



European Commission



The EU Perspective in Biomass & Waste to Energy & RES

*José RIESGO
DG TREN*



Directorate General for Energy and Transport

Pyrolysis-Gasification-Strasbourg
30 September - 1 October 2002



Clear Energy Policy Targets

Meeting Kyoto Objectives

8% CO₂ reduction between 2008 - 2012 compared to 1990

Doubling the Share of Renewable Energy Sources

From 6% to 12% of gross inland energy consumption

Improving Energy Efficiency

Increase by 18% until 2010 compared to 1995

Maintaining Security of Supply



Directorate General for Energy and Transport

Pyrolysis-Gasification-Strasbourg
30 September - 1 October 2002



How to Achieve the Energy Targets? **The Tools**

- **White Paper on Energy Policy**
- **White Paper on RES & Action Plan**
- **Green paper on security of supply**
- **Directives**
- **Support programmes**



White paper on Energy Policy **Com(95) 682 Final January 1996**



Objectives:

- **Environmental protection**
- **Security of Energy Supply**
- **Industrial Competitiveness**

RES consistent with these objectives





White Paper on Renewable Energies COM(97)599, 26.11.97

- Sets out Community Strategy and an **Action Plan** to double the share of Renewable energy from 6 to 12 % in Gross Inland Consumption by 2010
- Establishes Sub-targets in the various sectors.
- Preserves flexibility in view of Community enlargement.



Action Plan



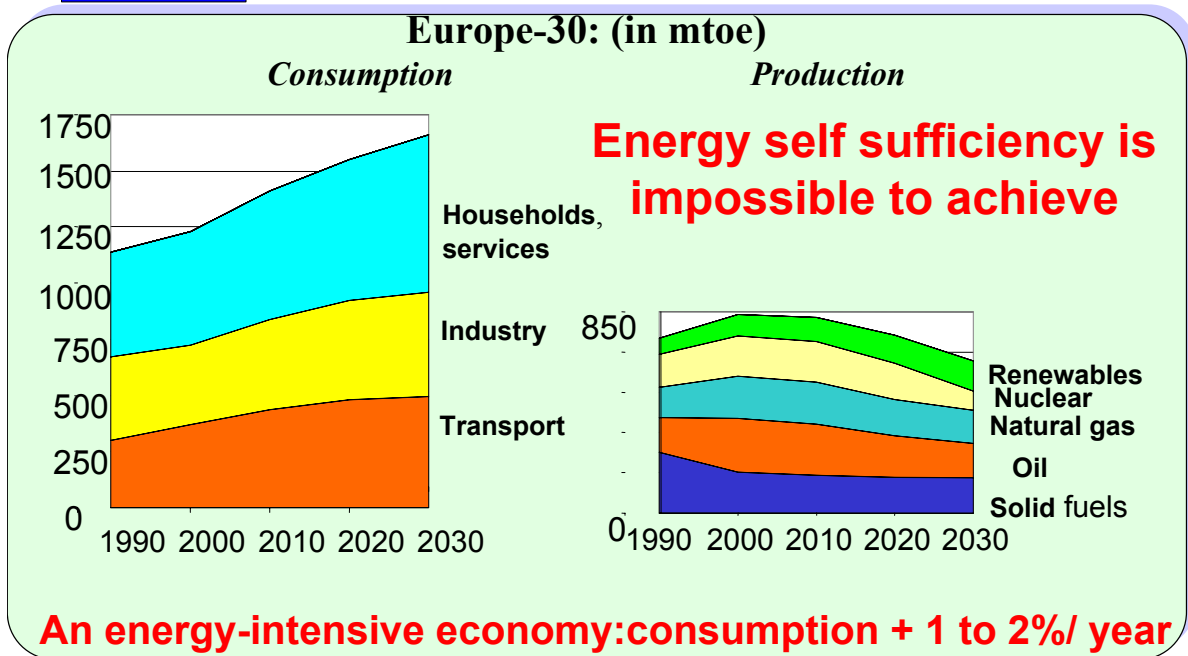
- Internal market measures
- Reinforce Community policies
- Support measures
- Campaign for take off
- Improve co-ordination with Member States

- The Campaign for Take Off (99-03)**
- 1,000,000 Photovoltaic Systems
 - 10,000 MW for Large Wind Farms
 - 10,000 MWth for Biomass Plants
 - RES Integration in Communities
 - 5 Million tonnes of Liquid Biofuels**

