International Energy Agency

Energy Efficiency Training Week
Indicators and Evaluation

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2nd – 6th May 2022

Key learning point from yesterday

- Please go to www.menti.com and enter the following code

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- Or join directly on your phone using this QR Code

Mentimeter

What did we learn yesterday?

- Energy balances as basis for efficiency indicators and useful to develop aggregated indicators;
- Efficiency indicators are developed with disaggregated end use data
- Decomposition analysis allows to understand the efficiency effect
- Indicators are to be developed depending on policy needs
- Embedding GESI considerations in indicators development
- 4 main methods for data collection
- Development of a monitoring plan

Any questions?

Plan for today

- How to use OECD-DAC evaluation criteria and TOC to identify evaluation questions
- Approaches to assessing the difference made by a policy or programme (attribution) and when to use them
- Questions
- Comfort break
- Evaluating multiple benefits of energy efficiency
- GESI implications

- Networking tables
- End of day check in

Developing evaluation questions

OECD Development Assistance Committee criteria for evaluation

http://www.oecd.org/dac/evaluation/daccriteriaforevaluatingdevelopmentassistance.htm

Think about

- Stakeholder needs
- How you are going to use the results
- What questions you can answer

OECD/DAC criteria

- Efficiency
- Relevance
- Coherence

Stakeholders

- Programme implementation team

Use the results to:

- Improve efficiency/delivery/compliance

Example questions

- Have industry and consumer bodies been engaged? What worked?
- Is implementation on time? What can be improved?
- Is there test capacity, registration system? If not, why not?
- Have appropriate regulations been passed?
- Is everyone able to engage equally (consider GESI)?

OECD/DAC criteria

- Efficiency
- Relevance
- Coherence

Stakeholders

- Programme implementation team

Use the results to:

- Improve efficiency/delivery/compliance

Example questions

- What is the level of compliance, is non-compliance in particular sectors or geographies?
- Are manufacturers, importers and retailers aware of the policy, do they have systems in place to comply? Are there any problems, what?
- Have non-compliant products been removed from the market? If not, why not?
- Are there any GESI implications?

OECD/DAC criteria

- Effectiveness
- Impact
- Sustainability

Stakeholders

- Policy makers
- Treasury
- Regulated groups

Use the results to:

- Improve impact/cost effectiveness

Example questions

- Has the efficiency of products on the market changed? What difference did the policy make? What else contributed?
- How has energy consumption changed? Why?
- What is the effect on the installed base and overall energy consumption?
- Are the outcomes different for different groups of people (consider GESI), why?

OECD/DAC criteria

- Effectiveness
- Impact
- Sustainability

Stakeholders

- Policy makers
- Treasury
- Regulated groups

Use the results to:

- Improve impact/cost effectiveness

Example questions

- What is the effect of MEPS on energy consumption?
- Is the change cost effective for government, consumers?
- Consider multiple benefits e.g. peak demand, costs for consumers, industry competitiveness
- What are the GESI implications? Who pays and who benefits?

Did your policy or programme make a difference?

What is impact?

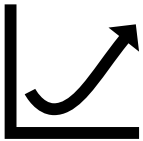
*Positive and negative, primary and secondary long-term effects **produced** by an intervention, directly or indirectly, intended or unintended.*

From OECD DAC

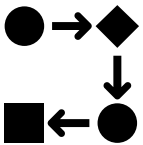
- What does impact mean for appliance and equipment policy – energy saving:
  - Compared to what (BAU, baseline)
  - By whom (rural, urban)
  - What energy (e.g. kerosene lamps to electricity)
  - Does it translate into $$$ and CO2?
- What else might we be interested in?
  - Fairness
  - Prices
  - Jobs/economic development
  - Exports
  - Energy security

What impact is due to the policy rather than other causes?

