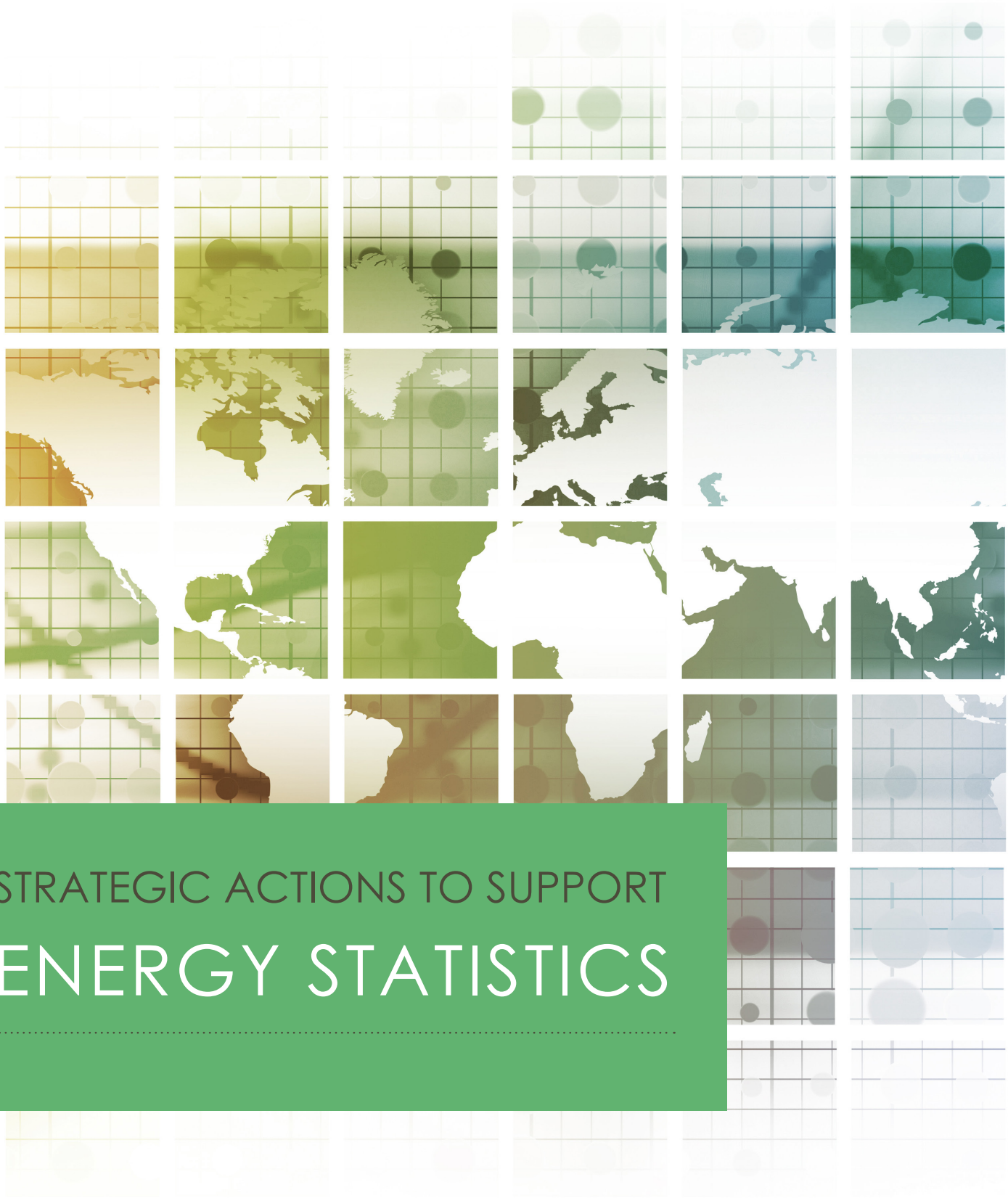


STRATEGIC ACTIONS TO SUPPORT ENERGY STATISTICS

International Energy Agency for EU4Energy

EU4ENERGY

Foreword

This document “20 strategic actions for energy statistics” has been drafted in 2016 by the IEA under theEU4Energy programme to support the 11 countries of Eastern Europe, Caucasus and Central Asia in elaborating action plans for the development of their energy statistics.

EU4Energy is a 4 year action supported by EU funding, with the objective of promoting evidence-based policy-making in Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Tajikistan, Turkmenistan, Ukraine and Uzbekistan.

The document focuses on three aspects of energy statistics central to the EU4Energy programme and the development of statistics in the focus region: improving energy data quality, but also ensuring that statistics publications do not stay on the shelf, by encouraging their wide dissemination and use to support policy-making.