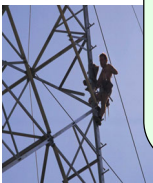




The Basic Facts About Energy



Tomorrow's priorities: A. Curbing the growth in demand by:

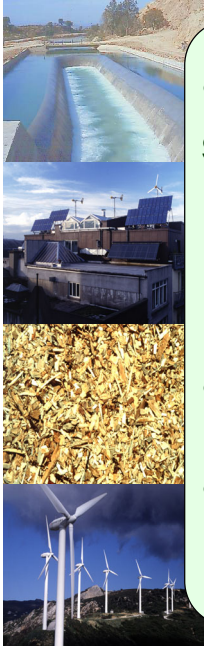


- **Completing the internal market**
- **Review of energy taxation**
- **Energy saving and diversification**
- **Dissemination of new technologies**





Tomorrow's priorities: B. Managing the dependence on supply by:



- **Development of less polluting energy sources**

New and renewable forms of energy are the first options for action in relation to security of supply, the environment and rural populations

- **Maintaining access to resources**

- **Ensuring external supplies**



Directorate General for Energy and Transport

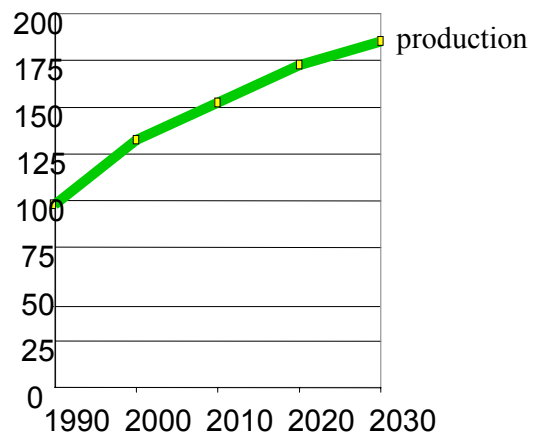
Pyrolysis-Gasification-Strasbourg
30 September - 1 October 2002



New and renewable energy sources: a political priority

- **Renewables offer a potential to be exploited**
- **EU target: 12% of total energy consumption in 2010**
- **They have differing growth prospects**
- **Their takeoff assumes that financial or tax incentives will be provided**

*Europe-30: renewables
(reference scenario in mtoe)*



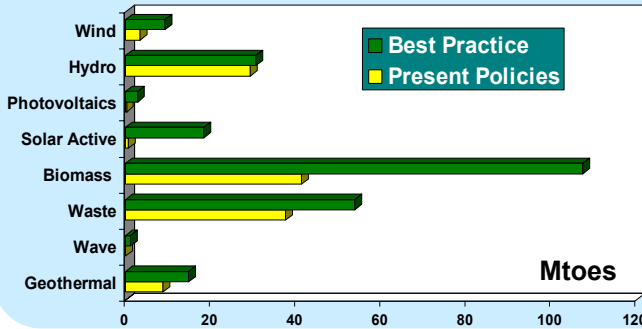
Directorate General for Energy and Transport

Pyrolysis-Gasification-Strasbourg
30 September - 1 October 2002

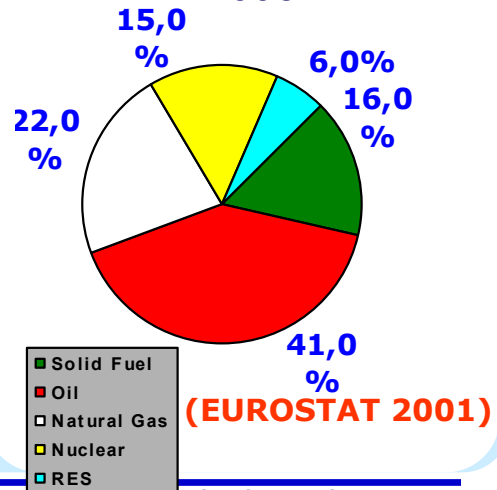


Why Directives?