Experiment



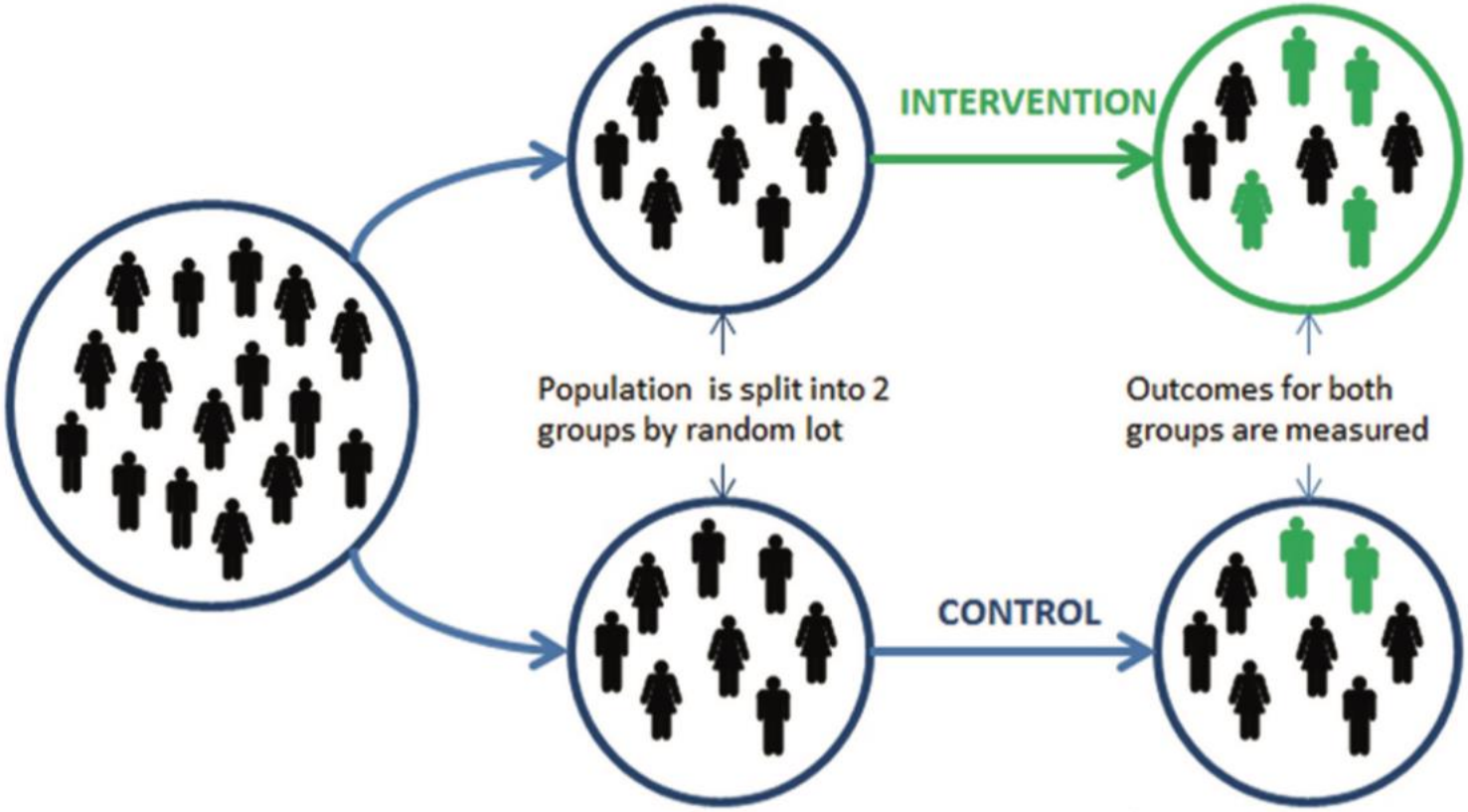
Statistics



Theory-based

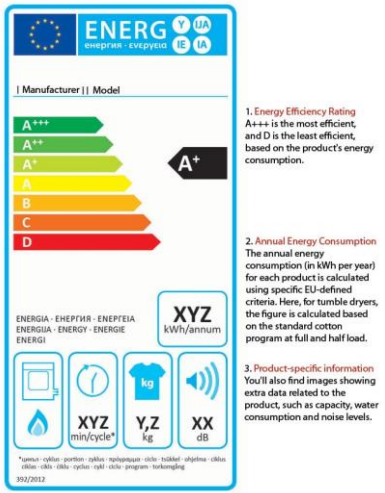
Case Study

Approaches to causal attribution 1 – experimental



Approaches to causal attribution 1 – experimental

- Test the inclusion of costs on energy label + staff training
- UK Government + John Lewis department store
- Trial group of stores compared to control group
- Small difference for washer dryers, no difference for other products



