Where to start:
Planning energy efficiency programmes

Lighting, Appliances & Equipment: Session 1
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#EnergyEfficientWorld

There has been a change of government and the incoming government wants a range of options for interventions to rapidly increase **residential** energy efficiency for appliances, equipment and lighting.

*How do you identify, prioritise and quantify these options?*

List all the different kinds of government interventions we could consider?

INTERACTIVE ACTIVITY

- MEPS/Labels
  - MEPS
  - Comparative labels
  - Endorsements labels

- Mandatory obligations on utilities
  - Green certificates
  - White certificates

- Financial incentives
  - To consumers/retailers/suppliers/third parties (architects, plumbers, etc)
  - Grants and subsidies
  - Loans
  - Tax relief
  - Taxes

- Procurement by institutions/government

- Awareness raising campaigns

- Information
  - Appliances labels
  - Retail and/or trade staff training
  - Advice Centres, hotlines, publications, etc.

- Education
  - School programmes
  - Professional training and qualification/accreditation

- RD&D
  - Research
  - Demonstration
  - Commercialisation

Initial assessment process

- Process to assess and rank best options

- Assess policy options against your important indicators
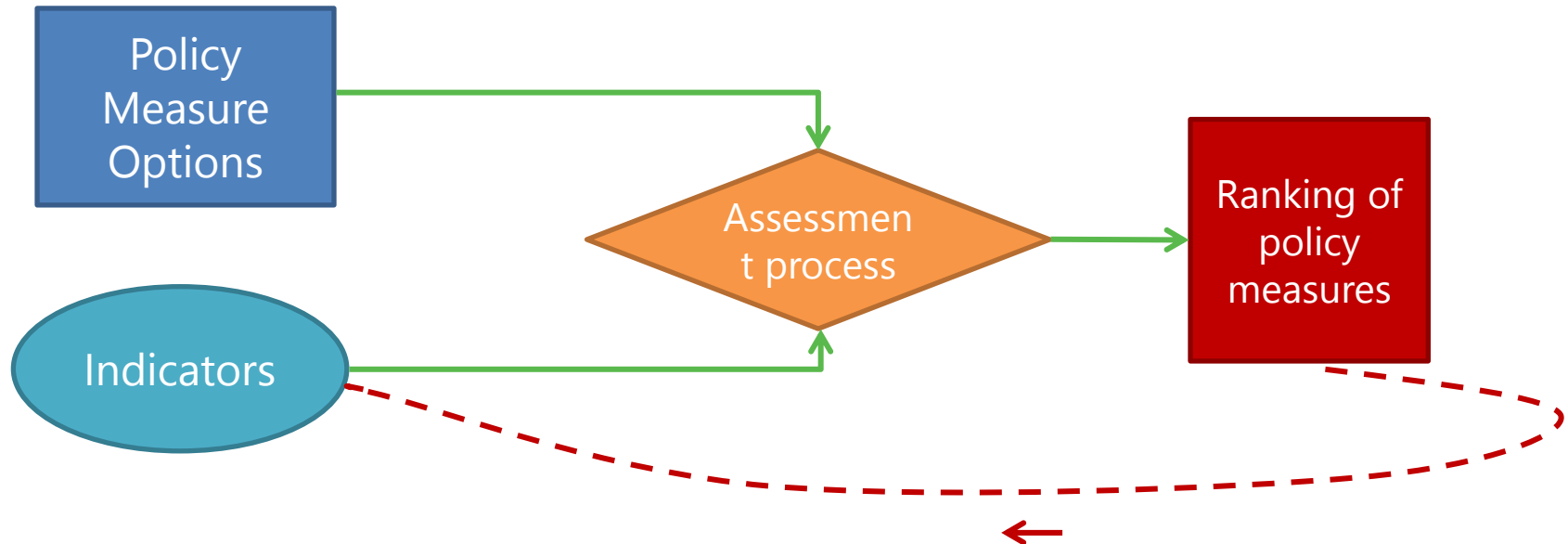
What to consider when ranking these different government options?

- Objective – what are we trying to achieve?

- Are all these policy options equally effective?

- Do they act on a small or large part of the relevant market?

- How certain are the outcomes?

- What resources will each require – costs, time, people, admin support, other?

- What about timing – how fast acting are they; are they sustainable?

- How difficult are each to organise? What partners could help?

List some possible programme objectives

What are the objectives of your programme?

INTERACTIVE ACTIVITY

Some objectives

ENERGY RATING
THE MORE STARS
THE MORE SAVINGS

Program Obje

✓ To reduce energy bills for households and businesses in a cost-effective way by driving improvements to the e... sold;

✓ To improve the energy efficien... and to also improve the energy... energy consumption; and

✓ To reduce appliance and equip... process which complements o...