Renewable energy still accounts for only a small fraction of the Community energy mix



European Union energy mix 1998

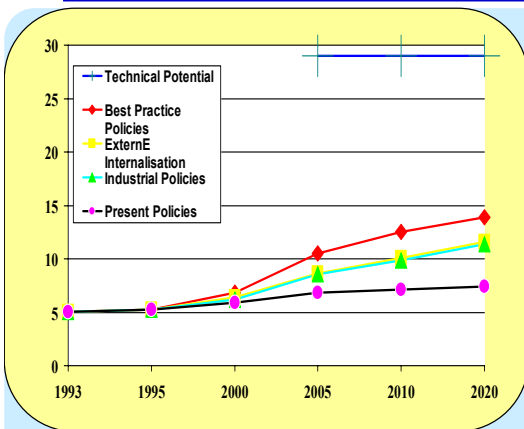


Directorate General for Energy and Transport

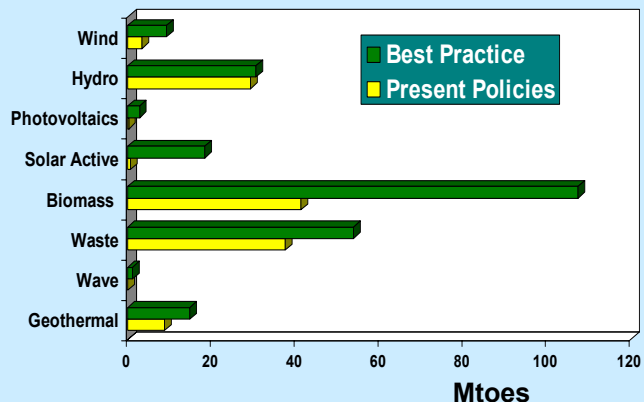
Pyrolysis-Gasification-Strasbourg
30 September - 1 October 2002



RES Contribution to Primary Energy Consumption



TERES II



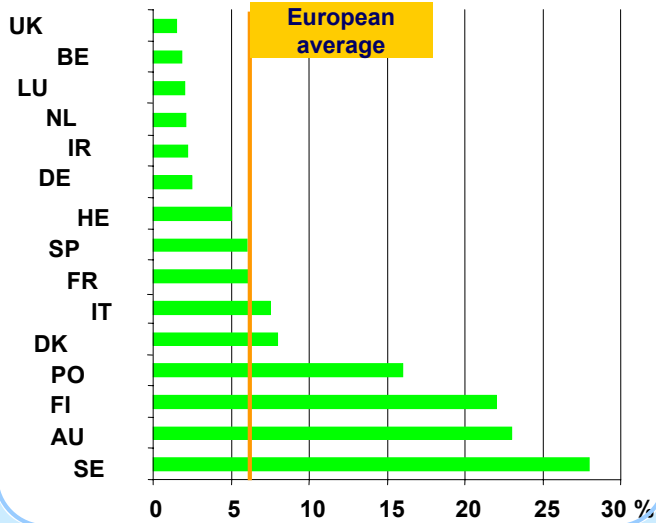
Directorate General for Energy and Transport

Pyrolysis-Gasification-Strasbourg
30 September - 1 October 2002

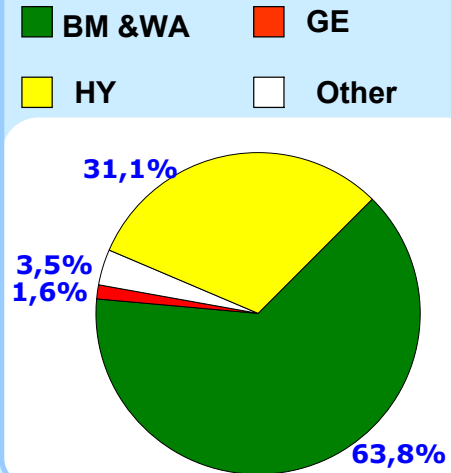


Renewable energy in figures (1/3)

Share of renewable energy in total consumption: 1998



Per type of RES (EUROSTAT 2001)