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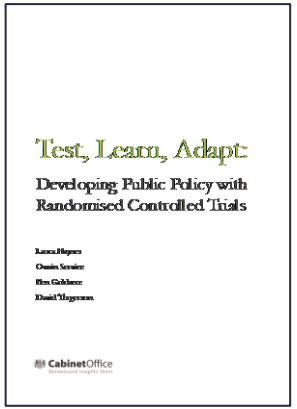
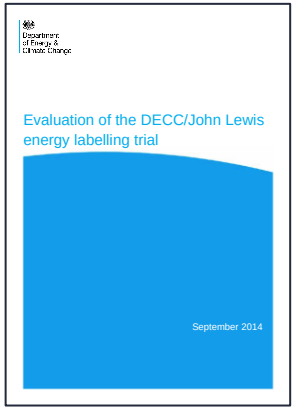
Approaches to causal attribution 1 – experimental

- Strengths
  - “Prove” effect of policy
  - In the circumstances of the test (when, where)
  - For the indicator being measured

- Weaknesses
  - Doesn’t tell you why the policy worked/doesn’t work
  - Doesn’t tell you if the policy will work in other circumstances
  - Challenging to design and implement





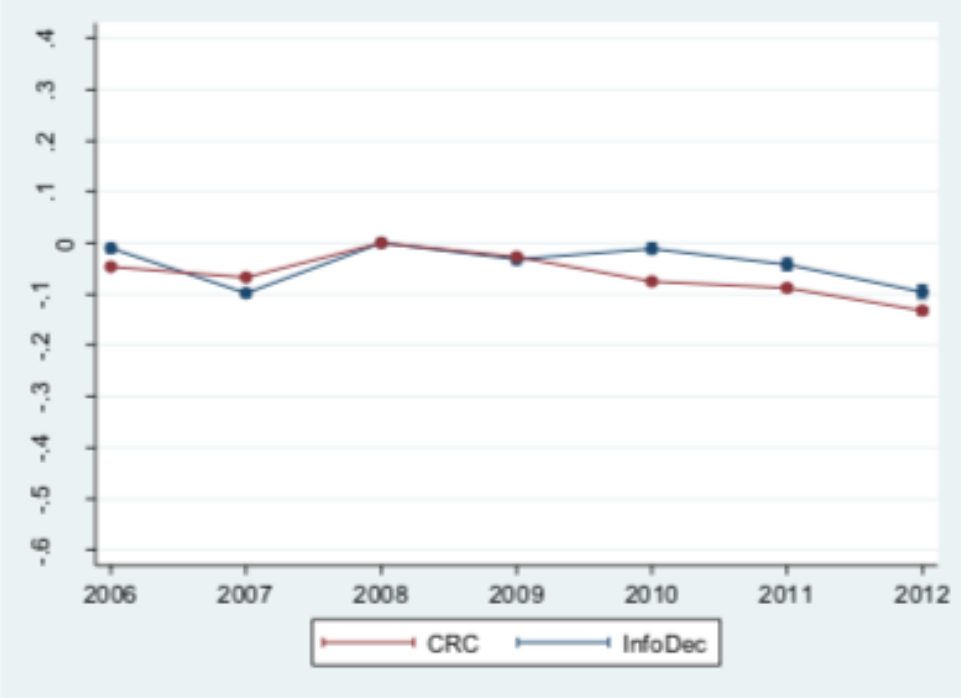
Approaches to causal attribution 1 – experimental

- When can you use it
  - Treatment and control groups
  - Allocated at random
  - Measurable outcome

- Most likely to be suitable for
  - Pilot projects
  - “Natural experiments”

Approaches to causal attribution 2 - statistical

- Difference in difference
- Using meter data can compare changes in energy consumption between the group subject to the policy and a comparison group (difference in difference) before and after the policy implementation.



Approaches to causal attribution 2 – statistical

- Strengths
  - “Prove” effect of policy
  - In the circumstances of the test (when, where)
  - For the indicator being measured

- Weaknesses
  - Doesn’t tell you why the policy worked/doesn’t work
  - Doesn’t tell you if the policy will work in other circumstances
  - Depends on ability to obtain data

Approaches to causal attribution 2 – statistical

- When can you use it
  - Need data e.g. metered energy consumption
  - From control & treatment groups
  - Large numbers

- Most likely to be useful for
  - Policies with a cut-off
  - Affecting large numbers
  - Consider just above/just below a boundary

