

# SUSTAINABLE DEVELOPMENT INDICATORS

Eurostat E5

**ISED Workshop, New York**  
**13-16 Sept 2004**



Environment and Sustainable Development



# THE POLITICAL BASIS FOR SDI

- **EU Treaty: "The Union shall achieve balanced and sustainable development"**
- **European Councils (2001, 2002)**
  - adoption of the SD strategy (COM(2001)264)
  - the strategy should be reviewed at end term of each Commission
  - an external dimension of SD is added (COM(2002) 82)
- **Johannesburg World Summit (2002)**
  - EU and Member States commitment to the Plan of Implementation
- **EU Constitution (2004-?)**
  - Article 3 stipulates that 'The Union shall work for the sustainable development of Europe based on ...'



# THE EU STRATEGY FOR SD

- P1: Limit Climate Change and increase the use of Clean Energy
- P2: Address threats to Public Health
- P3: Manage Natural Resources more responsibly
- P4: Improve the Transport system and Land-Use management
- P5: Combat Poverty and Social Exclusion
- P6: Deal with the economic and social implications of an Ageing Society
- P7: External dimension



# THE JOHANNESBURG PoI

- Poverty eradication, incl. Water and sanitation
- Changing unsustainable patterns of production and consumption (Energy, Transport, Waste, Chemicals, Corporate responsibility)
- Protecting natural resources
- Health and SD
- SD of Small Island Developing States (SIDS) and Africa
- Means of implementation (ODA, participation)



# THE SDI TASK FORCE

- 2001: the SPC decides on the creation of a Task Force on SDI with 3 main objectives:
  - developing a suitable framework for SDI
  - identifying SDI
  - facilitating SDI-related activities
- Life span: 2001-2005
- An open group (up to 16 countries, up to 11 DGs, international organisations)



# THE FRAMEWORK FOR SDI

- Work at EU level, not a universal framework
- Political basis: SD Strategy, Communication on Global partnership, WSSD Pol
- 10 themes and currently 30 sub-themes (strong link with the political basis)
- Each level to complement the upper level to tell a consistent story



