



# Energy Efficiency Training Week

Making the case for industrial energy efficiency policy

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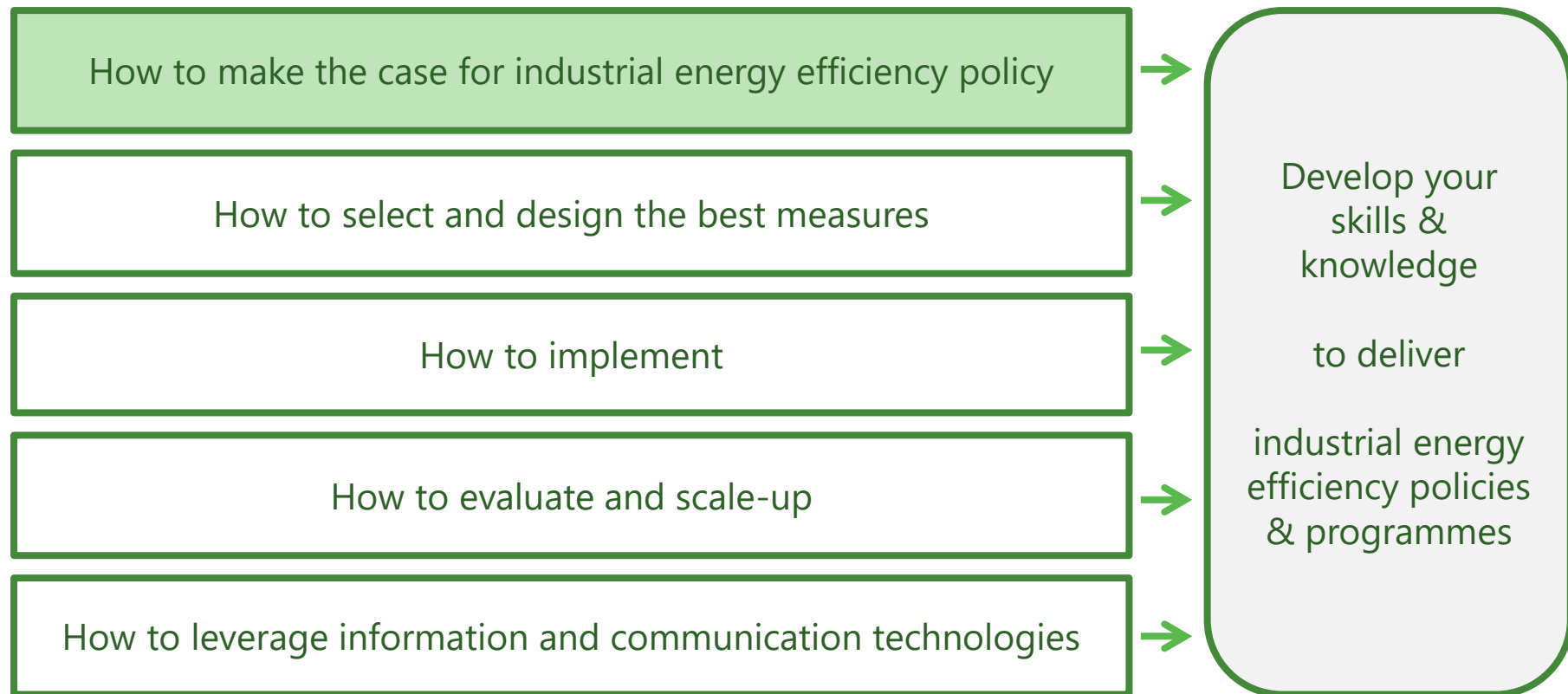
Industry Stream

Patrick Crittenden, Energy Efficiency in Emerging Economies, IEA

Bangkok, 1 April 2019

 IEA #energyefficientworld

# Training map – where are we now?



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 ...



