

4. The IRENA Renewable Energy Template

IRENE Renewable Energy Statistics Training



Outline

- Background
- Challenges: characteristics of renewable energy
- IRENA's approach to data collection
- IRENA energy products and definitions
- IRENA energy balance
- Further developments
- Discussion
 - Issues related to completion of the template
 - Where does IRENA get the data?

Background: data needs

IRENA has been asked by members to collect renewables data, while not duplicating the work of others.

Data is used to measure:

- Energy sector transformation (targets)
- Energy SDG: access; renewables; efficiency
- Market developments, investments, etc.

But renewables are about more than just MW!

Challenges with RE data

Renewable energy

- Thermal and non-thermal
- Great variation in scale
- Off-grid more common
- Many producers
- Biofuels very variable
- Considerable innovation

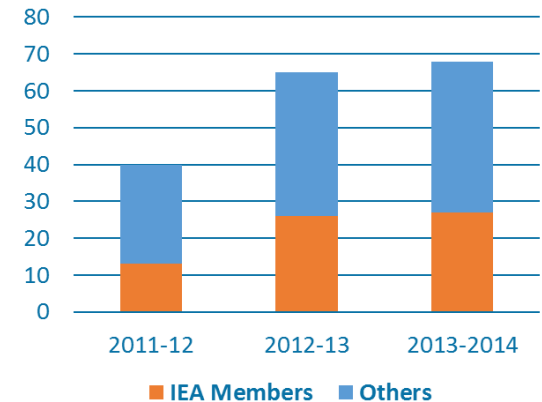
Nonrenewable energy

- Thermal energy
 - Often large-scale
 - Mostly grid-connected
 - Industrial/utility production
 - Fuels well specified
 - Stable technologies
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- Less familiarity with measurement conventions
 - Hybrid systems, co-firing, accounting for heat

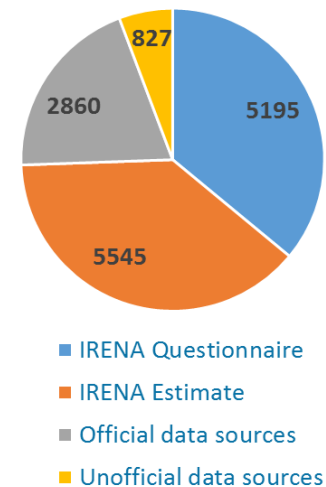
IRENA data collection

- Pre-fill with historical data
- Data collection cycle
 - *Y+10: Send questionnaires*
 - *Y+12: Validate replies*
 - *Y+15: Publish capacities*
 - *Y+18: Publish yearbook*
- Response rate is increasing
- Coordinate with APEC, IEA and others on timing and training

Number of countries returning IRENA questionnaire



Sources of all capacity data points 2000-2015



Products and definitions

- **Seven main groups:** hydro; solar; wind; marine; geothermal; bioenergy; other
- Definitions are mostly similar to other organisations, broadly in-line with International Recommendations for Energy Statistics (IRES), but with greater detail for bioenergy

- **Solid biofuels: 12 product categories**
 - Woodfuel; Energy crops;
 - Wood waste; Black liquor; Straw; Bagasse; Rice husks; Other vegetal and agricultural waste; other primary solid biofuels (animal waste); renewable municipal waste;
 - Biomass pellets and briquettes; and charcoal.

