United Nations
Statistics Division

Framework and Institutions

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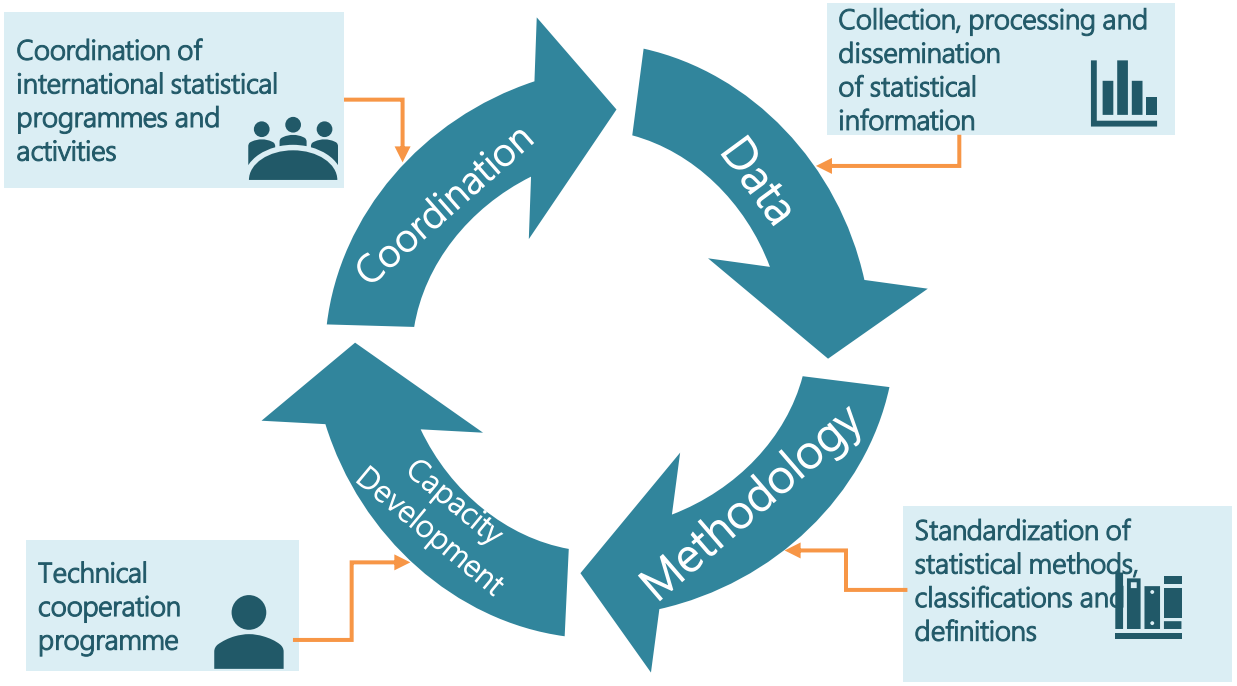
SESRIC HQ, Ankara, Turkey, 10 December 2024
Workshop on Energy Statistics, Balances and Accounts for Informed Energy and Climate Policies

UNSD Intro

UNSD – Mission and Functions

Mission: to advance the global statistical system



Coordination (energy)

THE UN REGIONAL COMMISSIONS


ECA


ECLAC

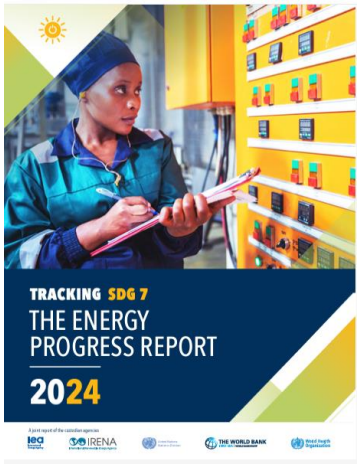

ESCAP


ESCWA


UNECE

- UNSD coordinates with the Regional Commissions to harness synergies and to ensure a concerted effort is made to support harmonization of concepts/methods and ultimately sustainable development
- UN Committee of Experts on Environmental-Economic Accounting (UNCEEA)
  - Provides overall vision, coordination and prioritization in the field of environmental accounting, including in methodology, capacity building and data.
- Oslo Group on Energy Statistics
  - To ensure a fair and inclusive process to develop methodology, discuss relevant issues in the field of energy statistics, among other things.
- Intersecretariat Working Group on Energy Statistics (InterEnerStat)
  - Again ensuring that all voices are heard and that the process is fair
- London Group on Environmental Accounting
  - To provide a forum for practitioners to develop methodology and share their experience in implementing environmental accounts.

