Overview

• Why dissemination is important

• Charts – the basics of visualization

• Specific issues with communication on:
  - renewables and
  - energy efficiency
Principle 1. Official statistics provide an indispensable element in the information system of a democratic society, serving the Government, the economy and the public with data about the economic, demographic, social and environmental situation. To this end, official statistics that meet the test of practical utility are to be compiled and made available on an impartial basis by official statistical agencies to honour citizens’ entitlement to public information.

Principle 2. To retain trust in official statistics, the statistical agencies need to decide according to strictly professional considerations, including scientific principles and professional ethics, on the methods and procedures for the collection, processing, storage and presentation of statistical data.

Principle 3. To facilitate a correct interpretation of the data, the statistical agencies are to present information according to scientific standards on the sources, methods and procedures of the statistics.

Principle 4. The statistical agencies are entitled to comment on erroneous interpretation and misuse of statistics.
Selected Recommendations from IRES

- The dissemination policy should be user oriented, reaching and serving all user groups, including format, and provide quality information.

- While recognizing the importance of statistical confidentiality, countries should implement those rules in a way to promote access to data while ensuring confidentiality.

- Countries make their energy data available on a calendar period basis.

- For international comparability, countries which use the fiscal year, should undertake efforts to report annual data according to the calendar year.

- Countries announce in advance the precise dates when energy statistics will be released.
Selected Recommendations from IRES

- Release dates:
  - monthly data, within 2 calendar months
  - quarterly data within 3 calendar months after the end of the reference quarter;
  - annual data within 15 calendar months after the end of the reference year

- Countries are encouraged to harmonize their data with international standards

- It is recommended that countries disseminate their energy statistics internationally as soon as they become available to national users and without any additional restrictions.

- A glossary of terms should always accompany the disseminated tabulations of energy statistics.
What are good (energy) data?

- Relevant
- Reliable
- Timely
- Consistent
- Cost efficient
- Comparable over time
- Comparable between countries, provinces, cities... according to needs
- Used!
A good picture is worth a thousand words

Everyone can understand a good chart!

Natural gas: Production (ktoe)
The first stats chart? - William Playfair, 1821

Source: 1821 and 1824 editions Chronology of Public events and Remarkable Occurrences via RSS Significance
Good chart?
Good chart?
UK Energy consumption by main industrial groups 2009

- Iron & steel and non-ferrous metals: 8%
- Mineral products: 11%
- Chemicals: 17%
- Mechanical engineering and metal products: 5%
- Vehicles: 5%
- Paper, printing, publishing: 9%
- Food, drink & tobacco: 12%
- Other industries: 21%
- Unclassified: 12%
UK Energy Consumption by main industrial groups 2009

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Source: Energy Consumption in the UK 2010
IEA Association countries have seen over a 6 fold increase in energy demand in 40 years
Specific issues with communication on: renewables
Rates of change and importance

Annual growth rates of world renewables supply from 1990 to 2015

Source: IEA, Renewables information, 2017
## Supply and Understanding the Energy Balance

### World

<table>
<thead>
<tr>
<th>Supply and Consumption</th>
<th>Coal &amp; Lignite</th>
<th>Crude Oil</th>
<th>Oil Products</th>
<th>Natural Gas</th>
<th>Nuclear</th>
<th>Hydro</th>
<th>Geothermal, Solar, Wind</th>
<th>Biofuels &amp; Waste</th>
<th>Electricity</th>
<th>Total TPES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production</td>
<td>3546.04</td>
<td>4006.38</td>
<td>-</td>
<td>7261.10</td>
<td>718.65</td>
<td>266.62</td>
<td>1123.07</td>
<td>-</td>
<td>1277.08</td>
<td>3833.75</td>
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<tr>
<td>Imports</td>
<td>646.82</td>
<td>2086.06</td>
<td>1063.71</td>
<td>877.87</td>
<td>4868.77</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Exports</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>S&amp;D changes</td>
<td>0</td>
<td>0.94</td>
<td>11.54</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-11.54</td>
<td>-0.94</td>
</tr>
<tr>
<td>TPES</td>
<td>3726.04</td>
<td>4213.32</td>
<td>113.51</td>
<td>7261.10</td>
<td>878.56</td>
<td>266.62</td>
<td>1123.07</td>
<td>-</td>
<td>1266.02</td>
<td>3827.96</td>
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</tbody>
</table>

