



# Using Indicators to Support National Energy Efficiency Policy

Chuck Spelay, Natural Resources Canada

Office of Energy Efficiency

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Natural Resources  
Canada

Ressources naturelles  
Canada

Canada



# Outline

- **Background/Context**
- Indicators and Policy Development
- Current Indicators
- Next Steps
- Conclusion





# Background/Context

**Natural Resources  
Canada (NRCan)**

a federal government department responsible for the sustainable development and use of natural resources

**Office of Energy  
Efficiency**

a branch of NRCan mandated to renew, strengthen and expand Canada's commitment to energy conservation and energy efficiency

**Demand Policy and  
Analysis Division**

a division of OEE created to improve knowledge and understanding of where and how energy is used in all sectors of the Canadian economy

**Programs**

OEE proactively promotes energy conservation and efficiency in all sectors





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# From Energy Indicators to Policy Development

Residential Sector



- Surveys (energy and economy)
- Canada Energy Supply/Demand

Detailed Residential Energy Demand

(Database: collection of all information through time)



- Indicators by: Dwelling type, End-use and Fuel type
- Information on: Energy, Activity, Prices and behaviour

Understanding where and how energy is used

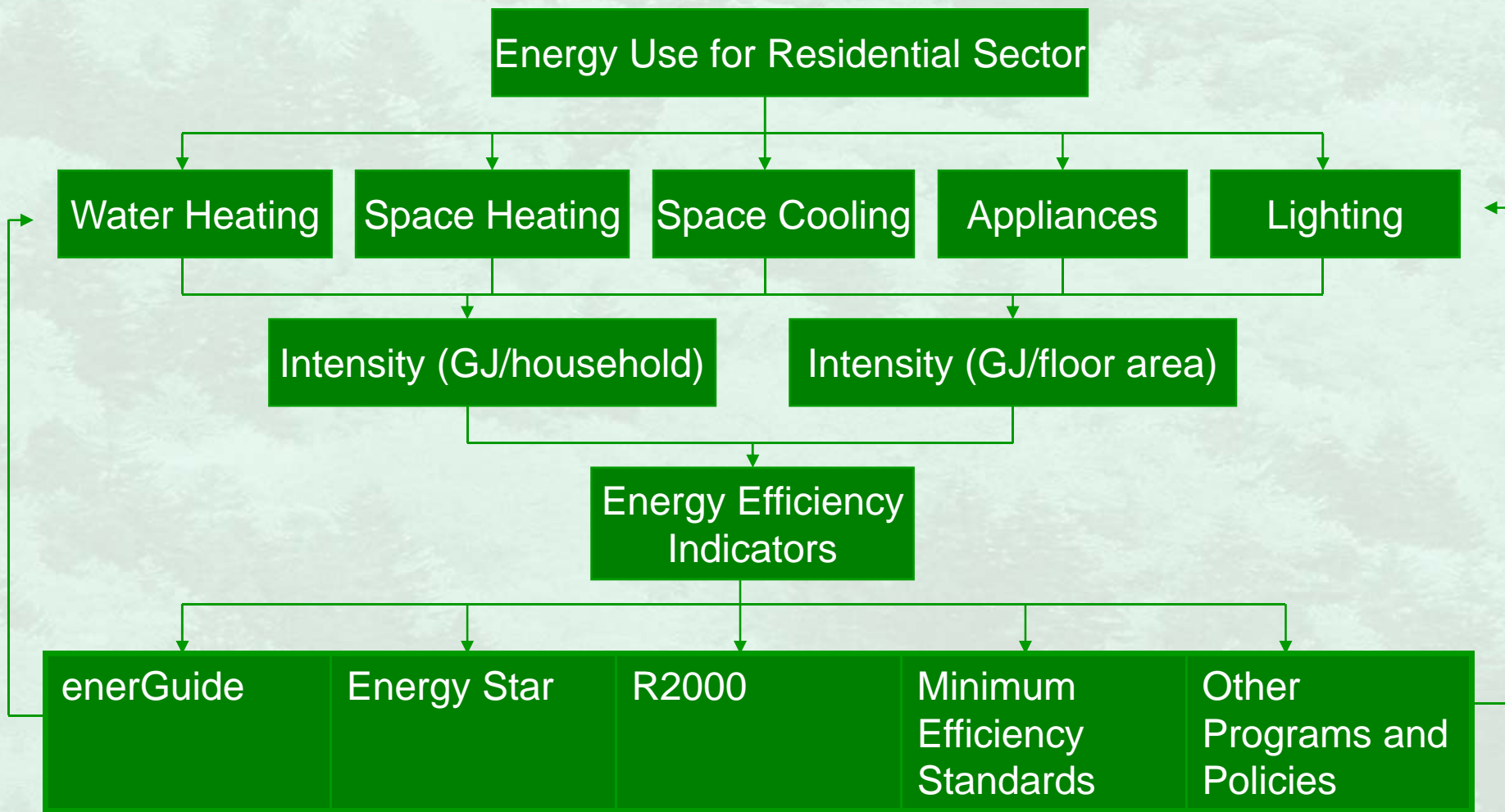


- Monitoring
  - OEE index
  - GHG emissions
- Strategic outcome
  - Where to spend
  - How to spend