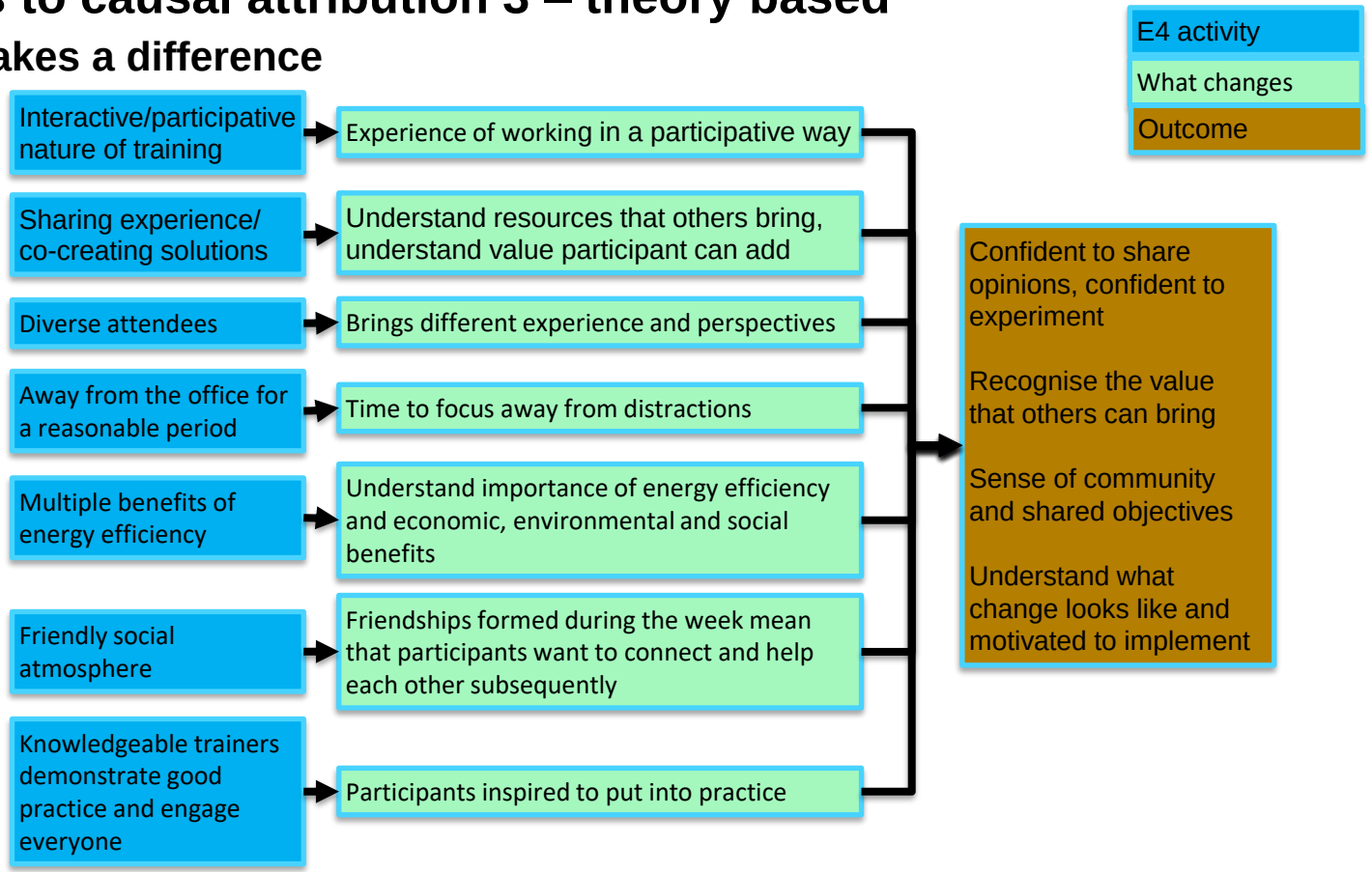
Approaches to causal attribution 3 – theory based

- Main types…
  - Realist evaluation
  - Contribution analysis
  - Process tracing
  - Qualitative Comparative Analysis

- All involve developing, testing and refining a Theory of Change
  - Iterative
  - Participative
  - Can draw on each other and the other three methods

Approaches to causal attribution 3 – theory based

How EETW makes a difference



Approaches to causal attribution 3 – theory based

- Strengths:
  - Reflects more of the influences on outcome
  - Explains why and how change happens
  - Utilises diverse evidence
  - Considers alternative explanations
- Weaknesses:
  - Approximate impact estimate
  - Doesn’t provide proof of impact
  - Complexity can be challenging to communicate

Approaches to causal attribution 3 – theory based

- When can you use it
  - Suitable for most policy types
- Most likely to be useful for
  - Complex policies

Approaches to causal attribution 4 – case study

- Examining one or more cases in depth
- Comparison within and between cases to identify and understand causal factors
- Strengths:
  - Deep understanding of cases and how causation operates
- Weaknesses
  - Unable to generalise from cases examined

Now it’s on you!