Cooperation (energy)



- Custodian of SDG indicators 7.2.1 on renewable energy and 7.3.1 on energy efficiency (both with IEA)

- Joint Organizations Data Initiative

Supporting Energy Data Transparency
Better Data
Better Decisions
www.jodidata.org

- G20 Third Data Gaps Initiative

System of Environmental Economic Accounting

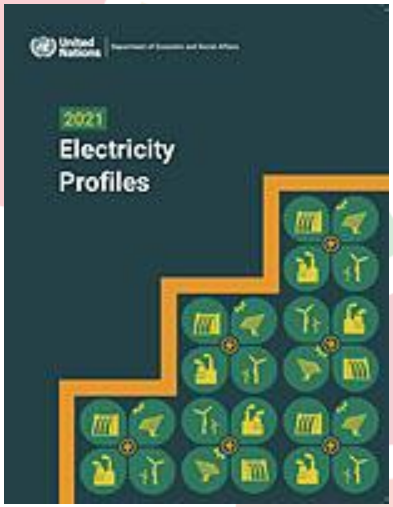
- Global data collection for physical energy flow accounts (with Eurostat and OECD)

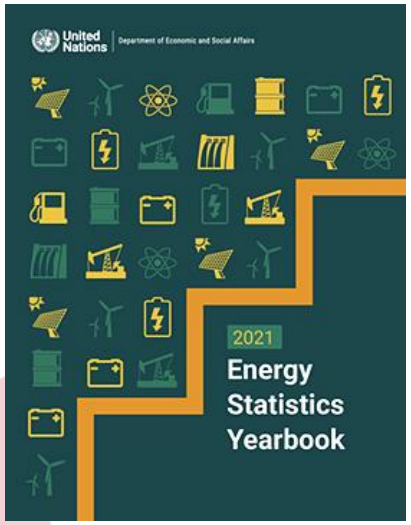
Data collection and dissemination

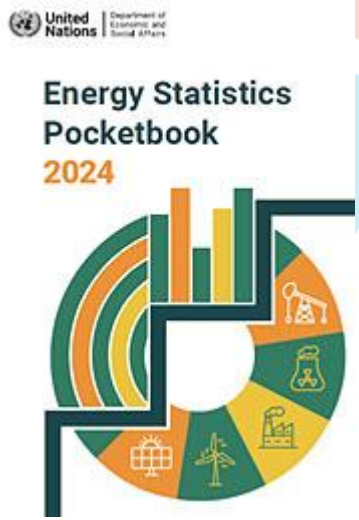
Energy Statistics Database - Main derived publications:

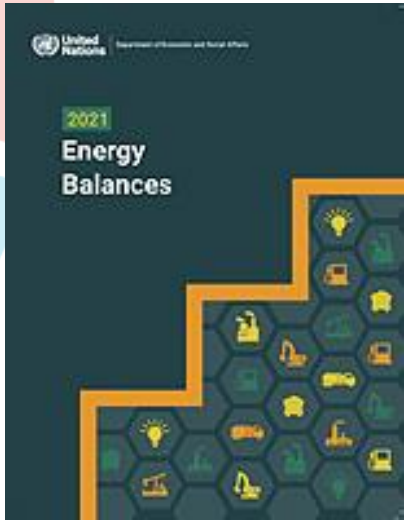
- Energy Statistics Pocketbook
- Energy Statistics Yearbook
- Energy Balances
- Electricity Profiles

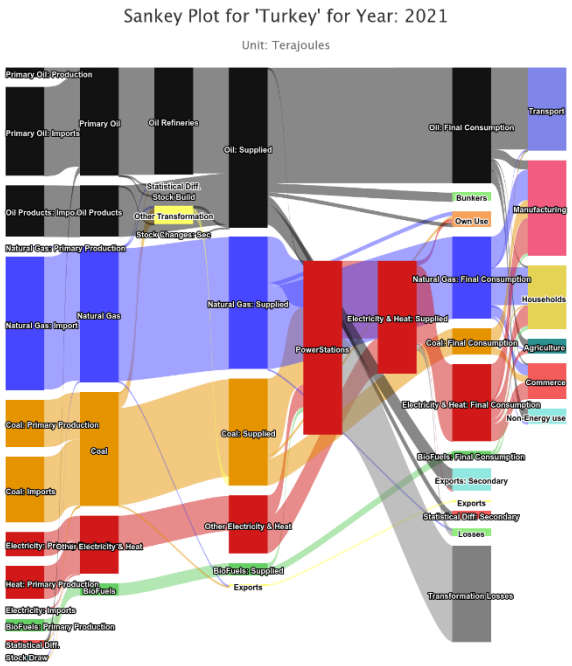
Data collection started for Energy Accounts