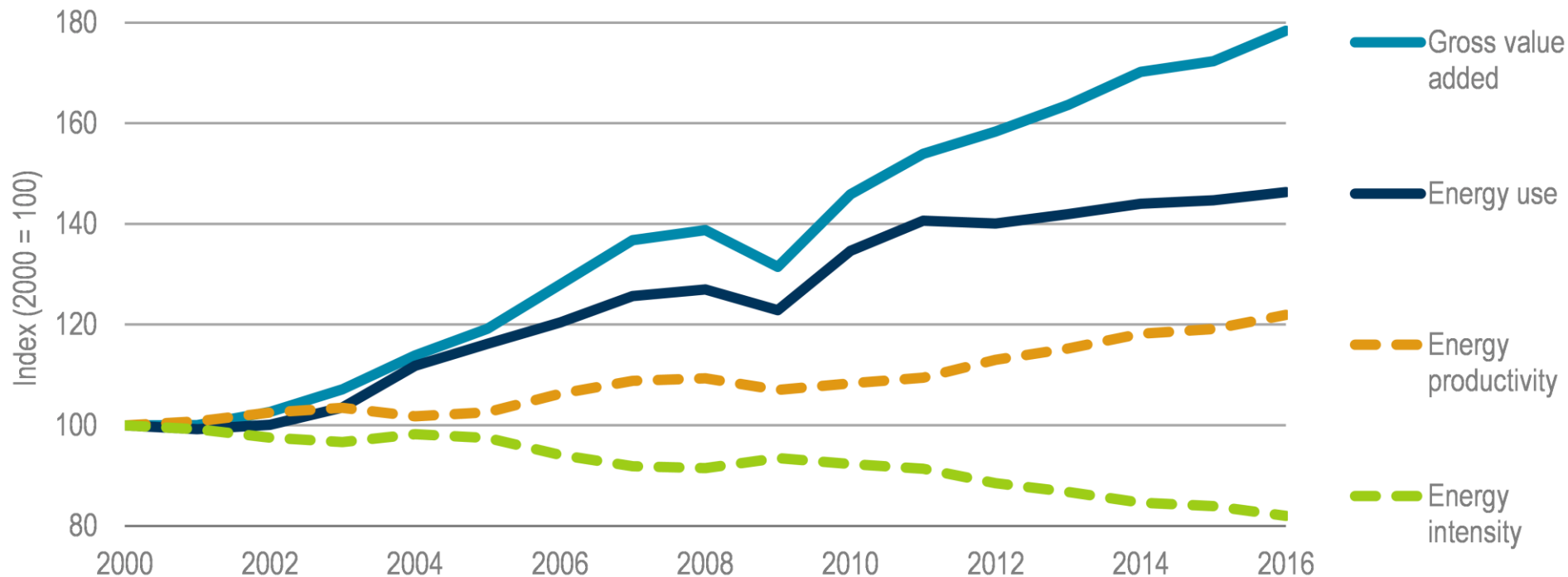
# What is industrial energy efficiency policy?

- 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 ...
- And small and medium-sized enterprises in sectors that collectively consume significant energy.



- 24% of global CO<sub>2</sub> 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

