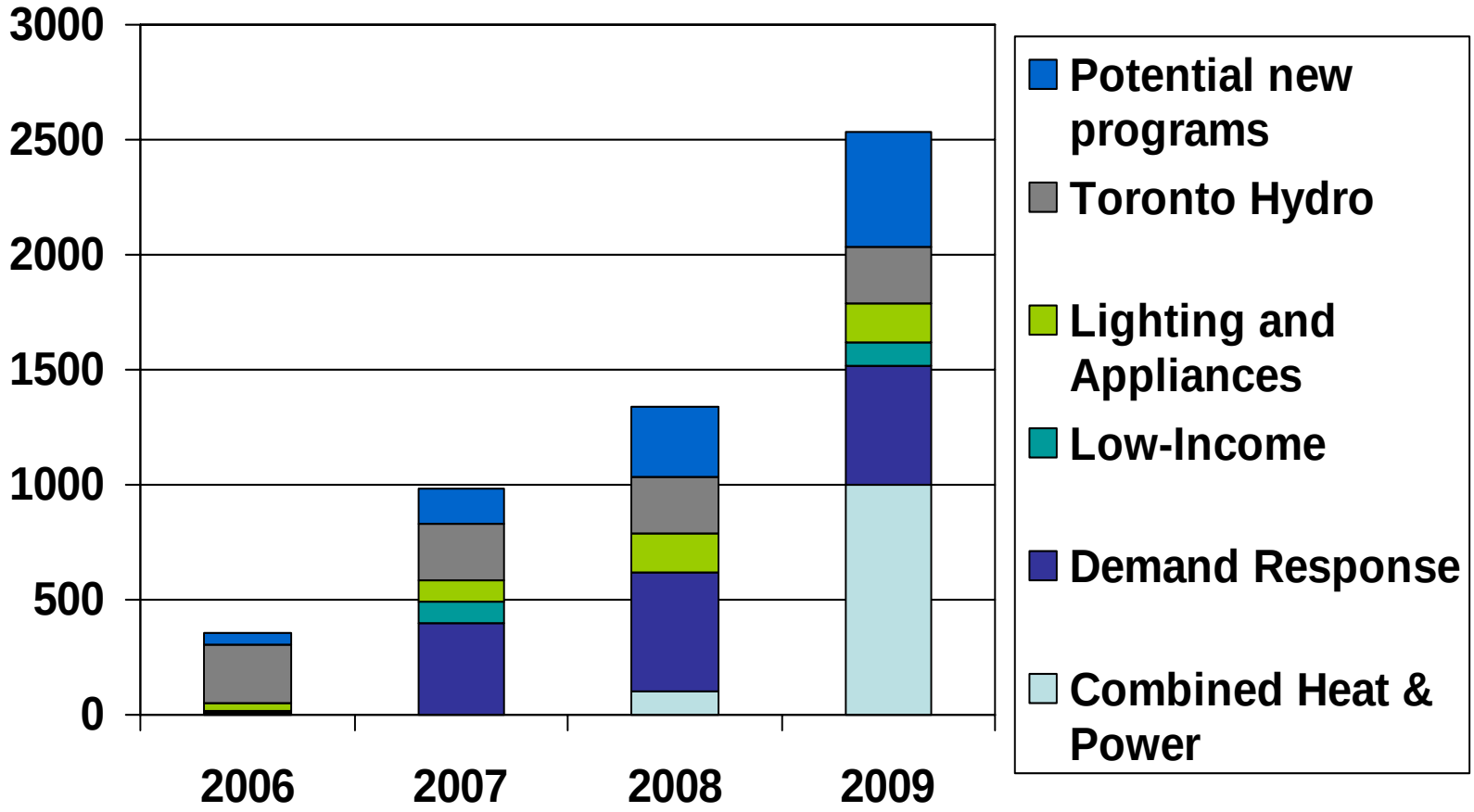
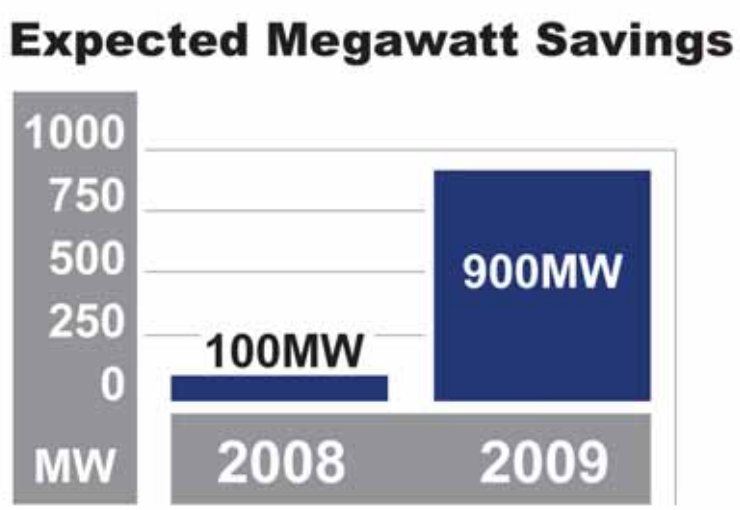
POTENTIAL MW SAVINGS