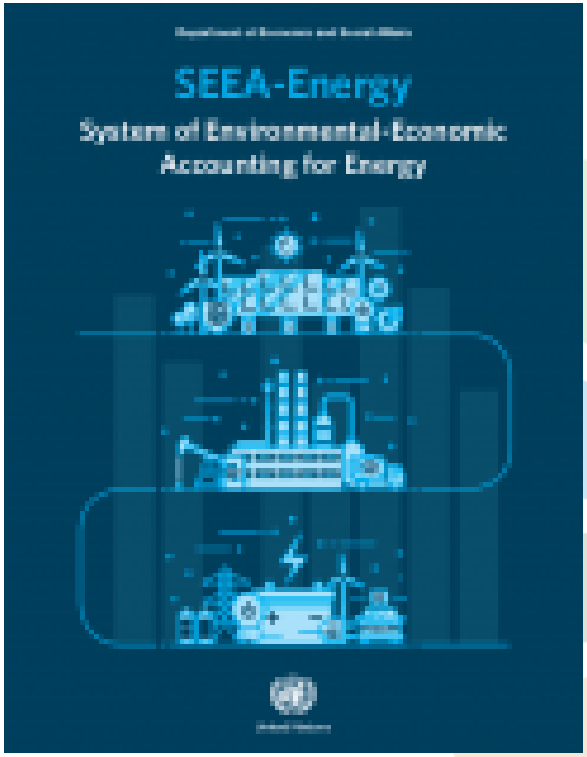


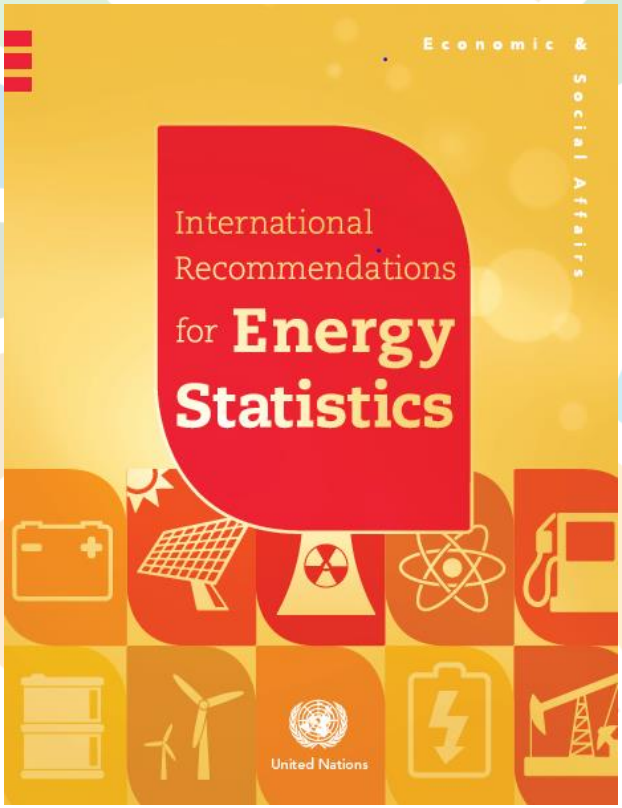


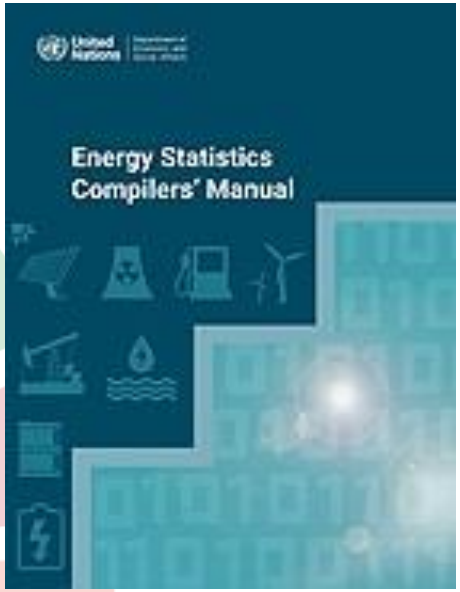




Methodology - energy







Capacity building - Energy Statistics Workshops

Energy Accounts Workshop
Kazakhstan - 2019

Energy Statistics Workshop
Latin America & Caribbean – Peru 2019

Energy Statistics Workshop
China - 2016

Bionenergy workshop - Togo 2023

Accounting for Climate Change
workshop – Japan 2023

Energy Statistics Workshop
Lebanon - 2018

Energy Statistics Workshop
Senegal 2019

Outline

- Introduction
- Legal framework for (energy) data collection
- Institutional arrangements
  - Examples from countries
- Some basic steps to improve coordination
- UN Fundamental Principles of Official Statistics

Introduction

- Individual countries adopt different approaches in producing energy (and other) statistics.
- But in all countries, for the process of producing quality statistics to work, there needs to be:
  - a strong legal framework
  - effective institutional arrangements
  - adherence to the Fundamental Principles of Official Statistics endorsed by the United Nations.

Legal Framework

Legal Framework

- Essential elements of the legal framework include:
  - a data collection entity with legal authority to collect, compile and disseminate statistics;
  - the confidentiality of information collected;
  - legally enforceable penalties; and
  - the privacy of respondents.

Legal Framework: Oath of secrecy

- All staff should be required to take a formal oath to keep data secure and confidential.
- This oath should extend beyond the period of employment with the statistical agency – typically for life.
- There should be provision for fines or criminal prosecution for any breach of confidentiality.
- This helps in building trust with respondents.

Legal Framework: Compliance

- Laws are required to make reporting mandatory;
