

**Raw material security and
supply**

Renewable raw material

**Industrial-white
biotechnology**

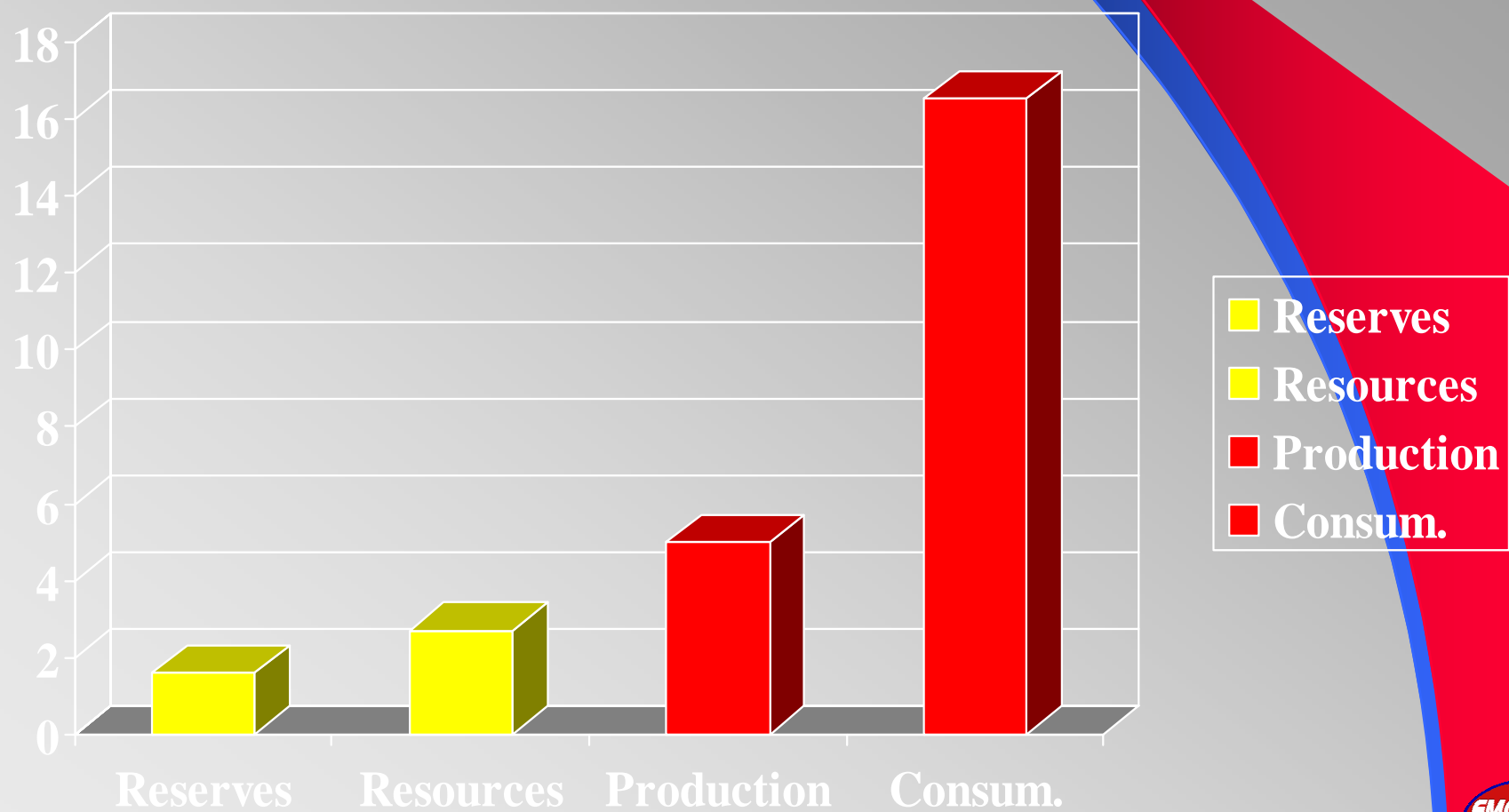