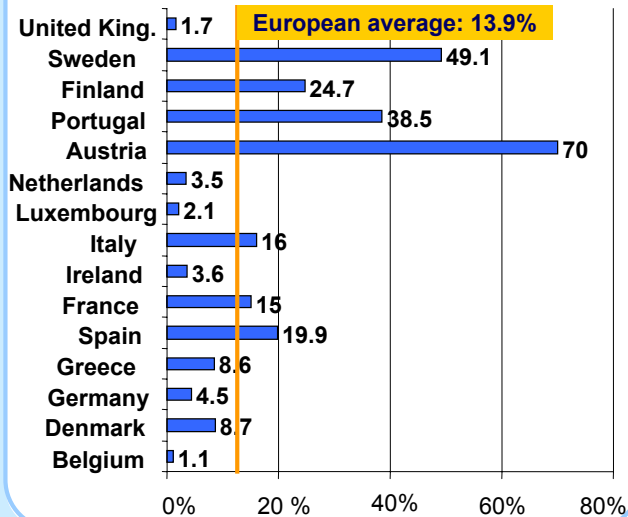
Directorate General for Energy and Transport

Pyrolysis-Gasification-Strasbourg
30 September - 1 October 2002

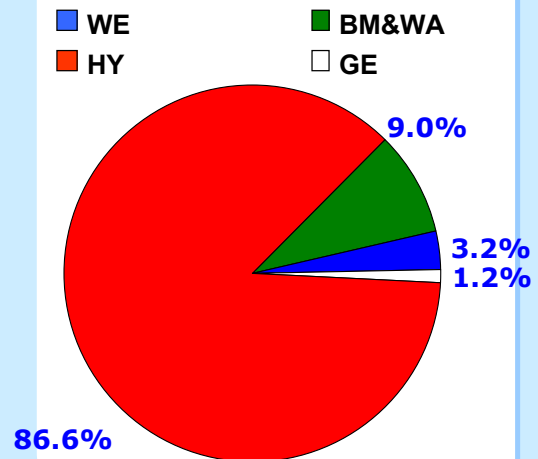


Renewable energy in figures (2/3)

Share of renewables in electricity production: 1997



Electricity Per type (EUROSTAT 2001)



Directorate General for Energy and Transport

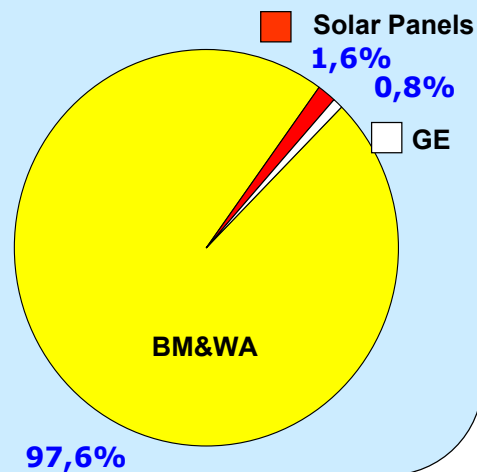
Pyrolysis-Gasification-Strasbourg
30 September - 1 October 2002



Renewable energy in figures (3/3)

**Biomass & Waste have
the highest potential &
contribution within
RES**

**Heat Per type
(EUROSTAT 2001)**



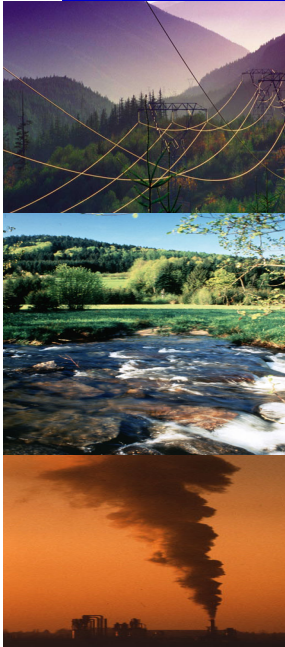
Directives

- **Directive on the promotion of electricity from renewable energy sources in the internal electricity market**
- **Draft Directives on Liquid Biofuels**
mandate for a minimum use of biofuels and their de-taxation
- **Draft Directive on Combined Heat and Power**
Target: doubling the share of CHP from 9% (1994) to 18% (2010) Special provision for renewables.