# THE FRAMEWORK FOR SDI

Economic development

2 commitments from WSSD

Sustainable Production and Consumption,  
Good governance

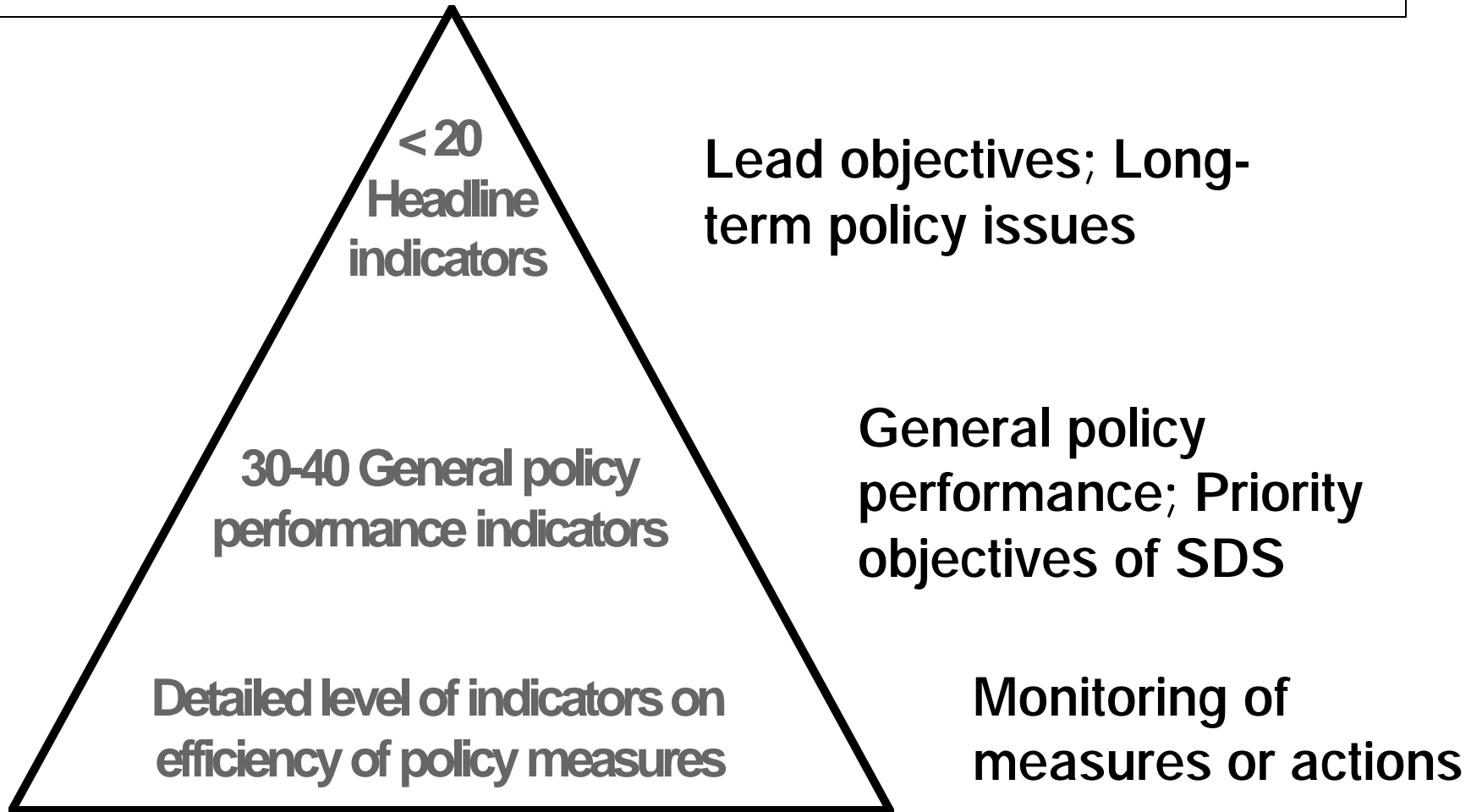
External dimension

6 SDS priorities

Climate, Health, Natural resources, Transport,  
Poverty, Ageing society



# THE LIST OF SDI



# THE LIST OF SDI

- Best available vs. Best needed indicators
- Look for maximal synergy with existing initiatives
- Selection criteria and quality profile
- Sub-groups working on identification of SDI per theme



