Energy Efficiency Training Week
Making the case for industrial energy efficiency policy

Industry Stream
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🔗 IEA #energyefficientworld
Training map – where are we now?

- How to make the case for industrial energy efficiency policy
- How to select and design the best measures
- How to implement
- How to evaluate and scale-up
- How to leverage information and communication technologies

Develop your skills & knowledge to deliver industrial energy efficiency policies & programmes
Learning outcomes

This session will focus on developing your capabilities to:

• Establish the barriers to energy efficiency in your country context

• Set meaningful programme objectives

• Identify other relevant policies and programmes that can complement your efforts

These are all important factors that help you to make a compelling case and rationale for an industrial energy efficiency policy or programme.
What is industrial energy efficiency policy?

• A set of strategies, legislation, measures, programmes that together stimulate energy efficiency improvement in the industrial sector.

• The industrial sector includes very large energy users ...
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• A set of strategies, legislation, measures, programmes that together stimulate energy efficiency improvement in the industrial sector.

• The industrial sector includes very large energy users ...

• And small and medium-sized enterprises in sectors that collectively consume significant energy.
Industrial energy demand is important

- 24% of global CO₂ emissions

- Consumption has grown by about 1.3% annually since 2010 (industrial sector value-added has grown by 2.9%)

- Highest energy demand growth in 2010 to 2016 period occurred in India (4.7%), South Korea (2.7%), China (2.6%), and the Middle East (2.5%)

- Global industrial productivity (industrial value-added per unit of energy used) has increased by 1.6% annually from 2010 to 2016
Industrial energy demand trends

IEA members and Brazil, People’s Republic of China, India, Indonesia and the Russian Federation, Source: IEA *Energy Efficiency 2017*
Global industrial energy use

World

Total final energy consumption

mtoe

industry's share


24% 25% 26% 27% 28% 29% 30%
Industrial energy use in OECD countries

OECD Total

Total final energy consumption

![Graph showing total final energy consumption with industry, other, and share categories]
Industrial energy use in non-OECD countries

Non-OECD Total

Total final energy consumption

Industry
Other
Share

mtoe
industry's share


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Obtaining support for industrial energy efficiency policy

Energy efficiency is good... but there are many demands on government funding

Minister of finance

Energy efficiency is good

Energy Efficiency Agency

Image: Cartoonsmix
Identify all of the benefits

Build support by aligning your Industrial energy efficiency policy with national priorities!
Case study: multiple benefits

- Australian aluminum producer – system optimisation to reduce energy demand – increased production by 3000 tonnes per year (value USD 6 million)
Case study: multiple benefits

- Peruvian smelting company (secondary lead)
- Implemented suite of energy efficiency measures including new burner, fuel mix optimisation, upgraded refractory bricks and furnace hood
- Reduced energy (value less than USD 2000) and increased extraction of lead by 34.7 tonnes per year (value almost USD 17000)
Beyond energy savings – multiple benefits

Benefits for companies

• Enhanced production
• Improved product quality
• Reduced liability
• Improved work environment
• Improved working conditions
• Reduced need for maintenance
• Improved environmental performance
• Improved profit margins
• Improved reputation

Benefits for economies

• Reduced pollution
• Reduced environmental impacts
• Deferred need for new power plants and grid
• Lower need for energy imports
• Improved competitiveness of industry
Benefits occur at different economic levels

National

Sector

Company
Select objectives that align with national priorities

Energy efficiency
• Reduce energy use (all types, specific fuels)
• Improve efficiency (not necessarily the same as reducing use)
• Reduce GHG emissions – counteract climate change

Multiple benefits
• Reduce air pollution
• Make environmental improvements
• Improve energy security
• Avoid need for new energy capacity
• Improve security of supply
• Improve competitiveness of industry
• Stimulate innovation
• Stimulate development of service and technology markets
• Create new jobs
Why is policy needed?

- Policy mechanisms including energy management programmes, minimum performance standards for industrial equipment (esp. electric motors) and other policies have contributed to a 20% fall in industrial energy intensity between 2000 and 2016...
Industrial energy efficiency barriers

**Information**
- lack of access
- too much information
- no time, not a priority
- perception that energy efficiency measures could have a negative impact on production

**Capacity**
- no internal expertise
- equipment vendors lack skills and incentives
- low external consultant quality (or no consultants)
Industrial energy efficiency barriers

Economic and finance

- lack of internal finance – how return on investment is calculated
- energy efficiency projects not seen as competitive
- no capacity to write bankable projects
- local financial institutions not supportive
- low energy prices

Regulatory barriers

- utility business model
- fossil fuel subsidies
Industrial energy efficiency barriers

What are the key barriers in your countries?
Policy rationale

- Policy makers need to answer a fundamental question ... How can policy overcome barriers to deliver benefits?

Evaluation & feedback loops

Current situation

Measures to help get there

Policy objective

Multiple benefits
The role of industrial energy efficiency policy-makers

- Energy efficiency policy-makers have to effectively articulate *why* government intervention is needed and *how best* to intervene.
Data that can be used to justify policy intervention

Types of data:
- Data on industrial energy use
- Data on fuel mix
- Data on sector specific use (e.g. energy used by textile industry)
- Data on specific energy use (e.g. energy per ton of clinker)
- Data to assess potentials

Data sources:
- National statistics
- Data from energy utilities
- Reports from companies (perhaps part of environmental reporting?)
- Samples, surveys
- Data from international organisations and other countries
Data that can be used to justify policy intervention

- What other types of data are useful?
- What other sources are available?
Map other policies and programmes

Identify existing policies and programmes

- National policies and programmes (climate, environment, business development, trade development, buildings energy efficiency, equipment energy efficiency)
- State and municipal programmes
- Donor-led initiatives

Analyse existing policies and programmes

- Scope and scale
- Successes & failures
- Possible synergies
- Possible negative impacts
- Duplication risk
Mapping policies in Mexico

CCE
CONCANACO
CONCAMIN

Gobierno Federal
PEMEX

CFE
SENER
SEMARNAT

SE
SHCP

COMPITE
BANCOMEXT
NAFIN

Mexico GHG Program
Fondo PyME

Eficiencia Energética
Programa de Ahorro y Eficiencia Energética
Programa Nacional para el Aprovechamiento Sustentables de la Energía (PRONAGE)

Mi Tortilla

CARBON TRUST
What could the rationale include?

✓ Energy use trends
✓ Importance of energy efficiency
✓ Objectives
✓ Defined target group
✓ Energy efficiency potentials
✓ Barriers
✓ Multiple benefits
✓ Measures and mechanisms
✓ Mapping of policies and programmes
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What else could be included?

What would convince your stakeholders?