

# **Capturing the Multiple Benefits of Energy Efficiency**

## **Experts Roundtable on Energy Provider and Consumer Benefits**

**Tuesday 15<sup>th</sup> & Wednesday 16<sup>th</sup> October 2013**

**Delta Ottawa City Centre, Ottawa, Canada**

**Supported by:**



**International  
Energy Agency**

# Multiple Benefits of Energy Efficiency



# Multiple Benefits Project Goals

- **Quantify the socioeconomic and environmental benefits delivered by energy efficiency improvements**
- **Investigate cross-sectoral linkages**
- **Develop the tools and methods needed to capture the range of benefits and costs**
- **Develop a strategy for integrating them within existing evaluation approaches**
- **Communicate the contribution that improving energy efficiency makes to mainstream social and economic policy**
- **Help countries build consensus on the value of a multiple benefits approach**

# Results to Date

## ■ ***Scoping study***

- *Spreading the Net: Capturing the Multiple Benefits of Energy Efficiency Improvements (OECD/IEA, 2012)*

## ■ ***Focus on five key benefits***

- i) Macroeconomic; ii) Health & Wellbeing; iii) Energy Providers; iv) Industrial Productivity; v) Public Budgets

## ■ ***Roundtable on Macroeconomic Benefits***

- Paris, January 2013

## ■ ***Roundtable on Health & Wellbeing Impacts***

- Copenhagen, April 2013

## ■ ***Roundtable on Energy Provider & Consumer Benefits***

- Ottawa, October 2013

## ■ ***Draft chapters in preparation***

# Multiple Benefits Handbook

## **PART ONE: STRATEGIC POSITIONING**

- Appraisal of existing guidance (EU, UK, US etc)
- Introduction to various methodologies, data requirements and factors for choosing in different conditions

## **PART TWO: METHODOLOGICAL APPLICATIONS**

- Outline for each benefit area: Sample results; Issues for this benefit; key indicators; main methodological options; default values/ multiplier table

## **PART THREE: PRACTICAL APPLICATION TO POLICYMAKING**

- Reiterate need for countries to make choices
- Help countries build consensus on the value of a multiple benefits approach

# Macroeconomic benefits roundtable

- Increased GDP
- Trade flows
- Employment
- Energy prices
- 2 day workshop in Paris
- 75 world-class experts
- Key issues:
  - Choosing a model frame to match the impact of interest
  - Gaining perspective on the rebound effect
  - Understanding (and managing) the impacts of interventions
  - What do policy makers need to know from modellers?



# Health & well-being impacts roundtable

- **Co-delivered with European Environment Agency**
- **Sessions treated the linkages between EE and improved public health & mental health + indoor air quality & vulnerable groups**
- **Some key messages:**
  - **A clear link has been established**
  - **Studies show \$4 can be saved in public health for every \$1 spent on EE**
  - **A growing body of evidence that mental health benefits (reduced stress, anxiety and depression) are equal to or greater than physical benefits**
  - **Significant benefits emerge when targeting vulnerable groups**
  - **BUT overall cost/benefit suggests targeting dwellings not occupants, or IDEALLY start with a dwelling approach + demographic data overlay**
  - **Policies must include safeguards to avoid negative impacts being generated inadvertently – *i.e.* ventilation testing post EE intervention**
  - **Collected proven methodologies and received messaging tips**



# Benefits of energy efficiency for energy providers



## Global energy efficiency spending by energy utilities

Region	2011 Energy Revenues (USD Billions)	2011 EE Spending (USD Billions)	Spending as a % of revenues
North America <sup>1</sup>	400	7.8	1.9
EU 28 <sup>2</sup>	650	2.5	0.4
Australia	25	.1	0.35
Brazil	50	.025	0.5
China	410	N/A	N/A
TOTAL	1,535	10.4	0.9

<sup>1</sup> Electricity only

<sup>2</sup> Gas and electricity

Sources: Lees 2012; Crossley & Swanson 2011; Faruqui 2011; Heffner 2012

# Multiple benefits of energy efficiency for energy providers and their customers

1. Lower customer operations costs
2. Deferring network and generation additions
3. Market prices
4. Resource portfolio cost and risk
5. Improved reliability
6. Environmental benefits

# Multiple benefits evaluation approaches

Source of Benefits	Estimation Methodology	Relative magnitude
1. Lower customer operations costs	Analysis of customer operations utility budgets	10%
2. System and network deferrals	Time value of investment deferrals; Hedge value of improved capital plans	25%
3. Market prices	Market clearing price differentials using simulations	33-50%
4. Resource portfolio cost and risk	Revenue impacts of alternative long-term resource plans	N/A
5. Improved reliability	Value of un-served energy + reduced LOLP	N/A
6. Environmental benefits	Several	N/A

# Energy Provider & Consumer Benefits Roundtable

- 1.5 day workshop
- Hosted by Natural Resources Canada
- Co-sponsored by@
  - Canadian Gas Association
  - Canadian Electricity Association
  
- 3 half-day sessions, each with a different focus:
  - Unleashing energy provider and consumer benefits through targeting energy efficiency
  - Estimating the power system-level benefits of large-scale energy efficiency
  - Including multiple benefits in cost-effectiveness evaluation