The document is available both in English and in Russian. It explains actions that could be undertaken to improve statistics, drawing on the experience of the IEA’s participation in regional energy statistics programmes (such as INOGATE and MEDSTAT), discussions with the focus countries during the inception year and extensive work published by the international statistics community, but not always available in the working languages of the focus countries.

The IEAforEU4Energy programme team made a deliberate choice not to prescribe a fixed set of recommendations to the countries, but present a wide range of actions, from which countries could choose depending on their own priorities, level of development and resources.

The resulting country action plans were presented by the national statistical offices to government officials in the second EU4Energy statistics network meeting in Astana in June 2016. They all pursue the same goal of “improving energy data quality, dissemination and use” while reflecting the national priorities of each country and the diversity of the EU4Energy focus region.

As this document was designed for a very diverse group of focus countries, we hope it will be beneficial for all countries that aspire to improve energy statistics in order to support evidence-based energy policies.

IEA for EU4Energy team

Contents

Fundamentals

To improve energy data quality, visibility and use, IEA for EU4Energy recommends the following actions:

1. Raise the profile of energy statistics
2. Build closer cooperation between data producers and users
3. Align national energy statistics with international standards
4. Work in parallel to improve data use, data dissemination and data quality

Legend:

People Process Institutions

1

RAISE THE PROFILE OF ENERGY STATISTICS

Energy statistics have a low profile, and as result are often insufficiently funded. This leads to limited data availability and use as evidence for building energy policies.

- In every country, energy is vital for citizens, businesses and social stability. Interrupted or unaffordable access to energy can seriously impact people's lives and the economy.
- To make decisions for the future or to have a contingency plan for a crisis, it is essential to have information on current energy demand: where energy is consumed and where supply comes from.
- Not collecting the right energy information may have a higher cost than providing an adequate budget for it. Lack of evidence prohibits fact-based planning for strategic needs and efficient allocation of public resources.

Recommendations:

- Make official energy statistics the foundation of energy policies (energy security planning, medium to long-term national energy strategies, etc.).

> ***"[...] collecting any statistics has a cost. However, not having proper data could lead to wrong policy decisions and actions, and, as a consequence, to even higher costs."***
> *(OECD/IEA, Energy Efficiency Indicators: Fundamentals on Statistics)*
>
> ***"It is recommended that official energy statistics are treated as a public good [...]"***
> *(United Nations, International Recommendations for Energy Statistics, 1.22)*
>
> ***"Collecting and using relevant statistics can be highly cost-effective or generate a high benefit. This is because statistics allow existing public resources to be used more efficiently."***
> *(Paris 21,The role of statistics in evidence-based policy-making, p.2)*

2

BUILD CLOSER COOPERATION BETWEEN DATA PRODUCERS AND USERS

Strong energy statistics result from collective effort and political will.

Building a formal or informal national energy statistics working group helps:

- increase awareness and understanding of available data among users;
- improve data quality by strengthening ties between statisticians and energy experts;
- limit cost of information collection by data sharing agreements;
- keep energy data production relevant to data user needs;
- anticipate potential impact of changes (definitions/publications) on users;
- involve users in evaluation of methodology and results of existing or new surveys.

Recommendations:

- Choose a pro-active group chair. She/he will have a crucial role: convincing participating institutions of the benefits they can derive from improving energy statistics.
- Start by gathering core stakeholders and strong advocates of data use in policy-making (statistical office, ministry of energy, research institutes), and extend the group step-by-step: ministry of natural resources/transport/industry/buildings; main energy companies and associations; national GHG inventory team; energy efficiency agency; academies of science.
- Ask data users to regularly present to the group the analysis they produce from the energy data.
- Develop informal links in parallel to formal working group.
- Avoid the challenges due to staff turnover in participating institutions: share minutes of the meetings at working level and higher, frequently educate on the importance of contributing of the improvement of data quality.

> ***"Countries are encouraged to work closely with the user community by conducting vigorous outreach campaigns that include building stable and productive relationships with users and key stakeholders, for example, inviting interested users to become standing customers, actively helping users to find the statistical information they need and assisting them in the understanding of the role of energy statistics in sound decision making [...]"***
> *(United Nations, International Recommendations for Energy Statistics, 10.3)*

3

ALIGN NATIONAL ENERGY STATISTICS WITH INTERNATIONAL STANDARDS

Produce and publish data following international standards.

