



Do we know the way now? Using international comparison to confirm a policy package that can deliver energy savings from appliances



# bigEE: Objectives

Raise greater awareness and attention for the variety of benefits of increased energy efficiency in appliances and new and existing buildings.

Close the gaps of scattered information and material on energy efficiency by providing latest know-how in a target group oriented, consistent, comprehensive, easily accessible, and transparent way.

Manage and communicate available knowledge especially for emerging economies



# bigEE: Target Groups

## Decision-makers:

- Investors
- Policy makers
- Staff involved in policy implementation

... Worldwide

... And in 5 emerging economies, with partners

→ Internet platform **bigeen.net**

## • 3 Guides:



**Buildings Guide**  
Upgrade to ultra-low-energy buildings



**Policy Guide**  
Assist markets in becoming energy-efficient



**Appliances Guide**  
Get super-efficient appliances



# The saving potential

- The most energy-efficient appliances already available today can save between 60 and 85% of energy compared to inefficient models that are still on sale in many countries
  - Potential for **refrigerators/freezers**: about 60%
  - Potential for **televisions**: up to 65%
  - Potential for **computers/monitors**: more than 80%
  - More than 1500 TWh of annual worldwide electricity demand and 1,000 Mt of CO2 emissions could be saved by the year 2030
- About 40% could be achieved from the worldwide adoption of the most stringent energy efficiency regulations





# Policy Guide

- Recommended policy packages for buildings and appliances
- Detailed information on issues of implementation for the types of policies and measures in the package
- Good practice examples for both packages and single policies and measures



# Policy Guide

## Actor-oriented theoretical analysis

### Step 1.1

Analysis of actor specific barriers and incentives (*EEDAL 2011*)