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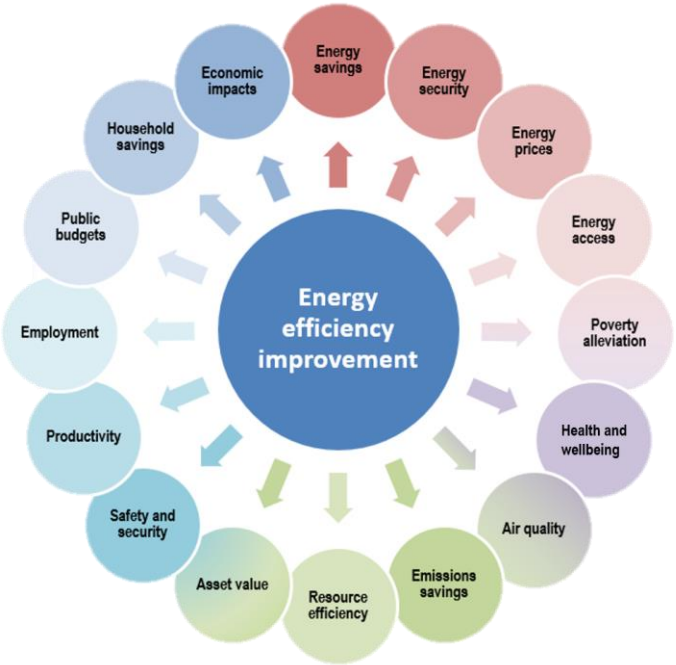
5 minute break

Multiple impacts of energy efficiency



Source: IEA (2014), *Capturing the multiple benefits of energy efficiency*, *All rights reserved*.

There are multiple benefits (environmental, economic and social) from energy efficiency

Employment

- Energy Efficiency is often labour intensive
- Rooted in local supply chains

Calculation method

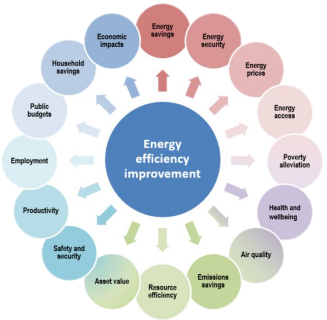
- Investment generates value added
  - Input-Output Tables provide information
- Value added occurs in part locally and generates employment

- Direct effects
  - Decreased energy cost reduces overall cost
  - Process improvements decrease per-unit cost
- Indirect effects
  - Better working climate decreases sick-leave days and employee productivity
  - Process improvements decrease equipment maintenance