# Theme Climate Change and Energy

## Two 'simple' objectives

1. **Limit Climate Change and**
2. **increase the use of clean energy**



# 1. Climate change

## Specific targets:

**“The EU will meet its KYOTO commitment”  
to reduce GHG emissions by 8% by 2008-2012  
compared to 1990 levels**

## And afterwards

**“reduce GHG emissions by an average of 1%  
per year over 1990 levels up to 2020”**



# Level 1 CC indicator

**Total GHG emissions vs. Kyoto target**

**after 2012, to be replaced by**

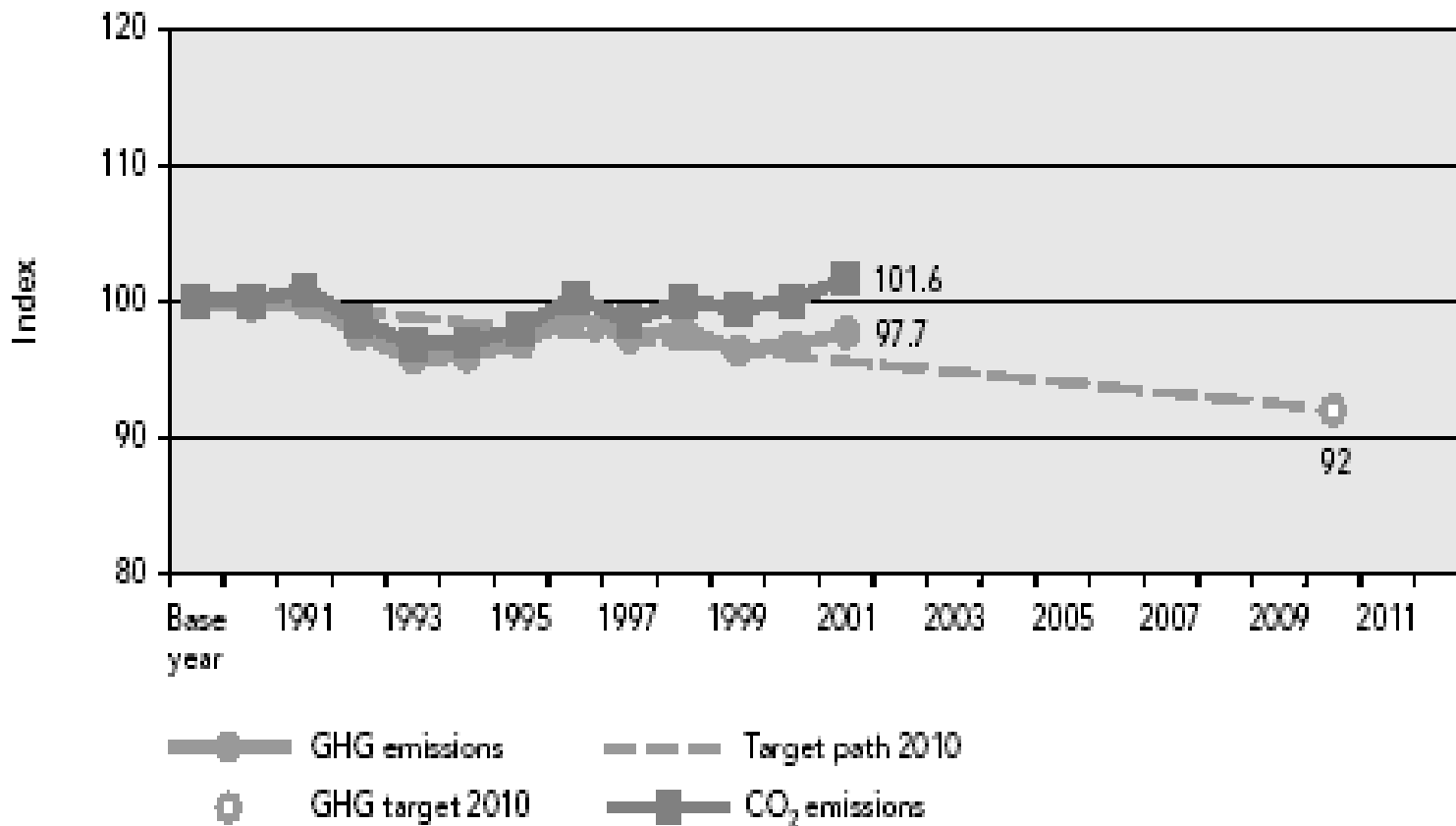
**GHG Emissions vs. the 2020 target**



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# GHG emissions vs. Kyoto target



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# Level 2 CC indicator

## Greenhouse gas emissions broken down by sector

sectors' = electricity generation, industry, transport (road, aviation, other), households and services, and other emissions that cannot easily attributed to a sector (e.g. waste)



# Level 3 CC indicators

- **CO2 intensity of energy use defined as CO2 emissions per GJ of Gross Inland Energy Consumption**
- **An indicator (not yet properly defined) on Carbon sinks**
- **An indication of the financial losses caused by extreme weather conditions**



## 2. Energy

**Objective = increase the USE of CLEAN energy**

- **Focus on use of energy, including energy efficiency**
- **How to define clean energy? Definition may change over time, and depending on the context in which it is used**