- The Appliance and Equipment Standards Program's mission is to fulfill its statutory obligation by:
  – Developing and amending energy conservation standards that achieve the maximum energy efficiency that is technologically feasible and economically justified.
  – Developing and amending test procedures that are repeatable, reproducible, representative, and enforceable.
  – Enforcing its certification and compliance regulations to ensure consumer savings and manufacturer adherence to DOE requirements.

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Potential assessment factors

Objectives - Impact	• Overall energy reduction / Average appliance consumption • Peak load reduction and/or GHG mitigation • Cost savings • Health outcomes
Resource Use	• Cost to governments & other stakeholders • Relevant capacity available (staff, institutions, etc)
Employment	• Local supply industry and/or Retailers
Competition	• Does it increase fair competition? • Does it benefit local vs. International suppliers
Speed & Ease of implementation	• How fast will the impacts occur • Are stakeholders willing/keen
Sustainability	• Long term impacts • Will savings continue after program?
Potential side-effects	• Impact on appliance prices • Impact on local industry
Political sensitivities	• What policy options are favoured/supported?

Data availability and accuracy

Indicators		Quantified assessment	Qualified assessment
Impact	Average appliance consumption		
	Overall energy reduction, peak load, ghg reduction, etc		
Resource Use	For government		
	For householders		
	For industry		
Employment	Overall employment impact		
Competition	Will competition increase?		
Speed & Ease of implementation	How fast will the impacts occur?		
	Support from key stakeholders		
Sustainability	Will the impacts be long lasting?		
Side-effects	Impact on appliance prices		
	Impact on local industry		

- Only very approximate data required to rank options

- Make use of overseas experience e.g impacts on prices and jobs

- Sometimes your 'best guess' may be sufficient

- Can add new data when available

Complete a simple evaluation table for two different policies.

Objective: *Reduce Total Energy Consumption*

INTERACTIVE ACTIVITY

1. **Policy 1:** MEPS on residential water heaters

2. **Policy 2:** Rebate on super high residential efficiency water heaters (10% capital cost of equipment) (policy 2

Evaluation Exercise

Indicators		Policy 1	Policy 2
1. Impact	Overall energy reduction		
2. Resource Use	For government		
3. Employment	Overall employment impact		
4. Competition	Will competition increase?		
5. Speed & Ease of implementation	How fast will the impacts occur?		
6. Sustainability	Will the impacts be long lasting?		
7. Side-effects	Impact on appliance prices		
	Impact on local industry		
TOTAL		**SUM-1**	**SUM-2**

Scale: 1-10

Positive (good)	10
	↕
Negative (bad)	1
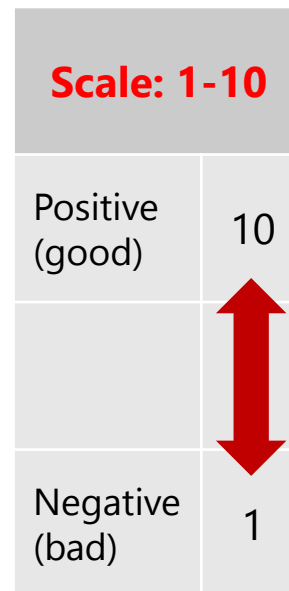
Evaluation Exercise

Indicators		Policy 1	Policy 2
1. Impact	Overall energy reduction	**8**	
2. Resource Use	For government	**3**	
3. Employment	Overall employment impact	**5**	
4. Competition	Will competition increase?	**8**	
5. Speed & Ease of implementation	How fast will the impacts occur?	**5**	
6. Sustainability	Will the impacts be long lasting?	**7**	
7. Side-effects	Impact on appliance prices	**3**	
	Impact on local industry	**4**	
TOTAL		**43**	**Y**

Scale: 1-10

Positive (good)	10
Negative (bad)	1

2002 Priority Setti...
for
Standards and Test Pr...
Rulemakings

Standards and Determinations (D)

High Priority Products	Page		Low Priority Products	Page
Air-Cooled Central Air Conditioners and Air-Source Heat Pumps, 65-240 kBtu/h	1		Clothes Dryers	3
Distribution Transformers	21		Clothes Washers*	5
Packaged Terminal Air Conditioners and Heat Pumps	33		Commercial A/C and Heat Pumps*	7
Residential Central AC/HP[1]	40		Commercial Furnaces & Boilers*	9
Residential Furnaces and Boilers	43		Commercial Water Heaters*	13
Small Electric Motors (D)	50		Cooking Products	15
			Direct Heating Equipment, Gas	17
			Dishwashers	19
Medium Priority Products			Electric Motors, 1-200 HP	23
Central Air Conditioners and Heat Pumps, 3 Phase, <65 kBtu/h	2		Fluorescent Lamp Ballasts*	25 Commercial
Commercial Oil and Gas-Fired Packaged Boilers	10		High Intensity Discharge Lamps (D)	27
Tankless Gas-Fired Instantaneous Water Heaters	49		Lamps	29
			Mobile Home Furnaces	31
			Plumbing Fixtures/Fittings	34
			Pool Heaters, Gas	36
			Refrigerators*	38
			Residential Water Heaters*	45
			Room Air Conditioners*	47

India's Prioritisation Exercise

- All products and equipment possible = 81!