1,000 MW HIGH EFFICIENCY COMBINED HEAT and POWER PROGRAM

Description

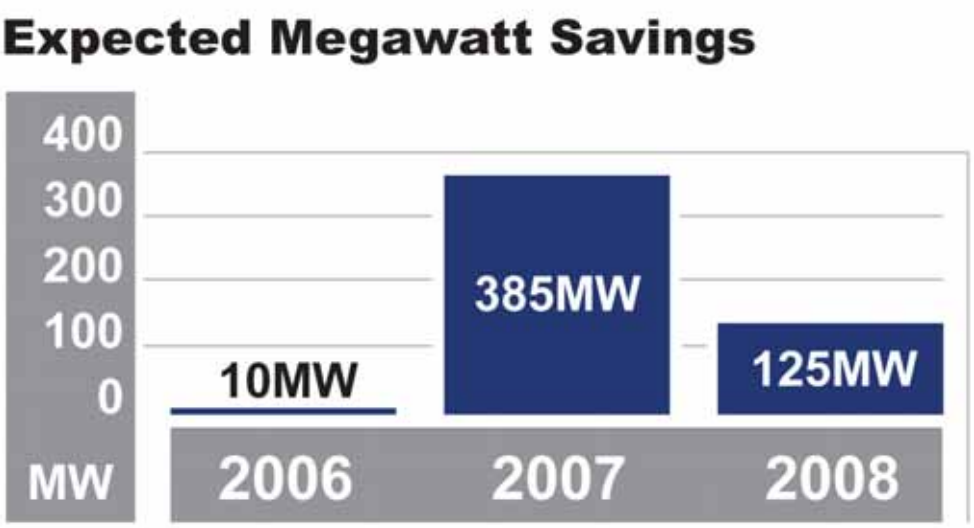
- RFP in 3 streams to maximize range of size and type of project
  - Natural gas-fired and by-product fuel fired industrial cogeneration facilities – 800 MW
  - Renewable fuel-fired industrial cogeneration facilities – 150 MW
  - District energy facilities – 50 MW
- Expect many projects to generate power 'behind the meter', therefore part of Conservation Demand Management



500+ MW DEMAND SIDE MANAGEMENT/DEMAND RESPONSE PROGRAM

Description

- Multiple initiatives
- York Region 20 MW reliability-based Demand Response project
- Province-wide 250 MW economic based Demand Response
- Province-wide 125 MW capacity building Demand Response
- Province-wide 125 MW demand side management



100 MW LOW-INCOME/SOCIAL HOUSING PROGRAM

Description

- Target social housing, private low-income housing and First Nations

3 components

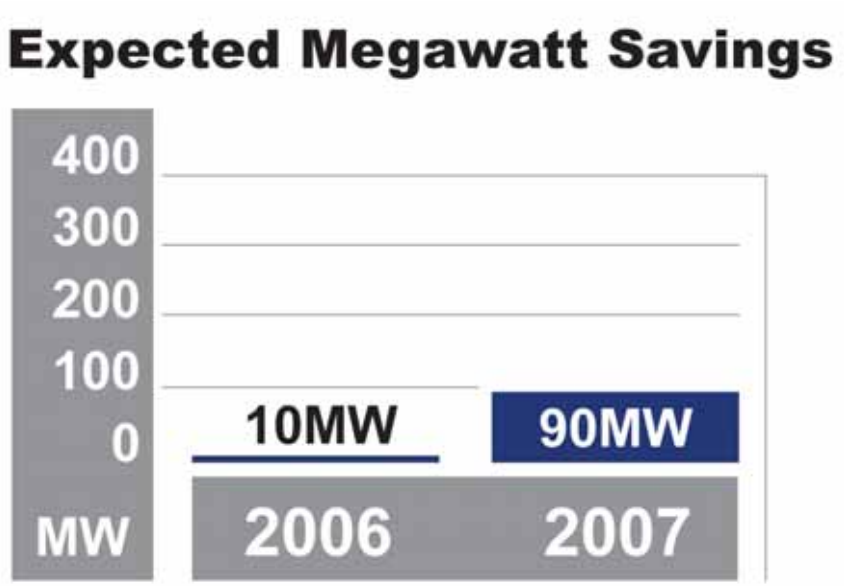
- education
- lighting and appliances
- building envelope upgrades

Financing

- Focus on back-stop financing and grants to fill in existing funding gaps
- Funding options study

Partners

- Social Housing Services Corporation
- First Nations consultant
- Natural Resources Canada
- Canada Mortgage and Housing Corporation



100 MW Appliance and Lighting Program

Description

Residential education and incentive program

- Direct mailing in co-operation with local distribution companies
- Coupons for lights, lighting controls, programmable thermostats and air conditioning tune-ups or replacements
- Education: easy-to-do energy saving tips