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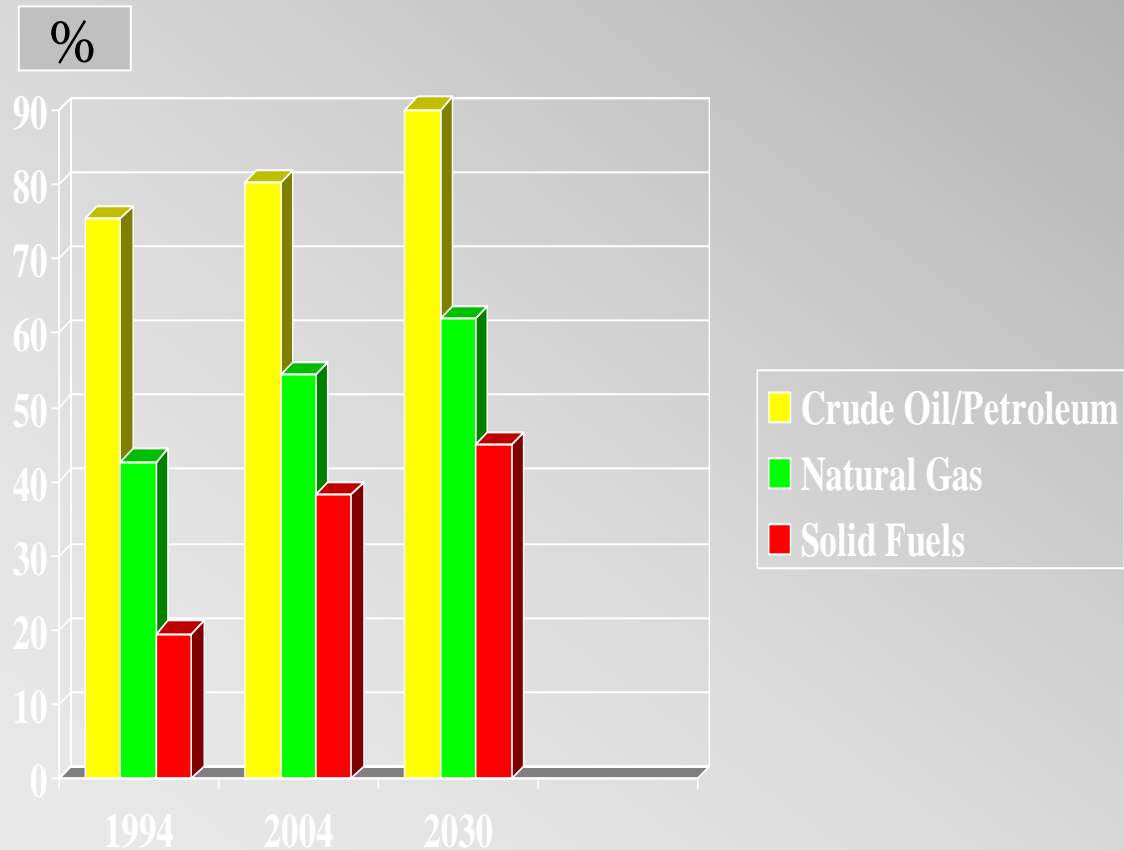
Non renewable raw materials background

