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Energy statistics

Report of the Secretary-General

Summary

The present report, which was prepared in accordance with Economic and Social Council decision 2017/228 and past practices, provides updated information on work carried out to implement the decisions of the Statistical Commission on energy statistics, including work related to the development and implementation of international methodological documents on energy statistics, as well as new developments and challenges. The activities involving increased cooperation and coordination among agencies and countries working on energy statistics are also described.

The Commission is invited to take note of the report.

* Reissued for technical reasons on 28 February 2018.

** [E/CN.3/2018/1](#).



I. Work carried out since the forty-fifth session of the Statistical Commission

1. The Statistical Commission most recently considered issues in the field of energy statistics at its forty-fifth session, held in 2014 (see [E/CN.3/2014/23](#)), its forty-third session, held in 2012 (see [E/CN.3/2012/10](#)) and its forty-second session, held in 2011 (see [E/CN.3/2011/8](#) and [E/CN.3/2011/9](#)).
2. Section II of the present report contains a description of activities undertaken in response to the decisions of the Commission since its forty-fifth session.

II. Activities carried out in response to the decisions of the Commission

A. Methodology

3. After the Commission had adopted the International Recommendations for Energy Statistics at its forty-second session, the text underwent a final review to ensure consistency and was prepared for publication. At the time of writing, it had not yet been printed; it can be accessed, however, under “Energy statistics” on the website of the Statistics Division of the Department of Economic and Social Affairs of the Secretariat.¹
4. Owing to budgetary constraints, the International Recommendations for Energy Statistics are not scheduled for internal translation into the other five official languages of the United Nations. The Division is therefore coordinating with potential outside partners to have them translated.
5. The Division has completed its work on the Energy Statistics Compilers Manual, with substantial input having been provided by the Oslo Group on Energy Statistics. At the time of writing, the Manual had not yet been published; a draft version can be accessed under “Energy statistics” on the Division website. The Division is committed to finding alternative ways to produce translated versions of the Manual with assistance from outside partners.
6. In addition to providing written guidance on these methodological publications, the Industrial and Energy Statistics Section of the Division is working on the development of online training courses based on the International Recommendations for Energy Statistics and the Manual and expects to complete the first set of courses in 2018.

B. Natural gas statistics

7. In decision 43/107, adopted at its forty-third session (see [E/2012/24](#)), the Commission endorsed proposed activities related to natural gas statistics, specifically the development of detailed methodological guidance, the conduct of training activities and the establishment of a worldwide database on monthly natural gas statistics.

¹ See <https://unstats.un.org/UNSD/energy/ires/default.htm>.

8. The activities were carried out as part of the work of the Joint Organisations Data Initiative, which comprises the following organizations: Asia-Pacific Economic Cooperation (APEC), Eurostat, Gas Exporting Countries Forum, International Energy Agency, Latin American Energy Organization, Organization of the Petroleum Exporting Countries, the Statistics Division and the International Energy Forum (IEF).

9. The preparation of a manual on natural gas as part of the Joint Organisations Data Initiative was led by the Division, in close cooperation with IEF and the other Initiative partners. The primary objective of the manual is to help professionals who collect and use natural gas data to understand the methodology and definitions in the questionnaire on natural gas prepared by the Initiative, conduct basic verification of data, avoid common reporting errors and share examples of good practices.

10. The Joint Organisations Data Initiative database on natural gas currently covers information on 12 basic data items of monthly gas statistics for 87 countries, compiled by the Initiative's partner agencies. Efforts are under way to increase the coverage in the database.

11. In addition to the database, most of the Initiative's organizations include extensive gas statistics data items in their existing annual and monthly data collections and databases.

12. Since the forty-fifth session of the Commission, IEF has organized six training workshops on monthly data collections for natural gas statistics, to which partner agencies of the Initiative have contributed. In addition, the organizations have conducted workshops related to their individual work programmes, including with regard to natural gas statistics.

