

Joint Research Centre (JRC)

Sub-sector approaches to sustainable building practices

Jose-Luis Galvez Martos

IPTS - Institute for Prospective Technological Studies

Seville - Spain

<http://ipts.jrc.ec.europa.eu/>



1. The **Policy Context** of sectoral approaches in the sustainable development strategy
2. The **Reference Document** on best environmental management practice
3. **Buildings** in Reference Documents
4. Experiences with the **Retail Trade sector**
5. Ongoing work with the **Construction sector**

EU Energy Strategy

Energy efficiency
Integrated Energy Market
Safety and security
Innovation and leadership

external dimension: international partnership



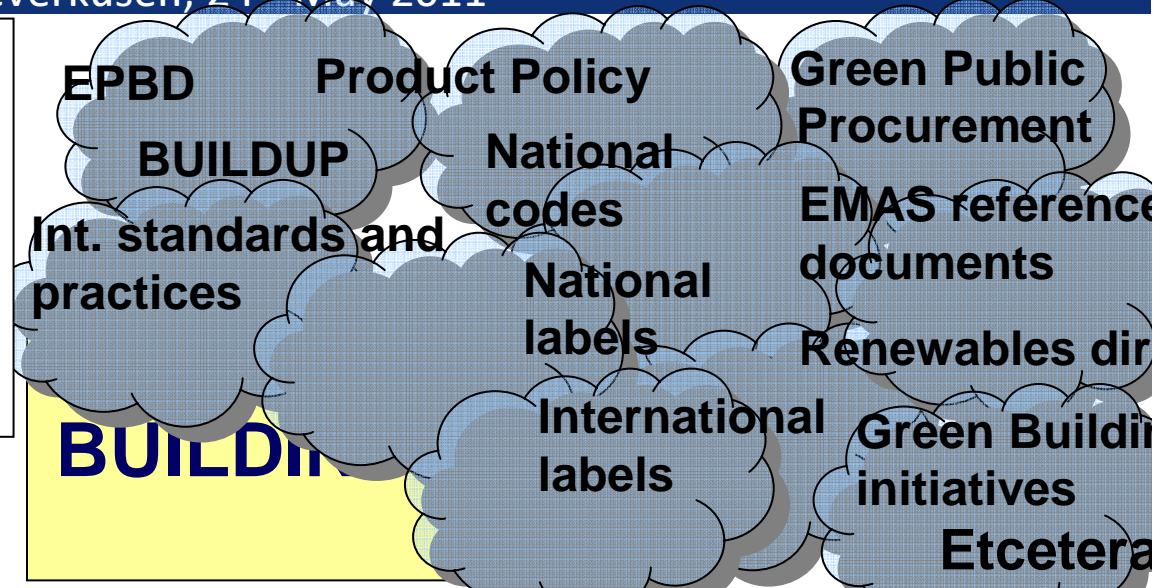
Europe 2020

20% Renewable share
20% Energy Efficiency
20% (30%) GHG reduction
10% of biofuel, nat. plans, ...

Low carbon

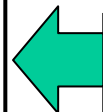
Roadmap to 2050

~80% reduction
+ sectoral policy options:
for residential and services
~90% red. in 2050
(~40% in 2030)



EU Sustainable Development Strategy

Climate Change and Clean Energy
Sustainable Transport
Sustainable Consumption and Production
Natural resources
Other social and economic challenges



A resource-efficient Europe

The experience of Best Available Techniques REference Documents (BREFs) of the IPPC Directive

These are a **reference point** against which to judge the **current performance** of an existing installation or a proposal for a new installation for **industrial sectors**.

Developed with the industry for the industry in an international framework, focused on EU27 but open internationally.