Aligning national energy data with international standards will:

- allow national data to be used for comparison with those of other countries;
- raise users' trust in statistics through increased transparency;
- ensure that all countries are tracking progress towards internationally agreed goals using the same methodology (UN sustainable development goals, GHG emissions);
- allow national statisticians and analysts to benefit from international community knowledge on energy data collection and analysis;
- provide tools to ensure completeness and consistency of statistics;
- allow national statistical offices to receive more feedback on their data.

Recommendations:

- Follow international recommendations for energy statistics adopted by the United Nations in 2011.
- Encourage participation of statisticians in regional and international energy statistics training such as JODI training, IEA statistics course.

> ***"The use of statistical agencies in each country of international concepts, classifications and methods promotes the consistency and efficiency of statistical system at official levels".***
> *(United Nations, Fundamental Principles of Official Statistics, Principle 9)*

4

WORK IN PARALLEL TO IMPROVE DATA USE, DATA DISSEMINATION AND DATA QUALITY

There is a virtuous circle between improving energy data quality, visibility and use.

- Improving data dissemination improves data use and helps with quality control.
- Strengthening the quality of energy data supports greater use of the data in policy making.

On the contrary:

- No one wants to show or to use poor quality energy data;
- If nobody uses energy data, there is no need to improve data quality.

That is why in order to support energy statistics, it is essential not only to strengthen energy data quality but also to encourage in parallel their dissemination and use.

"It may be useful to distinguish four types of [countries]:

a. Vicious circle countries: Statistics are weak and policy-makers make little use of them. Evidence-based policy-making is not practised which results in poor policy decisions and poor development outcomes.

b. Data supply-constrained countries: although statistics are weak, they are increasingly used by policy-makers for a variety of purposes. However, data deficiencies reduce the quality of decision-making which results in poor development outcomes.

c. Data demand-constrained countries: the quantity and quality of statistics are improving, but they are not used for decision-making because policymakers lack the incentives and/or the capacity to utilize them. This results in poor policy design and poor development outcomes.

d. Virtuous circle countries: statistics are improving and are being increasingly used for decision-making. This results in better policy design and better development outcomes."

(Paris 21, The role of statistics in evidence-based policy-making)

Data Use

To increase the use of energy statistics, in particular for evidence-based policy making, IEA for EU4Energy recommends the following actions:

5. Make energy statistics an integral part of policy design and evaluation
6. Expand the data user base and educate the users
7. Be transparent on data quality
8. Release short term data sets
9. Keep data relevant to users' needs

Legend:

People Process Institutions

5

MAKE ENERGY STATISTICS AN INTEGRAL PART OF POLICY DESIGN AND EVALUATION

Existing energy data provide baseline evidence for key energy policies, including energy security, energy markets and deployment of renewables. However, in many countries, the analytical potential of national energy statistics to support policy-making remains largely untapped.

Energy statistics are useful for policy-makers to:

- assess current energy situation and identify policy issues;
- forecast long-term energy demand and test different policy scenarios;
- design policies and set energy targets taking into account both present situation and modelling results;
- monitor progress towards the chosen targets;
- evaluate impact of the energy policies;
- improve credibility and transparency of policies.

Recommendations:

- engage statisticians in all elements of policy cycle.
- use statistics as a source of information to take decisions during energy crisis.
- consult energy statisticians to set achievable and relevant policy targets.
- use official data to elaborate long-term energy strategies.
- monitor progress towards energy targets based on statistics.

"In order to ensure that programmes are well designed, competently implemented, regularly monitored and carefully evaluated, statisticians should become involved and remain involved from the first to the last stages of the policy process".

(Paris 21,The role of statistics in evidence-based policy-making)

6

EXPAND THE DATA USER BASE AND EDUCATE THE USERS

To move towards evidence-based policy making, energy data need to be understood and correctly interpreted.

- Ensure that all official energy data are available to relevant public institutions.
- Expand the capacity of analytical teams within key ministries.
- Use energy data as a resource to model different scenarios and build forecasts.
- Build direct relationships between analytical teams (e.g. energy planning departments, CO_2 inventory team) and energy statisticians.
- Provide opportunities for analysts to learn from best practices at international level.