C. Oslo Group on Energy Statistics

13. In decision 37/108, adopted at its thirty-seventh session (see [E/2006/24](#)), the Commission supported the establishment and mandate of the Oslo Group on Energy Statistics (<https://unstats.un.org/oslogroup>) as a city group that would address methodological issues related to energy statistics and contribute to improved international standards and improved methods for official energy statistics.

14. After having assisted in developing the International Recommendations for Energy Statistics and the Energy Statistics Compilers Manual, the Oslo Group identified a number of new work areas in an updated work plan that was submitted to the Commission at its forty-fifth session. The Group has met twice since the forty-fifth session to discuss components of the new work plan under the guidance of Statistics Finland as the new chair of the Group.

15. The 10th meeting of the Oslo Group was held from 10 to 13 May 2016 in Aguascalientes, Mexico. At the meeting, the Group focused on the new work areas, for which initial working groups had been established to address energy prices, the use of administrative data sources for energy data collection and validation, the use of electronic data collection and statistical data and metadata exchange (SDMX), energy data dissemination practices and quality reviews of energy data.

16. The working group on energy data dissemination practices presented country practices and agreed to continue to work in this area, which was of interest to many Oslo Group members. The group discussed how to disseminate statistics to rural areas

in order to motivate potential respondents to answer questionnaires. The area was seen also as important topic to be covered by future country practices.

17. It was also proposed at the meeting that geospatial information be a new topic for the Oslo Group. This was seen as a positive step that should be explored further, although many countries may have restrictions with regard to publishing geospatial information, often as a result of confidentiality concerns. It was agreed that a separate mandate, workplan and timeline for a working group on the topic would be developed, starting with a feasibility study.

18. The working group on the use of electronic data collection and SDMX updated the Oslo Group on international work aimed at developing exchange standards to harmonize data reporting. The agencies involved agreed to share draft data structure definitions for energy statistics, and the Oslo Group offered to identify pilot countries for the testing phase conducted by the organizations.

19. The working group on the use of administrative data sources for energy data collection and validation noted that the use of administrative data had been highly prioritized in most countries; it also noted, however that its limitations (such as differing terminology and possible data quality concerns) needed to be considered. It determined that, as a possible output, the Oslo Group could prepare a separate report that provided a list of country practices related to the topic, emphasizing also the role of the legislation in statistics acts. Without the proper legislation, it could be difficult to use administrative data. The experiences of a few countries with electricity data hubs were reviewed and possible applications were discussed.

20. The working group on quality reviews of energy data presented existing guidelines and practices for data quality reporting, and the Oslo Group agreed to focus its work in this area on three projects: promoting the sharing of country practices to ensure data quality; serving as a clearinghouse for information on data quality tools and practices; and defining the minimum steps necessary to ensure quality standards in energy statistics.

21. The Oslo Group agreed to focus only on two working groups in the near future: one on administrative data sources and the other on energy data dissemination. The other working groups would still exist but not be the current focus of the Group, although the focus could change in the future.

22. The 11th meeting of the Oslo Group was held from 8 to 11 May 2017 in Stockholm. As agreed at the previous meeting, the Group primarily considered the work in the areas of administrative data sources and energy data dissemination.

23. With regard to administrative data sources, the working group presented a number of country practices. It was decided that a clear workflow needed to be focused on since different countries faced entirely different situations. Some, for example, have very detailed legislation that governs many aspects of the provision and use of administrative data while others do not. Legislation was determined to be a key issue with regard to ensuring the accessibility of administrative data for statistical purposes.

24. Digitalization was another key element discussed. Digitalization adds significant value to questionnaires, for example, with regard to customizing the form on the basis of the receiver's characteristics. However, converting traditional paper forms to Excel or another similar format was not considered to be a reasonable utilization of digitalization. It was noted that, with digitalization, there was a need for

solid classifications and unchanging methods, which need to be balanced in the context of an increasingly changing society.