- The statistics agency should engage in 'public outreach' to educate respondents about the importance of reporting;
- Where individuals or businesses refuse to report, there should be selective action.
  - Even when law allows for fines, if this is not enforced, people/businesses may not take it seriously

Legal Framework: Enforcement

Activities should be undertaken to ensure that the legal requirements are met. These activities should include:

- Staff training;
- Senior management leadership;
- Regular review for ensuring security;
- Developing and maintaining expertise;
- Conducting periodic audits;
- Best practices.

Ex: Statistical law in Türkiye (TurkStat)

- TurkStat governed primarily by the Statistical Law (2005), which sets out the agency's mandate, defines its powers, and establishes the regulations under which it operates

- Statistics Law of Türkiye regulates, among others:
  - Statistical Council,
  - Official Statistics Programme,
  - Organizational structure of TurkStat,
  - Access to administrative data,
  - Principles on the national register systems,
  - Confidentiality of information,
  - Rights of the statistical units,
  - Scientific and technical autonomy.

- **TurkStat coordinates and leads the national statistical system**

Key provisions in the Statistical Law

- The Statistical Law (and related legislation) includes the essential elements of the legal framework for TurkStat:
  - a data collection entity with legal authority to collect, compile and disseminate statistics;
  - the confidentiality of information collected;
  - legally enforceable penalties;
  - the privacy of respondents.

- Examples:
  - Article 13: confidentiality
  - Article 9: access to administrative data
  - Participation in TurkStat's surveys is compulsory by default under the law, and refusal to participate could lead to legal penalties