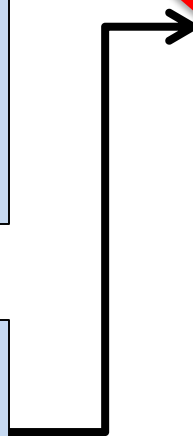
### Step 1.2

Developing implementation strategies to address the barriers and incentives



### Step 1.3

From implementation strategies to policy packages



## The empirical proof

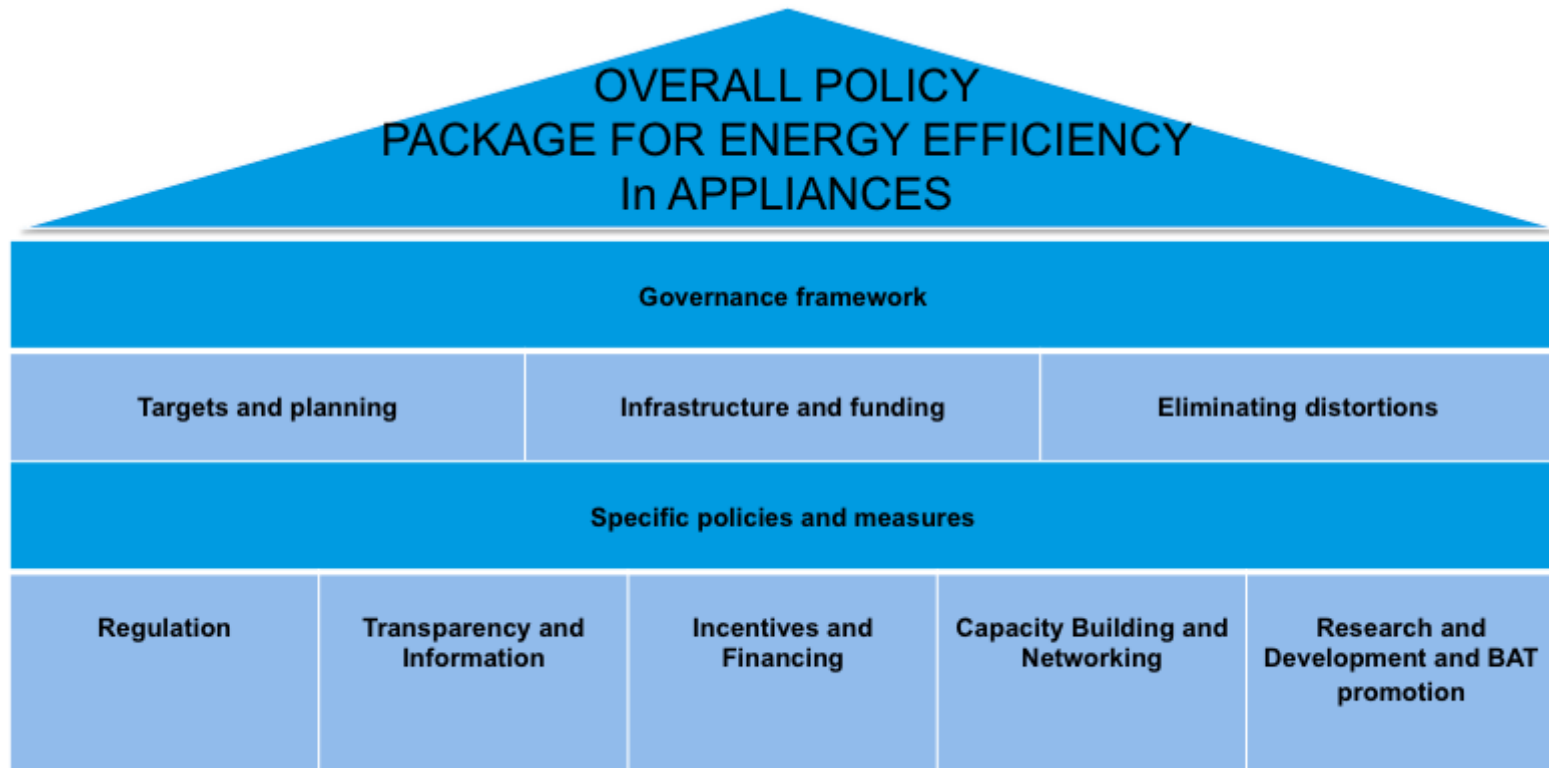
### Step 2

Validate the resulting **'recommended policy package'** through **empirical evidence** of which instruments advanced countries have packaged together

The multi-criteria assessment scheme to evaluate single policies (*EEDAL 2011*)

