SUSTAINABLE ENERGY FOR ALL

UNFCCC- Technical Expert Meeting

Accelerating Energy Efficiency Action in Urban Environments

June 5, 2015 UNFCCC

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UN Sustainable Energy for All

One Goal:

Achieving Sustainable Energy for All by 2030

Three Objectives:

ENSURING *universal access* TO MODERN ENERGY SERVICES.

DOUBLING THE GLOBAL RATE OF IMPROVEMENT IN *energy efficiency.*

DOUBLING THE SHARE OF *renewable energy* IN THE GLOBAL ENERGY MIX.

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Starting point for SE4ALL goals

	Universal access to modern energy services		Doubling global rate of improvement of energy efficiency	Doubling share of renewable energy in global energy mix
Proxy indicator	Percentage of population with electricity access	Percentage of population with primary reliance on non-solid fuels	Rate of improvement in energy intensity	Renewable energy share in TFEC
1990	76	47	**–1.3**	16.6
2010	**83**	**59**		**18.0**
2030	100	100	–2.6	36.0

OUTLINE

1. Energy Efficiency – The Potential and the Benefits

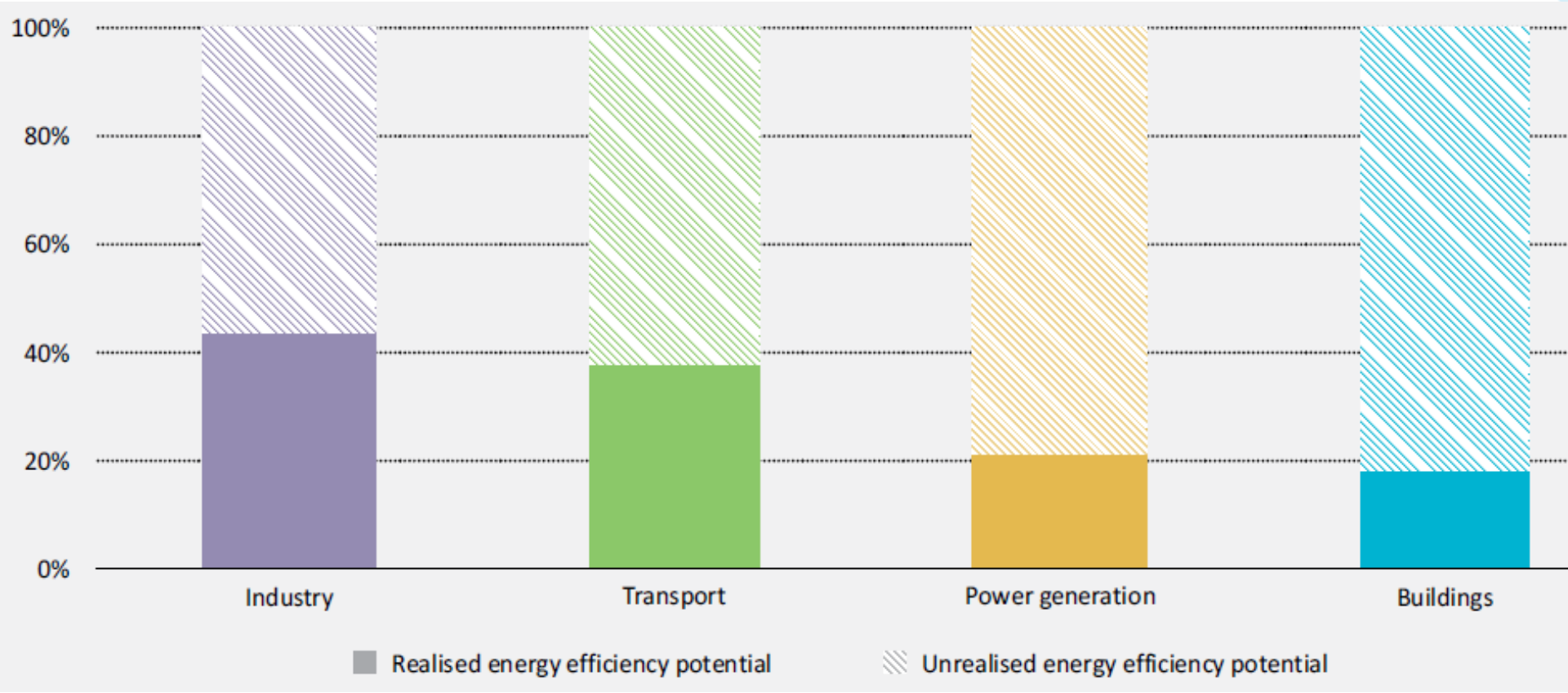
2. Accelerating Energy Efficiency in Urban Environments