Energy Security

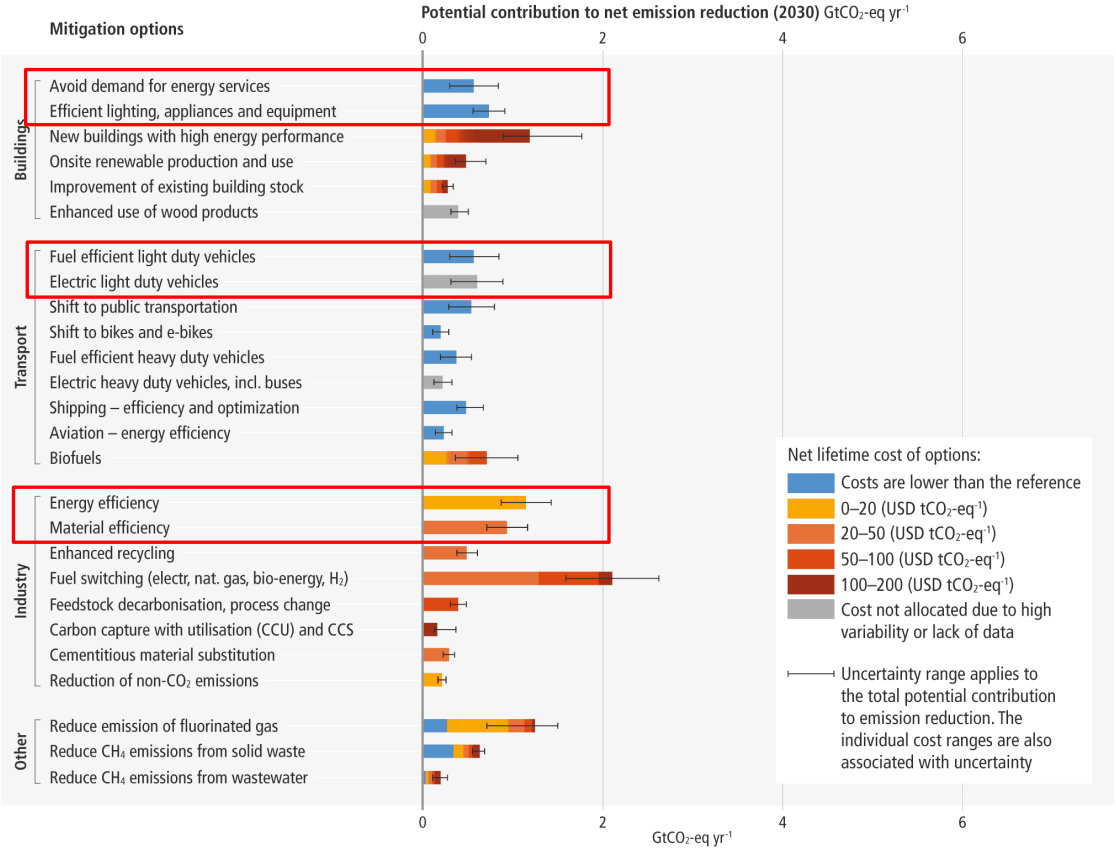
- Reduced energy demand decreases dependency on energy imports
- Price volatility affects less if demand is lower
- Flexibility technology can increase infrastructure resilience in case of shortfalls

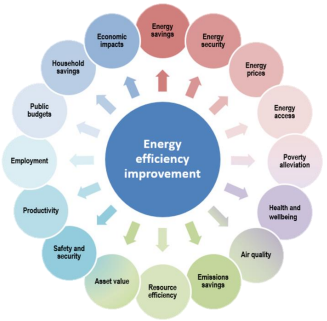
Poverty Alleviation



- The cheapest energy is the energy not used
- Price increases affect users less if demand is lower
- Benefit multiple of investment

