



SAVING ENERGY IN CHEMICAL SITES.

ATHENS. July 4, 2011
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CEFIC IT Energy Efficiency Chairman



Efficiency has a fundamental role in energy and climate policy.

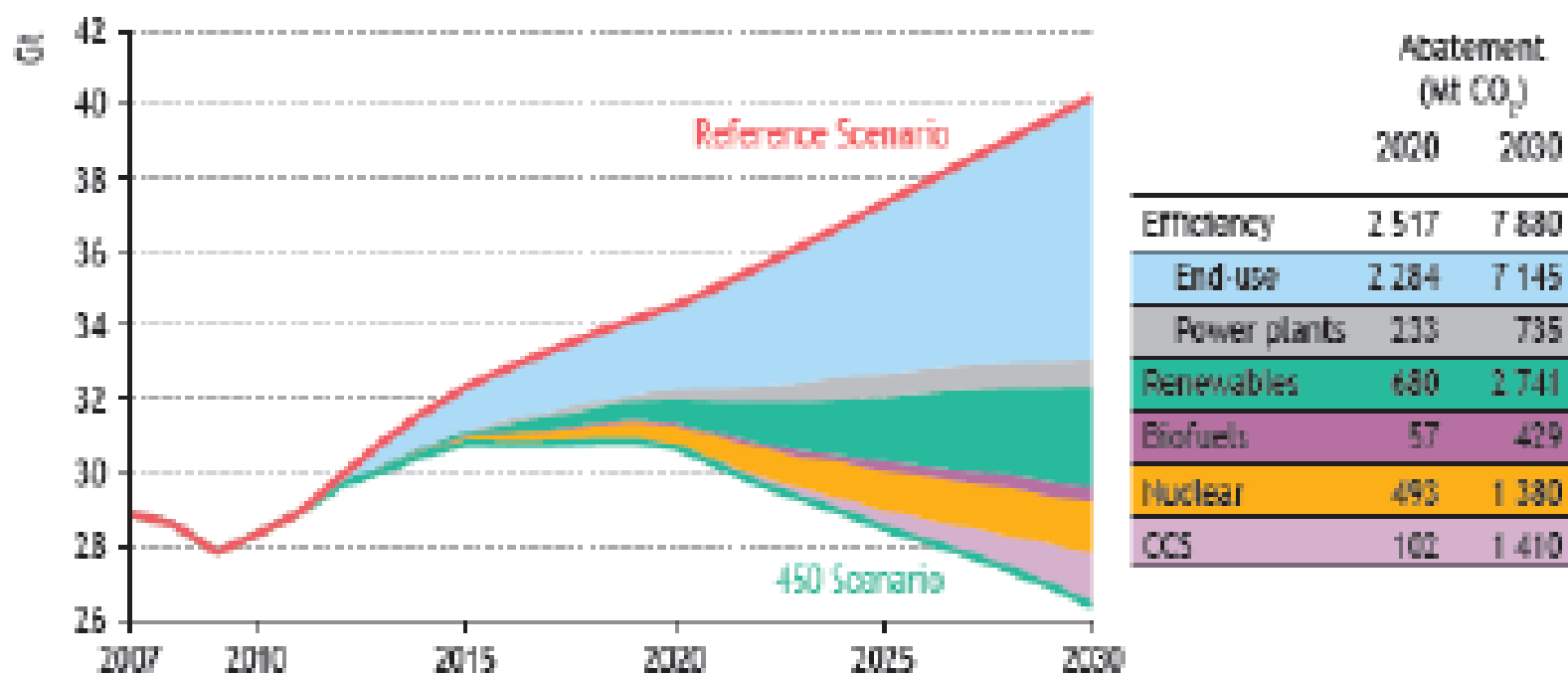


- ✓ **Energy and climate policy are an important policy making pillar in the present difficult transition towards a low carbon economy at world level.**
- ✓ **Important efforts are required from all stakeholders. Policy makers bear significant responsibilities.**
- ✓ **Typically, efficiency is a fundamental tool to achieve the targets of any energy and climate policy.**

Energy Efficiency role very important!