3. SE4All Focus on Key Sectors

4. SE4All and COP 21

Energy Efficiency
The Potential
and
The Benefits

Energy Efficiency: a huge opportunity going unrealized

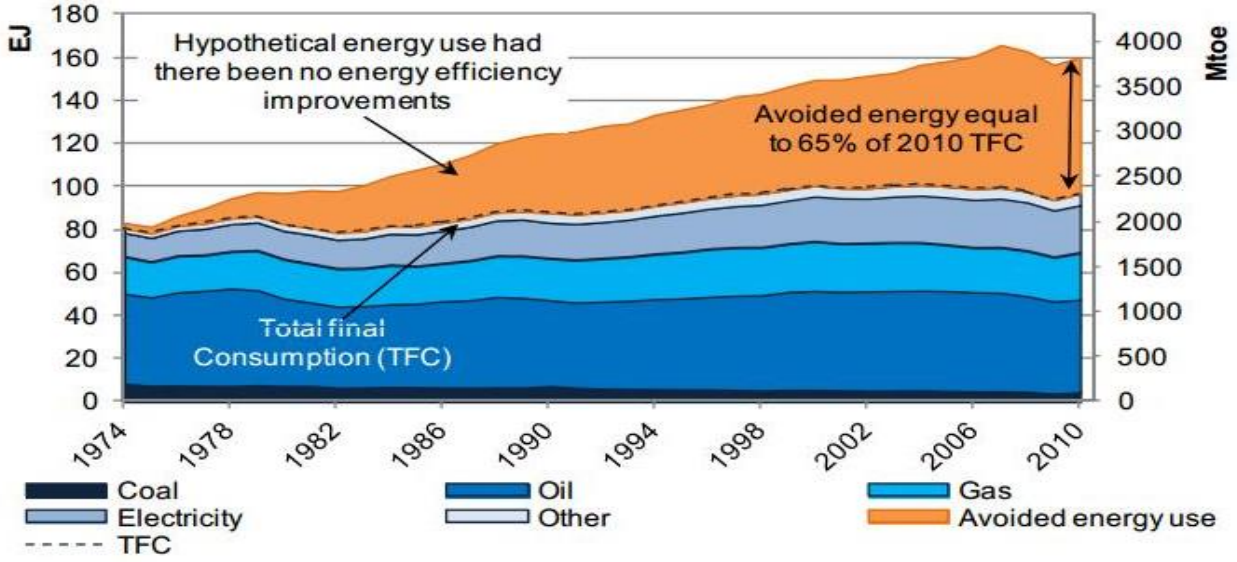


Two-thirds of energy efficiency potential will remain untapped by 2035 without the acceleration of energy efficiency actions.