Institutional Arrangements

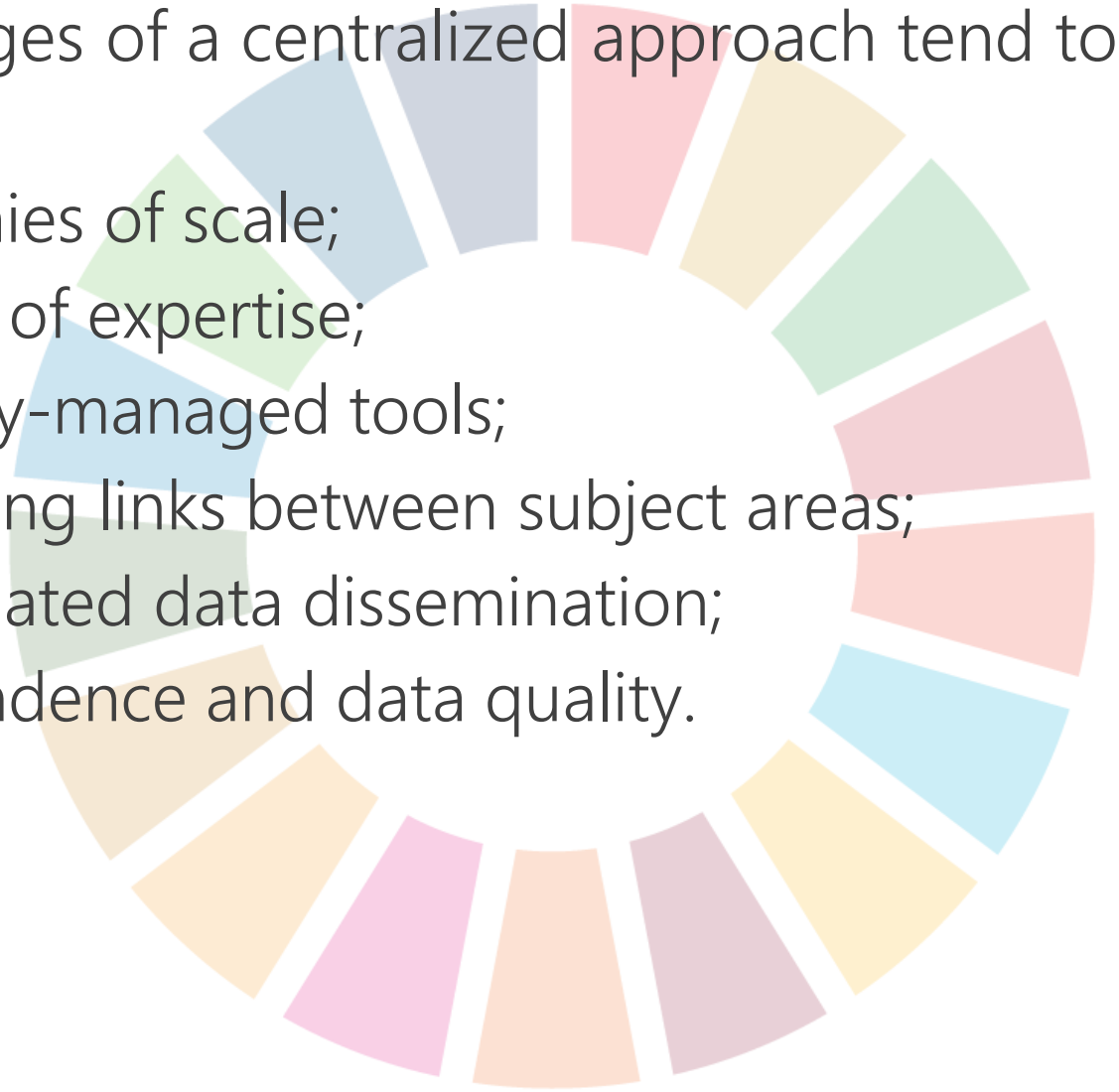
Institutional Arrangements

- Not all countries collect and compile statistics in the same way.
- It is appropriate, of course, for the institutional framework to reflect national norms and organizational structures.
- In general, however, statistical operations are characterized by two different approaches:
  - centralized statistical systems; and
  - decentralized statistical systems.

Centralized Approach: Advantages

The advantages of a centralized approach tend to consist of:

- Economies of scale;
- Centres of expertise;
- Centrally-managed tools;
- Promoting links between subject areas;
- Coordinated data dissemination;
- Independence and data quality.



Institutional Arrangements: Canada

- Canada has a largely centralized statistical system.
- Statistics Canada, the national statistics office, is empowered to collect, compile, analyze and publish statistical information.
- The agency is also authorized to conducts surveys and access administrative data (including tax data) held by all levels of government (federal, provincial, municipal).
- The agency is required to promote statistical integration by working with other government departments in data collection, processing and dissemination.
- The agency is also required to minimize the reporting burden for respondents, safeguard the confidentiality of information, and avoid duplication of effort.

Decentralized Approach: Advantages

Under a decentralized statistical system, advantages may include:

- Enhanced subject-matter expertise;
- Closer collaboration with respondents and energy experts;
- Practical considerations;
- Closer links to administrative data sources

Country example: Sweden

- Sweden has a decentralized statistical system, where the statistical law designates 27 statistical authorities responsible for the collection of official statistics for particular subjects.
  - including the Swedish Energy Agency (SEA), designated as the statistical authority for energy data.

