International Energy Agency

Role of National Statistical Offices in Supporting Data-Driven Energy Transitions – the IEA perspective

14th session of the OIC-STATCOM, Ankara

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1st October 2025

The International Energy Agency (IEA)

The IEA is leading a new era of international energy co-operation.

Founded in 1973

- Core mission: to promote member country energy security
- Has evolved into global energy authority with an ‘all fuels, all technologies’ approach and expertise
- The IEA family includes 31 member countries, 5 accession countries and 13 association countries including Egypt, Kenya, Morocco and Senegal from Africa.

Governing Board - *IEA decision-making body*

- Consists of member country representatives
- Dedicated committees focusing on different policy and technology areas
- Biannual Ministerial Meeting

OECD framework

- The IEA is an autonomous agency under the framework of the Organisation for Economic Cooperation and Development (OECD)
- Headquarters are located in Paris, France

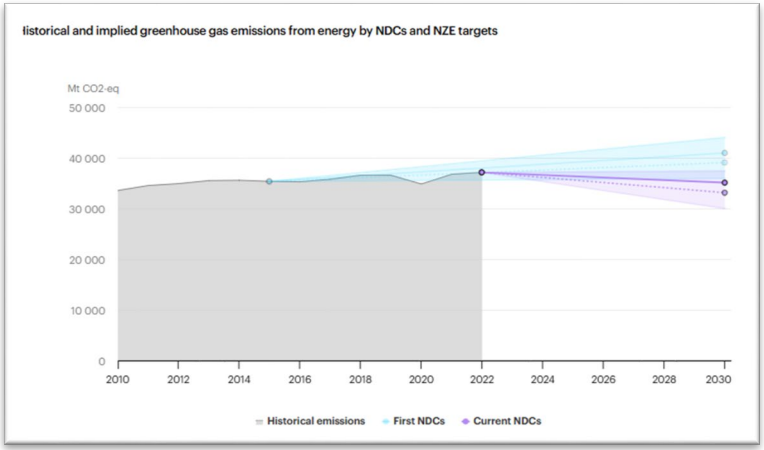
The IEA provides analysis, projections and data to support energy policies of its member countries and beyond

Data are essential at all stages of the policy cycle

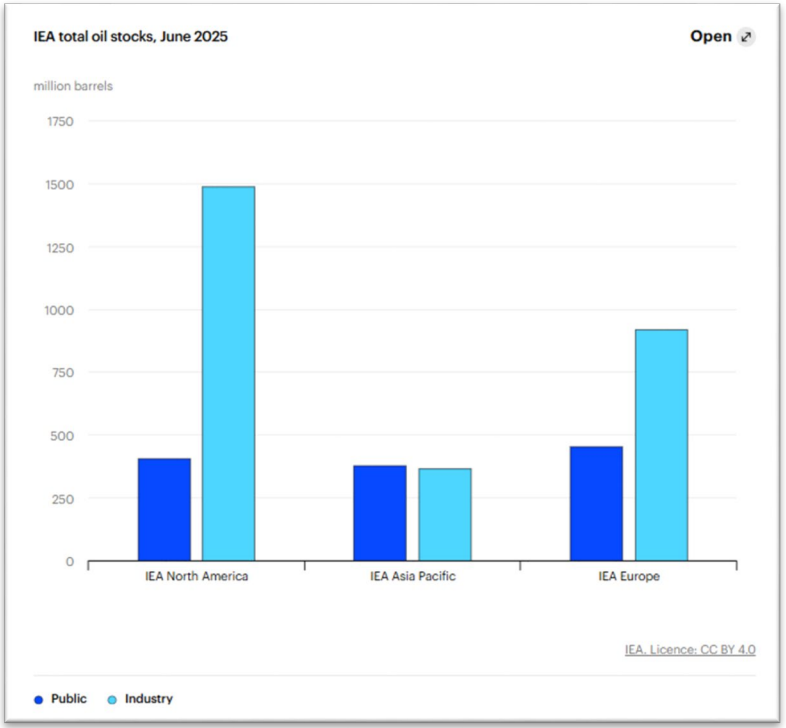
- Inform design based on current state and ambition
- Adapt policy during its implementation
- Understand policy performance
- Evaluate what happened and why

