

# Striving for Sustainability

Advancing sustainable development with the plastics industry:  
the case of the energy and climate nexus

Alfred Stern – Borealis Group  
DPI Conference – 25 November 2008



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## Borealis: who we are

- Leading provider of innovative, value creating plastics solutions
- Developing a Base Chemicals business
- More than 40 years of experience
- Unique Borstar® technology to develop polyolefin solutions that are tailored to customers' needs
- 5,400 employees in around 20 countries, serving customers in more than 120 countries
- Joint venture in Middle East and Asia: Borouge
- Our vision: Shaping the Future with Plastics



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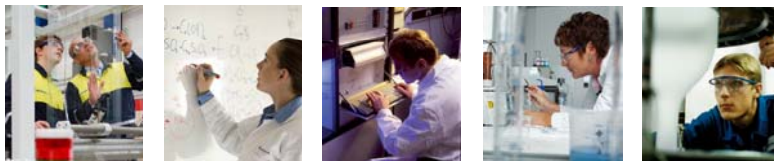
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## Developing our innovation capability

- Expansion at our International Innovation Centre in Linz, Austria
- New facilities at the Innovation Centre in Porvoo, Finland
- Borstar® PP pilot plant in Schwechat, Austria
- Investment in a new Innovation Centre in Abu Dhabi, UAE
- Leveraging capacities at our Innovation Centre Stenungsund, Sweden



## Committed to Responsible Care®



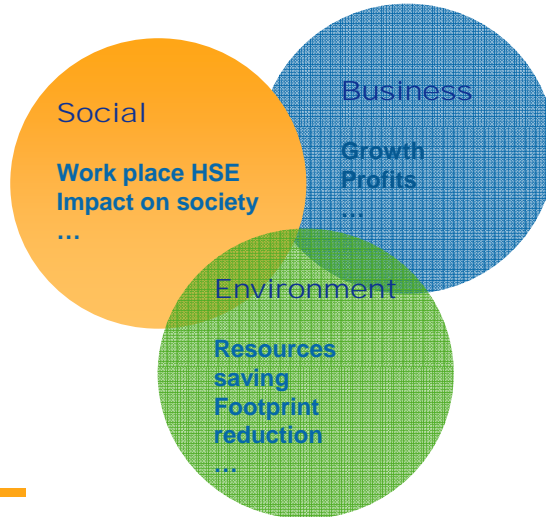
- Borealis and Borouge are signatories of the Responsible Care® Global Charter
- Commitment to continuous improvement of the HSE performance of our operations and products along the value chain
- A pledge to advancing sustainable development



## Sustainability? A matter of balance

*“meeting the needs of the present without compromising the ability of future generations to meet their own needs”*

Developing business while protecting the environment and advancing social progress

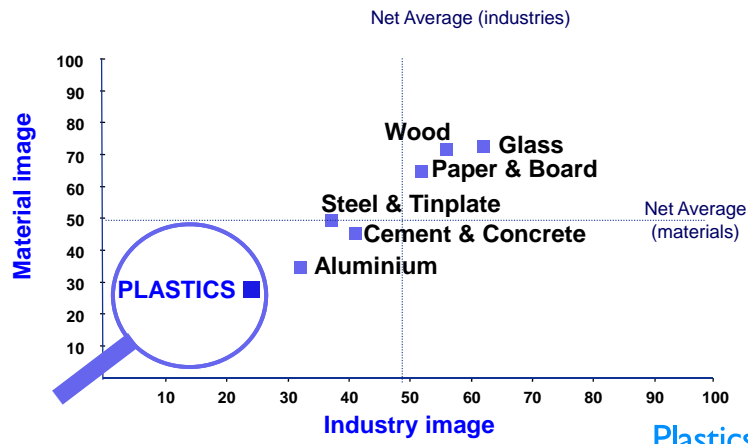


## Sustainability? A matter of challenges

12  
intertwined  
challenges

- Fresh water and sanitation
- Healthcare availability/affordability
- Cleaner energy access / efficiency
- Deforestation / desertification
- Biodiversity (incl. marine protection)
- (Fossil) resources depletion
- Global warming
- Food security
- Poverty reduction
- Illiteracy / education
- Ageing / growing population
- Governance / rule of law

## Sustainability? A matter of perception



PlasticsEurope  
Association of Plastics Manufacturers

## Sustainability? A matter of approach

Moving beyond operations to embed sustainability into our value proposition



## Addressing global challenges



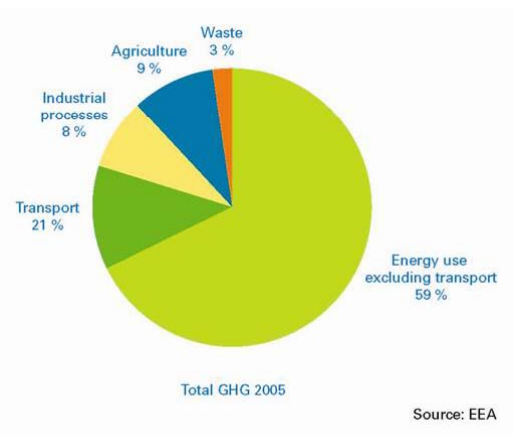
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## Understanding the challenge



- In Europe, **energy** production, use and transport account for **80% of GHG emissions**



- Cleaner energy sources and energy efficiency are therefore key factors for curbing GHG emissions