**Not the role of statistical services to define what is clean energy.**



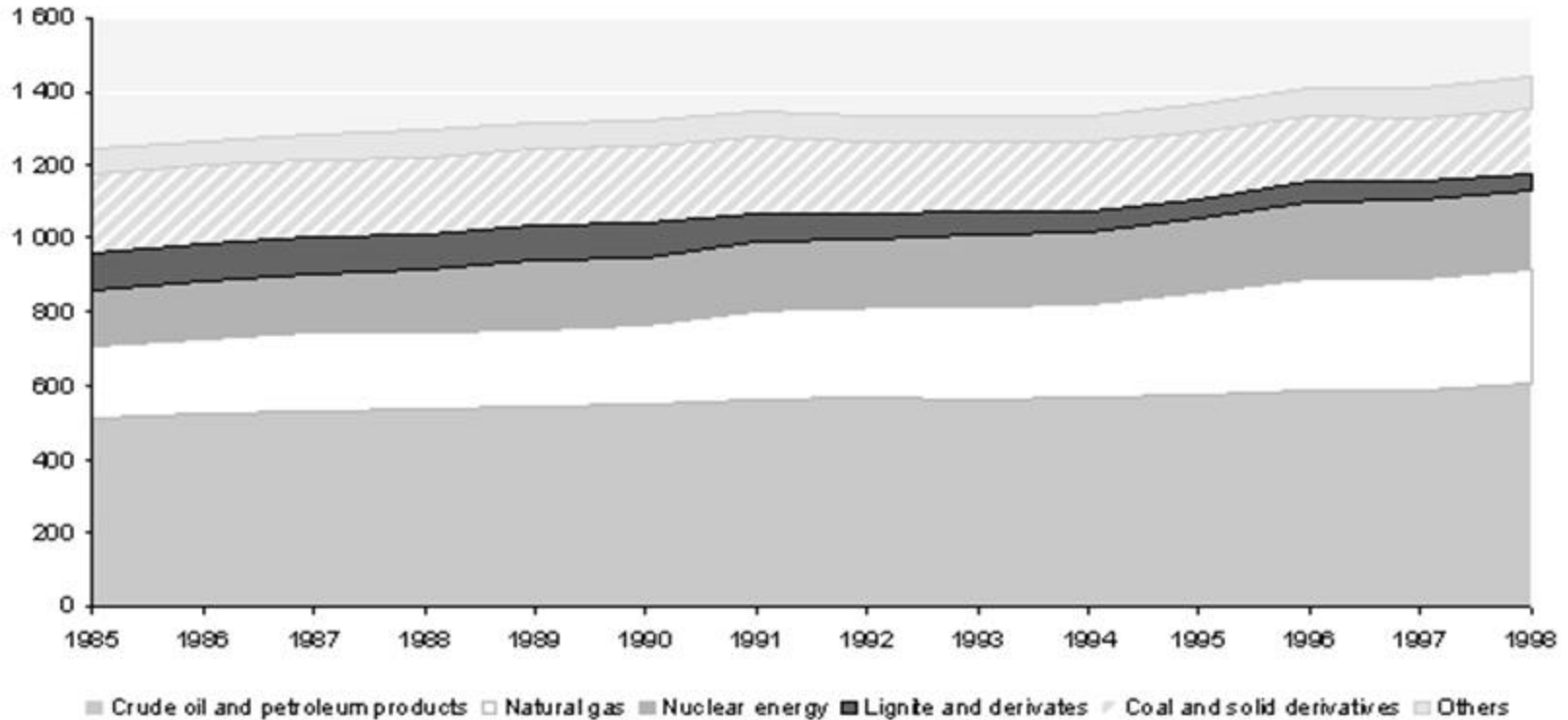
# Level 1 Energy indicator

- **Gross inland energy consumption (GIC)**
  - this is the total primary energy consumed to meet the EU demand for energy
- Should be shown broken down by fuel types, from 'dirtiest' to 'cleanest' based on net CO2 emissions i.e. lignite and peat, coal, petroleum, natural gas, nuclear power, renewables



# EU 15 GIC, by fuel type

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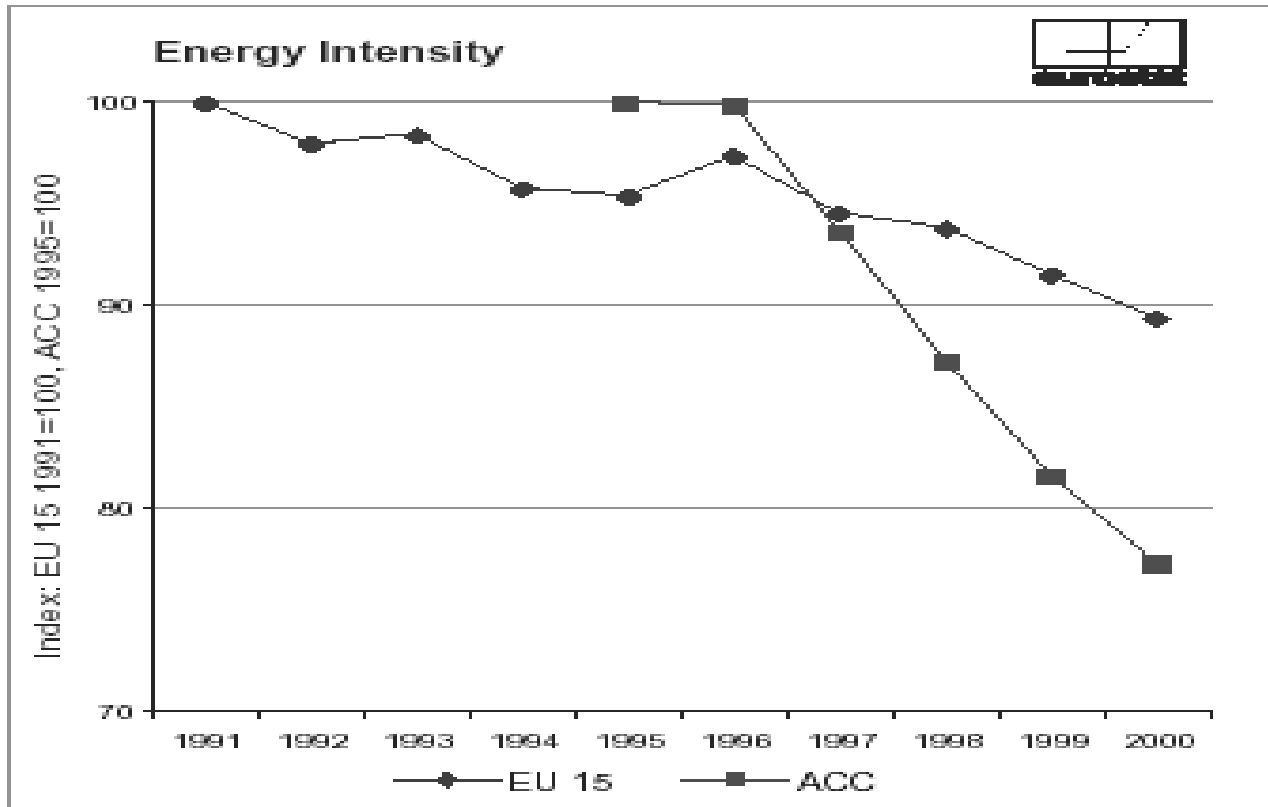