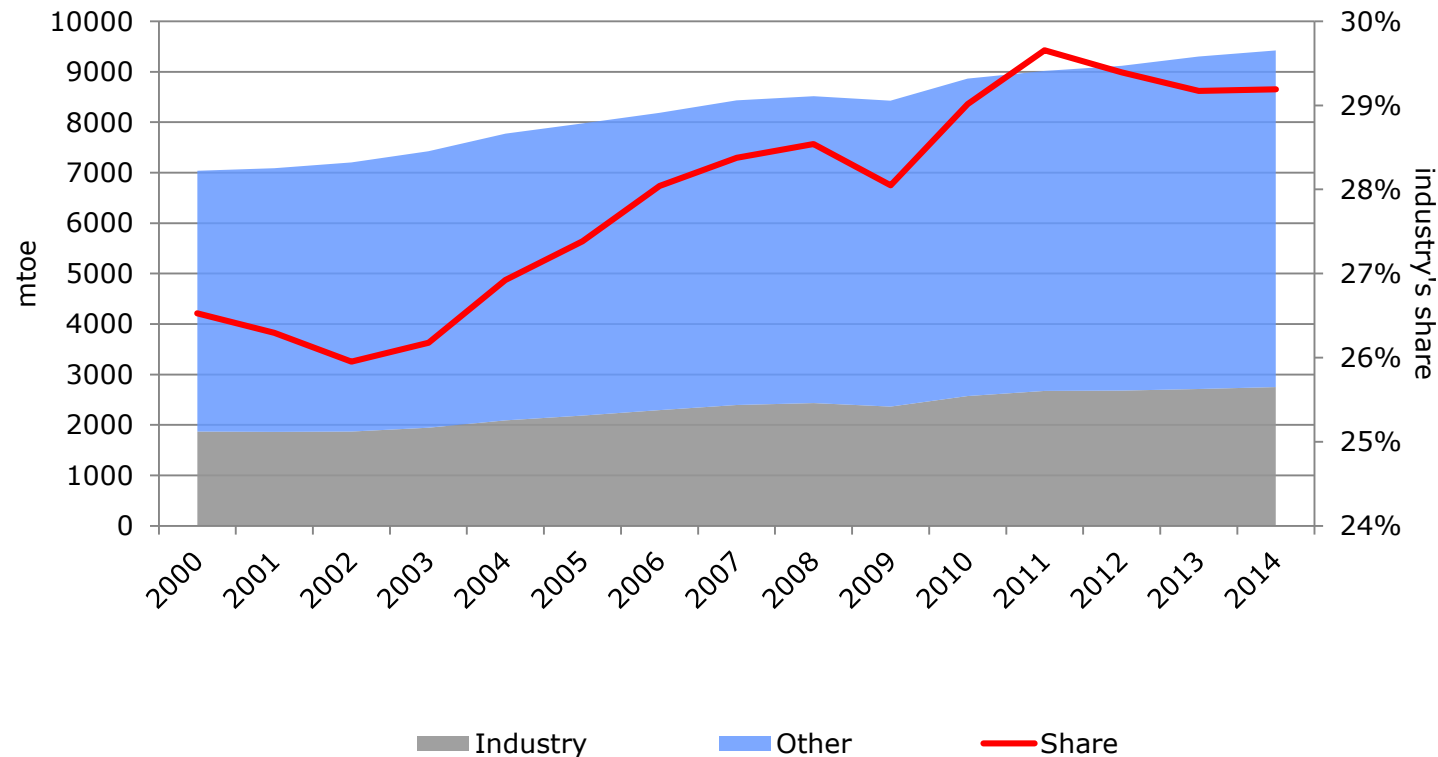
# Industrial energy demand trends



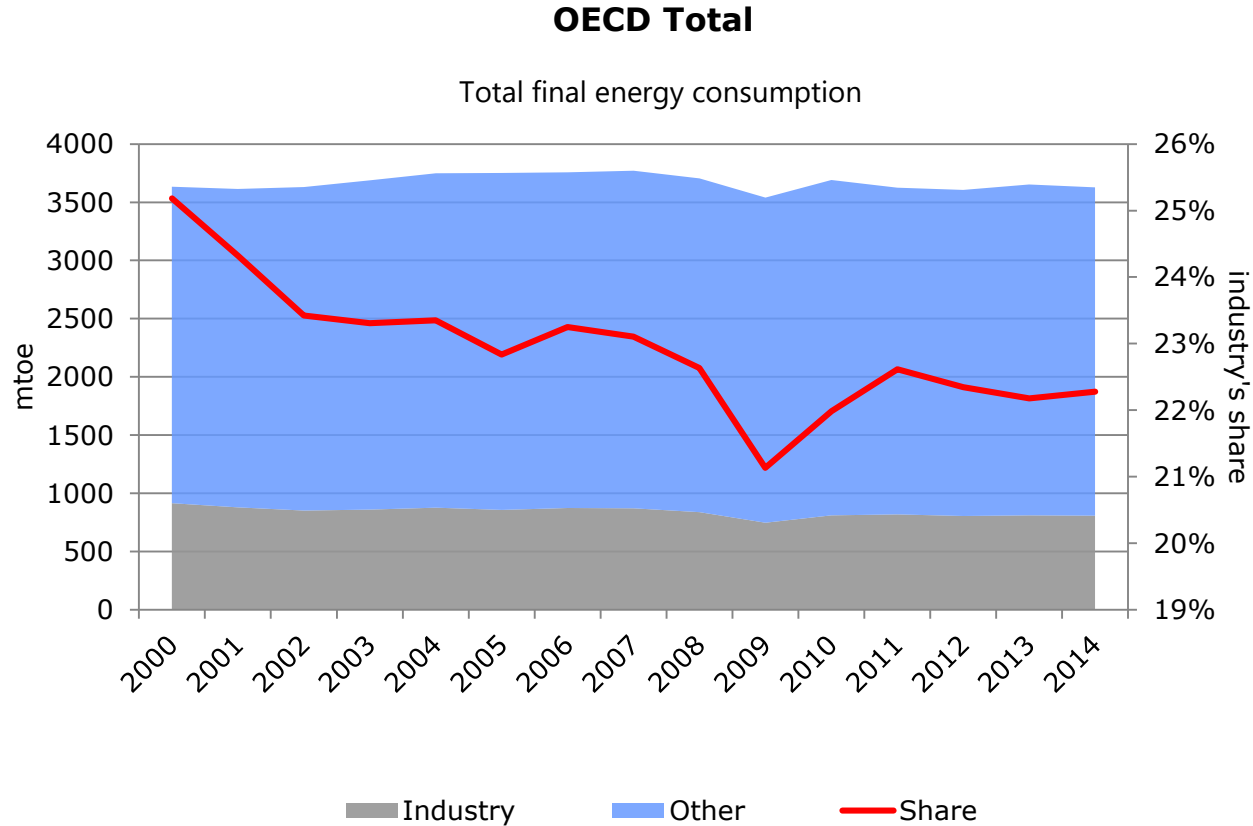
IEA members and Brazil, People's Republic of China, India, Indonesia and the Russian Federation, Source: IEA [\*Energy Efficiency 2017\*](#)