Figure ii Role of energy efficiency in the 450 Scenario vs. the Reference Scenario



Source: IEA, 2009a.

Energy efficiency high in agenda NOW!



- ✓ **March 8, 2011: EU COMMISSION Communication « Energy Efficiency Plan 2011 ».**
- ✓ **June 22, 2011: Directive proposal on ENERGY EFFICIENCY and repealing Directives 2004/8/EC and 2006/32/EC.**

Energy efficiency Directive proposal



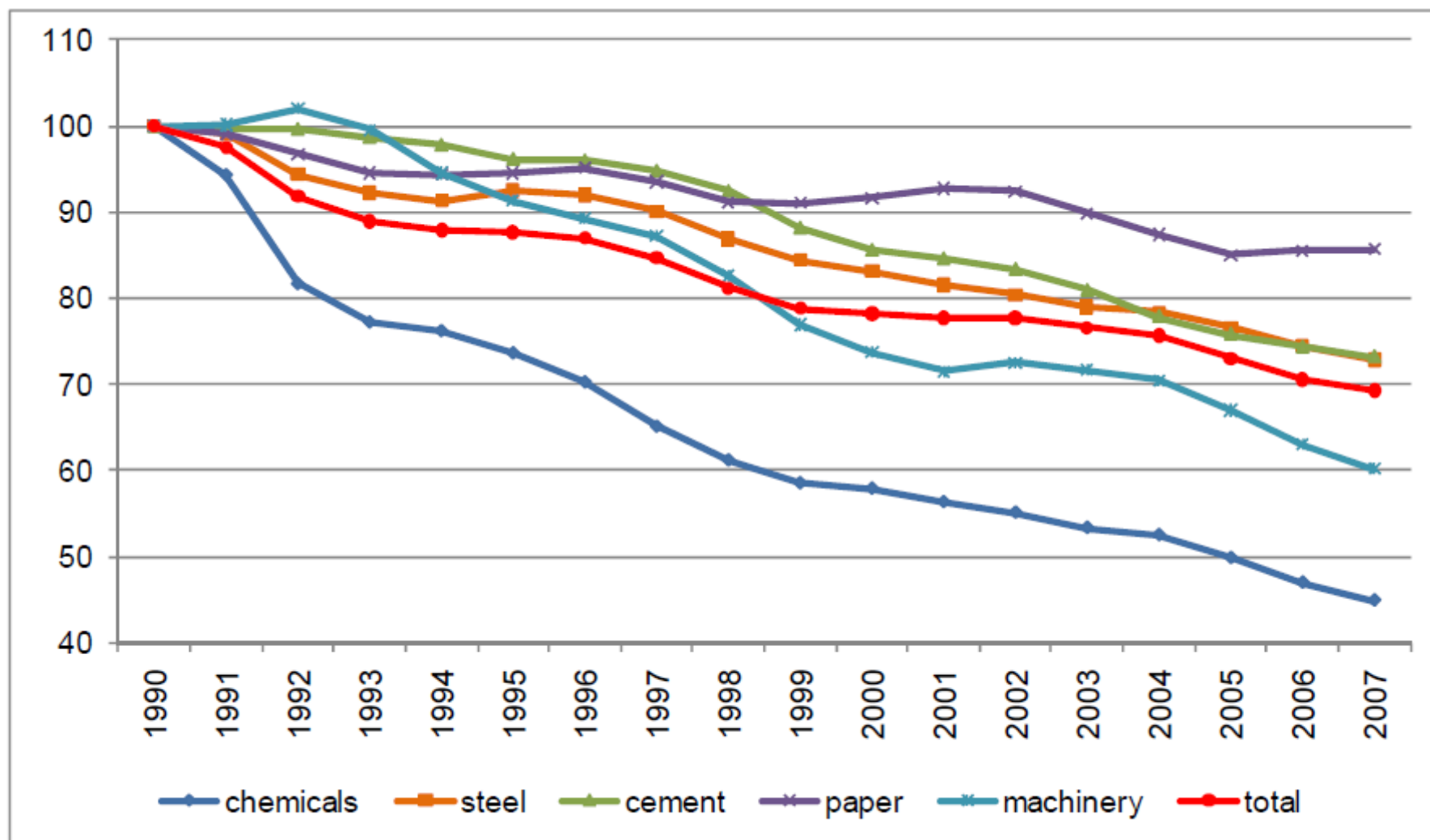
- ✓ **Distributors/energy sales companies: energy saving schemes**
- ✓ **Public bodies: Renovation of public buildings**
- ✓ **Consumers: access to energy consumption data and frequent billing**
- ✓ **Industry: incentives for SMEs to undergo energy audits; audits for large companies**
- ✓ **Efficiency monitoring in energy generation**
- ✓ **Efficiency criteria in Transmission/distribution network tariffs**