### Transformation

<table>
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<tr>
<th>Electricity generation by fuel</th>
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<tbody>
<tr>
<td>Coal &amp; Lignite</td>
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</tbody>
</table>

### Final Consumption

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<td>Coal &amp; Lignite</td>
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<tr>
<td>Geothermal, Solar, Wind</td>
</tr>
<tr>
<td>Biofuels &amp; Waste</td>
</tr>
</tbody>
</table>

### Energy Consumption

| World                          | 3827.96       |
| Supply and Consumption         | 3726.04       |
| Transportation                 | -             |
| Final Consumption              | 1063.71       |

### Notes

- **TPES**: Total Primary Energy Supply
- **TFC**: Total Final Consumption
- **Electricity generation by fuel**
- **Energy consumption**
- **Energy generation**
- **IEA**: International Energy Agency
- **© IEA 2017**: Copyright by IEA
Specific issues with communication on: Energy Efficiency
World total final consumption by sector

Transport’s importance for energy consumption is growing

Source: IEA, World Energy Balances, 2017
Who are the final users of electricity?

Electricity total final consumption - 2015

- **Industry**: 54%
- **Transport**: 10%
- **Residential**: 22%
- **Commercial and public services**: 9%
- **Agriculture/forestry**: 4%
- **Non-specified (other)**: 1%

Electricity in industry by sub-sector 2015

- Non-specified (industry): 70%
- Paper, pulp and printing: 0%
- Food and tobacco: 10%
- Mining and quarrying: 20%
- Transport equipment: 30%
- Non-metallic minerals: 40%
- Non-ferrous metals: 50%
- Chemical and petrochemical: 60%
- Iron and steel: 70%

Source: IEA World Energy Balances, 2017

In energy balance, almost half electricity final consumption is “non-specified”
How to describe what doesn’t happen?

- Energy efficiency can be considered as using less energy for the same or higher output

- So measuring and presenting something that doesn’t happen

- Eg replacing a 60watt lightbulb with a 10watt low energy lightbulb means around 100 kWh of electricity are not used.

- But not all energy savings are efficiency (eg the closure of a factory) and energy growth can include more use of energy efficiently

- Often need to look at a counterfactual – what would have happened
And for example analysing efficiency savings

What drives energy intensity trends?

Efficiency progress and also other factors (mainly structural changes)

Source: IEA World energy balances, 2017
What other factors affect energy intensity?

- Size of the country
- Climate
- Economic structure

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>3.2</td>
<td>3.0</td>
</tr>
<tr>
<td>Industry</td>
<td>7.2</td>
<td>10.4</td>
</tr>
<tr>
<td>Services</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Others</td>
<td>2.1</td>
<td>2.9</td>
</tr>
</tbody>
</table>

A decrease in energy intensity is possible without any energy efficiency improvement.
Understanding energy consumption drivers

Drivers of final energy consumption in IEA

Energy intensity of the economy: TPES/GDP

Social media
Try our new online resource with historical and projected data by country & region on access to electricity, access to clean cooking, & sustainability targets on renewables & energy efficiency bit.ly/2HRondD #SDG7

SDG7
Ensure access to affordable, reliable, sustainable and modern energy for all

IEA: Sustainable Development Goals
SDG 7: Ensure access to affordable, reliable, sustainable and modern energy for all
iea.org

Promotion of work through Twitter
OECD generation changing: gas on par with coal for first time, rise of non-hydro renewables
Outputs

Annual and quarterly Publications
Fuel Information books, World energy statistics & balances, CO₂ emissions...

IEA website
Atlas, Sankey flows...

Booklet
Key World Energy Statistics

Mobile App
Android, apple and windows

Electronic data files
Data online service

Free overviews from books saw 15,000 downloads in first 3 weeks
Dissemination of Statistics

✓ Keep it simple but factual

✓ Who is audience, what level of numerical skill

✓ Charts must make point easier to understand – they are the hook

✓ Should raise a “why” question