Air conditioning maintenance and replacement program

- Train contractors to communicate energy efficiency benefits to customers
- Incentives to tune-up unit, install programmable thermostat and purchase replacement Energy Star rated unit
- Spring 2006 focus on residential central systems; expand to include window and commercial units in 2007

Secondary refrigerator change out program

- Province-wide program
- Expansion of several local distribution company projects
- Consultant hired to develop program concept for implementation

Anticipated Cost

- $70 million

Expected Megawatt Savings

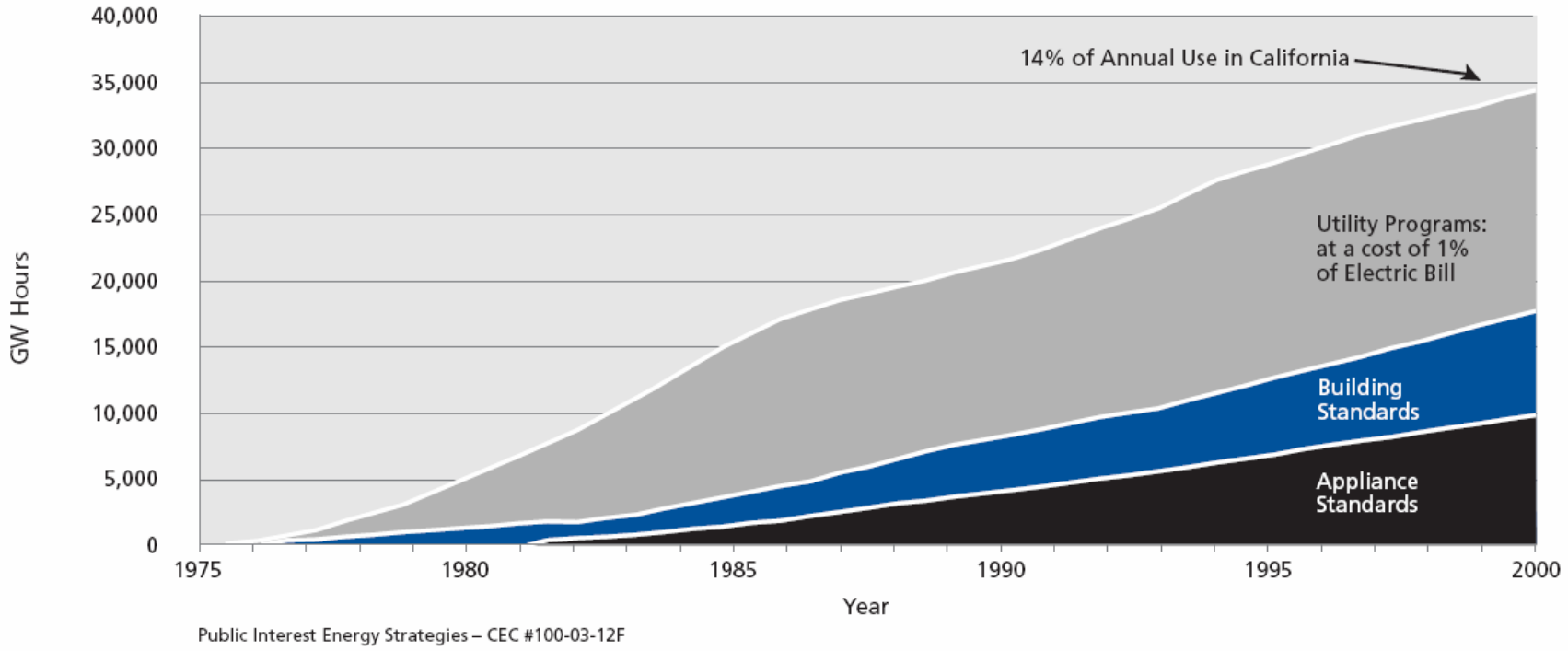
GOVERNMENT INITIATIVES AND TARGETS FOR 2007

- **25 Government initiatives summarized:**
  - Institutional framework
  - Set goals for renewables
- Includes directing OEB to develop plan to install a smart electricity meter in 800,000 Ontario homes by 2007 and in every home by 2010

Government targets for 2007:

- 5% Reduction in weather-adjusted peak demand from 27,000 MW to 25,650 MW by 2007
- 10% Reduction by Provincial Operations by 2007, 66 Million kWh

REDUCTION IN ELECTRICITY CONSUMPTION IN CALIFORNIA



Public Interest Energy Strategies – CEC #100-03-12F

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BUREAU RECOMMENDATIONS

Ontario Energy Efficiency Act

Ontario Building Code

Ontario Fire Code

PST Rebates

Ozone Depleting Substances

Other Barriers

FOUR KEY MESSAGES

- **Large investments in electricity system and broad public debate required**
- **Many benefits of Conservation and Demand Management**
- **Role of the Chief Energy Conservation Officer and the Conservation Bureau**
- **Our Conservation Challenge**

2007 Targets:

- **5% reduction in peak electricity demand**
- **10% reduction in electricity consumption**

Long-Term Target:

- **Create a conservation culture**

Q & A

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