25. It was also noted that there were sources that provided real-time data (daily, hourly or minute-by-minute). The key discussion in this regard focused on whether to choose that data for producing official statistics.

26. The working group on energy data dissemination practices presented a number of practices undertaken by international and regional organizations, as well as by individual countries.

27. It was stressed that social media (e.g., Facebook, Twitter and Instagram) played an important role in the dissemination of statistics today and that the expertise (or lack thereof) of the audience in this regard had to be taken into account in such communication contexts.

28. The presentations included new visualizations of energy flows and short videos in which the basic concepts of energy were explained. The presentations were considered to be very useful, in particular to non-expert users of statistics. Participants expressed a strong interest in using the videos and in exploring the concepts further.

29. Discussions among the other working groups highlighted an interest in having the members of Oslo Group be more involved in work related to the Sustainable Development Goals (especially Goal 7, on energy) and to SDMX. However, procedural issues would have to be clarified in order to ensure efficient involvement of the Group.

30. In the discussions on the way forward for the Group, a number of issues were raised, including:

- Was there a need to update the International Recommendations for Energy Statistics or to consider only minor changes concerning mainly the classifications of renewables? If yes, how could this be organized?
- Should the Oslo Group write a short methodology paper on how to calculate the Goal 7 indicators?
- How could the work on SDMX be organized between the Intersecretariat Working Group on Energy Statistics, the Oslo Group and others, with the Oslo Group focusing on testing and experience-sharing with regard to the exchange?
- Inviting more countries to collaborate on the datahub paper to share experiences.
- In addition to administrative data sources, countries were also looking for alternative data sources (e.g., determining solar panel capacity from satellite pictures). The Oslo Group could be the right platform for sharing such country practices.
- The Group should focus more on user segmentation as a key area of dissemination practices.

D. Intersecretariat Working Group on Energy Statistics

31. In decision 37/108 the Commission supported the establishment of the Intersecretariat Working Group on Energy Statistics (<http://www.interenerstat.org/>) to enhance international collaboration and coordination in the field of energy statistics and to harmonize definitions among organizations (see [E/2006/24](#)).

32. The Intersecretariat Working Group has met twice since the forty-fifth session of the Commission to discuss a range of issues that require coordination among international and regional agencies involved in the production of energy statistics.
33. The 2015 meeting of the Intersecretariat Working Group was held in Paris on 14 and 15 September.
34. Participants at the meeting considered cross-cutting issues on energy statistics, including the coordination of international efforts carried out by groups such as the Oslo Group and the processes leading to the identification of indicators in the Sustainable Development Goal framework, and agreed on steps to improve the exchange of information on these issues.
35. Participants reviewed the state and progress made in the development of manuals and similar guidance for energy statistics. They also provided feedback on finalizing the International Recommendations for Energy Statistics and the ongoing work regarding the Energy Statistics Compilers Manual, as well as on manuals related to specific issues produced by other organizations, such as the manual of the International Renewable Energy Agency on bioenergy data collection and estimation methods, and the manuals of the International Energy Agency on energy efficiency. All participants stressed the need for the manuals to be translated.
36. The classifications used in energy statistics, including the Standard International Energy Product Classification and its relation to other classifications under development (such as the Forest Products Classification and Definitions) and existing classifications (such as the Harmonized Commodity Description and Coding System) were discussed with a view to identifying possible improvements that would have to be made in the near or midterm to make the Standard International Energy Product Classification more responsive to developing data needs and other data sources. The issue was also highlighted in discussions held on data needs with regard to renewable energy.
37. Training and capacity-building activities by the attending organizations were discussed with a focus on ways to share training materials, schedules were explored with a view to increasing the efficiency and reach of the capacity-building activities. Subsequent training activities have already demonstrated better coordination among the organizations.
38. Participants reviewed existing practices in the construction of energy balances and agreed to develop documentation that would clarify current deviations from the recommended balance structure and methodology set out in the International Recommendations for Energy Statistics. This would not only improve the transparency of the process of constructing these valuable analytical tools but would also form the basis for updating the methodology in future reviews of the Recommendations.
39. Energy efficiency was recognized as an emerging topic that created a high demand for data, especially at a detailed level. Participants agreed to focus on this issue at a future meeting of the Intersecretariat Working Group on Energy Statistics.
40. Participants also discussed data originality, which might impact the quality of energy data produced, in particular data on renewable energy. Source and quality information would be shared. A process to review the actual data flow for a specific, but crucial subset of renewable energy products was initiated among key agencies, including the Food and Agriculture Organization of the United Nations, the International Energy Agency, the International Renewable Energy Agency and the