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# Level 2 Energy indicators

- Energy intensity = GIC/GDP at constant prices

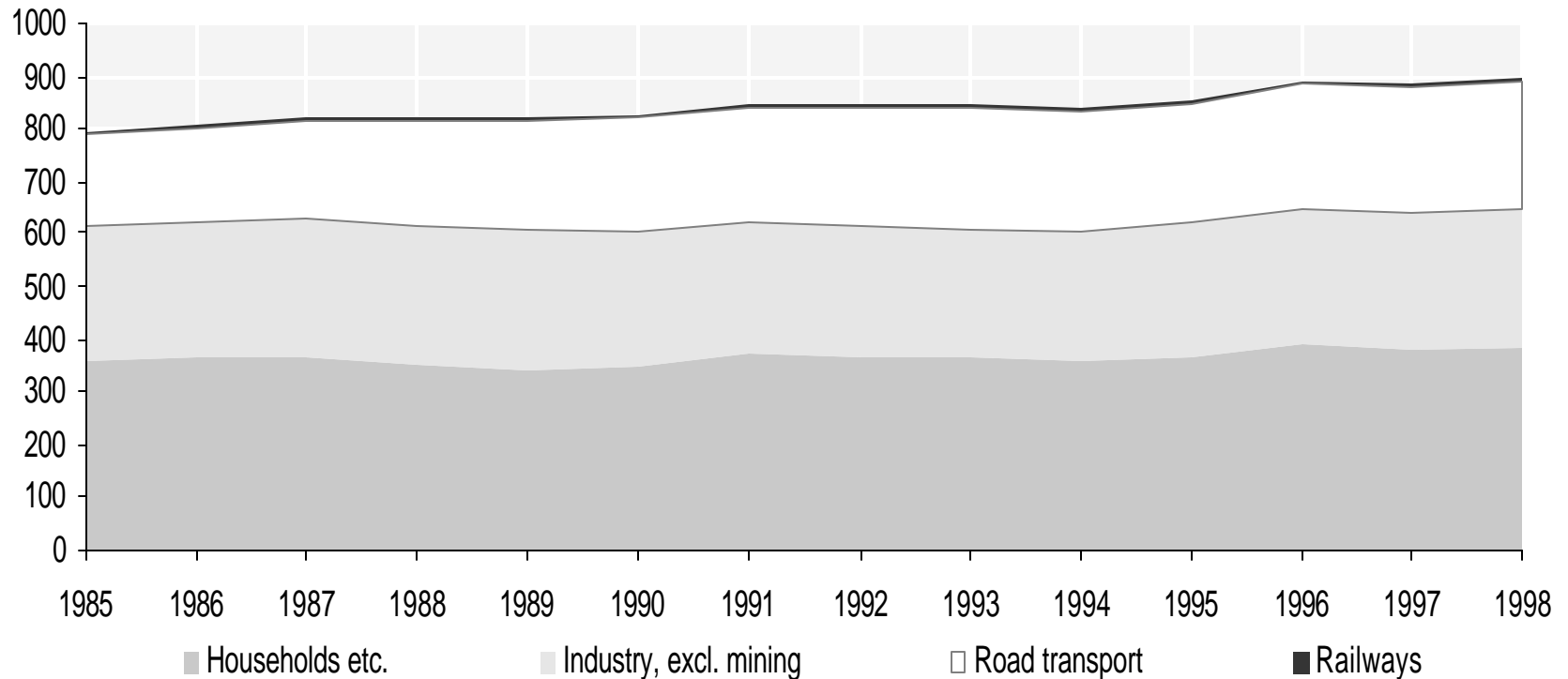


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# Level 2 Energy indicators

- **Final energy consumption by sector**  
sectors = industry, transport, households and others