Data need to be high quality and relevant to each policy - from high level targets (e.g. SDGs/NDCs) to individual measures

Energy data for informing policies

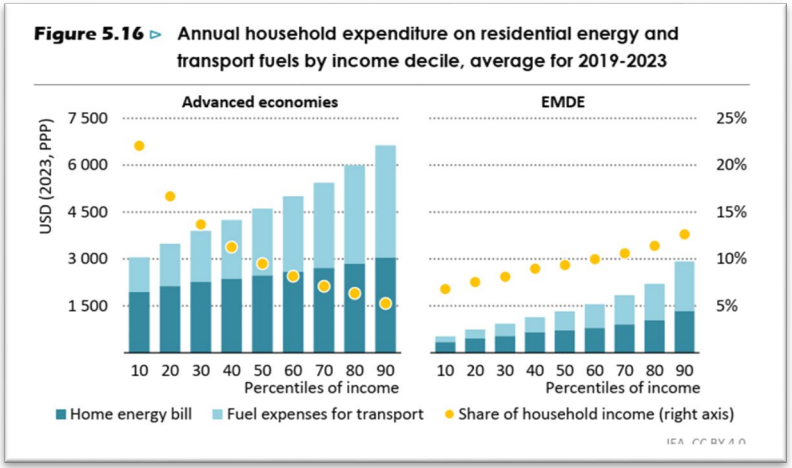


Track climate pledges

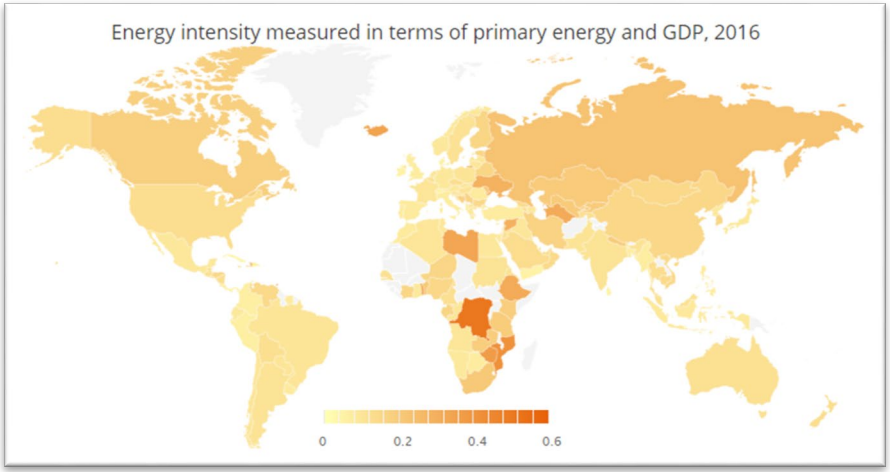


Assess energy security

Energy data for informing policies



Measure affordability

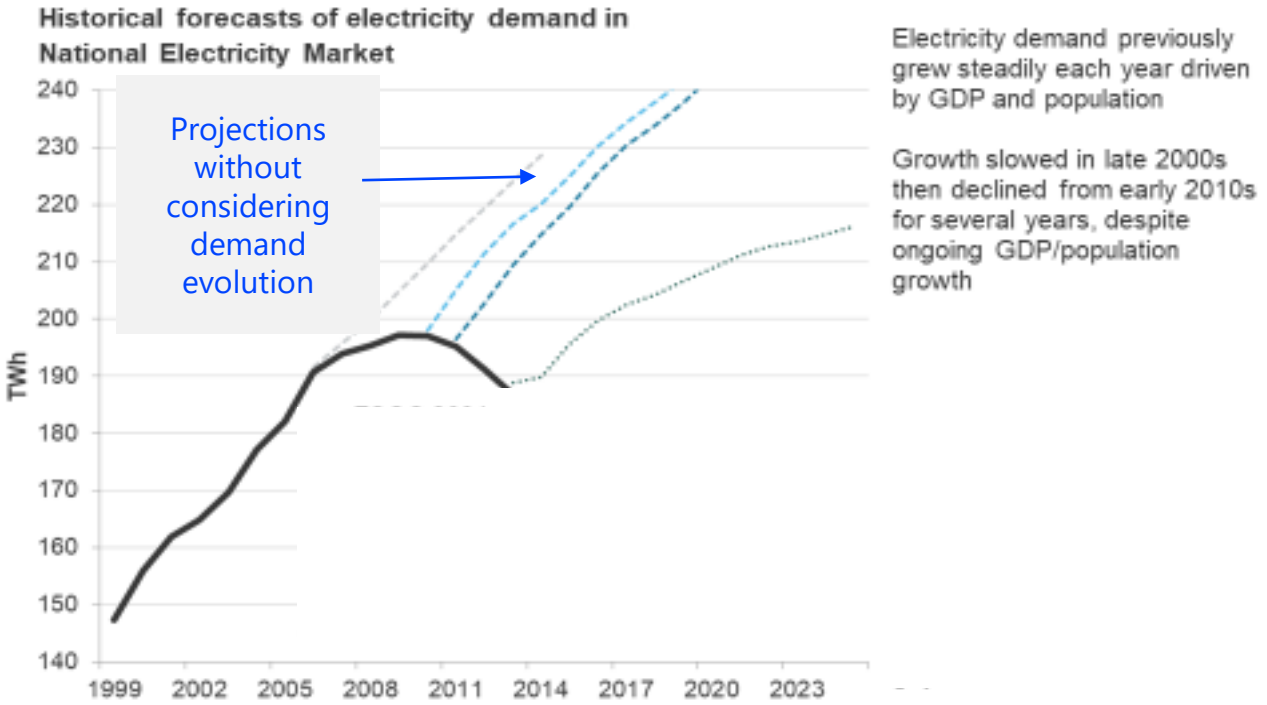


SDG 7.3: Energy Intensity= Total Energy Supply / GDP

Energy data for informing policies

Example from an IEA Member

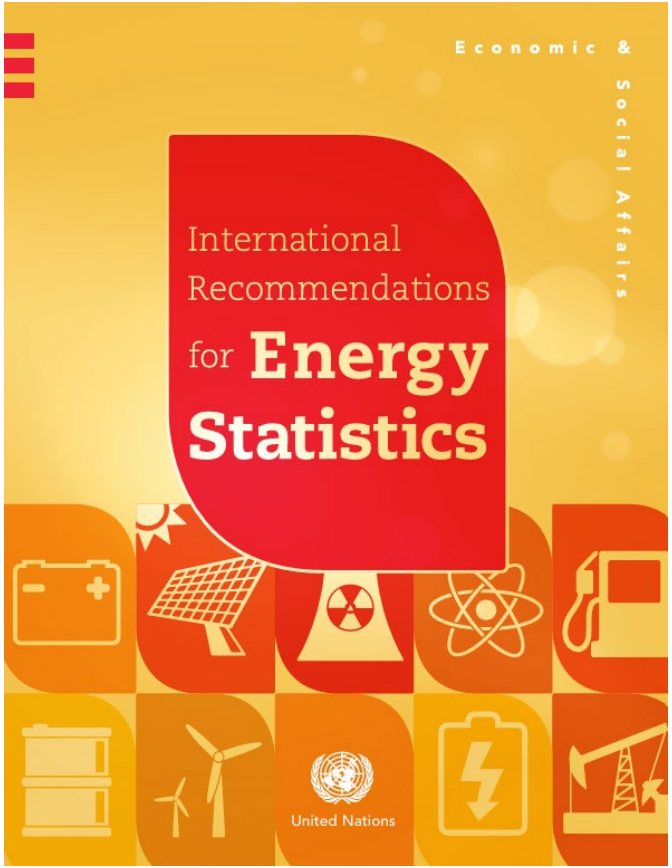
Understanding end use changes is critical to planning



The cost of not integrating relevant data into planning may be very high – cost of data is lower!

Complexity of energy data information ecosystem

- Data availability and access can be challenging
- Data fragmentation
- Confidentiality issues
- Changing landscape: new fuels, distributed generation…
- Multiple stakeholders
- Unique methodology



The Importance of NSOs

- Institutional arrangements, mandates: can be in charge of some energy-related statistics
- Cross-areas expertise
- UNECE 13th Expert Forum for Climate Change-Related Statistics conclusions:
  - Strategic importance of data stewardship in the climate data ecosystem, which can increase the outreach of national statistical offices
  - Unique sets of skills and data management capabilities, high quality protocols, metadata, microdata integration and data linking.