Statistics Division. This work led to subsequent discussions among these agencies on biomass data.

41. The 2016 meeting of the Intersecretariat Working Group on Energy Statistics was held in Paris on 13 and 14 December. Following the recommendation made at the 2015 meeting of the Intersecretariat Working Group, the focus of the meeting was on energy efficiency and the required end-use data, drawing in experts from additional institutions. The meeting was attended by representatives of 12 international and regional organizations, while representatives of 11 additional entities involved in energy statistics or policy attended an extended session dedicated to energy efficiency and energy end-use data.

42. In the special session on energy efficiency and end-use data, a number of future common work areas were identified, including how to better disseminate energy efficiency data and the importance of policy monitoring to policymakers, as well as to the public and businesses; joint work on capacity-building for energy statisticians and those responsible for activity data (e.g., ministries of transport or industry associations); increased sharing of information on country/organization methodology and current work, in order to avoid duplication of work and harmonize approaches to common difficulties; and the importance of building links at the national level between agencies producing end-use data and those producing energy balance information in order to improve the consistency of data.

43. Participants noted that the need for more timely data for policymakers often posed a challenge owing to the long process required for collecting end-use data. It was recognized that appropriate funding was necessary to establish timely and sufficiently detailed end-use data collection.

44. A key conclusion reached at the meeting was the need to work with entities that were active outside the energy statistics domain, such as academia, in order to raise awareness about the difficulties associated with data collection and to include institutions such as ministries of transport or industry associations as potential participants at capacity-building events since activity data are often provided by a variety of institutions.

45. Some methodological issues, such as the potential use of big data and estimations of missing data points were also discussed from country perspectives during the special session.

46. It was noted in discussions on the implementation of the International Recommendations for Energy Statistics, held during the general part of the meeting, that many countries considered that the lack of a printed version of the Recommendations rendered them less authoritative, despite the fact that it had been approved in 2011 by the Statistical Commission. As a result, countries might not yet be able to implement necessary changes at this point. It was agreed, however, to explore the impact that the absence of a printed publication was having on countries by conducting a short survey.

47. Participants also agreed that it was sensible to start the process of assessing the need to review the Recommendations. They noted that there had been developments in the energy world that might mean a scope for change in the Recommendations or a need to update the Energy Statistics Compilers Manual or provide supporting documents.

48. Participants agreed to discuss the issue with their member States and to produce a note on what changes they thought were needed with regard to the

Recommendations, including respective benefits. The information would be discussed at the next meeting of the Intersecretariat Working Group, at which a decision on a formal update or other action would be taken.

49. Eurostat and IEA gave an introduction to SDMX work in energy statistics, which was of great value to participants, given the mixed understanding, limited knowledge or lack of knowledge shown by countries to date. Members saw the benefit in trying to achieve a global data structure definitions standard, but recognized the different challenges organizations faced with their members. IEA and Eurostat were working on a draft data structure definition that would be circulated once initial testing had been completed.