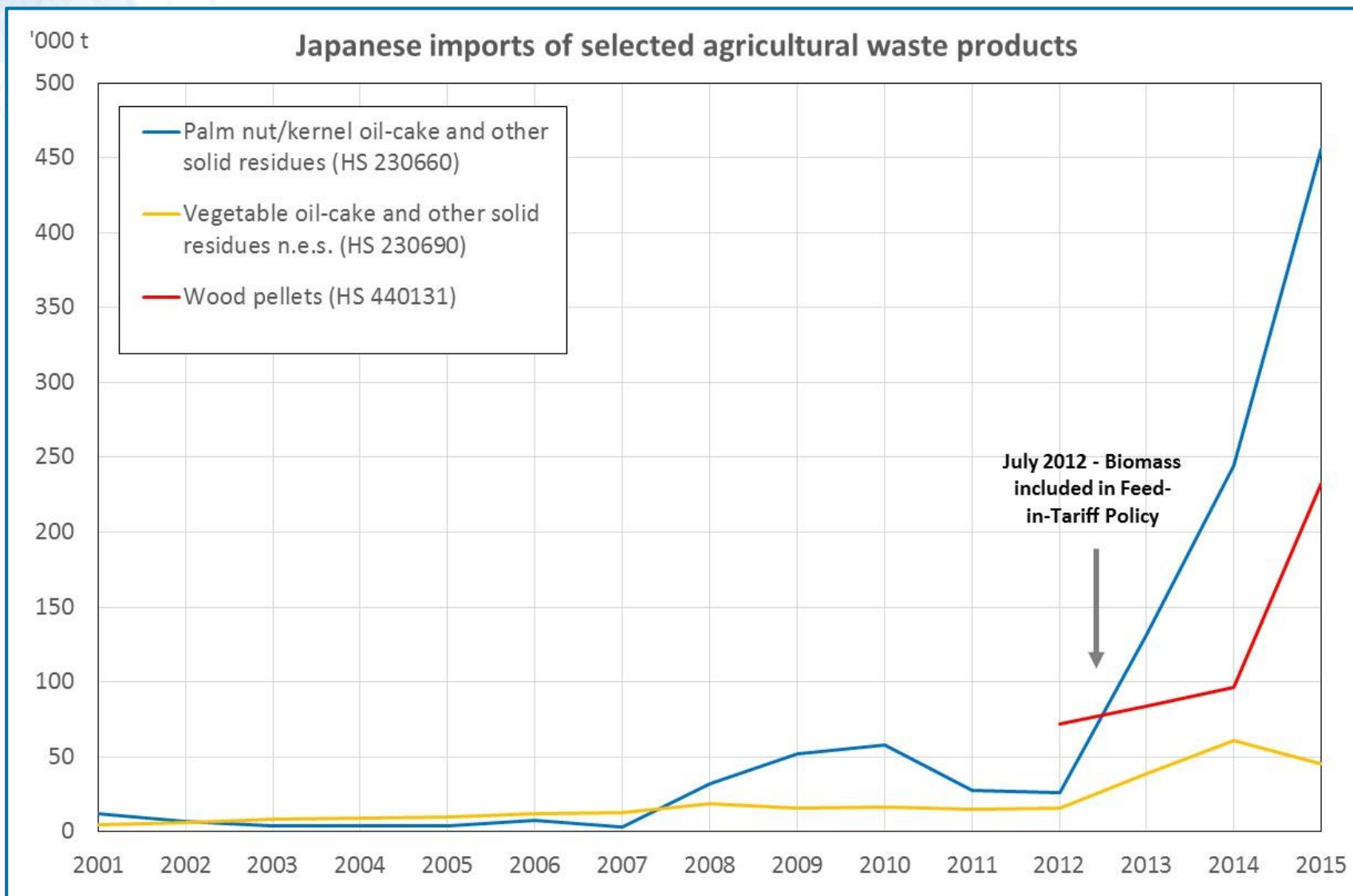
- **Biogas: 4 product categories**
 - Landfill gas;
 - Sewage sludge gas;
 - Other biogases from anaerobic fermentation; and
 - Biogases from thermal processes.

- **Liquid biofuels: 6 product categories**
 - Conventional biogasoline; Advanced biogasoline;
 - Conventional biodiesel; Advanced biodiesel;
 - Bio jet kerosene; and
 - Other liquid biofuels.