- Prescreening = 57

- Prioritisation Criteria:

  1. GHG abatement potential - 75% (surviving stock, annual energy consumption, energy savings potential & emission factor)

  2. Market *implementability* index - 25% (test procedures & standards, number of stakeholders, % organised sector, implementing partner)

- Top 25 appliances identified

- Motors and residential air conditioners had highest:

  - annual energy demand and peak demand reduction

  - energy savings and annual GHG abatement potential

  - existing standards and test procedures

Evaluation process can be more detailed

- More indicators

- Add data where available

- Extend scale

- Add weighting to prioritize some factors

More
negative

More
positive

1   2   3   4   5

1   20
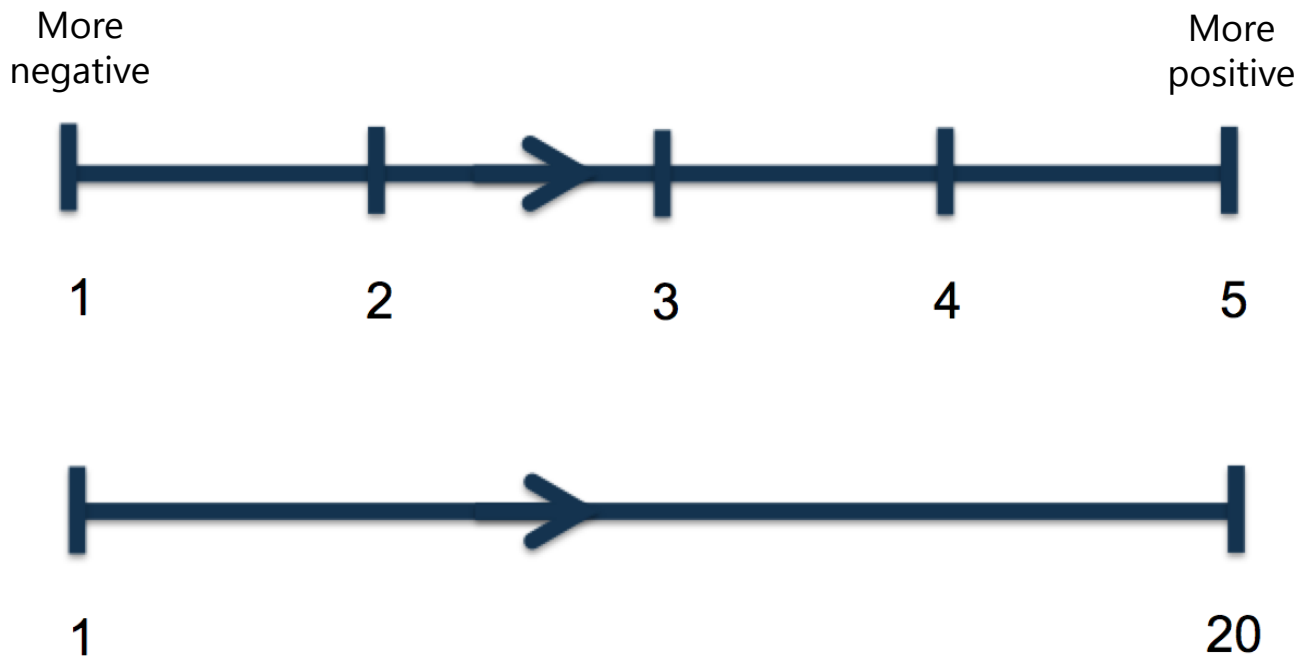
Larger
scale =
more
sensitivity

Evaluation Table - weighted

Options	Indicator 1	Indicator 2	Indicator 3	Indicator 4	Total
	GHG savings	Lifecycle costs	Employment	Competition	
Option 1	4	2	2	3	**11**
Option 2	2	4	3	2	**11**
Weighting	**x1**	**x2**	**x2**	**x1**	
Option 1 (weighted)	4	4	4	3	**15**
Option 2 (weighted)	2	8	6	2	**18**

Effects of multiple policies

- Often more than one policy is required to create market transformation

- Some policies work well together
  - MEPS removes worst products; Labels incentivize best products
  - Procurement and financial incentives used to support highest labelled appliances

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Am I eligible for the rebate?

All ENERGY STAR smart thermostat rebate applications must be received within 60 days from date of purchase.

Summary

You will need to know about the attributes of different programme types:

- Industry /consumers often ask why government is doing more or focusing elsewhere
- Many regulatory impact processes require analysis of other policy options

An analytical approach is used throughout S&L programme planning

- Need to assess what level of information is sufficient
- How to deal with a lack of information
- Be aware of a range of concerns and particular sensitivities

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