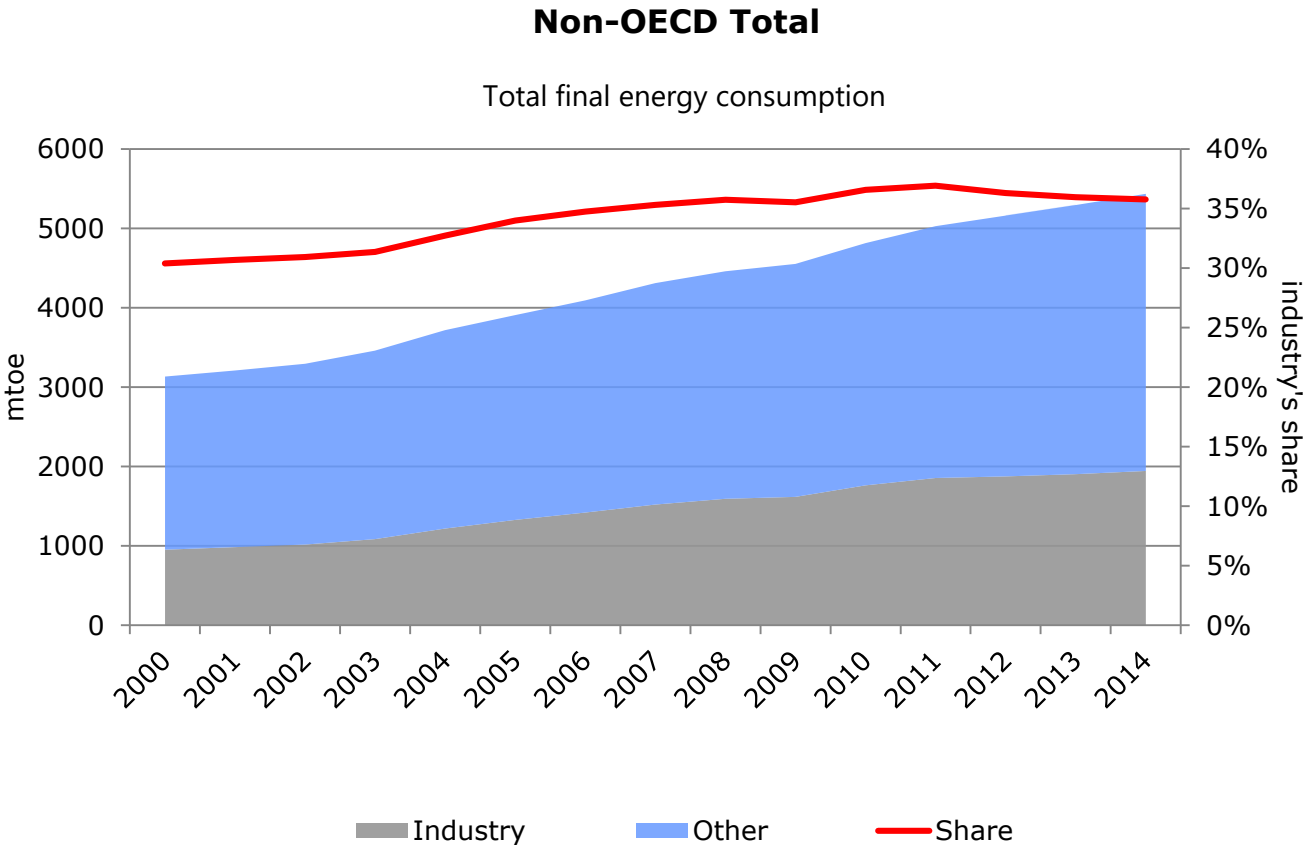
## World

Total final energy consumption









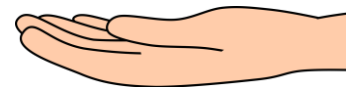
Energy efficiency is good... but there are many demands on government funding