Appreciation of BREFs

EU Member States/competent authorities use the BREFs in the **permitting process** but they are also considered in **America, Asia, Australia and Africa**

- Industries, universities/research institutes, consultancy firms, technique providers
- Worldwide: link in more than 140 environmental websites, referenced on more than 1500 websites
- International organisations, such as the World Bank, take the BREFs into account

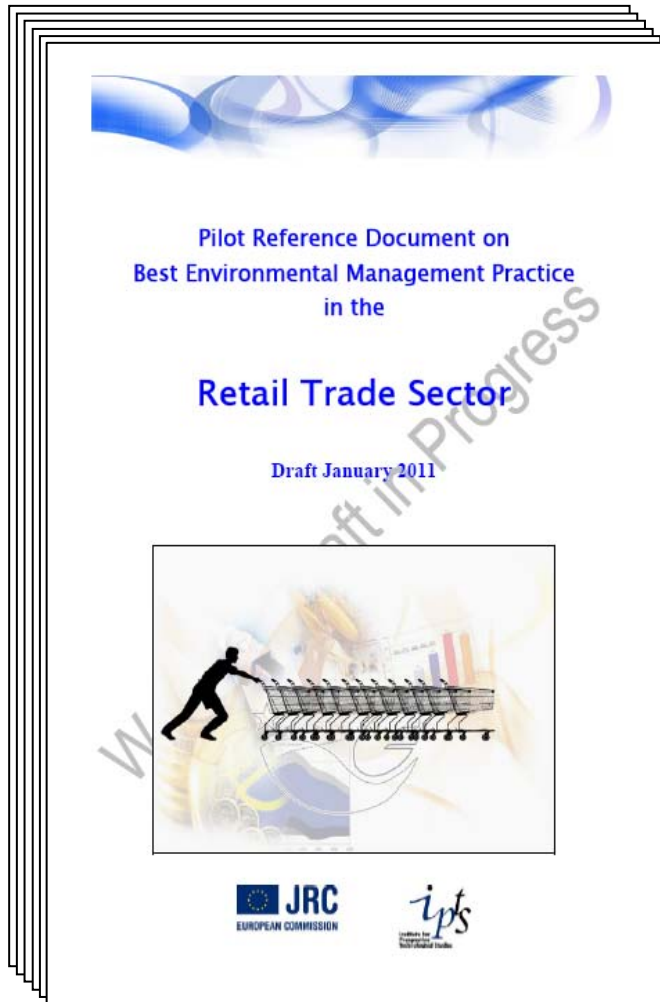
So, BREFs become the reference document

EMAS Article 46.1

The Commission is developing **sectoral reference documents** which include:

- Description of **Best Environmental Management Practices** of the sector
- Sector specific **indicators**
- **Benchmarks** of excellence

The approach is very similar to BREFs, but on a voluntary basis (EMAS).



-Collects best environmental management practice of the sector (*What can be done?*)

-Covers the whole chain under the umbrella of EMAS but not only for EMAS (*For everybody*)

- Proposes indicators and benchmarks of excellence (*What is the achievable performance?*)

<http://susproc.jrc.ec.europa.eu/activities/intro.htm>

Buildings are identified as a very significant aspect of environmental management

