E-LEARNING COURSE ON ENERGY STATISTICS - COURSE SYLLABUS

Background

Energy is fundamental for socio-economic development. The availability of and access to energy and energy sources is particularly essential to poverty reduction and further improvements in the standards of living. However, at the same time, with the constantly increasing demand for energy, there are growing concerns about the sustainability and reliability of the current production and consumption patterns and the impact of the use of fossil fuel on the environment. Under these circumstances, the reliable and timely monitoring of the supply and use of energy becomes indispensable for sound decision making. However, such monitoring is possible only if high quality energy statistics are systematically compiled and effectively disseminated. This is recognised by the international community with the existence of one Sustainable Development Goal (SDG) totally dedicated to the topic (SDG 7). Since some Energy SDG indicators (e.g., SDG indicators 7.2.1. and 7.3.1) are defined on energy quantities which are highly aggregated from basic energy statistics, there is a continuing demand for updated knowledge on energy statistics and the compilation of energy balances. To help countries compile these statistics in a comparable way, the *International Recommendations for Energy Statistics* (IRES) were adopted by the United Nations Statistical Commission, at its forty-second session in 2011. Given the critical role of high-quality energy statistics for informing policy, it is imperative to strengthen national capacities of developing countries for the sustained and regular production of energy statistics and indicators, in order to measure progress towards sustainable development.

Target groups and participants

The "E-learning course on energy statistics" is intended for energy statisticians working at national statistical offices and ministries in charge of energy. The course is recommended for statisticians from developing countries, where there is a need for developing or improving energy balances following international standards and methodologies. Other individuals, including officers from international or regional organizations involved in energy data collection, analysis and dissemination, are also invited to complete the course if they have interest in doing so.

Learning objectives

The overall objective of the course is to increase the knowledge and skills of energy statisticians about international standards and methodologies useful for official energy statistics, including IRES.

After completing the "E-learning course on energy statistics", participants will be able to:

- Understand the basic concepts of energy statistics.
- Identify possible data sources for collecting energy statistics.
- Report energy statistics based on international standards and methodologies.
- Understand the relationship between energy statistics and energy balances.
- Build energy balances based on energy statistics.
- Compute useful energy indicators based on such statistics.
- Understand how energy statistics can be used to calculate CO_2 emission estimates according to the IPCC methodology.

Course structure and content

The course is made up of 12 sessions (approximately 7 hours in total). Further details on the course structure are outlined below.

Session 1: Introduction to energy balances and UNSD
This introductory session provides an overview of the key concepts for energy statistics and balances and presents the work of UNSD in the area.

Session 2: Energy data collection on national level: framework and institutions

The session provides a short introduction to legal frameworks and institutional arrangements, and presents the Fundamental Principles of Official Statistics.

Session 3: Fundamentals of energy statistics
This session introduces general concepts of energy statistics following IRES, units of measurement and conversions between units.

Sessions 4 to 8:
These sessions present energy statistics for different energy products (definitions of products and flows, units employed to measure/disseminate each product, specificities of different types of fuel or energy).

- Session 4: Coal, peat and derived fuels

- Session 5: Primary oil and oil products

- Session 6: Natural Gas

- Session 7: Renewables and waste

- Session 8: Electricity and heat

Session 9: Data sources and data quality

This session presents data sources, data collections strategies and methods, as well as data quality in energy statistics.

Session 10: Energy balances

This session presents the structure and principles of energy balances following IRES.

Session 11: Energy efficiency indicators

This session offers an introduction to energy efficiency indicators.

Session 12: CO_2 emissions

This session offers an introduction to CO_2 emissions from the energy sector.

Learning methodology/learning approach

The course is self-paced and unmoderated. The 12 sessions of the course do not have to be completed in a sequential order. Each module takes between 25 - 50 minutes to complete.

Assessment test

At the end of the course, participants take an assessment test that will test their understanding of the key facts and concepts that have been covered. Participants must attain a score of 70% or higher in order to successfully complete the course.

Course completion

In order to successfully complete the course, participants need to:
- Complete all 12 sessions of the course: read the presentations and pass the quizzes (100% with unlimited attempts).
- Pass the final assessment test with a minimum score of 80% (two attempts first week, one attempt each following week).
- Complete the course feedback survey.

Participants who successfully complete the course will receive a UNSD certificate.

Technical requirements

The course works best with current versions of Chrome and Edge.

Contacts

Leonardo Rocha Souza
Chief of Energy Statistics Section
United Nations Statistics Division
Email: energy_stat@un.org