- Each statistical authority has the mandate to decide the nature and extent of the data to be collected, with the law specifying that:
  - such data should be objective and independent of the Swedish Government, and
  - all official statistics should be made available to the public and users.

- They also have the responsibility to determine how these data should be collected (i.e., by subcontracting collection activities to Statistics Sweden, or to a private subcontractor, in accordance with scientific methods and professional standards).

Country example: United Kingdom

- The United Kingdom has a decentralized system, but with a Statistics Authority that oversees the main overarching statistical legislation.
- The Office for National Statistics coordinates the national statistics system, but ministerial departments generally have responsibility for the legal framework used to collect and publish statistical information.
- As such, energy statistics are collected and produced by the Department for Energy Security and Net Zero (DESNZ).
  - There are formal institutional arrangements in place to promote collaboration on energy statistics in the United Kingdom.
  - DESNZ and the Statistics Authority work together to ensure access to statistics and adherence to the code of practice.

Institutional Collaboration

Institutional collaboration can improve the functioning of the national statistics program through:

- Formal arrangements (i.e. specified in legislation)
  - Data-sharing
  - Use of administrative data
- Informal arrangements (through Working groups/Committees):
  - Priority setting
  - Harmonization of concepts (IRES facilitates it)
- Data validation and analysis
- Coordination of data dissemination

Coordinating group and first steps

Coordinating group

- In order to form a working group to address information needs for energy policy, it is advisable to:
  - Secure political support
  - Identify stakeholders (users and uses; data producers)
  - Identify the coordinating agency
  - Investigate whether there is a legal basis to form such a group
  - If not, what is missing in the legal framework of any/all institutions involved?
  - For a legal instrument (or an MoU), what are the important aspects, in order of importance?

Coordinating group - details

- With the creation of a working group, it is necessary to establish sustainable processes for the regular compilation of energy balances, accounts, and/or any other energy information needs. For example:
  - With which frequency will the group meet?
  - Who within the different institutions should be involved in the group?
  - What are the expected data flows?
  - How can administrative and/or confidential data be shared while still respecting confidentiality? Will aggregated data that respect confidentiality still be informative enough?

Data sources

- For the compilation of the comprehensive data needs, what are the existing data sources, and what products/flows that would require new data sources? For example, in the case of energy balances:
  - By product: supply side (production, imports, exports, bunkers, stock changes), transformation, own use, consumption by sector.
  - In the case of consumption by sector, is there a business register (in the National Statistical Office) that could be linked to existing data sources? How would that be linked? By the register number or by geographical coordinates?