7

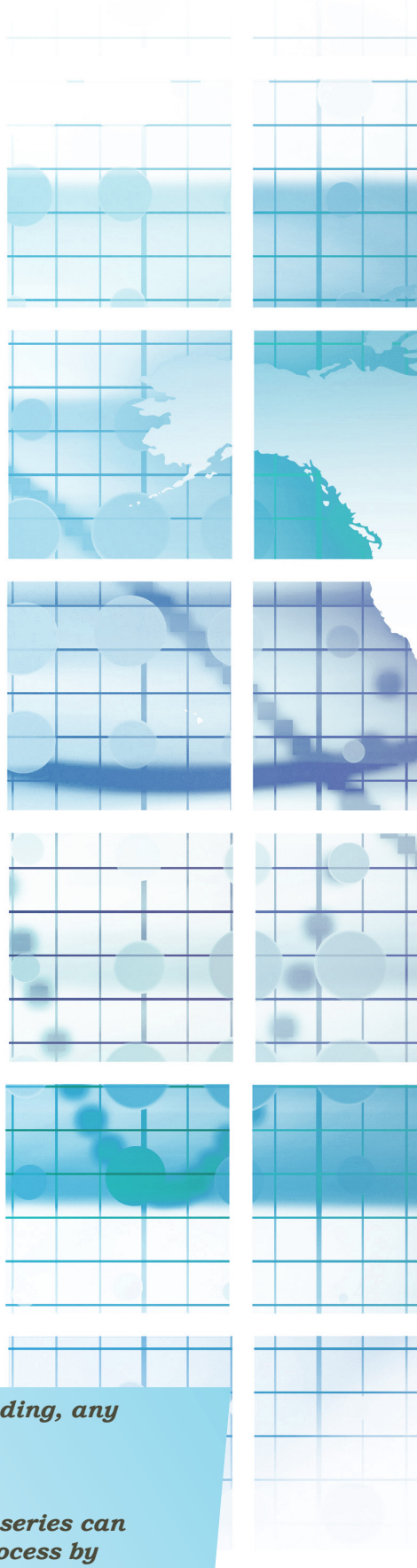
BE TRANSPARENT ON DATA QUALITY

In order to arrive at appropriate conclusions from data, users should be informed about data quality limitations (geographical coverage, market representativeness…).

- All energy data sets have limitations. This should not prevent energy data from being published and used.
- Having imperfect energy data is far better than having none.

Recommendations:

- Publish metadata to inform users. Include sources, coverage, changes in methodology, etc.
- Explain differences between preliminary data and subsequent revisions.
- Clarify main discrepancies with other sources to increase user confidence.
- Ensure knowledgeable contact points are available to provide prompt assistance to data users.
- Communicate on data quality improvements.



"Provide users with information about the quality of statistics including, any statistical biases."
(UK Code of Practice for Official Statistics, Protocol 1)

"Unannounced and inadequately explained revisions to a statistical series can unsettle policy-makers by creating uncertainty. Consequently, the process by which revised statistics are published and disseminated may be as important as the revised figures themselves. "
(Paris 21, The role of statistics in evidence-based policy-making)

8

RELEASE SHORT TERM DATA SETS

It is critical that the available monthly data, despite their limitations, are collected and published.

- Policy makers need to react quickly to an energy crisis. Market players need to make timely business decisions.
- On a monthly basis, only a small amount of data are available, with coverage limitations. Some data can be only collected once a year or once every few years. For example, household surveys are expensive and resource intensive. Often they are not conducted annually as consumer behavior in most cases does not change significantly from one year to another.

Recommendations:

- Release supply data (production/trade/stocks) on a monthly basis to increase relevance of energy statistics.
- Explain differences between monthly and annual data. Be transparent on preliminary data limitations (e.g. partial market coverage) and inform if any adjustments are performed to estimate missing data.
- Ensure monthly time series are constantly updated with most recent information.
- Assess monthly data against annual on a regular basis.

> ***"From the user perspective, the value of energy data increases significantly when they are released with the shortest possible delay."***
> *(United Nations, International Recommendations for Energy Statistics, 1.22)*
>
> ***"Having relevant statistics, but not publishing them in a timely fashion, may increase the adjustment costs of dealing with a crisis".***
> *(Paris 21, The role of statistics in evidence-based policy-making)*

9

KEEP DATA RELEVANT TO USERS' NEEDS

To best serve national interests, statistical offices should focus on the critical data for national energy policies.

- Collecting and publishing data comes with a cost, which is why statistical offices cannot collect all energy data.

Recommendations:

- Identify the main energy data users.
- Understand user needs and how they use energy data.
- Prioritize user needs.
- Regularly review the relevance of data and data collection methods with respondents and data users.

