Lack of guidance for submission of NDCs led to a wide spectrum of energy target formulations

Need for guidance on communicating, tracking and accounting for low-carbon energy and energy efficiency goals

At minimum Parties will need to further clarify and define their targets and specify data sources and methodologies
The choice of metrics used to track and drive energy sector transformation matters a great deal.

Energy sector metrics can link directly to policy outcomes.

Specific energy goals can capture the multiple benefits of low-carbon technologies.

Can highlight short-term actions needed for longer-term low-carbon energy system transformation.

Coverage of a potential set of indicators:

- Energy supply and demand
- The overall state of the energy system (outcome metrics)
- Underlying drivers of change (driver metrics)
Indicators to track energy sector transformation: Aggregate perspective

- A small number of high-level energy indicators for an integrated view of progress and trends across the energy sector

- Fundamental challenges:
  - Improve efficiency of energy use
  - Reduce the carbon intensity of the energy supply

- Essential aggregate metrics to track
  - Energy sector carbon intensity (ESCI)
  - Energy intensity of GDP
  - New investment in low- and high-carbon energy supply and energy efficiency
  - Share of renewables in final energy demand
How are we doing in reducing the carbon intensity of our energy system?

As of 2014, the world’s energy supply was 1.2% more carbon intensive than it was in 1990.
Global fleet average and new-build plants emissions intensity of power generation in IEA scenarios

Carbon intensity of new power capacity down 27% since 2005

The **carbon intensity** of new power plants around the world has dropped by **27%** since 2005.

Broader indicators are needed to understand energy sector evolution and to formulate sound policy.

Broad range of disaggregated metrics

- **Power sector**
  - CO2 emissions per unit of electricity (fleet and new additions) gCO₂/kWh
  - Average efficiency of all fossil-fuel plants %
  - Share of low-carbon generation in new additions %

- **Transport**
  - New passenger cars: CO2 emissions per vehicle-kilometre gCO₂/vkm
  - Road freight vehicles: CO2 emissions per tonne-kilometre gCO₂/tkm
  - Carbon intensity of total transport fuel demand tCO₂/toe

- **Industry**

- **Buildings**
The carbon intensity of the global economy can be cut by two-thirds through a diversified energy technology mix.

Source: IEA, Energy Technology Perspectives 2016
Global clean energy deployment is still overall behind what is required to meet the 2°C goal, but recent progress on electric vehicles, solar PV and wind is promising.
IEA member public RD&D is shifting

Renewables and energy efficiency have surpassed fossil fuel spending
Strong metrics are built on strong data

- Significant data gaps currently exist both in developed and developing countries for some of these energy indicators.
- Significant effort needed to track a set of high-level indicators
- Some recent good news:
  - UN Sustainable Development Goals
  - Mission Innovation – R&D
- IEA collects and publishes global energy data, providing a foundation for robust metrics
- IEA has already begun to track some metrics systematically – World Energy Investment, Tracking Clean Energy Progress
The value of disaggregated data and indicators for national policymaking

Source: IEA, Energy, Environment and Climate Change: 2016 Insights
The UNFCCC process provides a strong foundation for metrics and data collection. Specific actions that could be taken through the UNFCCC process include:

- Establishing energy NDCs tracking procedures
- Encouraging capacity building to collect the detailed sectoral and demand-side data
- Highlighting the status of energy system transformation in the five-yearly UNFCCC stocktaking
Conclusion

- The choice of metrics used to track and drive energy sector transformation matters a great deal.
- Both high-level and broader energy sector indicators are needed to understand energy sector evolution and to formulate sound policy energy indicators.
- Significant effort needed to enhance data collection for tracking of energy sector indicators.
- IEA has already begun to track some metrics systematically.
- UNFCCC process could contribute towards enhanced energy sector metrics and data collection.
Thank you

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