Minister of finance

Image: Cartoonsmix

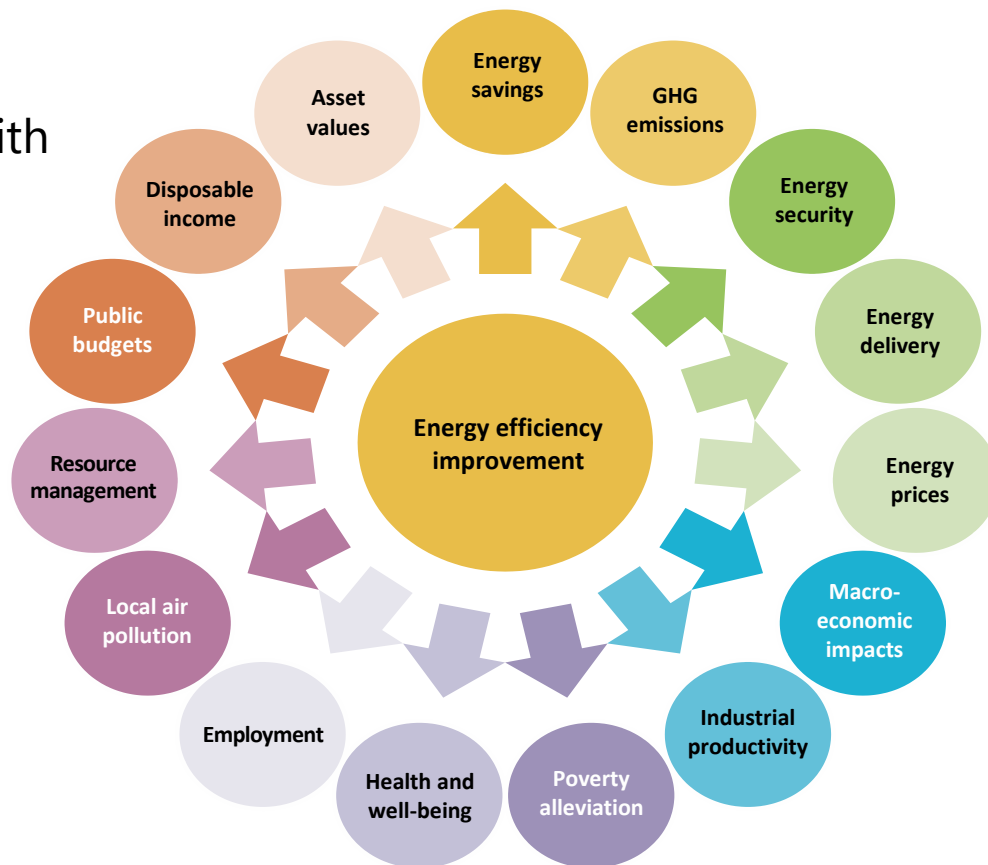
Energy efficiency is  
good



Energy Efficiency  
Agency

# 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)



Before



After



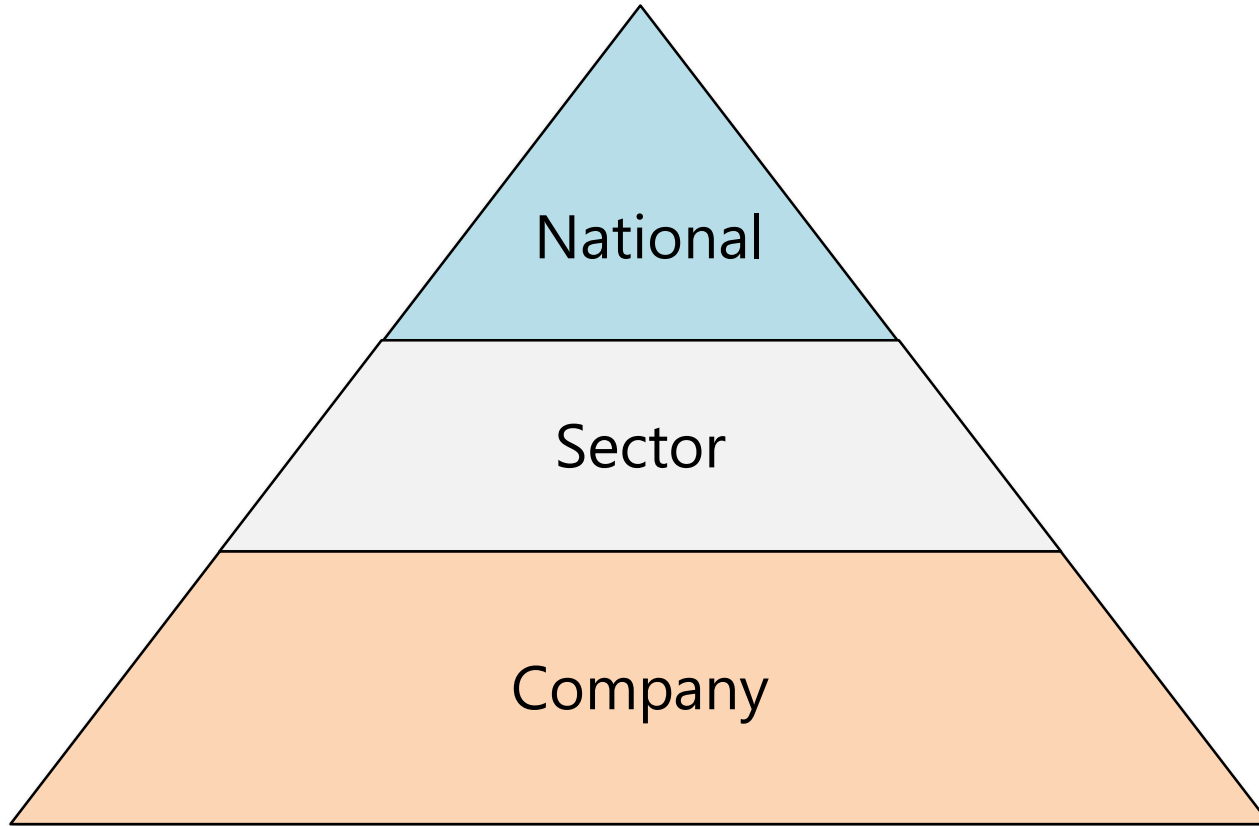
## Benefits for companies

- 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





# 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



- 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...

