Wholesale and international prices

The volatility of international fossil fuels prices impacts the EU energy prices

Crude oil (Brent) and European wholesale gasoline, diesel and heating oil prices

Wholesale electricity prices in the EU

Sources: Platts, ECB

Sources: Platts, European power markets
International gas and electricity prices

Wholesale electricity prices for industry

Sources: Eurostat, CEIC and IEA

European, US and Japanese wholesale gas prices

Sources: Platts, Thomson-Reuters
Retail prices

Different price structures across MS, fuels and consumer groups

Household electricity prices in 2017

Household gas prices in 2017

Industrial electricity prices in 2017

Median and large industrial gas prices in 2017

Source: Directorate-General for Energy
Taxes on industrial electricity over time

The importance of taxation in electricity prices

Taxes on industrial electricity in 2017:
- Concession fees
- Energy Efficiency
- Environmental taxes incl. excise duty
- NRA and market operator
- Nuclear
- Other
- RES & CHP
- Security of Supply
- Social

Taxes on electricity in 2017: small vs large industrial consumers

Source: Directorate-General for Energy
The EU is still exposed to volatile global fossil fuel markets, which can impact on fiscal regimes and macroeconomic stability.

Source: Directorate-General for Energy
Energy shares in total production value and real unit energy costs

- Energy share of purchases of energy in the EU stable around 2% of the total production value

- Relative real unit energy costs generally stable in recent years

Sources: EC, Eurostats

Source: DG JRC and DG ECFIN
Declining energy shares in production costs (but still significant for energy intensive sectors)

Examples of sectors

<table>
<thead>
<tr>
<th>Energy share of production costs (range)</th>
<th>Examples of sectors</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-3 %</td>
<td>Average European business</td>
</tr>
<tr>
<td>1 %</td>
<td>Computers and electronics, motor vehicles, other transport equipment</td>
</tr>
<tr>
<td>3-5 %</td>
<td>Waste management and accommodation and restaurants</td>
</tr>
<tr>
<td>3-20 %</td>
<td>Energy intensive sectors in manufacturing</td>
</tr>
<tr>
<td></td>
<td>Cement, lime and plaster, Clay building materials, Pulp and paper, Glass, Iron and steel, Basic chemicals, Non-ferrous metals</td>
</tr>
</tbody>
</table>

Sources: Trinomics (2018), Ecofys (2018)
## Key plant level result from case studies of EIIs Declining Competitiveness

<table>
<thead>
<tr>
<th>Sector</th>
<th>Median electricity consumption (GWh)</th>
<th>Average electricity price (€/MWh) (1)</th>
<th>Average electricity costs (€/MWh) (1)</th>
<th>Median natural gas consumption (GWh)</th>
<th>Average natural gas price (€/MWh) (1)</th>
<th>Main energy carriers used (2)</th>
<th>Share of total energy costs in total production costs (3) (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bricks and roof tiles</td>
<td>5.9</td>
<td>86.3</td>
<td>79.3</td>
<td>51.3</td>
<td>25.1</td>
<td>Natural gas</td>
<td>19.0</td>
</tr>
<tr>
<td>Wall and floor tiles</td>
<td>13.5</td>
<td>99.2</td>
<td>88.1</td>
<td>146.4</td>
<td>24.1</td>
<td>Natural gas</td>
<td>15.6</td>
</tr>
<tr>
<td>Glass tableware</td>
<td>25.2</td>
<td>92.4</td>
<td>85.8</td>
<td>150.3</td>
<td>23.8</td>
<td>Natural gas, electricity</td>
<td>13.7</td>
</tr>
<tr>
<td>Packaging glass</td>
<td>49.0</td>
<td>75.4</td>
<td>68.9</td>
<td>266.5</td>
<td>22.3</td>
<td>Natural gas</td>
<td>19.5</td>
</tr>
<tr>
<td>Primary aluminium</td>
<td>2267.1</td>
<td>39.4</td>
<td>37.0</td>
<td>199.8</td>
<td>20.9</td>
<td>Electricity</td>
<td>42.9</td>
</tr>
<tr>
<td>Secondary aluminium</td>
<td>14.9</td>
<td>97.6</td>
<td>93.9</td>
<td>82.8</td>
<td>24.4</td>
<td>Natural gas, electricity</td>
<td>14.0</td>
</tr>
<tr>
<td>Downstream aluminium</td>
<td>42.4</td>
<td>80.0</td>
<td>80.0</td>
<td>97.4</td>
<td>24.7</td>
<td>Electricity</td>
<td>1.9</td>
</tr>
<tr>
<td>Steel EAF</td>
<td>330.7</td>
<td>53.7</td>
<td>50.6</td>
<td>209.8</td>
<td>19.2</td>
<td>Electricity</td>
<td>12.3</td>
</tr>
<tr>
<td>Steel BOF</td>
<td>817.5</td>
<td>57.6</td>
<td>52.1</td>
<td>1,490.1</td>
<td>17.2</td>
<td>Coking coal/coke</td>
<td>4.4(9)</td>
</tr>
<tr>
<td>Nitrogen fertilizers</td>
<td>86.0</td>
<td>66.5</td>
<td>60.3</td>
<td>4,464.7</td>
<td>18.8</td>
<td>Natural gas</td>
<td>38.7</td>
</tr>
<tr>
<td>Refineries</td>
<td>277.4</td>
<td>69.0</td>
<td>62.9</td>
<td>1,596.9</td>
<td>20.3</td>
<td>Crude oil</td>
<td>84.4</td>
</tr>
</tbody>
</table>