- Geological allocation
- Political situation and security of supply
- EU import – dependency
 - ✓ Interdependence of chemical industry
 - Ca. 96 % of chemical industry products are based on oil
 - The high needs of electricity for the chemical industry
 - Transport etc.
- EU competitiveness

Reserves, resources, production and consumption of the EU-25 in %, compared to the rest of the world



EU Import dependency for raw materials



- EU Energy dependency will climb from 50% (2000) to 70% (2030)
- Actually 45% Oil import – Middle East
- By 2030 Total oil import 90%
- 40 % Gas imports originate from Russia (30% Algeria, 25% Norway)
- By 2030 over 60 % of gas import from Russia
- By 2030 expected EU gas needs – will be covered by 66% of import

EU Energy Policy

- Intensive discussions and actions on European and international level on energy policy and security of supply

For example:

- ✓ EU “energy policy for Europe” – action plan
- ✓ Environmental policy of the EU
- ✓ EU “renewable energy road map”
- ✓ Energy dialogues EU–Russia, EU–OPEC, EU–OECD, etc.
- ✓ Security and energy supply is on the agenda of the G8
- ✓ International negotiations concerning the climate change and aiming to reduce green house gases

The challenge key factors for the EU new energy policy

- Sustainability
 - ✓ European environmental policy and standards
 - European Climate Change Program (ECCP)
- Security of supply
- Competitiveness

The EU action plan regarding non RRM

- Competitiveness and internal energy market
- TEN Transport and Energy Network
- Sustainable Development – sustainable energy – renewable energy
- Diversification of the energy mix and energy efficiency
- European solidarity
- SET - Plan
- Innovation and technology – R&D

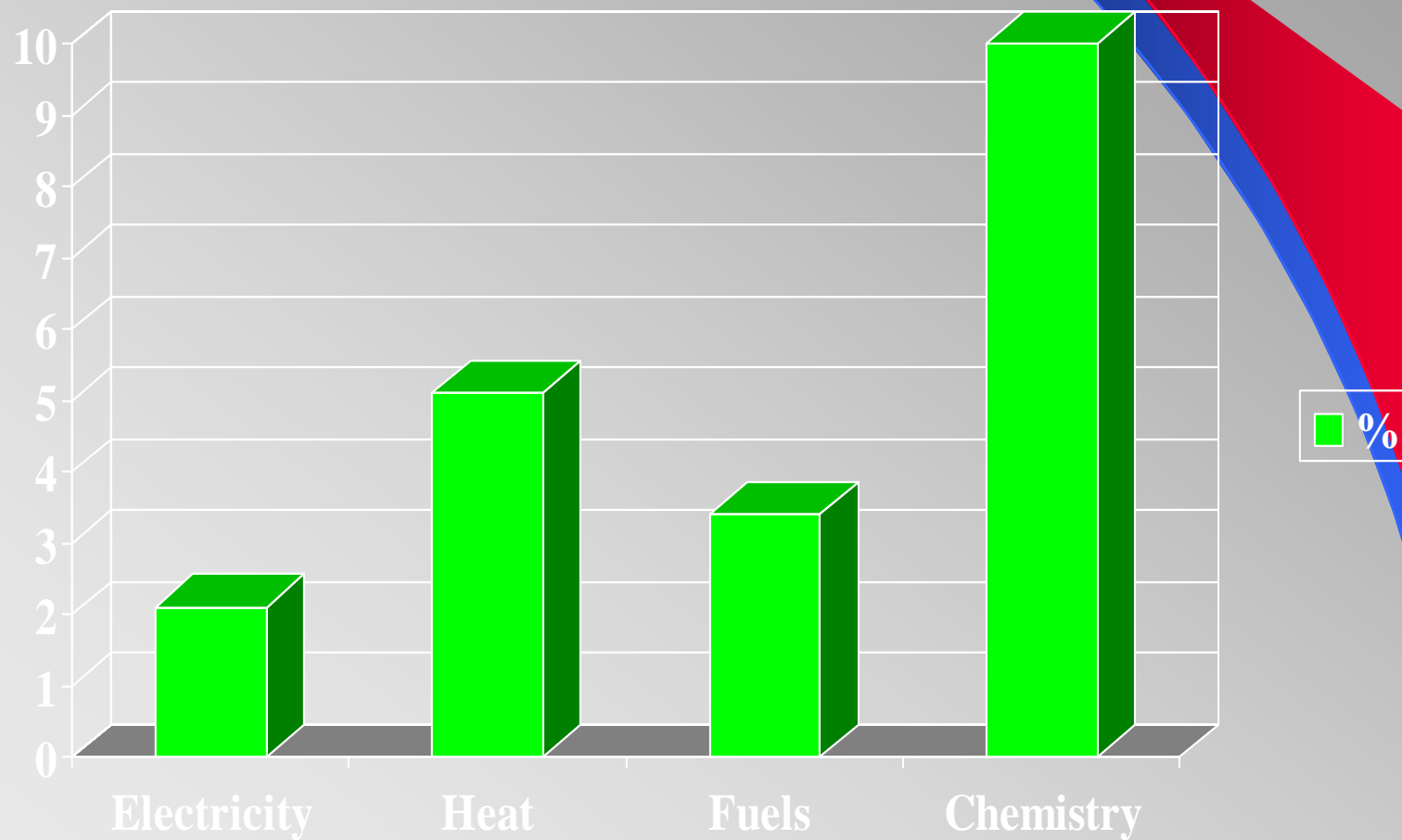
Renewable raw materials (RRM)