Source: *World Energy Outlook*, IEA (2012)

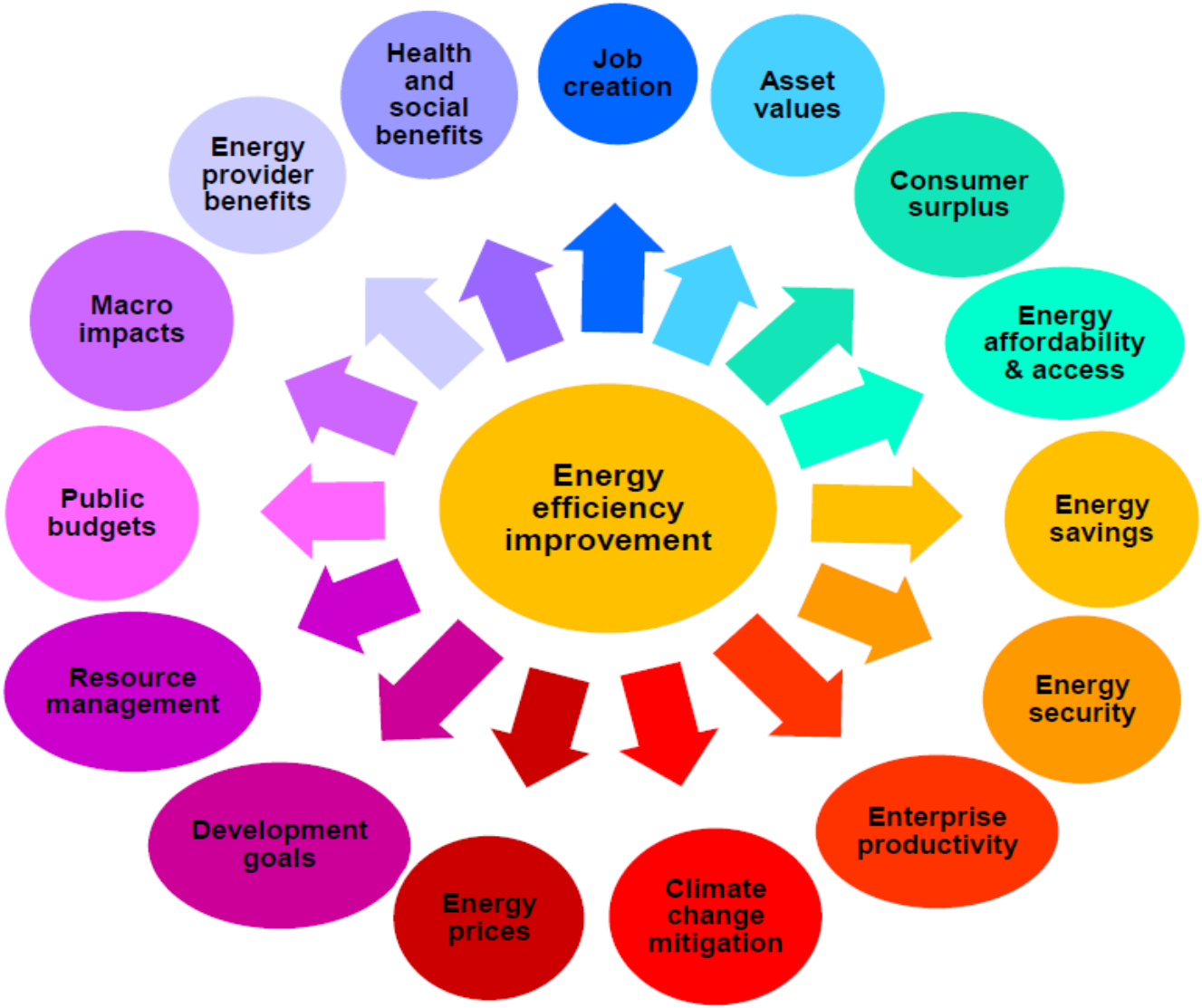
IEA's First Fuel?

