Complementary Measures: Activating more than pricing and regulations

Workshop on Industry/business use of ‘complementary measures’ for decarbonisation:
Looking beyond pricing and regulation to voluntary and other approaches

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IEA, Paris

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THE 2DS REMAINS WITHIN REACH:
THE PORTFOLIO OF ENERGY TECHNOLOGIES

Emissions with 2DS

Emissions with 6DS

Gt CO₂

- Nuclear 8%
- Power generation efficiency and fuel switching 1%
- Renewables 30%
- End-use fuel switching 10%
- CCS 13%
- End-use fuel and electricity efficiency 38%
The current context ...

INDCs

CARBON EMISSIONS REDUCTION
National pledges build towards a global agreement

Submitted & signalled INDCs cover two-thirds of energy-related GHG emissions, with implications for future energy & emissions trends.
1. INDCs:

Global energy-related GHG emissions

INDC Scenario

Note: Mtoe = million tonnes of oil equivalent; Gt = gigatonnes.

Primary energy demand:
- INDC Scenario
- 450 Scenario

CO₂ emissions (right axis):
- INDC Scenario
- 450 Scenario

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The current context ...

INDCs

PARIS AGREEMENT

CARBON EMISSIONS REDUCTION
Possible key elements of a Paris Agreement

The IEA proposal for COP21:

1. **Peak in emissions** – set the conditions which will achieve an early peak in global energy-related emissions

2. **Five-year revision** – review contributions regularly, to test the scope to lift the level of ambition

3. **Lock in the vision** – translate the established climate goal into a collective long-term emissions goal

4. **Track the transition** – establish a process for tracking energy sector achievements
Developing richer data and tracking the right metrics can push for better outcomes

Global fleet average and new-build plants emissions intensity of power generation in IEA scenarios

Source: ETP 2015
The current context ...

- **INDCs**
- **PARIS AGREEMENT**
- **NON-CLIMATE LEVERS**
  (Energy security, air pollution, etc.)

**CARBON EMISSIONS REDUCTION**
1. Seize the benefits of immediate action to bend the global emissions curve

2. Focus on electricity decarbonisation

3. Reshape investment and accelerate innovation now in low-carbon technologies

4. Mobilise non-climate goals to promote energy sector decarbonisation

5. Strengthen the resilience of the energy sector to climate change
Dirty air prompts free public transport in Paris

Public transportation in the capital will be "gratuit" from Friday morning to Sunday night, as officials battle against a spike in "dangerously" poor air quality. Velib' rental bikes and the car-sharing Autolib' scheme are also on the house.

Shifting to more efficient transport to fight air pollution
The current context ...

- INDCs
- PARIS AGREEMENT
- NON-CLIMATE LEVERS
  (Energy security, air pollution, etc.)
- TECHNOLOGY INNOVATION

CARBON EMISSIONS REDUCTION
Energy Technology Perspectives 2015: Mobilising Innovation to Accelerate Climate Action
The right support depends on the maturity of the technology and the degree of market uptake

Source: ETP 2015
Supporting Energy Innovation: the right policy at the right time

The right support depends on the maturity of the technology and the degree of market uptake

Source: ETP 2015
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- Emissions with 6DS
- Emissions with 2DS
- CCS 13%
Early stage support is key to improve future technology competitiveness.

Projected Levelised Cost of Electricity of coal power generation in Asia

Assumptions on Capture Cost and Performance in the 2DS

Aggressive cost reductions are needed in the near term to make these projections a reality.
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Supporting Energy Innovation: the right policy at the right time

The right support depends on the maturity of the technology and the degree of market uptake

Source: ETP 2015
Later stage innovation support must focus on market uptake barriers

Projections of wind and solar PV generation

Wind and solar PV support needs to move from strictly incentives to integrated and well-designed market, policy and regulatory frameworks

Source: ETP 2015
System integration of large share of variable renewables: Key drivers

- Generation
- Storage
- Grids
- Demand Side
Not just about Innovation in technology ...

... also being innovative in our approaches
THE 2DS REMAINS WITHIN REACH: THE PORTFOLIO OF ENERGY TECHNOLOGIES

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2011  2020  2030  2040  2050

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THE 2DS REMAINS WITHIN REACH: THE PORTFOLIO OF ENERGY TECHNOLOGIES

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Exploiting the multiple benefits of Energy Efficiency
The current context ...

- **INDCs**
- **PARIS AGREEMENT**
- **NON-CLIMATE LEVERS** (Energy security, air pollution, etc.)
- **TECHNOLOGY INNOVATION and INNOVATIVE APPROACHES**
- **BETTER POLICIES**

**CARBON EMISSIONS REDUCTION**
Carbon Pricing Mechanisms

Status of ETSs worldwide

Source: Energy, Climate Change and Environment: 2014 Insights
Regulatory mandates

For example:

- Minimum performance standards (MEPS) for appliances
- Fleet average vehicle fuel economy
- Power generation: lifetime limits; fleet average emissions standards
The current context ...

- INDCs
- PARIS AGREEMENT
- NON-CLIMATE LEVERS (Energy security, air pollution, etc.)
- TECHNOLOGY INNOVATION and INNOVTIVE APPROACHES
- BETTER POLICIES

Carbon emissions reduction

Complementary Measures
1. Overview of the landscape – towards a typology of complementary approaches and a conceptual framework for action

2. Focus on assessment – how well are these programs doing / what criteria do we use for evaluation?

3. Complementary programs from around the world
   A. Voluntary agreements and government-initiated programs
   B. Business/NGO collaborations and company-led initiatives

4. Challenges and opportunities in developing and transition economies and SOEs

5. Possible role for complementary actions beyond Paris – suggestions for next steps
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Thank you
Outline of the day

- Two morning **plenary sessions** (with coffee break)

- **Lunch** will be provided at the IEA bar (12:45 pm)

- Two parallel **breakout sessions** (2 pm):
  - 3A in Room 1 (this room)
  - 3B in Room 2 (near the IEA reception desk on level “-1”)

- Reconvene for brief **report-backs** from the breakout groups (3:15 pm)

- Two afternoon **plenary sessions** (after coffee break)

- **Reception** at l’Atome café/bar (6:30 pm)

- **Slides** to be posted on IEA workshop web page