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UNECE

Recognized:

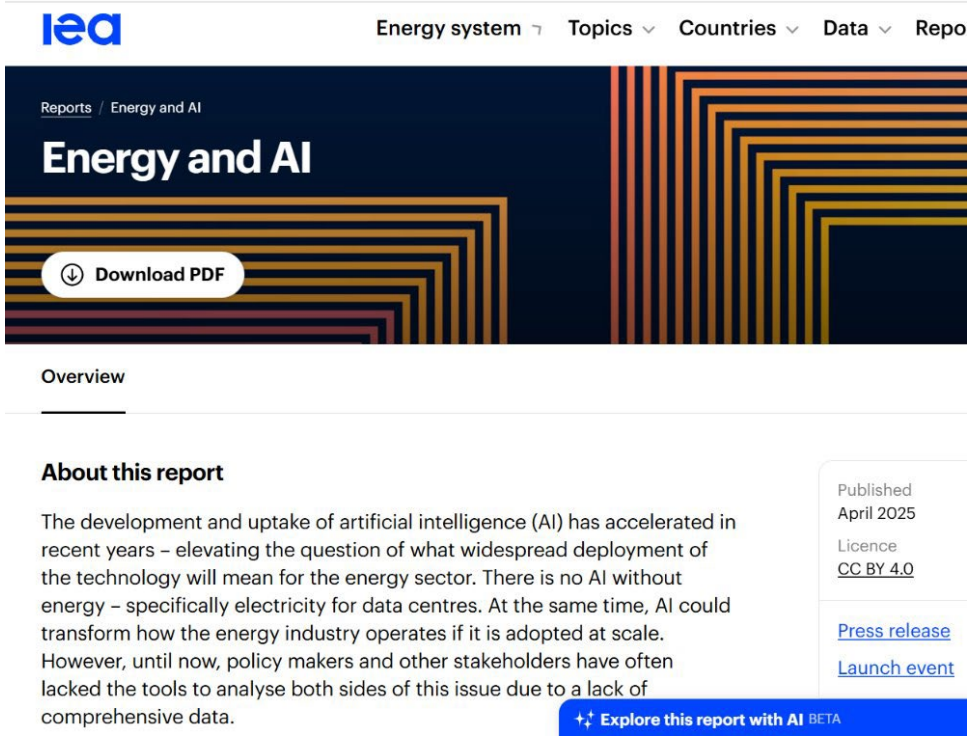
- Strategic importance of data stewardship in the climate data ecosystem, which can increase the outreach of national statistical offices.
- Need to develop frameworks and identify appropriate mechanisms of interaction with relevant stakeholders to ensure stronger ties among users and producers and ideally data co-design and co-production.
- Opportunity to promote the NSOs unique set of skills, such as high quality protocols, metadata, microdata integration and data linking across different domains, among others, that are very useful to address any multidimensional problem related to climate change.
- Importance of facilitating users data access and understanding. Often, huge effort is required for users to find data and understand differences in seemingly similar statistics and data, despite available metadata. Accessibility of data needs to be improved, taking into account the statistical literacy of different user groups.
- Need for continuing capacity development on climate change-related statistics, leveraging on opportunities from international organizations and exchange among countries
- Need to enhance methodological guidance across emerging priority areas (e.g. climate finance, …)

Noted:

- The sets of international indicators for climate change depend on the organization's approach, agenda and objectives. International coordination would be appreciated by countries.
- Modelling specific datapoints (such as energy consumption or emissions for international transport) based on globally available data, including through centralized approaches leading to internationally comparable data, can be a resource for countries for benchmark and potential integration into national statistics.

Modernisation opportunities

- Cross-areas data (national surveys…) and new tools can enhance energy data
- Administrative microdata
- Database linking
- Artificial Intelligence (AI) could transform energy statistics:
  - enhance data estimation, classification, anomaly detection, survey preparation, data visualization, and interpretation;
  - facilitate the integration of diverse data sources, addressing challenges related to data granularity, consistency, and complexity.