Bottom-up approach: from single techniques to multi-site management systems

Front-runners identification: best performers apply best practices

Identified sectors

Building environmental aspects

Prioritization of Best Practices

Reduce demand

↳ **Increase Efficiency**

↳ **Use better energy**

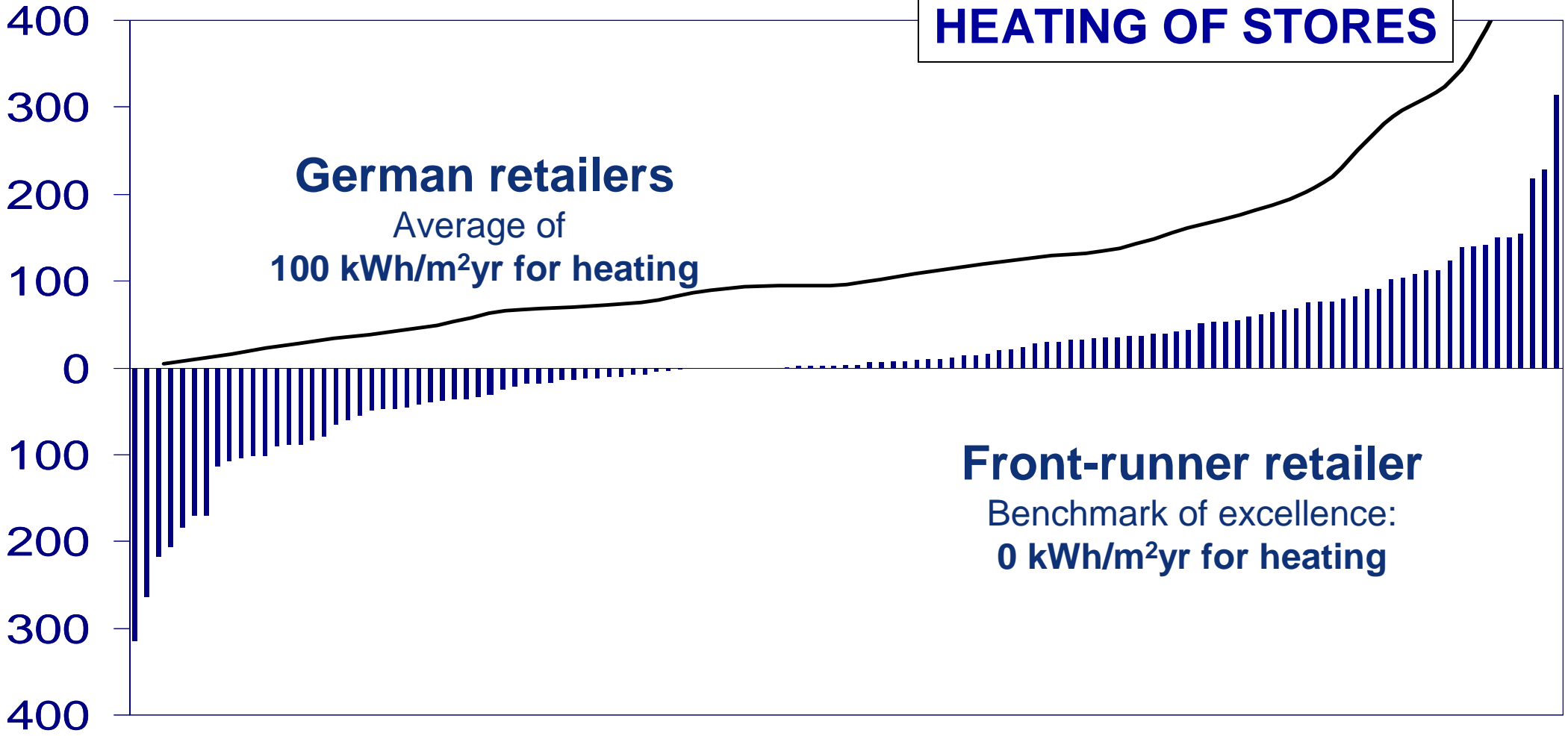
1. **Monitor and Measure**
2. **Improve the building (envelope HVAC through integrated design)**
3. **Use your waste heat from refrigeration**
4. **Reduce the demand of refrigeration (cover your display cases)**
5. **Use better refrigerants**
6. **Reduce your lighting consumption**
7. **Increase the energy efficiency of your appliances**
8. **Produce (and use) renewable energy**