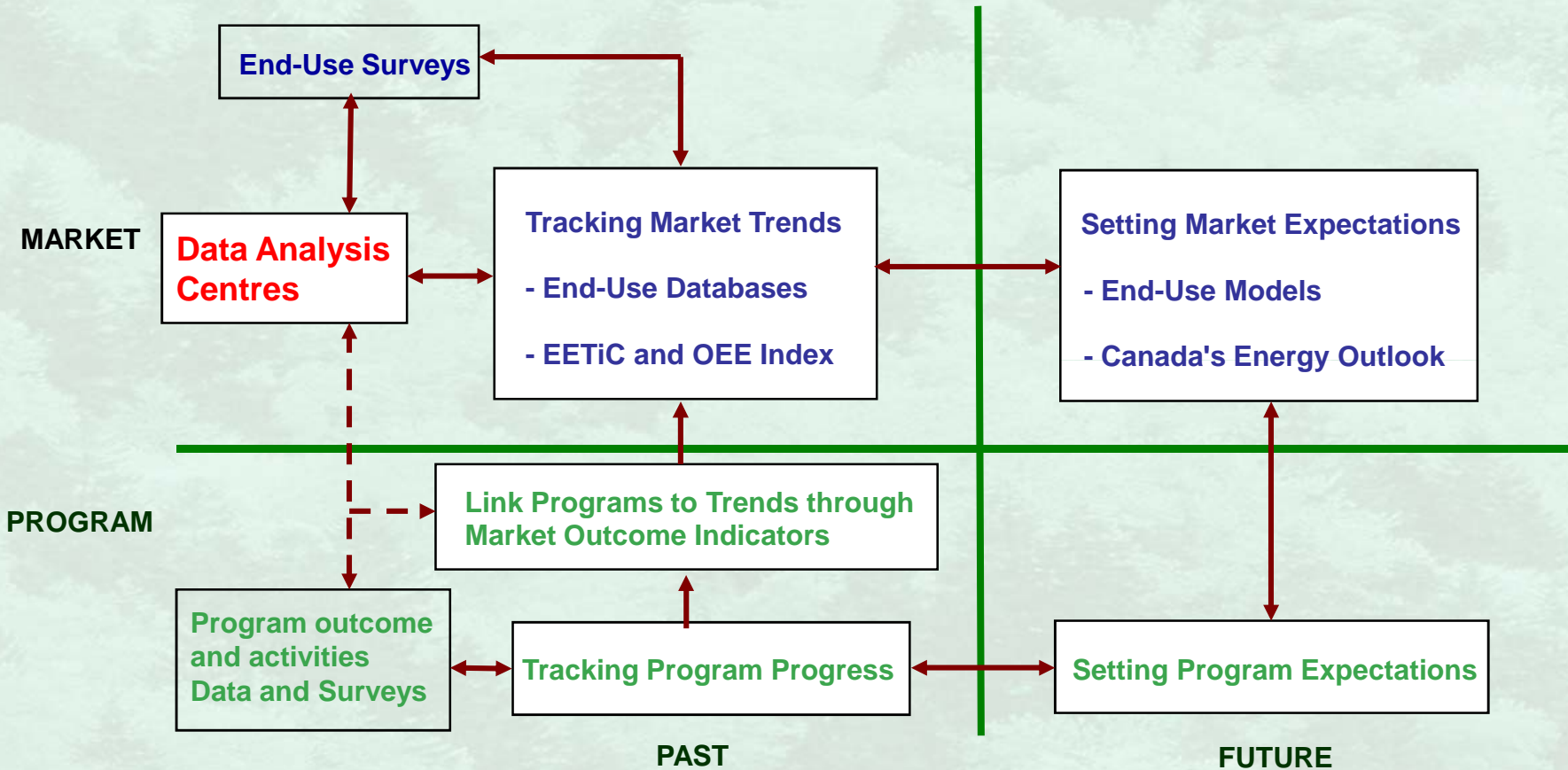


# From Energy Indicators to Policy Development





# Analytical Framework: Setting Expectations and Tracking Progress





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- Canada's central statistics agency
  - Disposition surveys
    - Utilities and Distributors
  - Demand surveys
    - Demand sector specific surveys
      - Residential (SHEU, SHS)
  - Report
    - Energy Balance (supply/demand)



# Data Situation

## Current Situation

Disposition Surveys  
(all sectors)

Statistics Canada's  
Report on Energy  
Supply & Demand  
(Sector Level)

Survey of Household Energy Use  
(SHEU – 1993, 1997, 2003)

Information from Industry  
(Appliance Manufacturer Data)

Other Statistics Canada Surveys

## Ideal Situation

- **Annual** end-use surveys
- One fully integrated source (RESO)





# 2005 Residential Sector Data



- Residential energy use increased by 9% between 1990 and 2005, while GHG increased by 6% (when electricity is included).  
**Decreased** by 3% if electricity not included
- Single-detached dwellings represented about 67% of Canada's residential floor space (other dwelling are apartments 21%, single-attached 10% and mobile homes 2%)
- In 2005, space Heating represented 60% of the demand followed by water heating 18%, appliances 14%, lighting 5% and space cooling 3%
- In 2005, natural gas accounted for 46%, electricity 39%, Wood 8%, heating oil 7%, and coal and propane 1%





