

# **Toolkit**Did it work? Monitoring and evaluating

Session 10 (part 2)

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#energyefficientworld

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## Overview of the appliance and equipment training sessions



#	Session	
0	Introduction and roundtable	$\checkmark$
1	Planning energy efficiency programmes	$\checkmark$
2	Selecting products for MEPS and Labelling programmes	$\square$
3	Assessing efficiency performance and setting MEPS	$\checkmark$
4	Industry transformation	$\checkmark$
5	Stakeholder involvement and communication	$\checkmark$
6	The relationship between product efficiency and price	$\checkmark$
7	Modernising energy efficiency through digitalisation	$\checkmark$
8	Insights into energy labels	$\checkmark$
9	Monitoring, verification and enforcement	$\checkmark$
10	Monitoring and evaluating policies and programmes	
11	Roundtable discussion, review and report back	

## Evaluation – as part of the policy cycle





Source: HM Treasury (2011) The Magenta Book: Guidance for evaluation



## As a group, list the reasons why evaluation is important?





The Minister wants to know how effective your programme has been

How do you go about answering this?

## Group exercise



## As a group, list the basic steps required to conduct an evaluation







## **Objectives: What are the Multiple Benefits?**





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#### Examples:

- GDP and TPES decoupling
- Job creation and innovation
- Improved energy access
- Improved trade balance
  - Reduction in energy prices
- Improved energy intensity in industry (e.g. motors)
- Improved air quality
- Lower public health spending

## **Objectives: What are the Multiple Benefits?**



### Examples:

- Reduction in energy subsidies
- Reduction in utility debt
- Reduced pressure on scarce domestic resources
- Reduction in impact on environment (e.g. water)
- Increase in household disposable income to invest in economy
- Higher value assets (e.g. public procurement, public buildings)



## Define budget, approach, resources



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## Approaches to evaluation



#### Unfortunately it isn't possible to directly measure most of these indicators!

- They have to be estimated based on calculation using lots of different inputs and modelling
- Build up a picture using both......

#### **PROCESS Evaluation**

What the programme does e.g.:

- Number of labelled products
- Number of products subject to MEPS
- Number of registered models
- Correct display of labels in retail
- Consumer awareness levels
  - Administrative efficiency
  - Number of manufacturer claims checked

#### IMPACT Evaluation, e.g.:

- Tracking of sales-weighted efficiency trends
- Appliance price trends
- Determination of energy savings or other key objectives
- Influence of label on purchase decisions





## Data Types and Sources



Data Type	Main Data Sources					
Customer and retailer knowledge, awareness and understanding	Surveys of customers and retailers					
	Sales data from manufacturers, trade associations or government (customs)					
Availability of Products	Web crawling and surveys of manufacturers and retailers					
	Mandatory registration database					
Prices for Efficient Products	Web crawling of websites of retailers and manufacturers					
	Surveys of customers, retailers and manufacturers					
Market Sales	Sales data from manufacturers, trade associations or government (customs)					
Market Sales	Purchased from third party (e.g. GfK)					
	Manufacturer data					
Energy like	Independent laboratory data					
chergy use	Metered end-use data					
	Mandatory registration database					



	Brunei	Cambodia	Indonesia	Lao PDR	Malaysia	Myanmar	Philippines	Singapore	Thailand	Viet Nam
Population (M)	0.4 M	15.6 M	257.6 M	6.8 M	30.3 M	53.9 M	100.7 M	5.5 M	68 M	91.7 M
Residential electrification	100%	34%	81%	87%	100%	32%	79%	100%	99%	97%
House: average light points	28	7	10	10	20	9	6	30	14	14
Installed Lamps (M)	3.8 M	14.7 M	596 M	10.5 M	271 M	46.6 M	171 M	97.4 M	449 M	372 M
linear fluorescent	54%	54%	20%	79%	43%	46%	36%	50%	58%	40%
CFL	33%	40%	65%	15%	39%	40%	49%	27%	29%	30%
LED	8%	4%	13%	1%	10%	7%	9%	11%	6%	17%
Inc/Hal	3%	1%	1%	4%	5%	7%	4%	10%	5%	11%
Other	3%	1%	1%	1%	2%	1%	2%	1%	2%	2%
Annual Sales (M)	?	7.5 M	100 M	2 M	50 M	31 M	113 M	25 M	97 M	150 M
linear fluorescent		50% \leftrightarrow	<b>→</b>	65% \leftrightarrow	33%		23%	50%	46% ↔	↓
CFL		34% 🕇	$\leftrightarrow$	30% 个	44%		71%	23%	29% 🕇	1
LED		1	1	1% ↑					1	1
Inc/Hal		16% 🗸	↓	4% 🗸	16%		6%	27%	13% 🗸	$\checkmark$
Other				1% \leftrightarrow	7%				2%	

#### Market data allows improved appraisal, monitoring and evaluation

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## Example of performance indicator: ASEAN lamps



#### Statistics: Rated values and Efficacy

	LED lamp MEPS		Other lamp MEPS or Labels				No lamp MEPS or Labels			
	ASEAN	Malaysia	Singapore	Indonesia	Philippines	Thailand	Vietnam	Cambodia	PDR Laos	Myanmar
Total no of models	240	30	20	30	30	30	30	30	24	16
Below efficacy	26	o	0	8	o	0	6	4	3	5
limit of 65	11%	0%	0%	27%	0%	0%	20%	13%	13%	31%
Exceed rated	4	0	1	0	0	2	1	o	0	0
Power by 110%	2%	0%	5%	0%	0%	7%	3%	0%	0%	0%
Below rated	92	11	5	12	9	5	14	15	8	13
Power by 90%	38%	37%	25%	40%	30%	17%	47%	50%	33%	81%
Exceed rated	38	4	4	2	6	14	5	3	0	0
lumens by 110%	16%	13%	20%	7%	20%	47%	17%	10%	0%	0%
Below rated	39	1	1	10	7	1	3	4	10	2
lumens by 90%	16%	3%	5%	33%	23%	3%	10%	13%	42%	13%

#### Monitoring performance data allows cross-country comparison, and helps evaluation

## Example indicator: EU Energy Label and Refrigerator Sales















## **Reporting: Energy Star Label in the US**

- Cumulative Savings since 1992 = > 3,300 TWh by 2016
- In 2015, global electricity generation = 23,816 TWh
- Brand awareness rose from 40% in 2000 to >85% in 2015





Reporting: Impact of EU Ecodesign Programme on Primary Energy Consumption 👝 🗼 👰 💒



Impact analysis of the EU Ecodesign programme indicates that it will cut primary energy consumption by 18% by 2020 (890 TWh) – equivalent to 9% of total energy consumption in EU in 2010

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## **Reporting: Multiple Benefits in Europe**





Source: European Commission, 2015 - https://ec.europa.eu/energy/sites/ener/files/documents/eep\_infographic\_en.pdf

#### Reporting: Energy Efficient Prosperity: India's Domestic Lighting Programme







## Any final questions on evaluation?

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