- **Between 1974 and 2010, energy efficiency was the largest energy resource**
- **Cumulative avoided energy consumption due to energy efficiency in these IEA countries amounted to over 1 350 EJ (32 billion toe)**



Long-term improvements in energy efficiency in 11 IEA countries

Energy Efficiency has many benefits



Source: IEA

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Accelerating Energy Efficiency in Urban Environments

EE in Cities – Great GHG emissions reduction opportunity

- They account for 2/3 of worldwide energy usage and GHG emissions
- They only occupy 3% of the land surface, but gather 75% of the human population
- Most production, trade and transportation activities are located in city areas
- 80% of Asia's GDP is produced by cities

SE4All Focus on Key Sectors

SE4All Global Energy Efficiency Accelerator Platform

The Accelerator Platform was established to support specific sector-based energy efficiency accelerators

Lighting

Global market transformation to efficient lighting

en.lighten

Appliances & Equipment

Global market transformation to efficient appliances & equipment

efficient appliances & equipment

Vehicle Fuel Efficiency

Improve the fuel economy capacity of the global car fleet

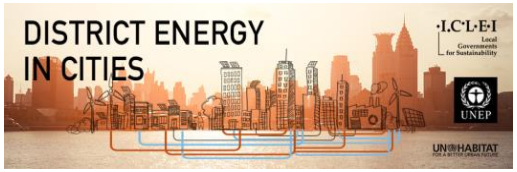
GFEI
GLOBAL FUEL ECONOMY INITIATIVE

Buildings

Promote sustainable building policies & practices worldwide

District Energy

Support national & municipal governments to develop or scale-up district energy systems



Industry

Implementing Energy Management Systems, technologies & practices

Power Sector Accelerator is under development

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Expected Impacts of the Accelerators

Lighting Accelerator

(100 % Stock conversion to LED)

- Reduction of 1550 TWh of electricity; equal to annual electricity consumption of Germany, Brazil and the UK
- Electricity savings could electrify 1.5 billion households
- Avoiding over $345 billion investment tied-up in 415 large base-load coal-fired power plants
- Savings of almost 800 million tonnes of CO2 yearly; more than the annual CO2 emissions of Germany

District Energy Accelerator

- By 2050, 35 Gt of carbon emissions could be avoid through the use of modern district heating and cooling
- This equals 58 percent of global carbon emission reduction required to keep the global rise in temperature to 2-degree Celsius

Vehicle Fuel Efficiency Accelerator

- More than 1 Gt of CO_2/year by 2025
- % 2 trillion (net) in un-used fuel by 2025
- More than 2 gt of CO2/yr by 2050

Expected Impacts of the Accelerators

Appliances Accelerator

- Reduce global electricity use by over 1,500 TWh, more than 7% of global use of today.
- Reduce global CO2 emissions by 1 billion tons/year equivalent to 300 million passenger cars
- Save electricity equivalent to 350 large power plants
- Save on electricity bills 215 billion US$

Buildings Accelerator

- Buildings consume nearly 35% of energy demand and account for about one third of GHG emissions globally
- Global building energy demand (thermal) can be reduced by one third by 2050 if known EE best practices are implemented on a large scale across regions

Industry Accelerator

- Widespread adoption of energy efficiency measures in industry, could reduce industrial energy use by over 25%. That potential is significant: it represents 3.92 Gt CO2 – an 8% reduction in global energy use and a 12.4% reduction in global CO2 emissions.

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Vehicle Fuel Efficiency Accelerator

Goal: To double the efficiency of all new vehicles by 2030 and of all vehicles by 2050

- The Vehicle Fuel Efficiency Accelerator is Implemented by the Global Fuel Economy Initiative (GFEI)
- Currently engaged with a total of 20 countries in the four regions - Africa, Asia, Latin America, and Middle East.