50. The next meeting of the Intersecretariat Working Group is expected to be held in the second half of 2018.

E. Ongoing activities in the energy statistics work programme of the International Energy Agency

51. The International Energy Agency remained at the centre of work on energy statistics, through its leadership of the Intersecretariat Working Group, its bilateral work with all partner organizations and its own work. In the past two years, the IEA modernization programme has given an opportunity to countries to become associated with it. These countries have expressed a keen interest in seeking assistance from IEA in improving their energy data. This, in turn, has improved links with partners such as the Statistics Division and APEC with regard to enhancing cooperation in training and in reaching out to new forms of education on energy statistics, such as the webinars and videos launched in 2016 and the translations of manuals. On its own, or in cooperation with partner countries, IEA has trained 1,000 energy statisticians over the past two years. In addition to partner countries, IEA has been working with African countries through the African Energy Commission in delivering a number of training courses and helping them to establish a simplified data collection process for energy end-use.

52. This development has been driven by changes in the energy situation globally. To respond to this, IEA has adapted its outputs, combining data on the Organization for Economic Cooperation and Development (OECD) and non-OECD data into publications that cover the entire world, developing new data on energy efficiency and supporting the work on implementation of the Sustainable Development Goals, specifically targets 7.2 and 7.3. At the global level, IEA has achieved agreement on the terms of reference for the Group of 20 energy end-use and efficiency programme and is working on conducting the first workshop on this issue in 2018, under the presidency of Argentina. IEA has also continued to support the Joint Organizations Data Initiative both by working with member organizations and at the global level, including at the 2017 conference of the Initiative and through training events.

F. Ongoing activities in the energy statistics work programme of the Statistics Division

53. The annual collection of data on energy statistics continued to be an important element of the work of the Division (<https://unstats.un.org/unsd/energy/>). While data for most countries are collected directly by the Division, data for some groups of countries are obtained through data-sharing agreements with other organizations. The

data collection by the Division is now fully compliant with the recommendations (including definitions) set out in the International Recommendations for Energy Statistics. In addition, efforts have been made to harmonize the questionnaires and data collection procedures among the main agencies involved in the collection of data on energy statistics.

54. The *Energy Statistics Yearbook* covers data on the production, trade and consumption of energy (solids, liquids, gaseous fuels and electricity), as well as additional information, such as per capita consumption, graphs showing historical trends, and special tables on trade, renewables, waste, refinery capacity and selected energy resources. The *Yearbook* contains data from 266 countries and areas (including historical figures).

55. The Energy Statistics Database, which provides content for the *Energy Statistics Yearbook*, is published in electronic form and contains additional data, including information for 2016 for some countries.

56. The collected data on energy are provided in two additional annual publications, in which the data is presented in a way that is suitable for analytical purposes, namely, the *Energy Balances* series and the *Electricity Profiles* series.

57. The *Energy Balances* series cover data on production, trade, conversion and consumption for each fuel used, presented in the energy balance format compliant with the Recommendations. They cover data from 218 countries and areas.

58. The *Electricity Profiles* series cover data on production, trade and consumption of electricity, net installed capacity and thermal power plant input. They cover data from 228 countries and areas.

59. Starting in 2017, a new publication, namely, the *Energy Statistics Pocketbook*, has been introduced and serves to summarize the information on energy in a condensed, user-friendly format.

60. In addition, the monthly collection of energy statistics has continued to be carried out on a regular basis for both oil and gas statistics, within the Joint Organisations Data Initiative, and the production of selected energy products for the Monthly Bulletin of Statistics.

61. The Statistics Division will continue to issue the five above-mentioned outputs in print and electronic formats in the biennium 2018–2019.

62. Since the forty-fifth session of the Commission, the Division has organized two training workshops on energy statistics and has participated in trainings organized by the Joint Organisations Data Initiative. The Division will continue its technical assistance efforts in coming years, depending upon resources available.

63. The Division is also working on the development of online training courses on the International Recommendations for Energy Statistics and the Energy Statistics Compilers Manual and expects to complete the first set of courses in 2018.

III. Action required by the Statistical Commission

64. The Commission is invited to take note of the present report.