Benchmarks of excellence

HEATING OF STORES

German retailers
Average of
100 kWh/m²yr for heating

Front-runner retailer
Benchmark of excellence:
0 kWh/m²yr for heating





Example of best practice, specific indicator and benchmark

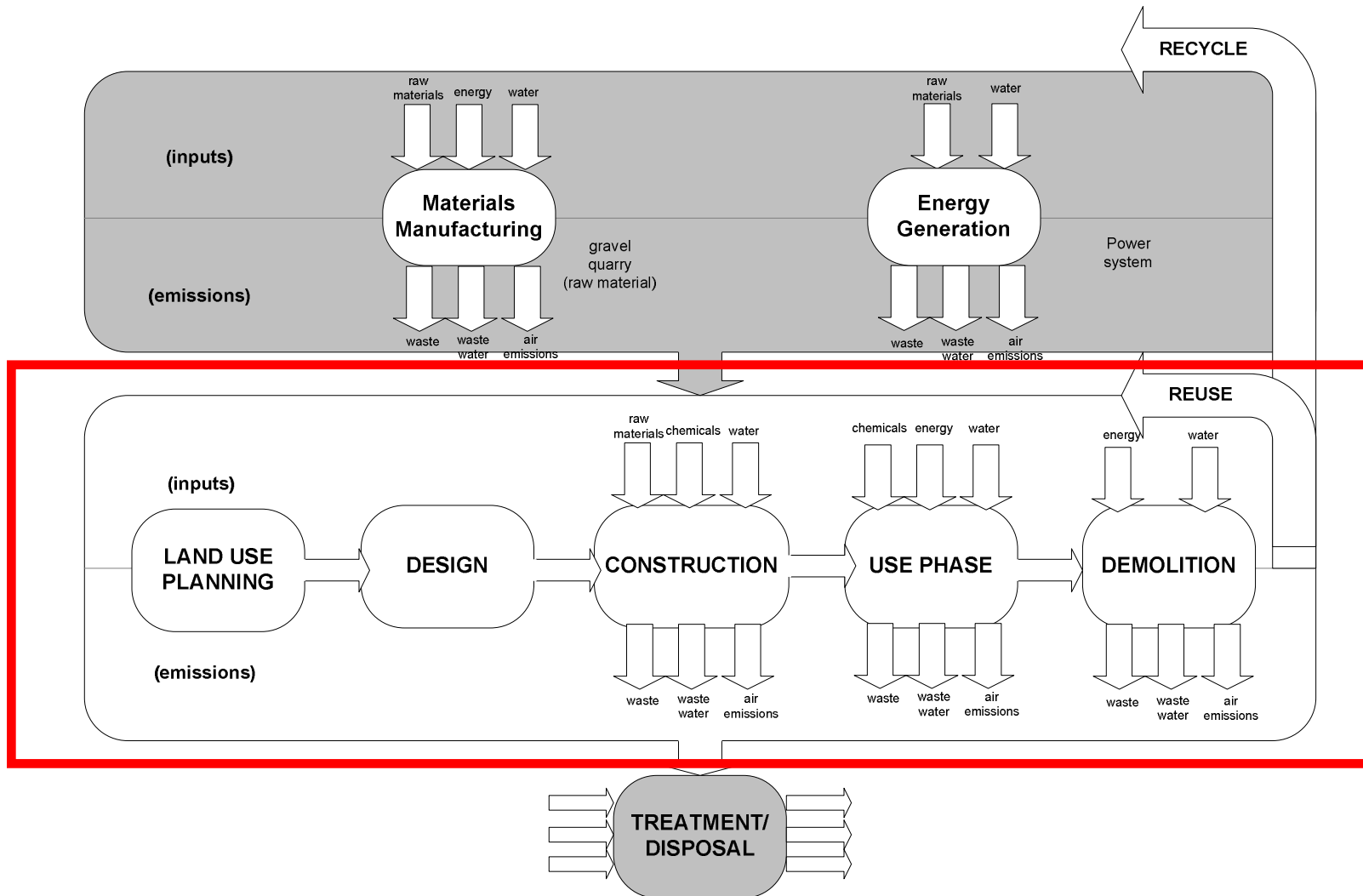
$$4300 \frac{\text{kWh}}{\text{m}(\text{display case}) \text{ yr}} \times 7250 \text{ km of display cases in EU 27} \times 1000 \frac{\text{m}}{\text{km}} \times 1 \frac{\text{GWh}}{1\,000\,000 \text{ kWh}} \approx 31200 \text{ GWh}$$

$$3000 \frac{\text{kWh}}{\text{m}(\text{display case}) \text{ yr}} \times 7250 \text{ km of display cases in EU 27} \times 1000 \frac{\text{m}}{\text{km}} \times 1 \frac{\text{GWh}}{1\,000\,000 \text{ kWh}} \approx 21750 \text{ GWh}$$