> ***"User needs cannot be properly met unless these have been properly identified, synthesised, understood and prioritized".***
> *(United Nations, Energy Statistics Compilers Manual, 8.19)*

Data Dissemination & Communication

To improve visibility of energy statistics, IEA for EU4Energy recommends the following actions:

10 Help users access official energy data

11 Ensure all publications meet high quality standards

12 Adapt format to take into account diversity of users, include visualizations

13 Help users understand key messages

14 Share data with the international community

Legend:

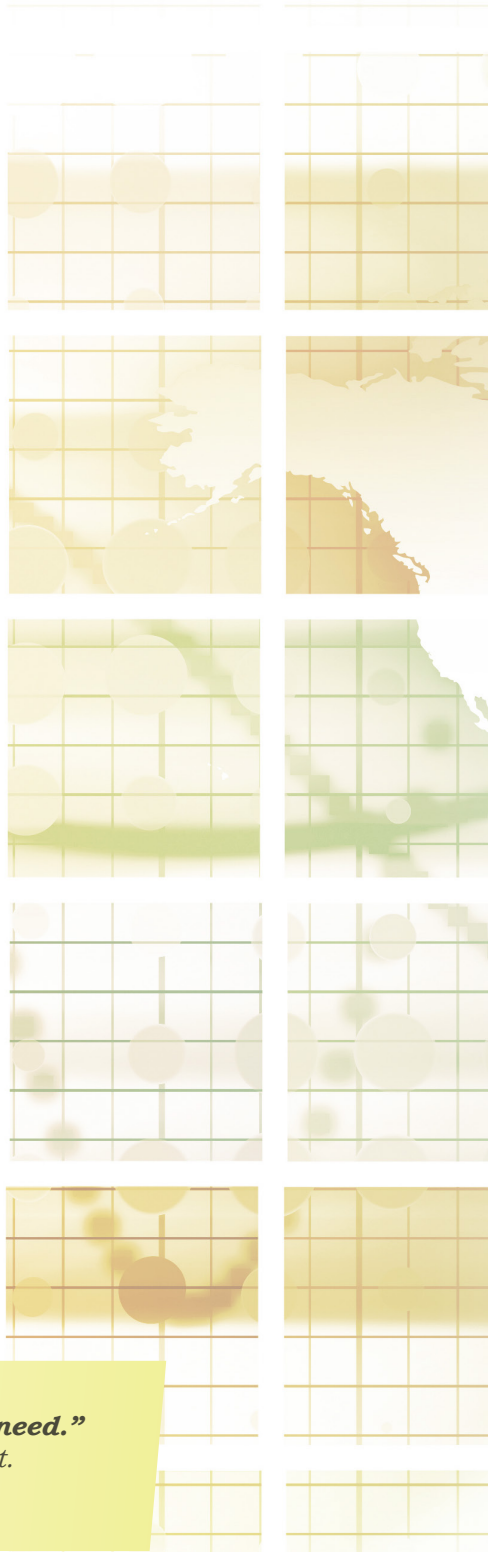
People Process Institutions

10

HELP USERS ACCESS OFFICIAL ENERGY DATA

Resources spent on collecting energy data are wasted if the information is not made available for use.

- Make official energy data publicly and freely available.
- Raise awareness about the existence of official energy data.
- Advertise newly available energy data (press release, website and social media announcement, etc.)
- Provide easy access to energy statistics from the websites of statistical office and institutions responsible for energy policies.
- Publish a release schedule.
- Provide contact points for energy data requests.



> ***"Make users aware of how they can find the information they need."***
> *(UK Code of Practice for Official Statistics, Protocol 1 User Engagement. Practice 2)*

11

ENSURE ALL PUBLICATIONS MEET HIGH QUALITY STANDARDS

All efforts in gathering quality energy data can be undermined by errors in the publication.

The following errors undermine user confidence and deteriorate credibility of statistical offices:

- Arithmetic errors in a table,
- Inconsistencies between pages of a publication,
- Incorrect formatting.

Recommendations:

- Ensure high statistical standards of publication ("check, check and check!").
- Check all arithmetic sums, check that data are matching between tables, check that graphs correspond to underlying data, check units, check spelling, etc.
- Disseminate less, but of a higher quality.