Expected Impact:

- More than 1 gt of CO_2/year by 2025
- More than 2 gt by 2050

District Energy Systems

Goal: To support governments to develop or scale-up district energy systems

- Lead by UNEP and Danfoss
- Currently engaging with 3 Pilot cities
- Engaging through the recent publication *'District Energy in Cities: Unlocking the Potential of Energy Efficiency and Renewable Energy'*

Expected Impact:

- Commence 3 pilot district energy systems in 2015 some 100 by 2020
- By 2050 some 35 gigatons could be avoided

Lighting

Reduction of 1550 TWh of electricity; equal to annual electricity consumption of:

Electricity savings could electrify 1.5 billion households

Over US$175 billion annually in avoided electricity bills

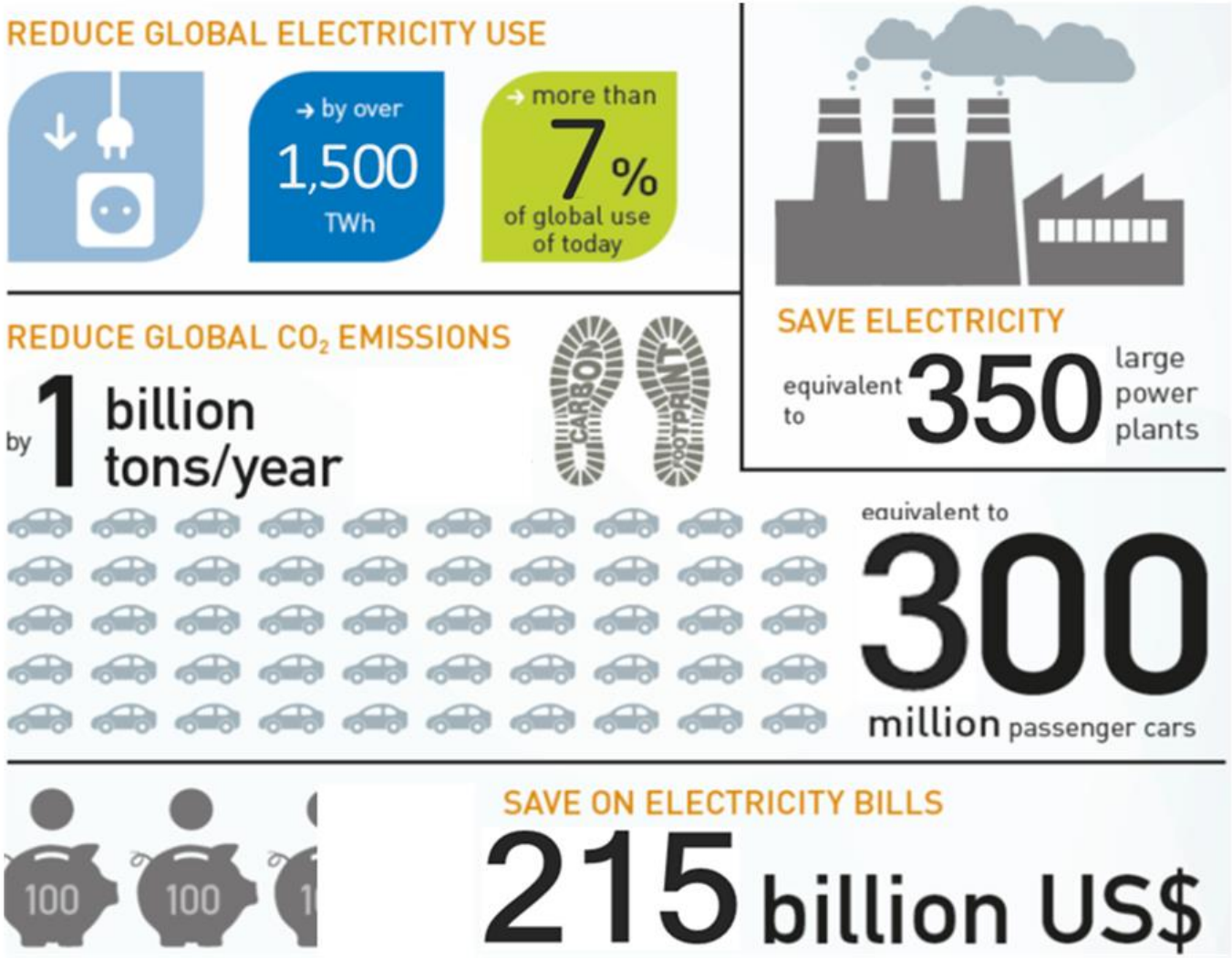
Avoid over US$345 billion investment tied up in 415 large base-load coal-fired power plants