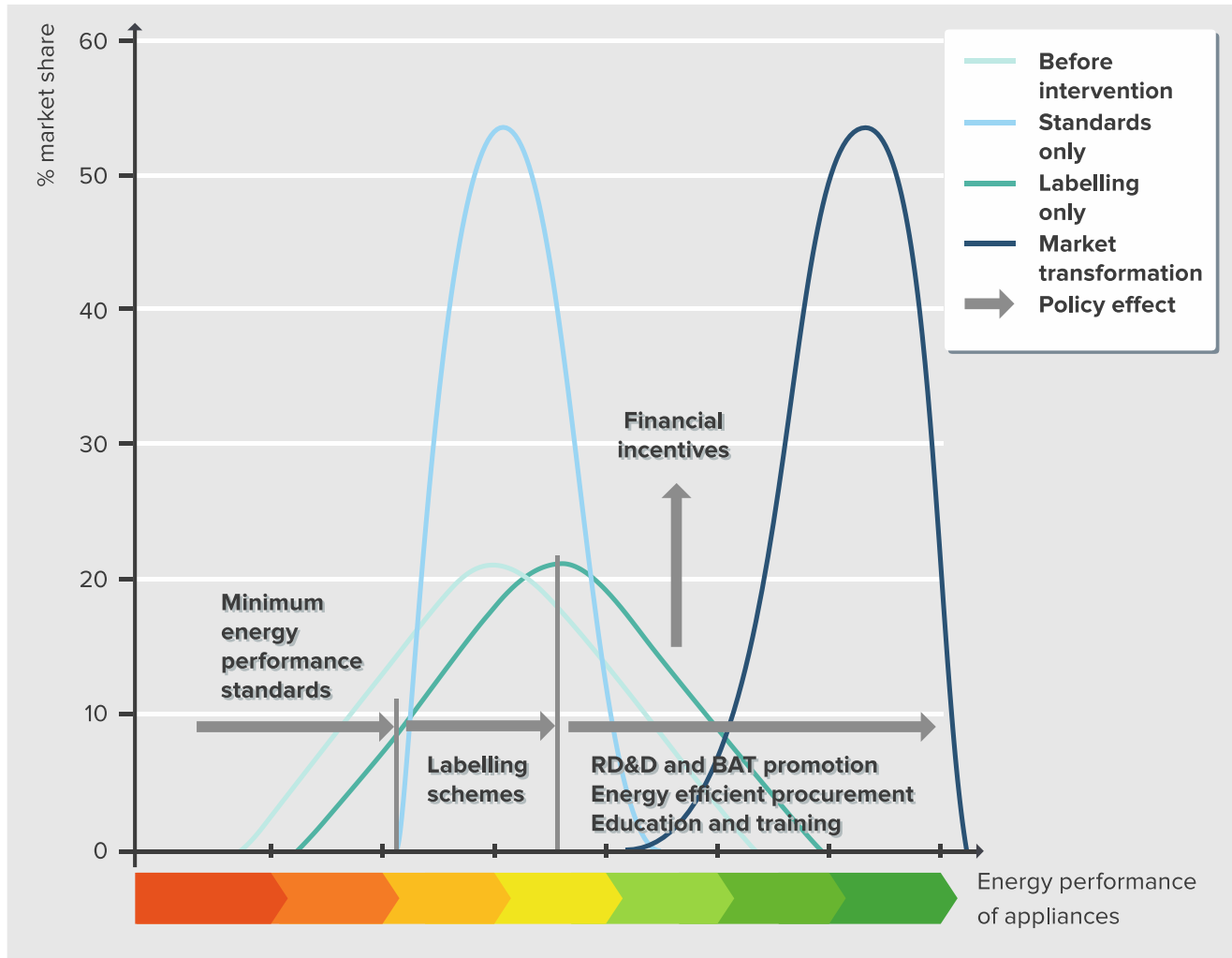


# The recommended policy package





# Policy Package for appliances







## Step 2: Validate the recommended Policy package through empirical evidence

As advanced countries show, the policy package that we derived from our actor-centred analysis **comes close** to what countries have introduced to approach very high levels of energy efficiency

Policy	California	China	Brazil	Japan
Roadmap & Targets	X	X	X	X
Energy Agency	X	X	X	X
Coordination and financing	X	X	X	X
MEPS / <a href="#">Top-Runner</a>	X	X	X	<b>X</b>
Labels	X (V/M)	X (V/M)	X (V/M)	X (V/M)
Advice/Training/information	X	X	(X)	(X)
Financial Incentives	X	X	X	(X)
Public Procurement	X	X	(X)	X



# A closer look: The governance Framework

- **Policy Roadmap** and targets:
  - China, Brazil and Japan (and USA at federal level) have an appliance-specific governance framework, California and Japan a Climate Change Plan or Energy Conservation Law
  - California: long term commitment to decrease GHG emissions by 80% of 1990 level by 2050
  - Important **actors** are for example: California's Energy Commission, Agency for Natural Resources and Energy (Japan)
- **Policy co-ordination and financing**
  - In California utilities are required to promote EE programmes to end-users; Brazil legislates utilities to invest 0.5% of their annual net revenues in end-user programmes
  - China relies on government agencies and budget
  - Japan introduced a carbon tax in 2012, funds are used for RE and EE



# A closer look: Specific policies and measures

- **MEPS**
  - Key issue in all four countries (in Japan: Top Runner Approach)
- **Labels**
  - Each government implemented mandatory labels (China and Japan: 5-star label, Brazil: A-G rating, USA: no classic classification scheme)
  - In addition, voluntary labels available in all 4 countries (e.g. Energy Star)
- **Information/Feedback measures** in all four countries
- **Education and training** programmes in all countries, but extent varies
- **Public sector programmes**
- **Research and development programmes** differ in the design and implementation



# But what have they achieved?

- **Difficult to compare for lack of data:**
  - Continuous economic growth: In China, refrigerator sales rose from 360,000 in 1999 to 46 million in 2008. The market share of the most efficient Grade 1 increased from 10 % in 2008 to 77 % in 2010. It is estimated that the label could save more than 16 TWh by 2020.  
→ policy very important to limit or even reduce energy consumption
  - Brazilian government achieved to reduce the average energy consumption of new refrigerators from 491.3 kWh/yr to 270 kWh/yr between 1990 and 2005. The voluntary label PROCEL saved 22 billion kWh from 1993-2008.
  - With the Top-Runner programme, Japan achieved an energy efficiency improvement rate of 55.2% from 1998 to 2004 for refrigerators (from 647 down to 290 kWh/yr)
  - Between 1977 and 2001 California brought down the energy consumption of a typical fridge-freezer from 1,546 to 476 kWh/yr. Another indicator is the stabilisation of per capita electricity consumption since 1978.



# The next steps

- Current project phase to continue to mid 2014
- Adding recommended package for each type of appliance
- Looking for further good practice examples
- Adaptation to partner countries (China, South Africa; Mexico?)
- Adding filter functions and interactive elements
  
- We will be happy to receive your comments!



Your guide to energy efficiency in buildings.

Thank you for your attention!

Start now 

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