Energy efficiency and policy making



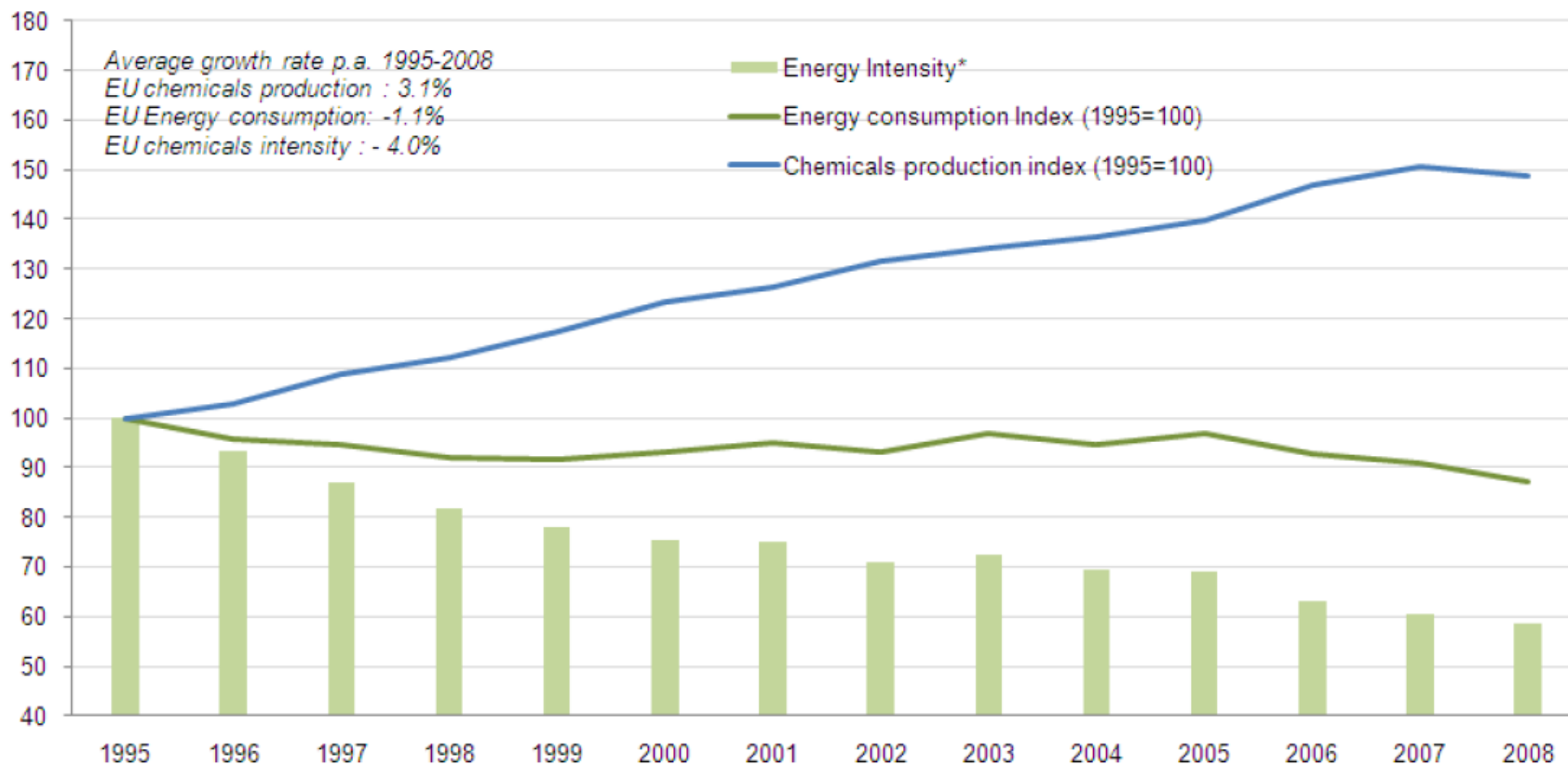
- ✓ **Efficiency brings win-win situations, with benefits instead of costs (costs are involved, for example, in the case of environmental improvement through abatement of traditional pollutants).**
- ✓ **For this reason, industry is openly in favour of this tool.**
- ✓ **Chemical Industry, in particular, has adopted the objective of ensuring a wider diffusion of the “awareness” of energy issues, that leads to ensure a proper management and, consequently, an achievement of energy saving/energy efficiency potentials.**