12

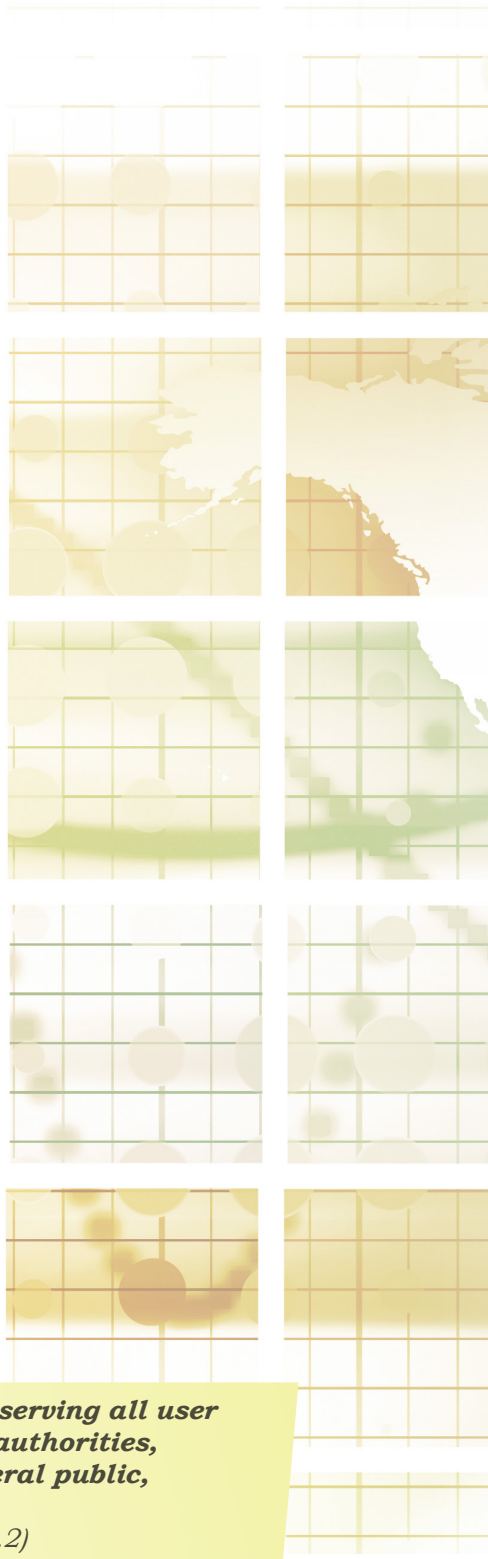
ADAPT FORMAT TO TAKE INTO ACCOUNT DIVERSITY OF USERS, INCLUDE VISUALIZATIONS

There is a large audience for energy statistics, including non-technical experts.

- Energy is a highly relevant topic for citizens, businesses and governments.
- Data in a tabular format are difficult to understand for most people (although they are very useful to researchers).

Recommendations:

- Adapt format to take into account the diversity of users.
- Provide data in a user-friendly electronic format.
- Provide visualization tools and interactive charts to help non-experts extract information from data.



> ***"The dissemination policy should be user-oriented, reaching and serving all user groups (central government, public organizations and territorial authorities, research institutions and universities, private sector, media, general public, international users), and provide quality information."***
> *(United Nations, International Recommendations for Energy Statistics, 10.2)*

13

HELP USERS UNDERSTAND KEY MESSAGES

The role of the statisticians is not only to provide numbers, but also to help users understand the meaning of the data.

- Translate the information provided by data into key messages (statistical narratives) to guide user interpretation.
- Train communication departments and media to read and write stories based on the energy balance.
- Make annual oral presentations of the energy balance to the public.
- Show progress towards the nationally or internationally defined energy targets (energy intensity, CO_2 emissions reduction, share of renewables).

"Statistical communication is about catching the reader's attention with a headline or image; providing explanations for the numbers in an easily understood, interesting and entertaining fashion; and encouraging journalists and other users to consider how statistics might add impact to their analysis."
(United Nations, Guidelines on Integrated Economic statistics)

"Statistical communication conveys a message that tells readers what happened, when and where something happened, and contributes to understanding why and how that something happened. Statistical organizations use communication to demonstrate the relevance of their data to government and the public. In such a way, they can anticipate greater public support for statistical programmes, improve respondent relations and gain greater visibility for their products."
(United Nations, Guidelines on Integrated Economic statistics)

14

SHARE DATA WITH THE INTERNATIONAL COMMUNITY

Many users seek energy data for more than one country to produce regional analysis. This is why they tend to use data from international organisations.

Sharing national energy data with regional/international organisations helps to:

- ensure the data used by international energy analysts come from official national sources.
- reach a wider range of users, including global energy companies and potential foreign-investors.

Recommendations:

- Send official national data to the United Nations Statistics Division, the International Energy Agency and relevant regional organisations.
- Participate in the JODI initiative.
- Share data on request.