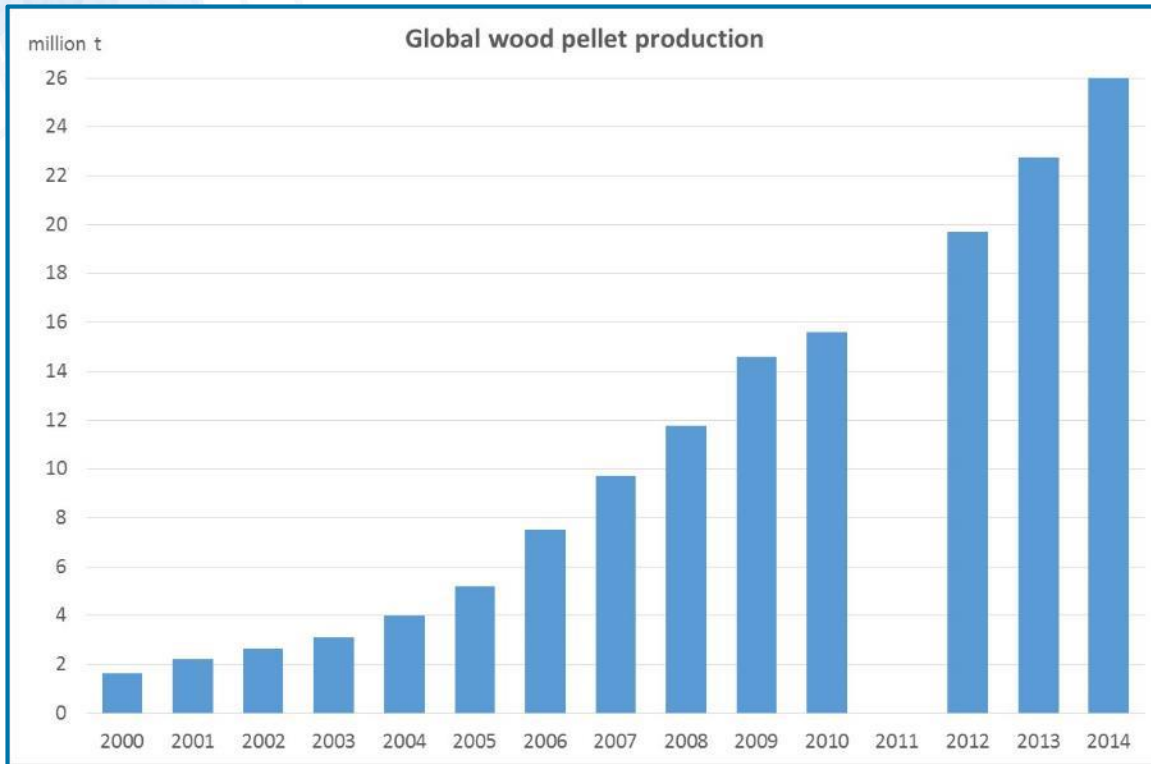
Why so many products?

- **Sustainability:** Natural resource or waste?
- **Energy content:** Vastly different
- **Global scope:** Biofuels vary by region, usually only 6-8 types per country (12 in Austria)
- Useful to monitor market developments
- Building data framework for the future

Market developments



Biomass pellet development



Pellets are a rapidly growing part of the biofuel market

Advanced liquid biofuels are also being developed



Wood



Palm (EFB)



Rice husk



Straw



Waste (SRF)



Torrefied

Continuous improvement

- **Trade data:** Solar panels; solar lanterns; solar water heaters; biomass pellets – refinement of Harmonized System (HS) codes
- **Estimation techniques:** Using census and household surveys to examine energy data
- **Energy content:** More work can always be done to understand calorific values

- **Are there any issues you have encountered related to the completion of the templates?**
- **Where does IRENA get the data?**
 - Handout: Overview



IRENA

International Renewable Energy Agency

**Questions?
Thank you!**