# 2005 Database

## Residential Appliances



- Residential appliances energy use increased by 3% between 1990 and 2005
  - Major appliances **decrease by 17%**
  - Other appliances increase by 105%





# Energy Intensity versus Energy Efficiency



## Energy Intensity

- Ratio of energy use per unit of activity
- Simple calculation for which data are readily available
- Often used as a proxy for energy efficiency
- Captures all factors that influence energy demand

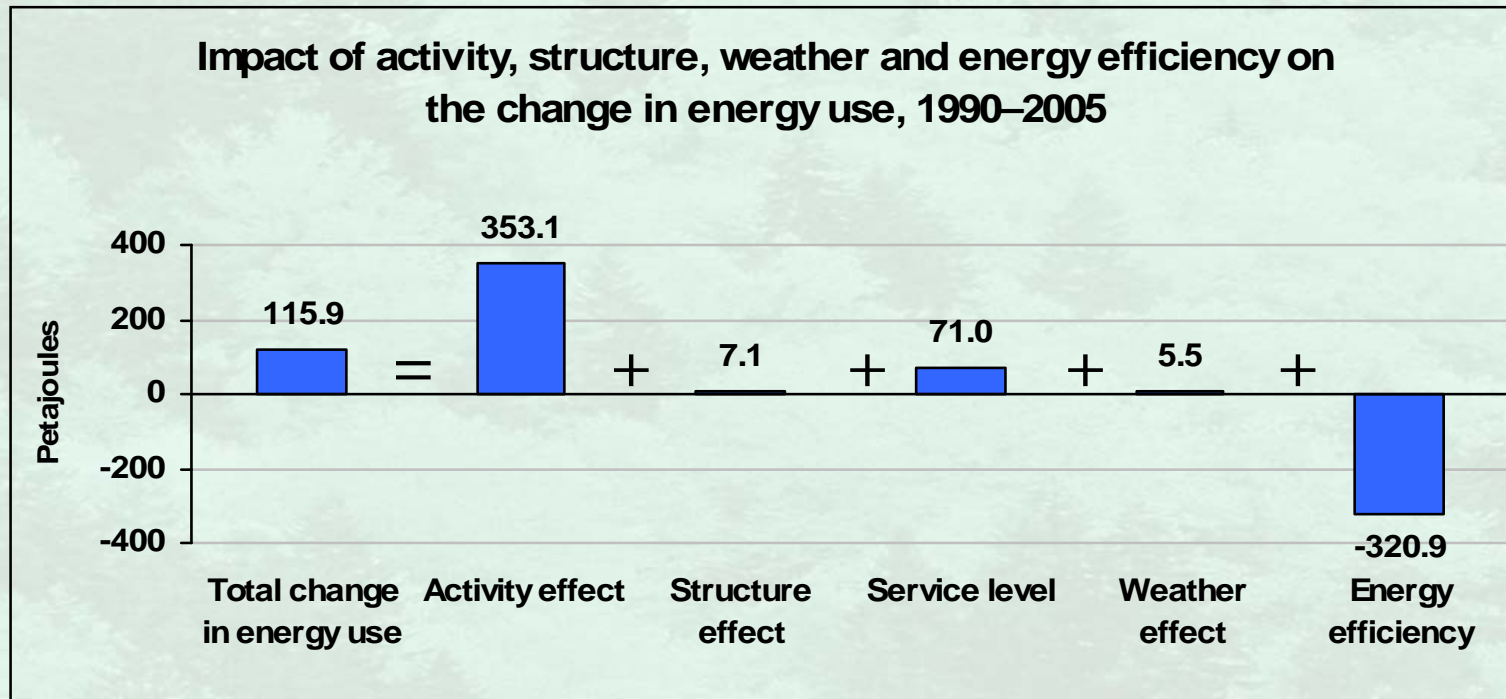
## Energy Efficiency

- A Decomposition technique to separate the many factors that influence energy demand
- DPAD change its methodology last year to Log Mean Divisia Index (LMDI) from Laspeyres Index





# 2005 Decomposition Residential Sector





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# Next Steps

## Ongoing Challenges:

### Data

- Funding
- Consistency
- Changing the *status quo*

### Analytical

- Drilling down from market to program analysis
- Costs
- Value of Information





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# Conclusion

- **Indicators are used to**
  - monitor and understand where and how energy is being used
  - determine where and how to spend
- **Ideal data situation includes annual, integrated surveys**
- **Ongoing analysis is required in using indicators to support national energy efficiency policy**



# Conclusion

- **Links to more information:**

- Moving Forward on Energy Efficiency in Canada: A Foundation for Action - <http://www.nrcan.gc.ca/com/resoress/publications/cemcme/index-eng.php>
- Comprehensive Energy Use Database - <http://oee.nrcan.gc.ca/corporate/statistics/neud/dpa/home.cfm>