The Targets of the RES-E Directive



- **To establish** a framework to **increase the share of green electricity from 14% to 22%** of gross electricity consumption **by 2010**
- **To help to double** the share of renewable energy **from 6% to 12%** of gross energy consumption in Europe **by 2010**
- **To further** compliance with the commitments made by the EU under the 1997 Kyoto Protocol on **reducing greenhouse gas emissions**



Elements of the biofuels package

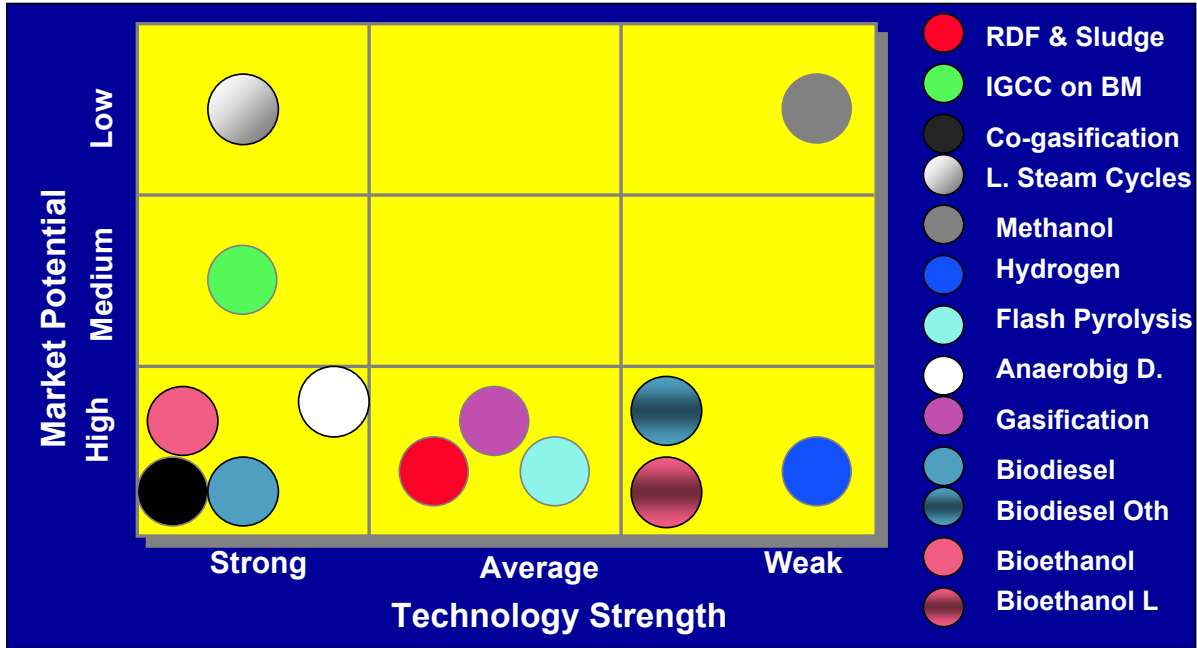


- **A Communication** presenting the **action plan** for the promotion of **biofuels** and other **alternative fuels** in road transport.
- **A draft Directive** on the **promotion of biofuels for transport** which requires an increasing proportion of all diesel and gasoline sold in the Member States to be biofuel.
- **A draft Directive** proposing to allow Member States to apply **differentiated tax rates** in favour of biofuels.





Technology - STATUS OF PROCESSES & APPLICATIONS



- RDF & Sludge
- IGCC on BM
- Co-gasification
- L. Steam Cycles
- Methanol
- Hydrogen
- Flash Pyrolysis
- Anaerobic D.
- Gasification
- Biodiesel
- Biodiesel Oth
- Bioethanol
- Bioethanol L