- Largely CO2 neutral – reduction of greenhouse gas emissions (GHG)
- Regulation and substitution of non-renewable raw materials
- Circular flow economy
- Chance for an innovative market
- Chance for new employment

European policy and action regarding RRM

- European energy policy
 - ✓ European Climate Change Program (EECP)
 - ✓ Renewable Energy Road Map
- “EU Strategy for Biofuels”
- “Biomass Action Plan”
- Forthcoming European Strategic Energy Plan (SET-Plan)
- Community’s financial instruments
 - ✓ 7th Framework program - research & technology

Application of RRM in the various sectors (in %)



Main sectors of application of biotechnology

- Green Biotechnology - Agriculture
 - Red Biotechnology - Medicine/Pharmaceuticals
 - Blue Biotechnology - Sea Products
 - White Biotechnology - Bt Products/Industrial Processes
 - Grey Biotechnology - Waste Industry
 - Brown Biotechnology- Technical Biotechnology
- ✓ White and Grey Biotechnology, also called Industrial Biotechnology

White/Industrial Biotechnology Situation of the EU

- **EU still has leading position**
 - ✓ a strong world-class biotechnology R&D base
 - ✓ key enzymes producers being located in the EU
 - ✓ a strong chemical industry
 - ✓ The availability of renewable resources
 - ✓ Strong political support
- But less investments than in other regions like the USA

Industrial Biotechnology - Challenge for the future

- Safeguarding competitiveness of European Industries
 - R&D, innovative products and biotechnical solutions
- Sustainability
 - Regulation and replacement of non-RRM
 - Sustainable industrial production
 - 30% less waste abundance
 - 70% less dangerous waste
 - 25% less GHG, 36% less VOC
 - 50% less energy consumption
- Security of supply
 - Consolidation of the market position of RRM compared to non – RRM in the long term
 - Circular flow market

EU Policy regarding biotechnology

- EU strategy on life science and biotechnology – action plan
 - Providing sufficient resources for R&D
 - Creation of a market for eco-efficient bio based products
 - Improving the structural mobility and adaptability of Europe
 - Create awareness amongst stakeholders
 - Promote interdisciplinary education and training programs
 - Improve investment in eco-efficient bio based small medium enterprises SME
- 7. Framework program (2007-2013)

EMCEF state of view

The challenge is to keep “Europe a safe and competitive location for the industry in future”

- Regarding to arguments like
 - Social dialogue
 - Lifelong learning
 - Corporate Social Responsibility (CSR)
 - Flexibility
 - Competitiveness and the employment market
- There is the big need to open the dialogue between the social partners, to face the arguments and to contribute to the European policy for this chemical industry sector