IEA is involved in several impactful capacity building activities

In-person events

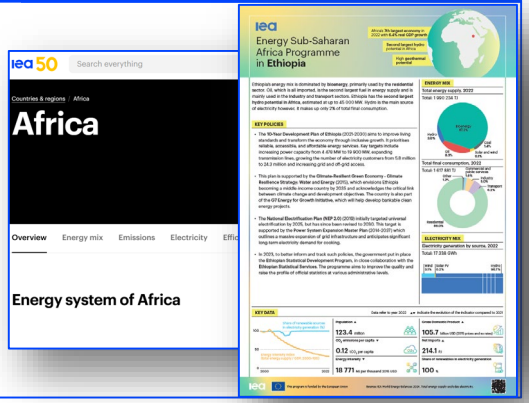
Regional trainings: In Ethiopia for SSA, in Turkey for the MENA region (ESCWA/UNSD)

National workshops: India (with national stakeholders); in collaboration with UNFCCC: Costa Rica, Colombia, South Africa, Georgia, Algeria

Bilateral work with countries: 10 SSA countries with EU INTPA, Costa Rica, Brazil (planned IDR), Nigeria (sectoral demand surveys), Zambia (access survey)

Dissemination

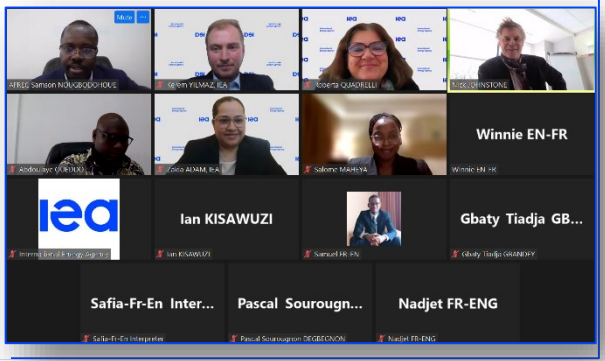
Release of more data on IEA website, country profiles for 14 countries, commentary on "How governments can strengthen national energy information systems"



Webinars

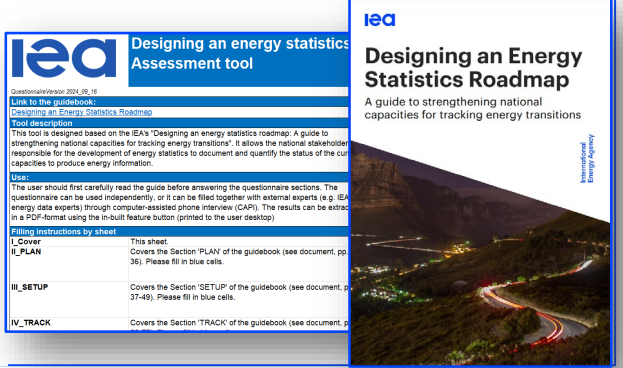
Regional: with AFREC, with APEC (planned), EU4Energy

National (with UNFCCC): Angola, Algeria, Gabon, Zambia, Costa Rica



Capacity building tools

- Release of the Designing an Energy Statistics Roadmap guidebook and translations (French, Arabic, Russian, Spanish)
- Training videos



The IEA framework for developing national energy statistics

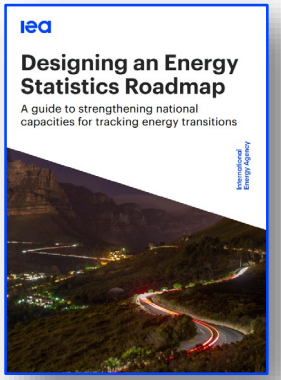
PLAN
Strategic aspects

SETUP
Operational aspects

TRACK
Data processes

Data needs and users	Human, technical and financial resources	Data collection, methodology, quality verification
Strategy development	Institutional arrangements	Data management and innovation
Funding mechanisms	Legal framework	Data access and dissemination

All components require dedicated work



https://www.iea.org/reports/designing-an-energy-statistics-roadmap

Effective Institutional Arrangements

Institutional arrangements promote improved efficiency of the data collection process