CO_2

Savings of almost 800 million tonnes of CO_2 yearly; more than the annual CO_2 emissions of:

Source: UNEP

Appliances



Source: UNEP

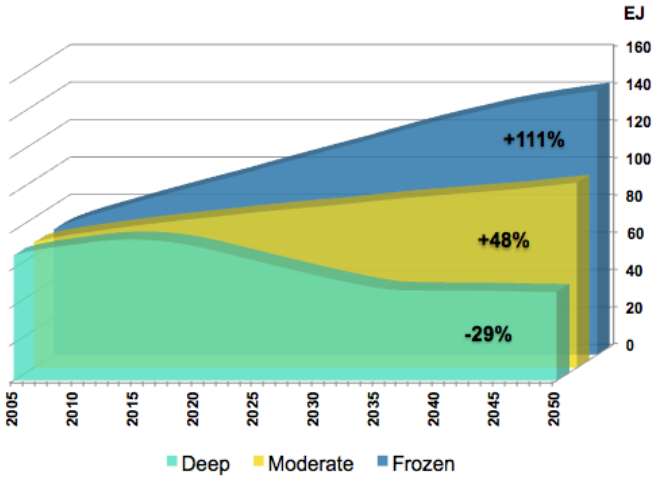
Buildings

Global significance:

Buildings consume nearly 40% of energy demand and account for about one third of GHG emissions globally

Large potential in buildings:

Global building energy demand (thermal) can be reduced by one third by 2050 if known EE best-practices are implemented on a large scale across regions



Source: GBPN (2012)

Multiple Benefits:

Economic

Cost-effective opportunities : each additional $1 spent on EE avoids more than $2, on average, in energy supply investments

Social

Energy access, reliability and security of energy supply

Environmental

GHG emissions reduction, sustainable building materials, building water conservation, climate resilience

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Menu of Policy Options

Codes	• Building codes to establish minimum requirements of energy performance.
Targets	• Targets to align interests and spur action in the building sector.
Government Leadership	• Programs to support government efficiency, including public building retrofits and innovative procurement.
Benchmarking & Disclosure	• Policies that generate data, baselines, and disclosure to support transparent building performance to the market.
Financial Mechanisms	• Programs and incentives to provide funding to building efficiency improvements.
Utility Actions	• Planning and programs for utility companies for energy efficiency progress.
Certifications	• Certifications including green buildings that allow market differentiation of key environmental attributes.

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Industry Accelerator

Goal: To implement Energy Management Systems, technologies and practices

- Leading Partners UNIDO, IIP, TERI, and private sector companies
- Targeting large energy intensive industries and energy intensive SMEs.

Expected Impact:

- Huge annual energy savings cost (some 23 % of total energy costs in developing economies) with universal adoption of best practice technologies

Industry

- The manufacturing industry spends some USD 1 trillion a year on energy – 55% of it in developing countries

- Universal adoption of best practice technologies could yield annual savings in energy costs of USD65 billion in developing economies (23% of total energy costs) and 2% of manufacturing value added

- Universal adoption of best available technologies can save additional 5 – 15% on costs. The potential totals 32.7 extrajoules per year, approx. 30% of the global energy consumption & 6% of total energy use worldwide

SE4All
and
COP 21

SE4All is convening the COP 21 Energy Efficiency Day

Objective is to gather commitments and Action Plans from:

- 100 Jurisdictions,
- 100 Businesses,
- 100 Financial institutions.

PARIS2015
UN CLIMATE CHANGE CONFERENCE
COP21·CMP11

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Thank you for your attention

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