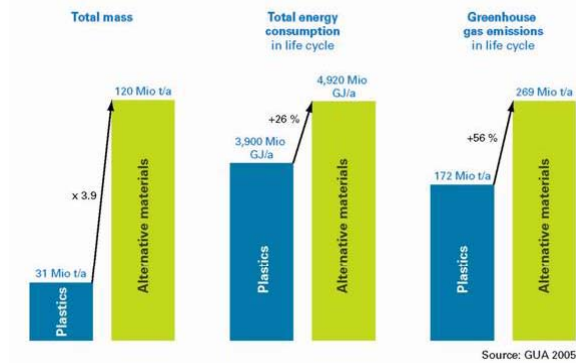
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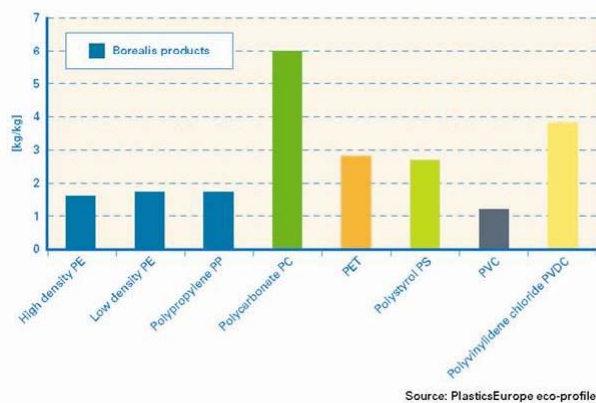
## Understanding our contribution



- Lighter weight, yet resistant, plastics enable resource efficiency

- Without plastics materials GHG emissions in Europe would increase by ~56% and energy consumption by ~ 26%

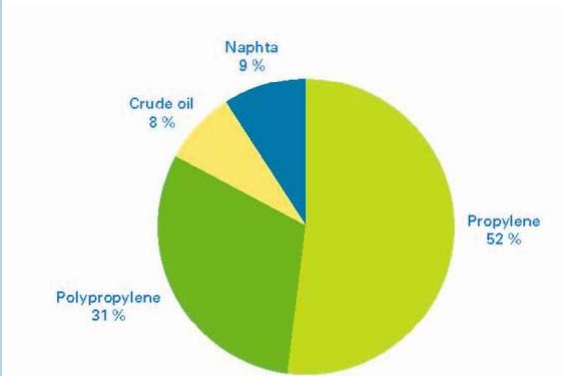
## Sustainable products?



- The production (“cradle to gate”) carbon footprint of a kg of PP is 1,7 kg of CO<sub>2</sub>e. A kg of HDPE accounts for 1,6 kg of CO<sub>2</sub>e.

- Due to a “simple” production process, PO are amongst the most carbon efficient plastic materials

## Managing our footprint by...



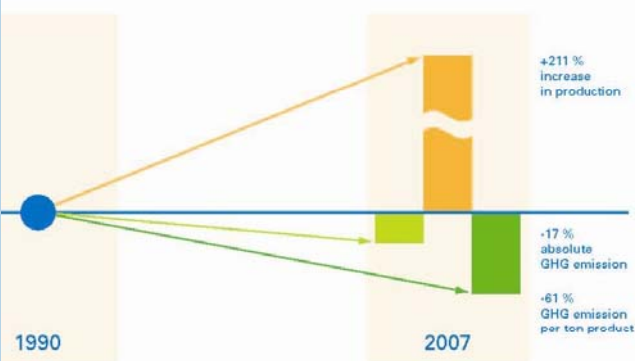
GHG emissions sources of a kg of PP  
Based on PlasticsEurope eco-profiles

- 80% of the footprint of PO originate from olefins production and the polymer production



- Effective GHG reduction strategy should first focus on olefins production and polymerisation phases.

## ...improving operational performance



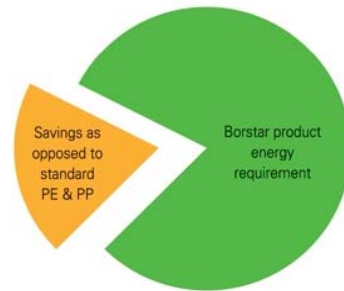
- Modernisation of production base
- Energy and CO2 management
- Energy efficiency Investments



- **+211%** increase of **production** (volume)
- **-61%** GHG emissions per tonne produced

## ...leveraging Borstar® technology

- Enabling the value chain to further reduce resources use and CO2 emissions through
  - Lower energy intensity at production
  - Material savings of around 20% during processing

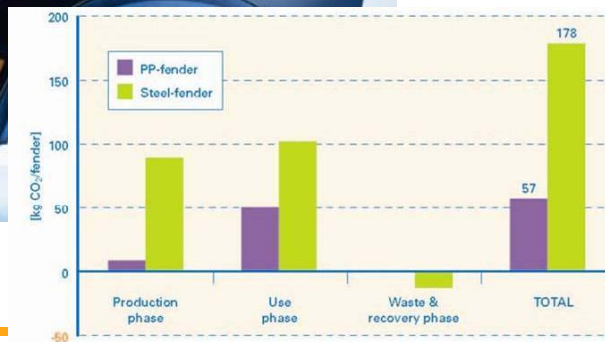


Products using Borstar® PE or PP reduce plastic consumption, the energy requirement and CO2 emissions by approx. 20%.

(Source: GUA)

## ... delivering across the life-cycle

Life cycle carbon footprint of an Automotive PP fender vs. steel





## ... delivering across the life-cycle



## Sustainability? A matter of perspective



## Sustainability? A matter of perspective



### Social

+? Jobs  
- Food price

### Business

+ Green marketing  
? Feedstock price  
and sourcing

### Environment

+ Renewable  
? Real CO2  
balance  
- Water and land  
use / deforestation

## Sustainability? A matter of dialogue

Download at

[www.borealisgroup.com](http://www.borealisgroup.com)





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