Energy efficiency improvement, EU 27



Data source: Odyssee

EU Chemical Industry performance



*Energy intensity is measured by energy input per unit of chemicals production (including pharmaceuticals)

Source: Eurostat and Cefic Chemdata International

Energy management needs and benefits



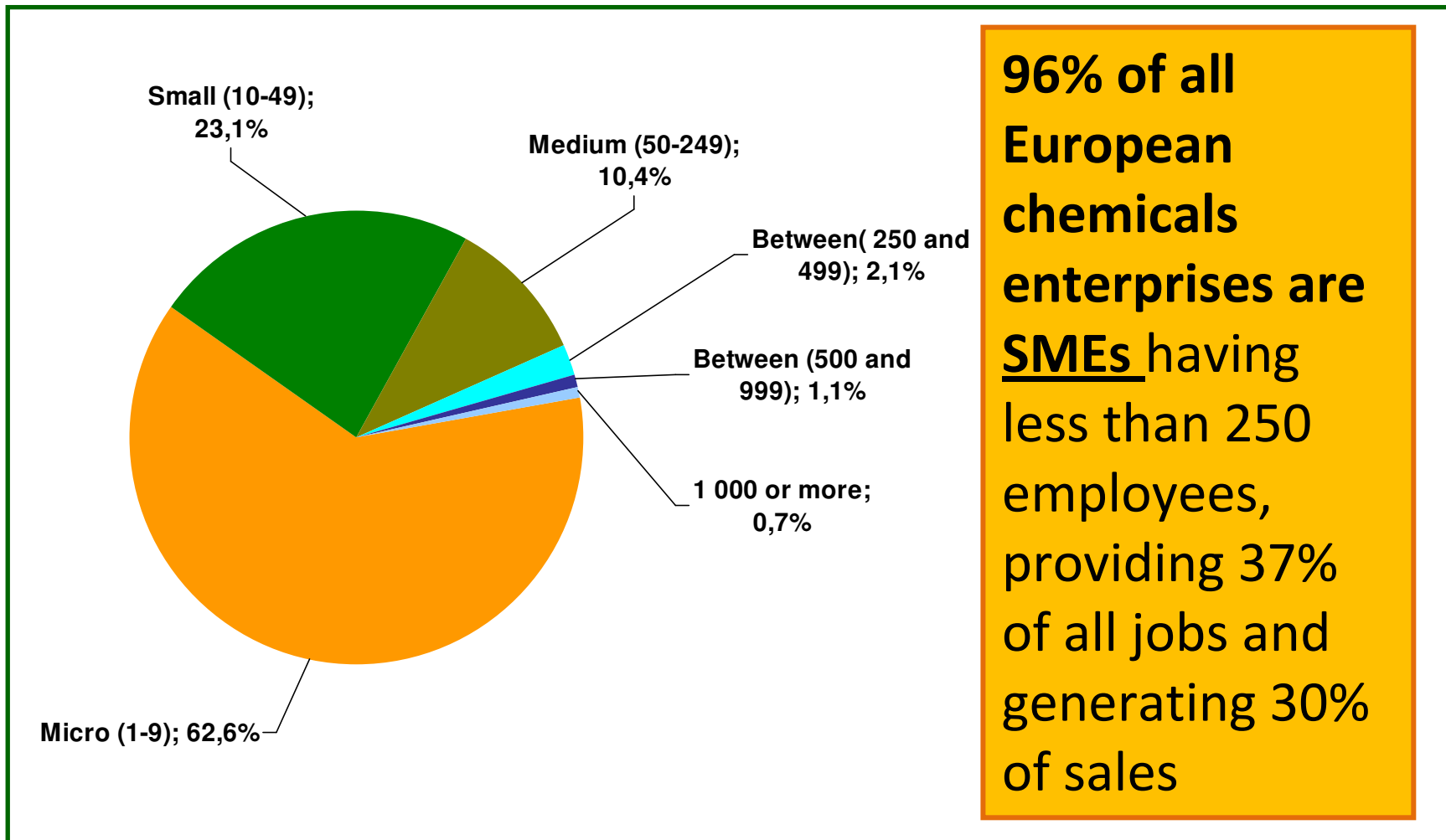
- ✓ **Chemical industry is an important energy consumer, but with very different situations in terms of energy intensity, and in terms of “energy factor” incidence on enterprise turnover.**
- ✓ **Enterprises with high and economically important energy consumption (Energy Intensive Enterprises) are in general “equipped” for a satisfactory energy management.**
- ✓ **In the generality of cases (and especially for SMEs) it is important to assess the cost/benefit balance of a more systemic knowledge and attention to the issue .**