1. Electricity and natural gas costs take account of reimbursements, self-production and flexibility schemes, while electricity and natural gas prices do not. As natural gas costs appear to be similar to natural gas prices, they are not shown in the table.
2. Energy carriers include all energy raw materials, either used for energy (energy sources) or non-energy (feedstocks) purpose.
3. Total energy costs include only electricity and natural gas costs; in the case of refineries, the costs of other fuels including feedstocks (crude oil, fuel oil, petroleum coke and refinery gases) are also included. Total production costs include all costs (both OPEX and CAPEX) directly relating to the production process.
4. This share refers to the costs of electricity and natural gas only. The costs of coking coal and coke are not included.

Sources: CEPS, Ecofys (2018)
Declining energy intensities in most of the energy intensive sectors

Sources: Trinomics (2018), Ecofys (2018)
International price comparisons over time

Retail electricity prices – EU vs G20

Retail gas prices – EU vs G20

Sources: Eurostat, CEIC, ERRA, IEA
International comparisons on energy costs and intensity

Energy costs and energy intensity in energy intensive sectors

Sources: Trinomics (2018)
• Public spending, energy subsidies increasing to drive the energy transition (€170 bn in 2016).
• Fossil fuels subsidies not declining.

• Wide differences in support to fossil fuels exist in the EU.

Sources: EC, Trinomics (2018)
Energy taxation provides stable and significant government revenues

€280 billion per year

i.e. close to 5% of tax revenues

Source: Eurostat
THANK YOU!

More information on:
BACK UP SLIDES
Energy prices and costs in Europe

• This third energy prices and costs report (following 2014, 2016) assesses trends in prices and costs of fuels in Europe, providing background facts and figures for EU energy policy making.

• It updates data (including on 2014 subsidies estimates), adds more data on petroleum products, and on energy costs, especially for energy intensive industries (drawing on DG GROW studies & analysis).

• It provides evidence supporting the ongoing energy transition (including the LTS), and a timely review of taxation, subsidies, revenues and ($/€) imports.
Retail prices

Differences in price dynamics across MS fuels and consumer groups

**Household electricity prices 2008 - 2017**

**Household gas prices in 2008 - 2017**

**Electricity prices for industry in 2008 - 2017**

**Gas prices for industry 2008 - 2017**
Retail prices for industry - price regulation

Price regulation: the case for non-household electricity and gas markets

**Electricity**

**Gas**

![Electricity non-household, MS which phased out regulated prices between 2008 and 2016](image)

