Industrial Energy Efficiency/CO_2 Emissions: Comments from the Petrochemical Industry

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cefic

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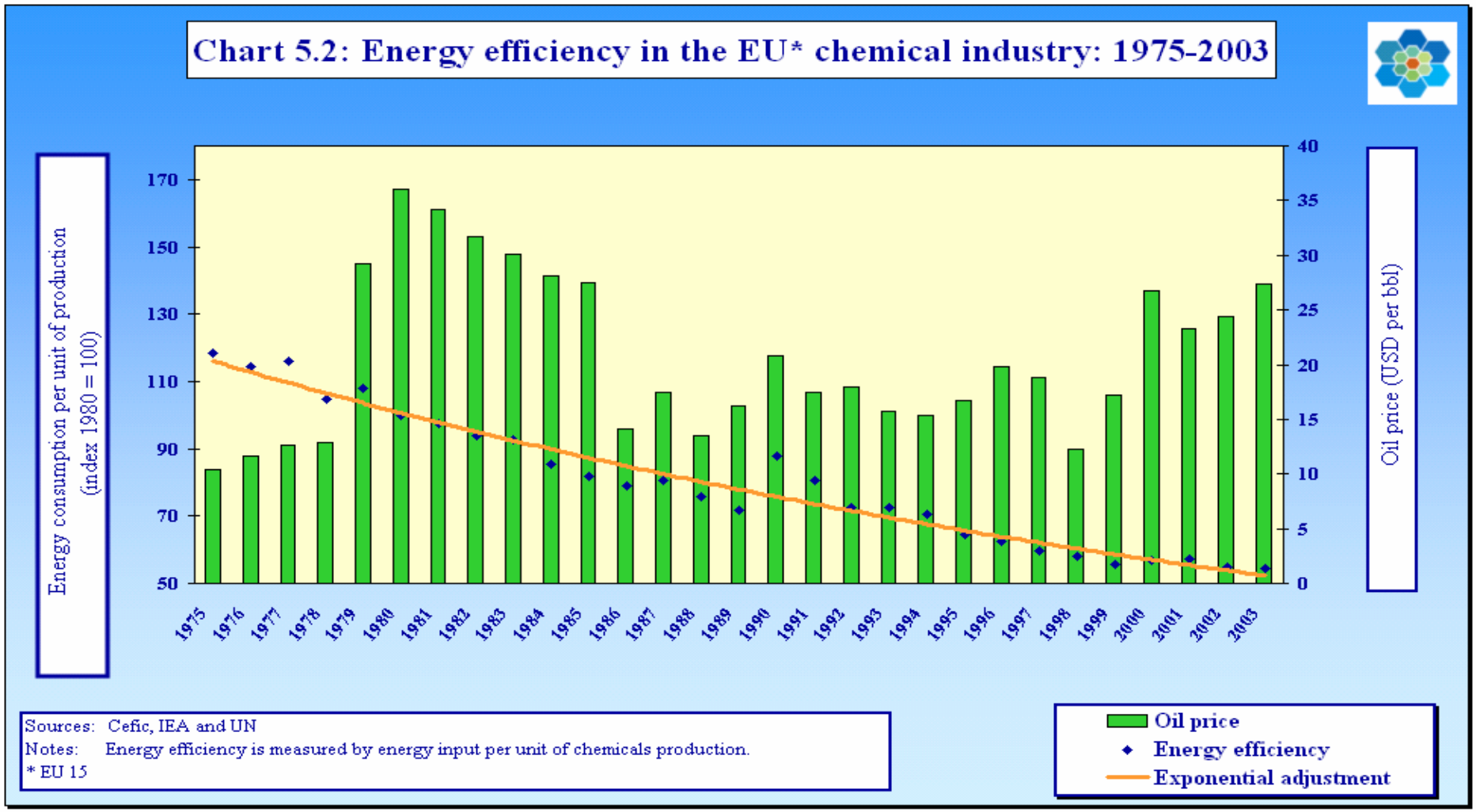
Tracking Industrial Energy Efficiency…..
General Comments.

- IEA document: the result of high quality work; a set of comprehensive information, almost impossible to find elsewhere in one source.

- Chemical Industry is committed to cooperate with IEA, defining a roadmap towards energy efficiency improvement. Its feasibility generates a “win-win” situation: better environment and economic benefits, while general environmental performance improvement may involve significant costs.