- Designation of only one agency responsible for dissemination of statistics OR identification of responsible agencies for dissemination of data subsets, with mechanisms ensuring overall consistency
- Clear definition of rights and responsibilities of all agencies involved in data collection and compilation
- Formalized working arrangements between agencies, including inter-agency working meetings and access to relevant microdata
- Formal arrangements complemented by informal agreements among agencies and institutions

Requires data sharing agreements and operationalization across all working levels

Source: IRES

International Energy Agency

Effective institutional arrangements

Best practices

Low-hanging fruit

- ☐ The entity responsible for producing official national energy information is in frequent communication with national stakeholders to facilitate data exchanges and control data quality.
- ☐ If the entity responsible for producing official national energy information is different than the NSO, they coordinate their energy data collection and dissemination activities.
- ☐ If responsibility for international reporting falls to different entities (e.g. energy vs. climate), they coordinate their work to harmonise information.

Medium-term goals

- ☐ There is a dedicated entity for coordinating energy statistics activity, with sufficient mandate and tools to collect and disseminate energy information (See also “Legal framework”).
- ☐ Responsibility for compiling and publishing energy statistics, energy balances, and energy efficiency data is clearly defined.
- ☐ There is a dedicated aggregator at the national level, even if responsibility for primary data collection falls to multiple entities.
- ☐ The entity responsible for producing official national energy information maintains a publicly accessible, centralised repository for energy information.
- ☐ Data are uniformly applied across government reporting channels to avoid inconsistencies different policy documents.

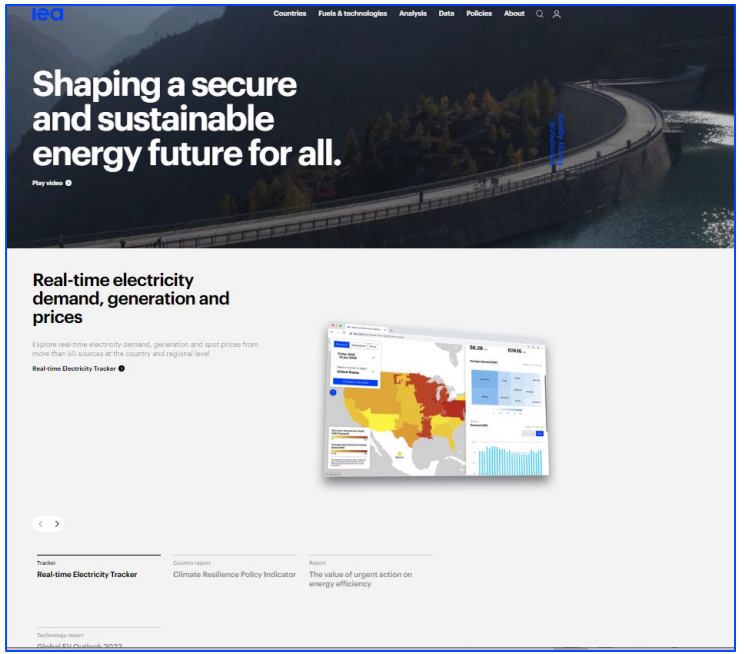
Institutional environment of the Nigerian Energy Information System

Notes: ECN = Energy Commission of Nigeria; REA = Rural Electrification Agency; NBS = National Bureau of Statistics; NMDPRA = Nigerian Midstream and Downstream Petroleum Regulatory Authority; NUPRC - Nigerian Upstream Petroleum Regulatory Commission; AFREC = African Energy Commission; ECOWAS = Economic Community of West African States; IRENA = International Renewable Energy Agency; IAEA = International Atomic Energy Agency; GenCos = Generation Companies; DisCos = Distribution Companies; NNPC = Nigerian National Petroleum Company; NERC = Nigerian Electricity Regulatory Commission.

Source: African Energy Commission (2022), Development of the National Energy Information System (NEIS) and Capacity Building Project, Diagnostic Report and Action Plan, (accessed 25 June 2024), as modified by the IEA.

Conclusion

- Energy transitions require comprehensive data
- Importance of data stewardship that can increase NSOs outreach
- NSOs have a unique set of skills
- Need to strengthen institutional arrangements, capacity building, methodological guidance
- International co-operation as a facilitator: the IEA is keen to support national capacity development on energy data



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