Data Quality & Production

To improve the quality of energy statistics and expand coverage, IEA for EU4Energy recommends the following actions:

15 Provide a strong legal basis to support energy statistics

16 Provide adequate financial, human and IT resources

17 Train data providers all along the data collection system

18 Provide a clear structure for data collection

19 Set improvement of data quality as the first priority

20 Sustainably expand data collection

Legend:

People Process Institutions

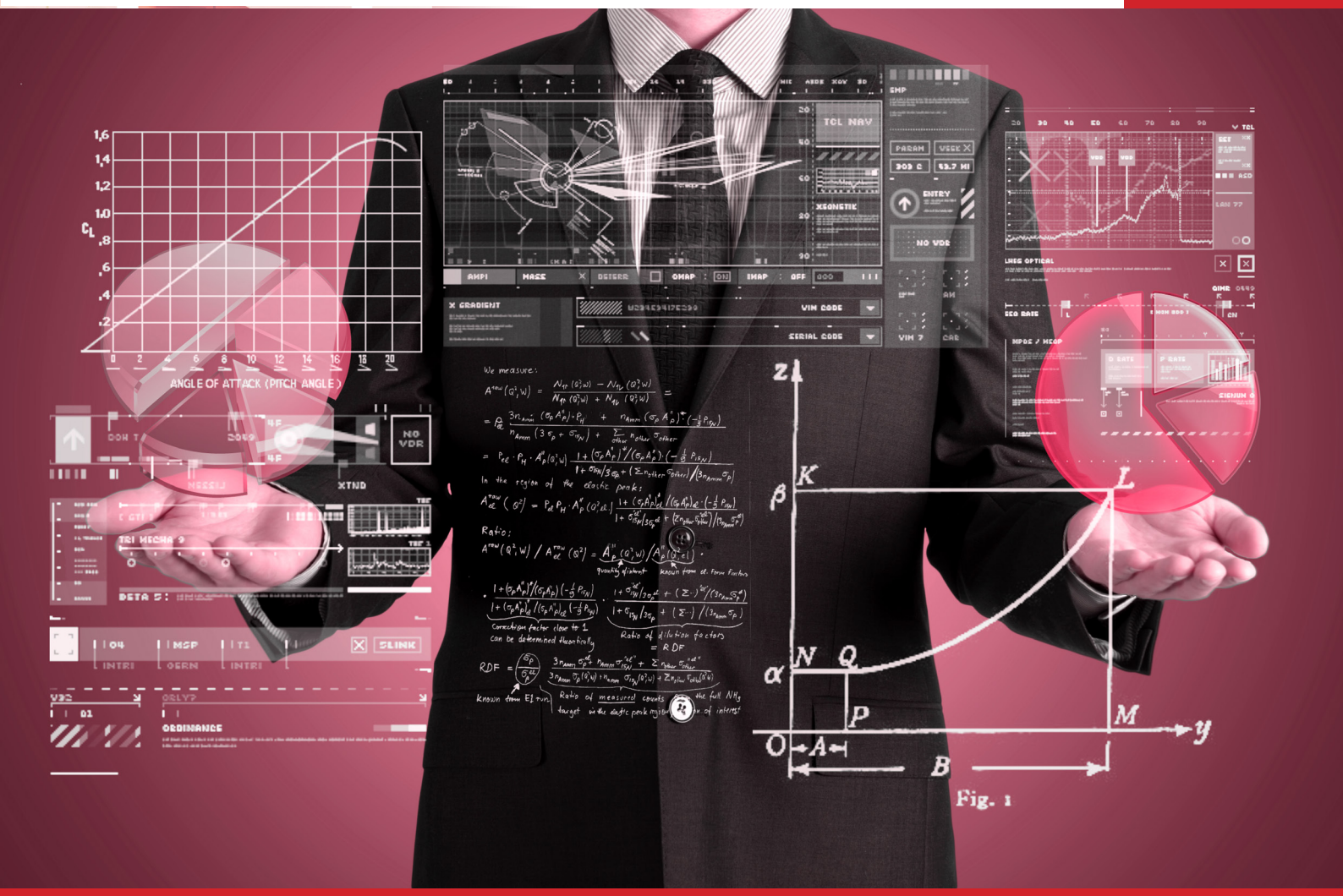


Fig. 1

15

PROVIDE A STRONG LEGAL BASIS TO SUPPORT ENERGY STATISTICS

It is crucial that energy statistics are regulated by law.

Energy data collection is strategic for states but can face strong obstacles:

- Sharing information is time consuming for all respondents.
- Some businesses and government entities fear increased transparency will reduce their influence.

Recommendations:

- Give legal authority/mandate to government institutions to collect and disseminate energy data.
- Legally oblige users to provide the requested data on time.
- Legally protect integrity and use of the data.
- Give authority to statistical offices to access administrative sources.
- Guarantee the independence of statisticians.

16

PROVIDE ADEQUATE FINANCIAL, HUMAN AND IT RESOURCES

Energy is a strategic priority for countries, and a vital need for people and businesses.