Achievable savings in EU27 = 9.4TWh/yr

1.2 average German nuclear reactors,

1.4 average French nuclear reactors

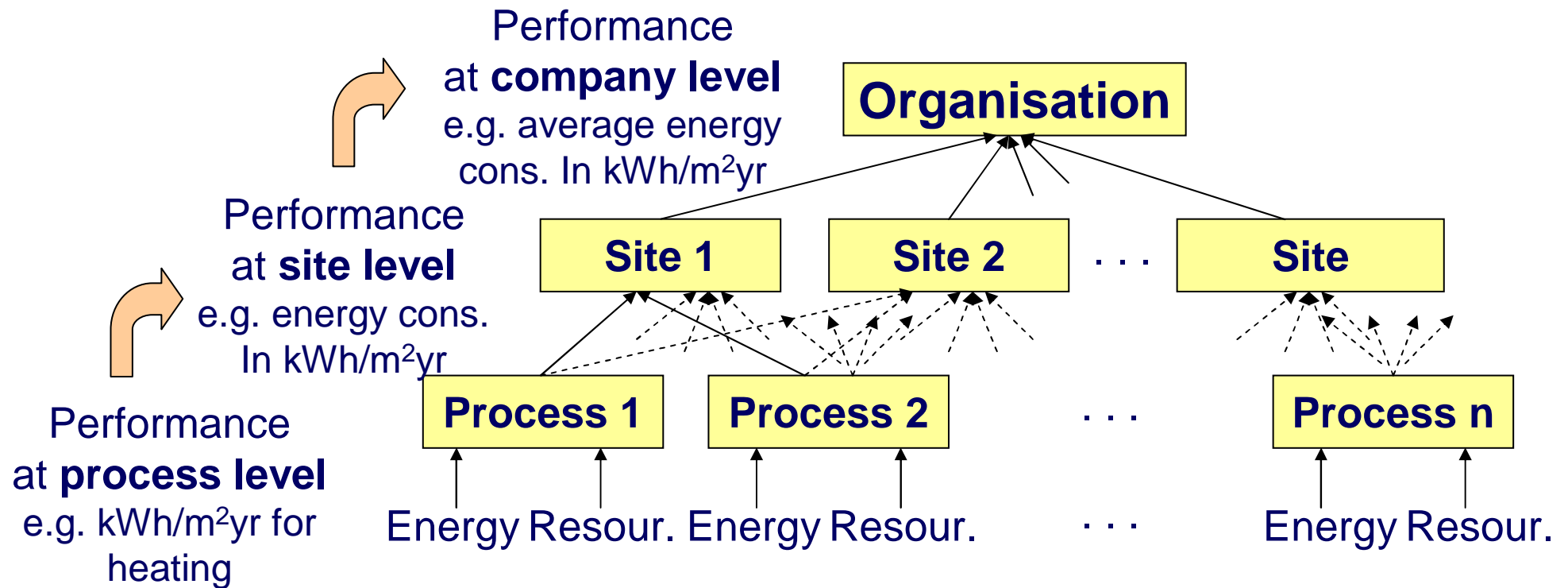


**Best practices
focused on the
whole chain**

- **Description**
- **Achieved environmental benefit**
- **Environmental indicators**
- **Cross-media effects**
- **Operational data**
- **Applicability**
- **Economics**
- **Driving force for implementation**
- **Reference organizations**
- **Reference literature**

**DESCRIPTION OF
BEST PRACTICES**

Bottom-up approach: indicators and benchmarks at process level



THANK YOU FOR YOUR ATTENTION!

Jose Luis Galvez Martos

Sustainable Production and Consumption Unit

jose-luis.galvez-martos@ec.europa.eu