- Chemical Industry has always been very active in finding any possibility of reducing energy intensity, and the effects of this commitment are apparent e.g. in the impressive trend of EU Chemical Industry Energy Intensity in the last decades.

Industry example: EU Chemical Industry



- Chemical industry accounts for roughly 12% of total EU energy
- **Competition has driven continuous energy intensity improvements** essentially independent of energy costs

Tracking Industrial Energy Efficiency…..
General Comments.

- In summary, the industry commitment is associated to the willingness to facilitate a correct interpretation of technical data.

- Important considerations are highlighted in the IEA paper :

  - more work is needed

  - in many cases, the quality of available data is indicated as a critical point.

The CHP case….

- In general, industry confirms IEA views on CHP incl. barriers to diffusion.
- Data quality is an issue: in some cases, data structure is unfit for current objectives. CHP electricity data are generally available whilst heat data are not collected with reference to CHP.

- Further criticalities associated to CHP are determined, as IEA paper states, by:
  - the rules for linking to grid and interchanges with grid
  - the lack of a shared way to assess CHP environmental benefit.
- In Europe, even in a case where a favourable CHP treatment was foreseen (EU ETS Directive), in practice CHP installations receive no advantages.
- A typical CHP project (replacing a conventional unit) implies an increase of emissions at local level = Obstacle in approval process.

Feasibility of Energy Efficiency potentials.

- Achievable energy efficiency improvement Potential is described as “gap closure” based on the actual situation and a reference case (best practice, experimental or calculated). However, the actual feasibility of the achievement implies the deployment of resources (financial, human) not always feasible.

- The application of ‘Best Practices’ to old units may imply feasibility problems (e.g. fundamental changes in feedstock type or major technology shifts)

- Two examples:

  1. Industrial motor systems: a “system” approach ensures much more significant improvements than those achievable improving the efficiency of single pieces of equipment; however, the system approach is time and (high quality) resource consuming, often outside of the “basket” of the “core business” resources.

  2. Improvements due to new investment (the case of new smelters in Africa, vs “old” North American ones)….

Complexity of Energy Efficiency « rating ».

- Due to the complexity of installations, i.e. petrochemical ones, energy performance in terms of a single parameter or even of a set of parameters is complex again.

- Concerning performance indicators for energy or emissions, the relative merits of possible options e.g. relating them to the whole production unit or to the single chemical product should be considered.

- Not all options influencing energy efficiency performance are under the operator's control (e.g. the possible use of low level energy source, such as hot water or steam at an industrial site).

- Currently, the European petrochemical industry is analysing data in order to improve the understanding of energy performance, possibly leading to a benchmark.

Follow up of IEA action.

- The European Chemical Industry Council (Cefic), the European Petrochemical Industry (APPE) in cooperation with the Japan Petrochemical Industry Association (JPCA) and the US National Petrochemical & Refiners Association (NPRA) is reviewing the IEA work and will further contribute with expert input.

- The industry will use consolidated field data from operating plants that can complement the IEA data.

CO_2 Emissions.

- Energy Efficiency Improvements can influence the CO_2 emission performance, but the relationship is not straightforward and requires further analysis (currently investigated).
- In Europe, the Petrochemical Sector is currently exploring the feasibility of a benchmark as a basis for a fair allocation method for allowances in a CO_2 emissions trading systems.
- Suggested IEA indicators for CO_2 emission performance are far less detailed than those dedicated to Energy Efficiency; the extent of consistency between IEA data and UNFCCC GHG official data should be demonstrated.

Issues on the way forward. (1)

- Beyond the Petrochemical Sector, some considerations may apply to the whole Chemical Sector (or even the whole Industrial Sector). In our opinion, the following challenges need to be considered in the development of further steps:

  - how to develop a framework of data useful to address the situation at a single operator's level, in a specific site.

  - how to translate an efficiency gap between current and achievable performance to a "roadmap" addressing feasibility.

  - Technological potential and local feasibility are fundamental elements for permitting and upgrading installations. Industry can provide extensive experience from EU IPPC regulation.

Issues on the way forward. (2)

- The SME potential. The approach currently followed does not address the situation of SMEs, that may have an untapped energy saving potential. SMEs should be involved
  - Determining the potential,
  - Helping to realise improvements.

- The geographical factor. In addition to the future development speed, IEA data show that ASIA already covers more than 44% of world energy consumption (Table 2.1, IEA paper, page 40). Therefore, action on energy efficiency would be ineffective without a strong Asia involvement.

THANK YOU FOR YOUR ATTENTION!

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