## 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)

## 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



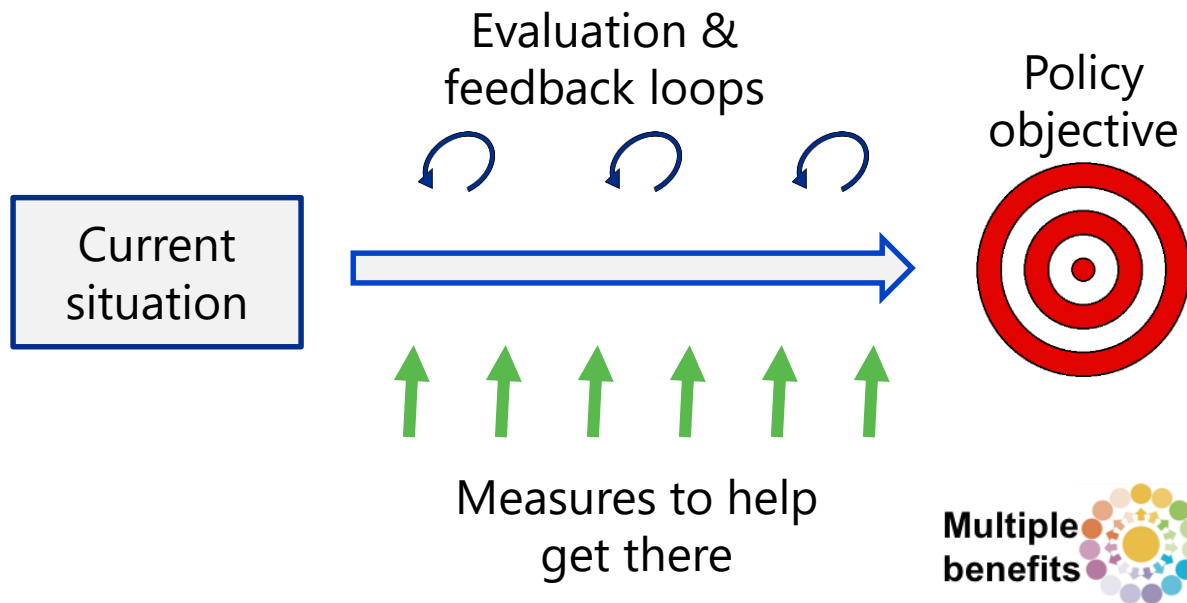
## Regulatory barriers

- utility business model
- fossil fuel subsidies

What are the key barriers in your countries?



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



- Energy efficiency policy-makers have to effectively articulate why government intervention is needed and how best to intervene

## 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



- What other types of data are useful?
- What other sources are available?