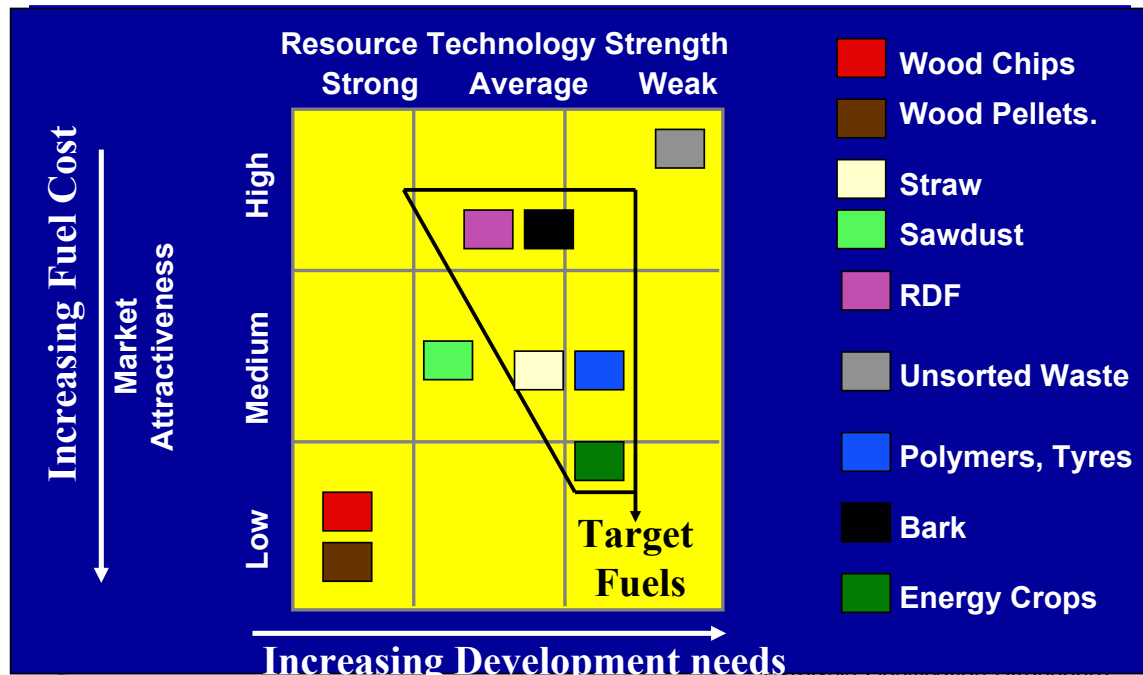
MARKET OPPORTUNITIES

| | Existing Technology | New Technology |
|---------------------|---|--|
| Existing Markets | Market Penetration | Product Development |
| | Co-Gasification Clean Waste Fuels + BM CHP | IGCC - 30-75 MWe Gasification 1-5 MWe BioEthanol from Lignocel. |
| New Markets | Market Development | Diversification |
| | IGCC New Markets (bagasse) Bio-Oil for Heat & Power Biofuels for transport | Bio-Methanol, F-T, DME Bio-H2 BioChemicals |
| Resources??? | | |





RESOURCES DEVELOPMENT for Bioenergy applications



Directorate General for Energy and Transport

Pyrolysis-Gasification-Strasbourg
30 September - 1 October 2002



The Tools of Today

1. The ENERGIE Programme, Vth FP

The main objective is technological development
Budget of 1,042 MEuro (1998 - 2002)

2. The ALTERNER II Programme

The main objective is to fill the gap between
demonstration & commercialisation
Budget of 74 MEuro (1998- 2002)

3. Regional Policy & Structural Funds

The main objective is to foster deployment of RES in most
promising EU Regions
Budget of 487 MEuro (2000-2003)



Directorate General for Energy and Transport

Pyrolysis-Gasification-Strasbourg
30 September - 1 October 2002



The Tools of Tomorrow

1. The VI th Framework Programme

Aim to integrate & Strengthen European R&DDDD.

Budget of 17,5 MEuro (2002 - 2006)

Thematic Priority: Sustainable Development, Global Change & Ecosystems

Sustainable Energy Systems

Sustainable Surface Transport

Networks of Excellence & Integrated Projects

2. The Intelligent Energy Programme

The main objective is to fill the gap between demonstration & commercialisation



Directorate General for Energy and Transport

Pyrolysis-Gasification-Strasbourg
30 September - 1 October 2002



The Market Tools

The need for Technology

- We need reliable technologies so that industrial users will apply them with confidence.
- We have to ensure that economic benefits are met while the environment is safeguarded.
- We have to balance demand with supply since resources are limited and ensure that competing industries are not harmed.



Directorate General for Energy and Transport

Pyrolysis-Gasification-Strasbourg
30 September - 1 October 2002



Technology Needs

The need for Innovation

- We need new concepts and approaches to address the market demands of tomorrow.
- This expert meeting should identify and provide ways to solve the technical/ non technical barriers.
- We have to simultaneously control, mitigate their consequences and propose alternative solutions for those present factors which lead to an unsustainable Europe.



Conclusions

Only recently the EU has adopted legislation aimed at promoting the production of energy from RES, including waste

The success of the European Directives is a first step on the road to achieving a sustainable energy system

Energy from Biomass & Waste plays an important role in the EU Energy Policy.