![Gas non-household, MS which phased out regulated prices between 2008 and 2016](image)

**Mark-ups**

![Electricity based on band ID (2 000 MWh < consumption < 20 000 MWh)](image)

![Gas based on band I3 (10 000 GJ < consumption < 100 000 GJ)](image)
Costs for households

energy poverty: energy as a share of household expenditure

- Spending on energy averages 5.5%, up to 10%
- Wide differences across Member States

Expenditure on energy in lower middle income EU households (Euros and share of total expenditure)
Energy costs and competitiveness at macroeconomic level

- The EU's overall competitiveness remains stable compared to main trading partners

- The reliability and the quality of service of energy is a competitive advantage for the EU
## Costs for the industry – competitiveness

### Representativeness of samples for the plant level analysis

<table>
<thead>
<tr>
<th>Sector</th>
<th>Central-Eastern Europe</th>
<th>North-Western Europe</th>
<th>Southern Europe</th>
<th>Total</th>
<th>Share of turnover (T) or production capacity (C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bricks and roof tiles</td>
<td>11</td>
<td>36</td>
<td>11</td>
<td>58</td>
<td>11% (T)</td>
</tr>
<tr>
<td>Wall and floor tiles</td>
<td>8</td>
<td>4</td>
<td>10</td>
<td>22</td>
<td>12% (T)</td>
</tr>
<tr>
<td>Glass tableware</td>
<td>2</td>
<td>4</td>
<td>6</td>
<td>12</td>
<td>92% (T)</td>
</tr>
<tr>
<td>Packaging glass</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>24</td>
<td>17% (T)</td>
</tr>
<tr>
<td>Aluminium primary</td>
<td>1</td>
<td>5</td>
<td>4</td>
<td>10</td>
<td>60% (T)</td>
</tr>
<tr>
<td>Aluminium secondary</td>
<td>2</td>
<td>1</td>
<td>6</td>
<td>9</td>
<td>n.a. (3)</td>
</tr>
<tr>
<td>Aluminium downstream</td>
<td>1</td>
<td>4</td>
<td>3</td>
<td>8</td>
<td>13% (T)</td>
</tr>
<tr>
<td>Steel EAF</td>
<td>3</td>
<td>13</td>
<td>2</td>
<td>18</td>
<td>14% (C)</td>
</tr>
<tr>
<td>Steel BOF</td>
<td>3</td>
<td>4</td>
<td>0</td>
<td>7</td>
<td>26% (C)</td>
</tr>
<tr>
<td>Nitrogen fertilisers</td>
<td>4</td>
<td>1</td>
<td>3</td>
<td>8</td>
<td>17% (C)</td>
</tr>
<tr>
<td>Refineries</td>
<td>1</td>
<td>8</td>
<td>4</td>
<td>13</td>
<td>19% (C)</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>44</strong></td>
<td><strong>88</strong></td>
<td><strong>57</strong></td>
<td><strong>189</strong></td>
<td></td>
</tr>
</tbody>
</table>

Source: CEPS/Ecofys
Costs for the industry – competitiveness

X-sectorial comparisons in line with x-band comparisons

Source: CEPS, Ecofys (2018)
Projections suggest future prices increasingly cover (investment) costs, reducing need for subsidies

Source: Left graph Platts, METIS(2030); right graph: PRIMES
Looking forward:
Investments in electricity capacity

Source: Left graph Platts, METIS(2030); right graph: PRIMES
To discuss!

- Volatile (international) fossil fuel prices still drive EU prices
  - Decarbonisation, long term strategy
- Price divergence across MS has declined, but can still be significant
  - Internal market
- International position of the EU stable (generally between Asia and fossil fuel producer countries)
  - International competitiveness
- Major tax and levy divergences across MS, fuel and consumer group
  - Competition distortions, weak price signals for energy policy goals
- *Energy costs affect* macroeconomy, households, industry
  - Imports, $/€
  - Supports, subsidies & price signals
  - Support for level playing field, *appropriate* subsidies
- Energy taxes provide revenues
- Energy subsidies need reviewing (NECPs) and should decline in the future