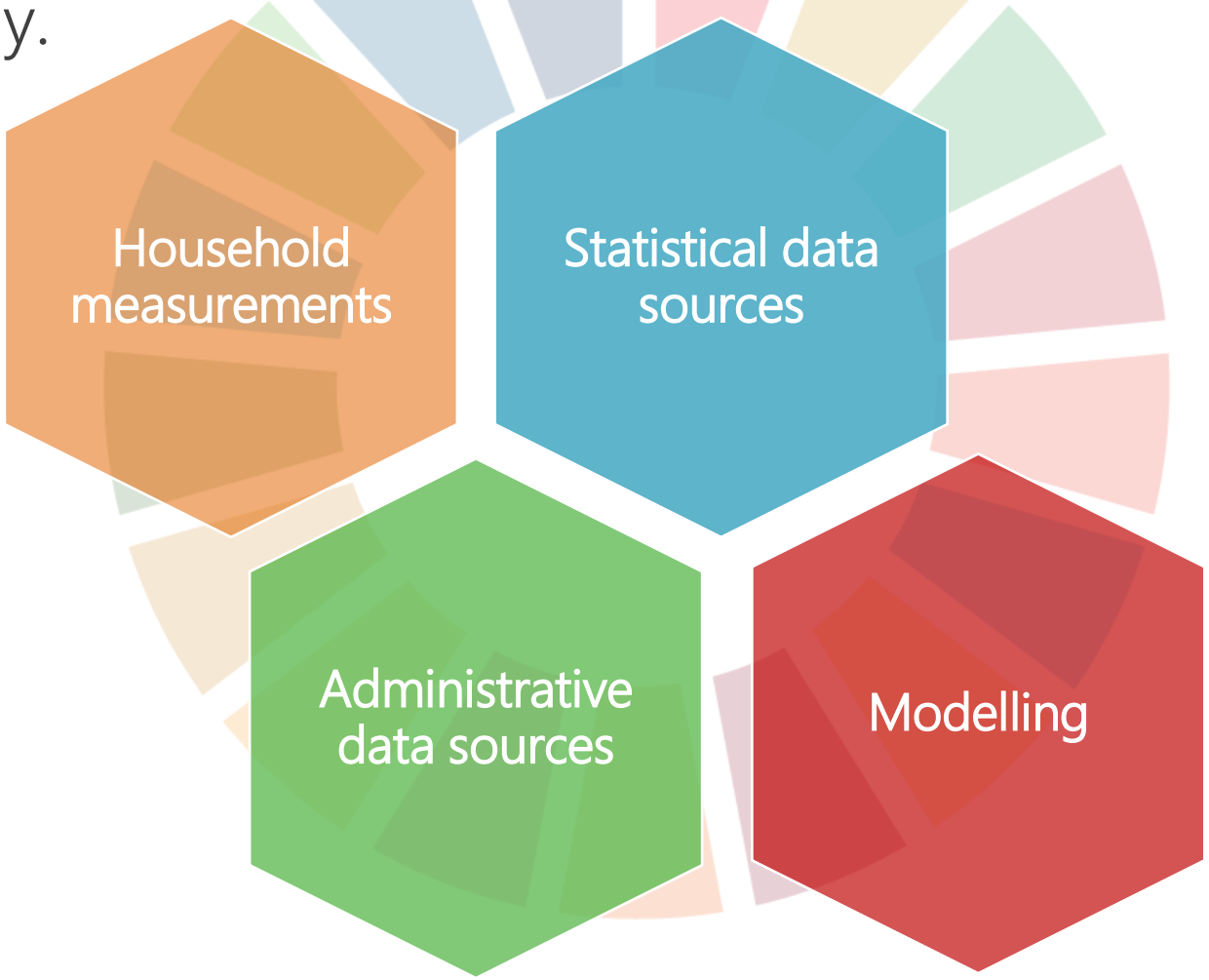
Data sources and gaps

- Where are the gaps?
  - It may be useful to compile a comprehensive inventory of energy products and data sources for the country
  - With a legend and a list of data sources (potential or realized)

	Coal	Crude oil	Oil products	Natural gas	Biomass	Electricity	ETC.
Production	SOURCE	SOURCE	SOURCE	SOURCE	SOURCE	SOURCE?	SOURCE
Imports/exports	SOURCE	SOURCE	SOURCE	SOURCE	SOURCE?	SOURCE	SOURCE?
Bunkers		SOURCE?	SOURCE?	SOURCE?			
Stock changes							
Transformation/own use							
Refinery		SOURCE	SOURCE				
Electricity							
Other							
Industry							
Transport							
Other							
Comm. Pub. Serv.							
Agriculture							
Residential							
ETC.							

New data sources

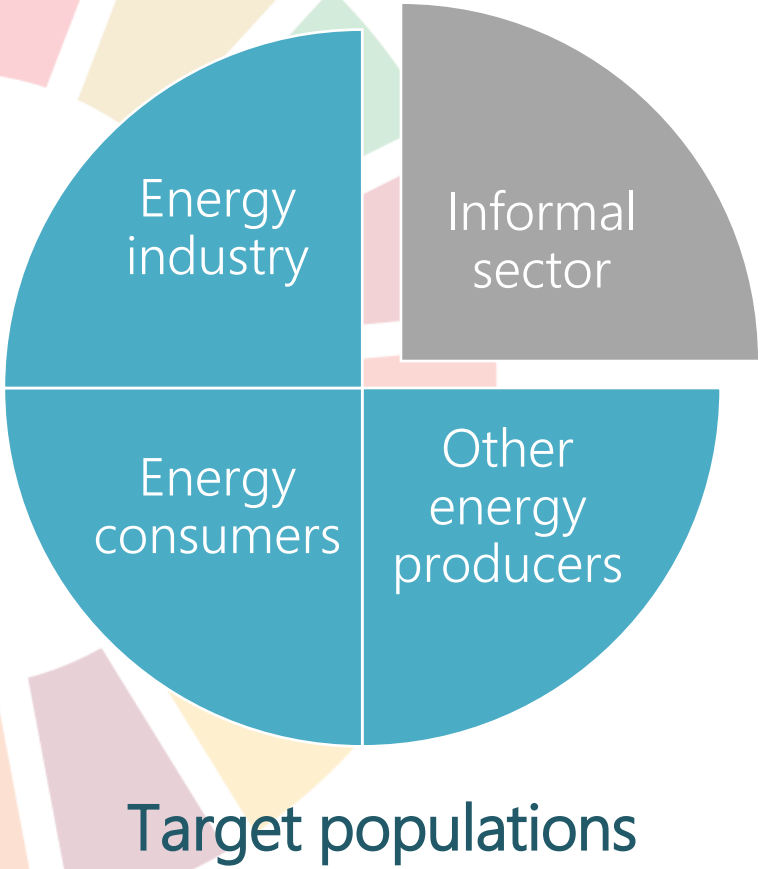
- With the gaps identified, now it is time to strategize how to obtain data to fill them, remembering that new surveys are costly.