Poverty Alleviation

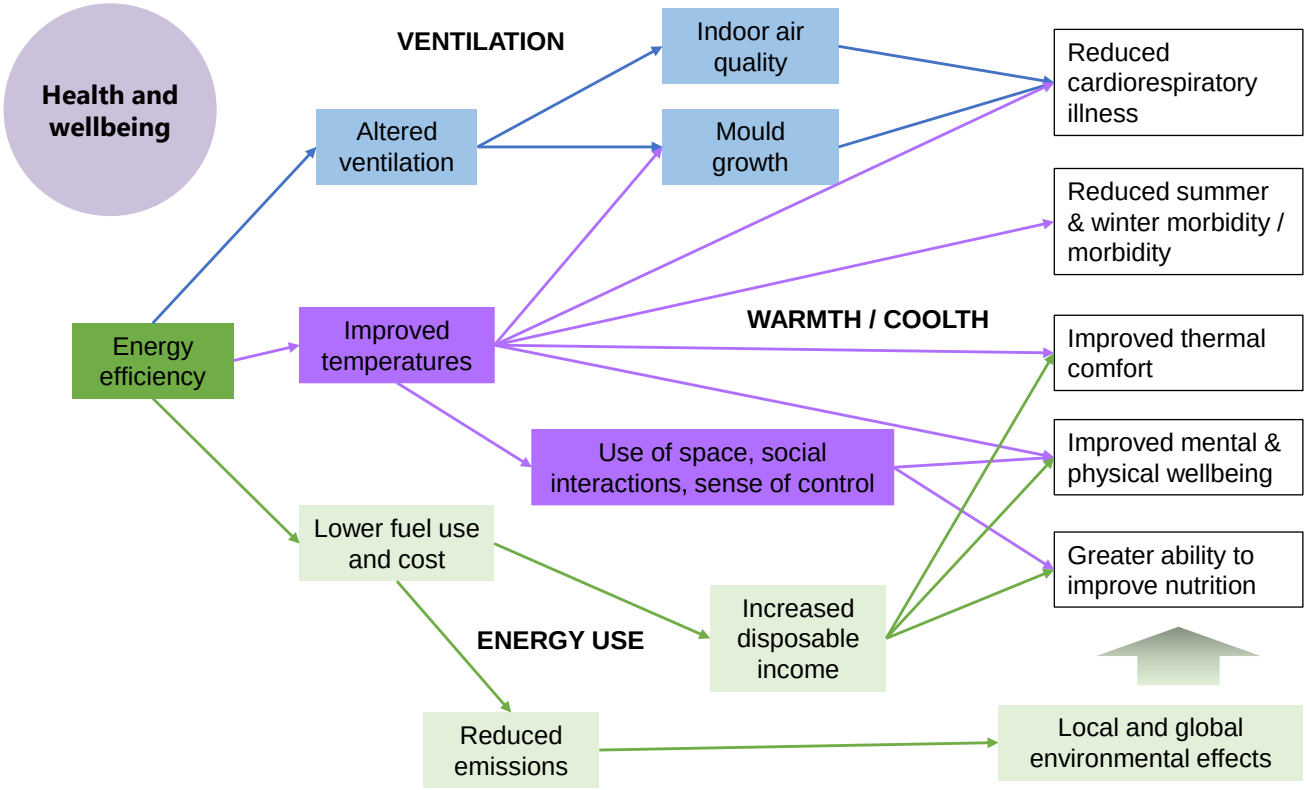


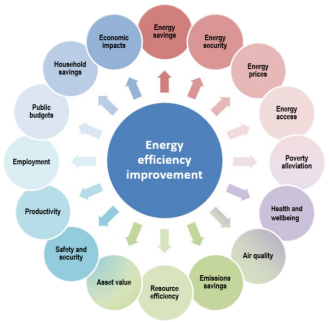


Source: IPCC Sixth Assessment Report Mitigation of Climate Change (2022)

Health and wellbeing

- Less emissions improve air quality
- Better working environments reduce accidents
- Improved thermal comfort reduces respiratory diseases





Adapted from:
Wilkinson, P., Smith, K.R., Beevers, S., Tonne, C., Oreszczyn, T., 2007.
Energy, energy efficiency, and the built environment.
Lancet 370, 1175–87.

GESI considerations

Guiding principles for a Just Transition

a) Social consensus – Social dialogue

b) Respect, promotion and realisation of fundamental principles and rights at work

c) Gender dimension of many environmental challenges and opportunities

d) Coherent policies should provide an enabling environment towards sustainable and inclusive economies

e) These coherent policies should also promote the creation of decent work
   - Impacts on employment, social protection for job losses and displacement, skills development, social dialogue, right to organise and collective bargaining

f) Policies should be designed in line with specific conditions

g) Foster international cooperation among countries

Source:
International Labour Organization (2015). Guidelines for a just transition towards environmentally sustainable economies and societies for all.

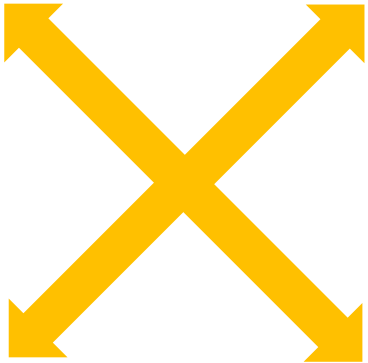
Dimensions of Gender and Social Inclusion in Evaluation

Economic

- Distribution of costs
- Distribution of benefits

Process

- Involvement of societal groups
  - Women
  - Young people
  - People with disabilities
  - Minorities



Operational

- Diversity in the evaluation team
- Accessible reports

Impact

- Equitable distribution of
  - Energy savings
  - Multiple benefits

Who pays and who benefits?