Energy management: the case of SMEs.



- ✓ **Energy management is a complex activity, requiring a minimum base of technical competence, dedication of resources, and organization commitment: these characteristics are not always actually found in SMEs.**
- ✓ **A complex energy management organization and the dedication of important resources are not always justified by the specific situation.**
- ✓ **It is advisable that the actual degree of commitment, and the consequent resources dedicated, would be the result of an appropriate assessment of the specific situation: generally, SMEs need support in this activity.**

The majority of chemical enterprises in Europe have less than 50 employees





The Care+ Project.

- ✓ **The Care+ Project is sponsored by the European Commission under the Initiative Intelligent Energy for Europe.**
- ✓ **It is based on the principles of the Responsible Care Programme, and aims at the improvement of energy efficiency awareness and performance in Chemical SMEs.**
- ✓ **It is the result of the Commission interest in a proposal made by European Chemical Industry (through CEFIC) during the activities of High Level Group on Chemicals (2008).**



The Care+ Project: aims.

- ✓ **develop, test and offer to SMEs proposals for an efficient use of energy**
- ✓ **diffuse information on energy efficient technologies and on energy management systems**
- ✓ **demonstrate, with formation activities and field verifications, that energy consumption reduction is an achievable objective**
- ✓ **improve SMEs performance**

The Care+ Project: Main Tools.



- ✓ **Best Practice Manual: guidance booklets on best practices in energy efficiency**
- ✓ **Self Auditing Tools: to perform assessment of possible energy efficiency improvements**
- ✓ **Field assistance**



Self Audit Guide

- Leads through the analysis of company's energy performance
- Helps determine strengths and weak points while managing energy sources
- Aims at improving Energy Efficiency supporting the identification of measures, their expected energy savings, Costs & Return on Investment calculation (suggested evaluation model provided through developed **excel tables**)

Best Practice Cases

- Focus on the energy issues that are of greatest interest to chemical SMEs, e.g.:
 - ✓ Energy management programmes
 - ✓ Steam generation performance,
 - ✓ Motors and drives,
 - ✓ Compressed air systems
- Give guidance on financial implications of the possible energy improvement measures and technologies

Both documents were translated into the 3 national languages

The Care+ Project: benefits for SMEs.