Data collection strategies

Scope and coverage of energy data collection involve:

- Conceptual design;
- Target populations;
- Geographical coverage.



Data collection – survey rules

- Surveys are an important source of data, but they are costly, so collect only what is necessary.
- Limit collecting data to what is needed but collect it.

Data collection – adding to an existing survey

Adding questions to an existing survey is a good choice when:

- Information required is specific and restricted in volume;
- The complexity of the data is low and questions are self-explanatory;
- The survey targets a specific group.

Advantages of using an existing survey are:

- Less expensive than a new survey;
- Respondent burden is normally lower.

Data collection – survey rules

If no existing survey can be used for data collection, the second option is to create a 'new survey'.

Surveys are an important source of data, but they should be subject to certain rules:

- Surveys are costly
- Good survey needs a proper design
- Think about respondents
- Plan ahead

Data collection – modelling

Reduces cost, lower survey frequency, reduces extent and complexity of data collection.

Modelling can be used for:

- Conversion to calendar years
- Extrapolation (e.g., using coefficients)
- Estimation of non-metered consumption or non-marketed fuels
- Estimation of consumption of biofuels
- Calculation of useful heat.

Data collection – household measurements

Characteristics of household measurements:

- Energy consumption data for households
- Applicable to energy products delivered through a grid (electricity, gas)
- Expensive (but maybe the electricity/gas distributor is already collecting these data)
- Only possible way to collect data on energy consumption by purpose (cooking, lighting, heating – important for energy efficiency indicators).

Fundamental Principles of Official Statistics

Fundamental Principles of Official Statistics

Ten fundamental principles of official statistics, to which a country's statistical operations should conform, were enunciated by the United Nations Statistical Commission in 1994 and endorsed by the United Nations General Assembly on January 29, 2014.

- **Principle 1:** Official statistics…are to be compiled on an impartial basis by official statistical agencies.
- **Principle 2:** Statistical agencies need to decide according to strictly professional considerations…the methods and procedures (to be used).

Fundamental Principles of Official Statistics

- **Principle 3:** To facilitate a correct interpretation of the data, statistical agencies are to present information according to scientific standards….
- **Principle 4:** The statistical agencies are entitled to comment on erroneous interpretation and misuse of statistics.
- **Principle 5:** ….Statistical agencies are to choose the source with regard to quality, timeliness, costs and the burden on respondents.
- **Principle 6:** ….Data…are to be strictly confidential and used exclusively for statistical purposes.

Fundamental Principles of Official Statistics

- **Principle 7:** …laws, regulations and measures under which the statistical systems operate are to be made public.
- **Principle 8:** Coordination among statistical agencies within countries is essential…
- **Principle 9:**…use of international concepts, classifications and methods…
- **Principle 10:** Bilateral and multilateral cooperation…

Conclusion

- Improved institutional arrangements are necessary (but not sufficient) to improve a data collection programme on energy statistics and to allow for the compilation of full energy balances and/or energy accounts.
- For this purpose, it is necessary to define and clearly document roles and responsibilities of the entities involved with the compilation, processing and dissemination of energy statistics.
- This can only be achieved if all stakeholders get involved and work together towards this common goal.

Thank you for your attention and participation!

https://unstats.un.org/unsd/energystats/

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