



# 5. ISSUE NOTE – HOUSEHOLDS' PRODUCTION OF ELECTRICITY AND HEAT

Prepared by ABS, EUROSTAT and the SNA Editor

*AEG meeting, 16-18 October 2023  
Item 05 of the Agenda*

# The Issue

- Decentralised and sustainable production of energy by households has gained in importance quickly over recent years
- Energy production by HHs will likely become an important part of total energy production
- For example, we see more and more: solar panels on the roofs, the use of geothermal heat or heat pumps for heating water or a house, wind power plants on land owned by households...
- Different production and consumption models exist
- The issue is not fully addressed in the 2008 SNA; clear rules for a harmonised recording are therefore necessary

# Are electricity and heating goods or services?

- There can be long conceptual discussions on classifying electricity and heating as a good or a service.
- In short, it is proposed that:
  - **Electricity** is considered a produced **good**.
  - **Heating** is considered a produced **good**.
- → consequence: own-account production by HHs of electricity and heating are included in the SNA production boundary
- Does the AEG have views on this proposal?

# HHs' production of energy products provided to other units

- **Households' production of energy products provided to other units always needs to be recorded in national accounts**
- → Estimates of the output; the linked IC; the GVA created; the use of the created energy as intermediate use in other sectors (when sold to the network) or as final use (final consumption expenditure by sectors); and the mixed income for the concerned HHs
- → Considered as an unincorporated enterprise owned by a HH

# Treatment of households' own-account production

- When considering produced electricity and heat as goods, and if it is quantitatively significant, **households own-account production of electricity and heat should be recorded in NA.**
- Recording of 'balcony solar panels' production still needs to be further discussed (conceptual vs. practical considerations).
- From the Eurostat questionnaire: two dominant reasons for not recording HHs' own-account production are (i) data availability and (ii) expectation that amounts are not considered relevant up to now; methodological considerations do not constitute the main objection

# Industry Allocation

- Two options for HHs:
  - a) Separate establishment which is allocated to the energy industry ISIC 35 (SNA § 5.15 – 5.19)
  - b) Energy production considered as secondary production of the establishment that produces dwelling services (2008 SNA § 5.15) → classified to the industry that dwelling services is allocated to.
- Further issues (not related to households):
  - Would option b) be a precedent for other institutional sectors?
  - Energy production in schools, community organisations, government buildings and businesses outside the energy industry
  - Fundamental question for measurement of non-market output and value added

# GFCF linked to energy production by households

- Major improvements are treated as gross fixed capital formation on the part of the owners of those dwellings, including owner-occupiers (2008 SNA 9.68)
- Solar panels attached to an existing house are therefore classified as dwelling alterations and additions, a component of GFCF.
- If attached to a new house, then solar panels should be included in the total cost of the dwelling (new dwellings, GFCF).
- Same arguments for installations to produce heat, for example heat pumps in existing or new dwellings.

# Valuation of households' own-account production

- Conceptually it is clear (market price of same or similar items, SNA §3.123; basic price, SNA §6.124)
- Practical issues:
  - What is the right price for quantity produced?
  - Price and time of the feed in tariff (FiT) for electricity can vary; in addition, HHs may store electricity in batteries.
  - How to deal with negative prices? (possible in times of excess supply of electricity)
  - Valuation of own-account production of heat still needs to be developed



# Valuation of households' own-account production of electricity

- Three options:
  - 1) the Feed in Tariff (FiT), 2) the wholesale electricity contract price, 3) the electricity wholesale spot rate on the electricity market
- Exports of electricity to the grid through batteries:
  - Conclusion: it seems sensible to ignore the intra-day variation in prices for the purposes of national accounts recording
- Charges to feed electricity to the grid (“negative prices”):
  - Recommended to record charges as **reduction in the basic price** of electricity generated from solar panels for own use or fed to the grid

# The issue of possible double counting

- Installations for the use of regenerative energy (electricity or heat) might lead to higher market rentals for the relevant dwellings, or a “rent premium”
- Any observable actual, or imputed, rent premiums on renewable energy installations is potentially double counting production and consumption. This is because additional consumption of both dwelling services and energy could be recorded for the resident household
- Seems not to be a significant issue at the moment; but it might change in the future.
  - Can be remediated by splitting out the renewable energy contribution to total dwelling services and excluding it from final household consumption of dwelling services

# Recommended approach

- Energy products are goods
- Industry allocation: either to the energy industry (preferable) or to the industry where dwelling services is classified (practical).
- Valuation of households' own-account production of electricity: the Feed in Tariff (FiT) rate (Option 1); in case of volatility – the average FiT over the period.
- Valuation of exports of energy to the grid through batteries: capture the 'electricity storage service' implicitly through the higher FiT rate that grid feeds receive at peak periods

# Recommended approach II

- Valuation of charges to export energy to the grid: treated as a reduction in the basic prices of output (Option 2) from the household producing unit
- Avoiding double-counting: where necessary, the additional final consumption of dwelling services should be removed and recorded as intermediate consumption of household energy production. Where GFCF may be double-counted between dwellings and energy generation equipment, due to data sources, appropriate adjustments should be made.

# Required changes to the SNA

- No conceptual changes required.
- Changes mainly relate to clarification of the status of electricity and heat, their specific inclusion in own-account production of households, their relation to dwelling services, and the recording of the installations used to generate the energy.

# Thank you for your attention!

eurostat 



© European Union 2020

Unless otherwise noted the reuse of this presentation is authorised under the [CC BY 4.0](https://creativecommons.org/licenses/by/4.0/) license. For any use or reproduction of elements that are not owned by the EU, permission may need to be sought directly from the respective right holders.

Slide xx: [element concerned](#), source: [e.g. Fotolia.com](#); Slide xx: [element concerned](#), source: [e.g. iStock.com](#)