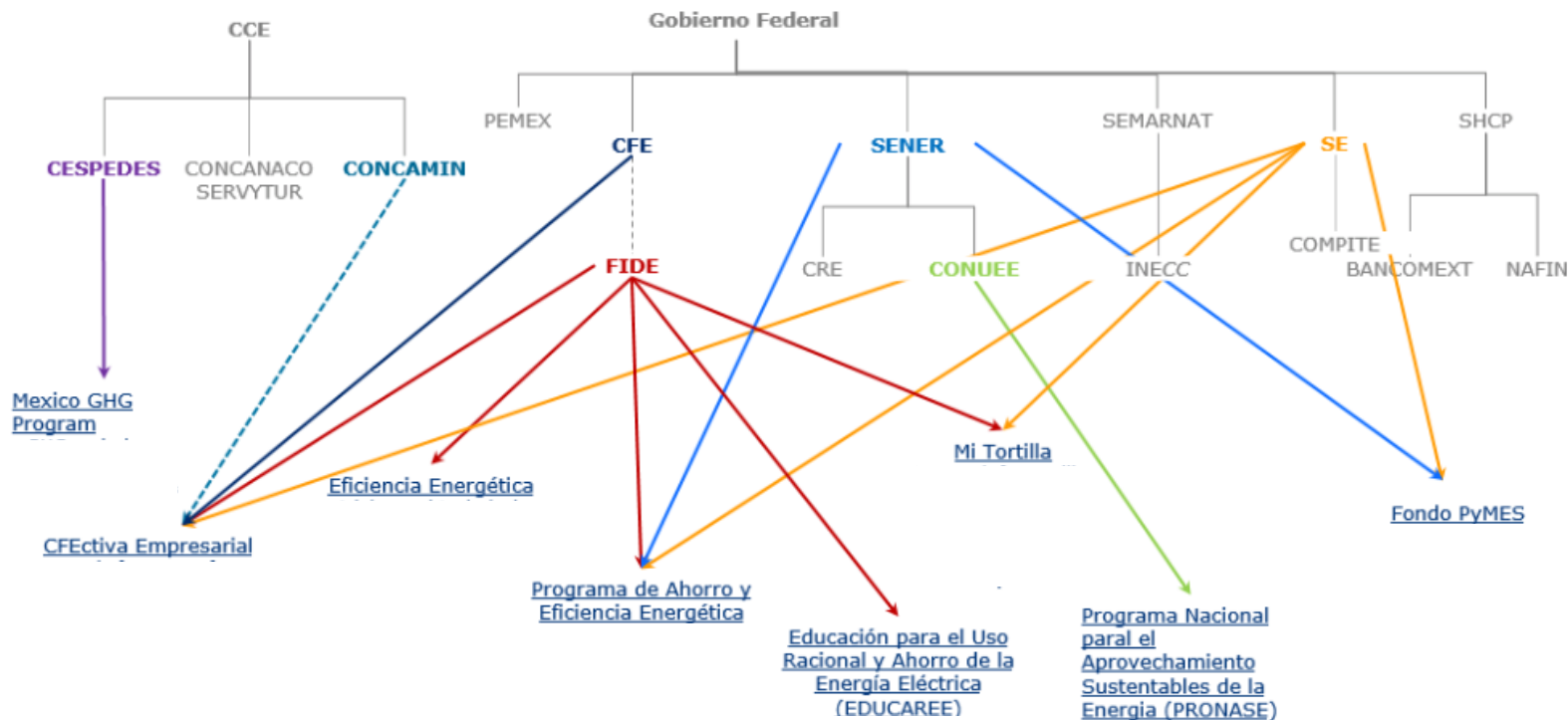
## Identify existing policies and programmes

- 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



# What could the rationale include?

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- ✓ 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?



ASEAN  
THAILAND 2019

ADVANCING PARTNERSHIP  
FOR SUSTAINABILITY



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Energy Agency  
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Sustainable  
Together



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