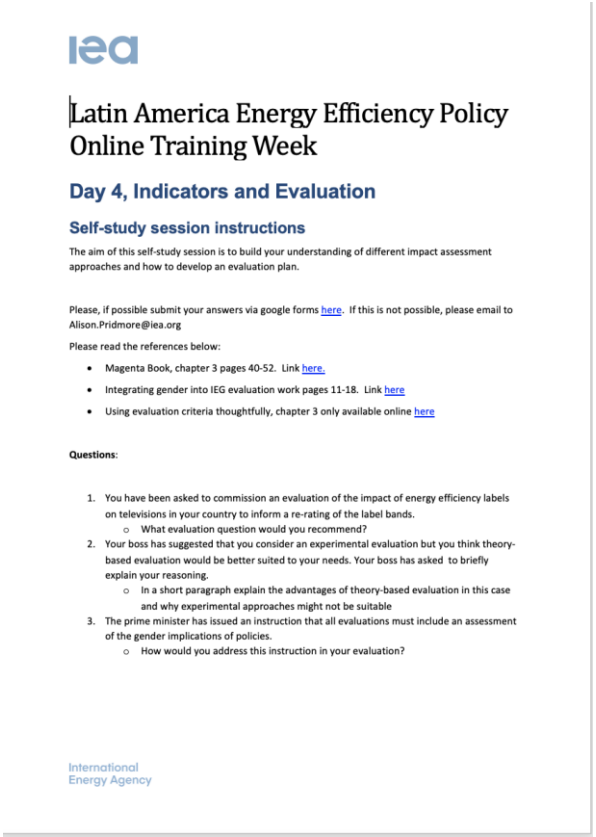
- Are your policies fair?
- Wealthier consumers benefit most from product policy
  - Buy more products
  - Use them more
  - Spend more on energy
- Who pays for subsidies/incentives/scheme costs
  - Manufacturers?
  - Consumers e.g. levy on bills?
  - General taxation?
- What are the implications for indicators and evaluation?

Gender-responsiveness

Gender-responsive planning, budgeting, monitoring and evaluation

Source:
Department for Women, Youth and Persons with Disabilities of the Republic of South Africa (2018). Framework on gender-responsive planning, budgeting, monitoring, evaluation and auditing.

Self-study



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Latin America Energy Efficiency Policy Online Training Week

Day 4, Indicators and Evaluation

Self-study session instructions

The aim of this self-study session is to build your understanding of different impact assessment approaches and how to develop an evaluation plan.

Please, if possible submit your answers via google forms here. If this is not possible, please email to Alison.Pridmore@iea.org

Please read the references below:

- Magenta Book, chapter 3 pages 40-52. Link here.
- Integrating gender into IEG evaluation work pages 11-18. Link here
- Using evaluation criteria thoughtfully, chapter 3 only available online here

Questions:

1. You have been asked to commission an evaluation of the impact of energy efficiency labels on televisions in your country to inform a re-rating of the label bands.
   - What evaluation question would you recommend?
2. Your boss has suggested that you consider an experimental evaluation but you think theory-based evaluation would be better suited to your needs. Your boss has asked to briefly explain your reasoning.
   - In a short paragraph explain the advantages of theory-based evaluation in this case and why experimental approaches might not be suitable
3. The prime minister has issued an instruction that all evaluations must include an assessment of the gender implications of policies.
   - How would you address this instruction in your evaluation?

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Breakout groups - developing an evaluation plan

- How will **effectiveness** be evaluated? What data and evidence will you need? Who will use this evidence and how will they be engaged in the process?
- How will **efficiency** be evaluated? What data and evidence will you need? Who will use this evidence and how will they be engaged in the process?
- How will the **impact** that is attributable to the policy be evaluated? What data and evidence will you need? Who will use this evidence and how will they be engaged in the process?
- How will **relevance** and **coherence** be evaluated? What data and evidence will you need? Who will use this evidence and how will they be engaged in the process?
- How will **sustainability** be evaluated? What data and evidence will you need? Who will use this evidence and how will they be engaged in the process?

You will need to build on the Theory of Change and Monitoring Plan that you have already developed.

Evaluation Plan template – Effectiveness

- How will **effectiveness** be evaluated? What data and evidence will you need? Who will use this evidence and how will they be engaged in the process?

Evaluation Plan template – Efficiency

- How will **efficiency** be evaluated? What data and evidence will you need? Who will use this evidence and how will they be engaged in the process?

Evaluation Plan template – Impact

- How will the **impact** that is attributable to the policy be evaluated? What data and evidence will you need? Who will use this evidence and how will they be engaged in the process?

Evaluation Plan template – Relevance and Coherence

- How will **relevance** and **coherence** be evaluated? What data and evidence will you need? Who will use this evidence and how will they be engaged in the process?

Evaluation Plan template – Sustainability

- How will **sustainability** be evaluated? What data and evidence will you need? Who will use this evidence and how will they be engaged in the process?

Report back from breakout groups