- It is important to ensure sustainable and long-term financing of the institution in charge of energy data collection.
- To deliver high quality statistics, statisticians need to not only understand data, but also fundamentals of energy. They should be able to easily communicate with actors of the energy sector, understand how their data are used for modelling purposes and anticipate impact of data changes on key policy areas.
- Computers will never replace human judgement or interaction with data providers, but they can help to collect data, check them more efficiently and simplify their publication. An inefficient IT system slows down data production instead of supporting it.

Recommendations:

- Guarantee long-term core budget for energy statistics to ensure continuous availability of long time series.
- Dedicate a team of well-trained statisticians to energy statistics.
- Encourage staff to stay long enough in energy statistics to build knowledge on energy statistics and transmit it to a younger generation.
- Support statisticians with a flexible, well-functioning IT system (normalized database, automated checks, etc.).

> ***"Staff, financial, and computing resources, adequate both in magnitude and in quality, are available to meet statistical needs".***
> *(Eurostat, European Statistics Code of Practice, Principle 3.1)*

17

TRAIN DATA PROVIDERS ALL ALONG THE DATA COLLECTION SYSTEM

Motivate and educate all actors in the data collection chain from citizens and businesses to central statistical offices.

- People play a central role in improving the quality of statistics.
- Data providers who understand the purpose of energy data collection have a significant impact on improving data availability and quality.

Recommendations:

- Start by engaging survey respondents:
  - » Provide clear reporting guidance;
  - » Explain the purpose of collecting data;
  - » Make respondents perform basic checks.
- Provide training opportunities to statisticians from regional and central statistical offices, so they can:
  - » Learn about energy data collection, Terminology, concepts;
  - » Perform energy specific checks such as transformation efficiencies;
  - » Share best practices with other countries.
- Train staff frequently. The energy sector changes rapidly, new forms of energy (e.g. hydrogen) and new types of consumption appear regularly (e.g. electricity consumption of mobile phones), resulting in changes in data that needs to be collected.

"Statistical authorities implement a policy of continuous vocational training for their staff."
(Eurostat, European Statistics Code of Practice, Principle 7)

18

PROVIDE A CLEAR STRUCTURE FOR DATA COLLECTION

To be timely and efficient, statisticians need to operate in a clearly defined structure.

- Clearly specify responsibilities for collecting, processing and sharing data, both between government institutions and within the statistical office.
- Send formalised questionnaires, preferably in electronic format, on an agreed timetable.
- Store data in a database, ideally integrated with other statistical output.
- Document the checks and procedures performed by statisticians, at least for internal transparency.
- Publish a release calendar and follow it.

19

SET IMPROVEMENT OF DATA QUALITY AS THE FIRST PRIORITY

Most current national and international energy targets are based on the energy balance (energy intensity, share of renewables, CO_2 emissions).

- It is crucial for policy makers to see the full energy picture through the energy balance.

Recommendations:

- Allocate time for statisticians to improve underlying data:
  - » To account for all types of energy used in the country (including rural biomass use, off-grid generation);
  - » To integrate all new energy types as they become relevant.
- Ensure that objectives of statisticians do not only include publishing data, but also improving data quality, accessibility and use.

> ***"Procedures are in place to plan and monitor the quality of the statistical production process."***
> *(Eurostat, European Statistics Code of Practice)*

20

SUSTAINABLY EXPAND DATA COLLECTION

New energy data needs arise constantly as the energy sector develops, requiring new collection efforts.

- Ensure that the data collection system is regularly assessed and adjusted to meet user needs.
- Before launching a new data collection, check existing administrative sources from ministries, market regulators, states authorities, scientific institutes. Many institutions outside of the statistical offices collect data for their own purposes which can be valuable to improve national energy data.
- Check possibilities to integrate new questions in existing surveys.
- Overcome the limitations of using administrative sources (inappropriate formatting, limited data coverage, untimely submissions) by building a national energy statistics consulting group at a high level in parallel to the working level.
- Favour official sustainable data collection over extensive one-off surveys.

"Before launching any new data collection, it is essential to make a broad review of existing data for both energy consumption and activity data.

The review should include every single potential source of information and all administrations and non-governmental associations (ministry of energy, statistics office, ministry of transport, chamber of commerce, industry association, etc.).

There is indeed in every country a huge amount of data that energy statisticians are unaware of that, when identified, could constitute a good basis to develop some energy efficiency indicators and could reduce the overall cost of a programme by avoiding duplication of expensive data collection projects."

(OECD/IEA, Energy Efficiency Indicators: Fundamentals on Statistics)

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