CHP/DHC Collaborative meeting: Industry-related activities

Paris, 21 January 2016
Araceli Fernandez
ETP Industry-related activities 2016/2017

ETP Industry model development activities

✓ Support the energy system model integration strategy

IEA energy statistics improvement activities

✓ CHP performance
✓ Petrochemicals feedstocks energy reporting

Analytical streams

✓ Opportunities and challenges of going beyond 2DS in Industry
✓ Opportunities for wider use of renewable energy in Industry
✓ Opportunities for a Low-carbon technology roadmap for the Iron & Steel sector
ETP INDUSTRY MODEL:
- Iron&Steel, (Petro)chemicals, Cement, Aluminium and Pulp&Paper
- 39 regions
- Time horizon up to 2050 (5yr time steps)
ETP Industry Model conversion process

**ETP INDUSTRY MODEL:**
- ENERGY TECHNOLOGY PORTFOLIO
- CAPACITY STOCK TURN-OVER
- FUEL MIX USE PROJECTION
- CO2 EMISSION CALCULATION

**MODEL CONVERSION**

- **EXCEL BASED**
  - BOTTOM-UP TECHNOLOGY RICH SIMULATION MODEL
- **IRON & STEEL**
  - CEMENT
- **CHEMICALS & PETROCHEMICALS**
  - ALUMINIUM
- **CHEMICALS & PETROCHEMICALS**
  - PULP & PAPER

- **TIMES BASED**
  - BOTTOM-UP TECHNOLOGY RICH LEAST-COST OPTIMISATION MODEL

**PRODUCTION PROJECTIONS**
- ENERGY PRICES
- TECHNOLOGY INVESTMENTS
- CO2 MAXIMUM EMISSIONS
- FEEDSTOCK AVAILABILITY

- Explores least-cost technology pathway to produce demanded commodities within a given set of constraints.

- Structural improvements:
  - More detailed representation of innovative processes
  - Better integration with ETP TIMES Supply model
  - Enhanced economic assessments
  - Improved assessment of regional contexts impact

© OECD/IEA 2015
IEA Energy Balance: convention auto-producers CHP

Fuel supply → Main activity CHP

Captive CHP

Electricity

- Electricity export
- Electricity used on-site

Heat

- Heat export
- Heat used on-site

Fuel reported in the Industrial sector

Fuel reported in the Transformation sector
The data challenge: auto-producers CHP

- No visibility from IEA stats on actual overall energy efficiency
  - Limited tracking of industrial CHP performance
  - Energy modelling needs to rely on assumptions on heat/power ratios
  - Difficult to analyse the full scope of benefits of CHP technologies in scenarios

- Discussions with governments to review IEA statistical questionnaire 2015/2016
  - AIM: Total heat output from auto-producers CHP to be singled out
  - RESULT dependent on ability to meet this requirement from governments and reporting bodies
How could you contribute?

Modelling integration development activities & analytical streams

- Technology investments information for CHP and IEH recovery
- Update on best available related technologies (techno-economic performance): CHP, IEH recovery, heat pumps
- Synergetic examples of CHP/IEH recovery with the use of renewable energy sources
- Tools to comprehensively capture the sustainability benefits of CHP/IEH: successful regulatory mechanisms, innovative business models; and preventing barriers

IEA energy statistics improvement activities

- National level statistics covering total heat output from auto-producers CHP
- Engaging with countries to support this process
Thanks!
araceli.fernandezpales@iea.org