SMEs can:

- ✓ **Acquire basic knowledge and awareness**
- ✓ **Define and assess their “energy profile”**
- ✓ **Develop an energy saving project**
- ✓ **Develop an appropriate energy management system**



Energy efficiency: general issues

- ✓ **Chemical Industry is willing to be an actively involved stakeholder in this area, on the basis of a very satisfactory general performance track record, its continuing commitment, and its contribution to further improvement, exploiting possibly available potential. Any effort in this field is worthwhile to be pursued.**
- ✓ **However, we would like to remark that policy making in this area is a complex issue, with many aspects deserving careful consideration by policy makers.**
- ✓ **The following slides highlight some messages on energy efficiency governance, already expressed in the past.**

Energy efficiency definition and measurement.



- ✓ While the concept of Energy Efficiency is in principle very clear, its definition and measurement in practice is technically complex and often subject to specific case by case considerations, very often unsuitable to easy extrapolation.
- ✓ Not all options influencing energy efficiency performance are under the operator's control (e.g. the possible use of low level heat source, such as hot water or steam from an industrial site).
- ✓ In some cases and in complex sites (e.g. clusters), options to improve the whole site performance make more sense than targeting a specific product (energy) performance.

Energy efficiency definition and measurement.



- ✓ **Energy Efficiency measurement is often based on energy intensity, that is reduced when energy efficiency is improved.**
- ✓ **However, GDP energy intensity is reduced by reducing the weight of energy intensive industries in the industrial activity mix: is this a desirable outcome?**
- ✓ **Conclusions: caution is required in the use of energy intensity as energy efficiency indicator, and policy making should not reinforce a hostile environment for energy intensive industrial activities.**

Energy and (GHG) emissions efficiency.



- ✓ **Energy efficiency improvements can influence CO₂ emissions performance, but the relationship is not straightforward.**
- ✓ **One clear example of the lack of correspondence between energy and CO₂ emissions efficiency is Carbon Capture and Storage (CCS).**
- ✓ **Due to the unavoidable role of coal and other fossil fuels in the next decades, CCS is a necessary bet of the climate policy, although its availability is neither a short term possibility, nor a win-win situation, because of the serious energy efficiency gap on power production process.**

Energy intensity in the chemical industry.



- ✓ **Chemical industry is an extremely diversified industrial sector in terms of variety of products, with various degrees of energy intensity, in which a few energy intensive “blocks” are the basis of the whole industrial structure.**
- ✓ **Very often the most energy intensive sectors are also very efficient; like it or not, a successful efficiency improvement is not sufficient to change the energy intensive nature of many processes.**
- ✓ **So, the policy approach should not consider energy intensive sectors as would-be non-intensive energy users after energy efficiency improvements.**

Delivering energy efficiency performance.



- ✓ **In an energy efficiency improvement project definition, energy efficiency must be coupled with economic efficiency: this may imply limits to the extent of worthwhile actions for energy efficiency improvements.**
- ✓ **Once a project has been defined, its feasibility depend on competition for the use of limited financial resources and the necessary priority to “core business” projects.**
- ✓ **This calls for the availability of appropriate financing possibilities (access to low interest rates) for Energy Efficiency improvement projects.**

Translation of Energy Efficiency gains in absolute reduction of energy consumption.



- ✓ An ambition of energy efficiency policy is the achievement of absolute reductions in energy consumption, as a result of energy efficiency gains
- ✓ Even in the case of positive results of energy efficiency achievements, there is a powerful “challenge” to the actual feasibility of the policy objective, represented by what seems to be a very consistent trend of the past experience, and referred to as the “REBOUND EFFECT”, that appears as a real threat for the realization of the (absolute reduction) objective.



THANKS FOR YOUR ATTENTION!

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