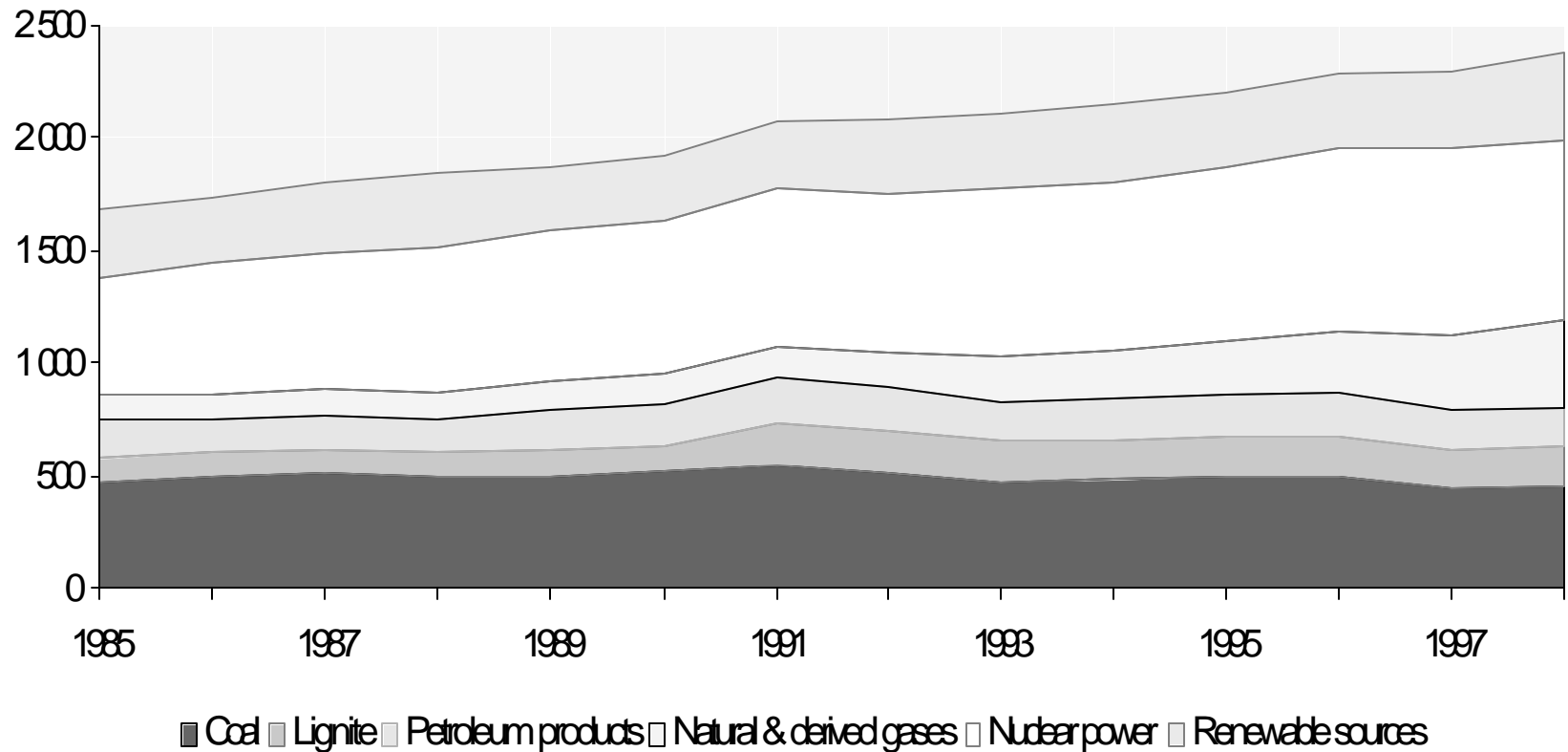


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# Level 2 Energy indicators

## Electricity production by fuel type



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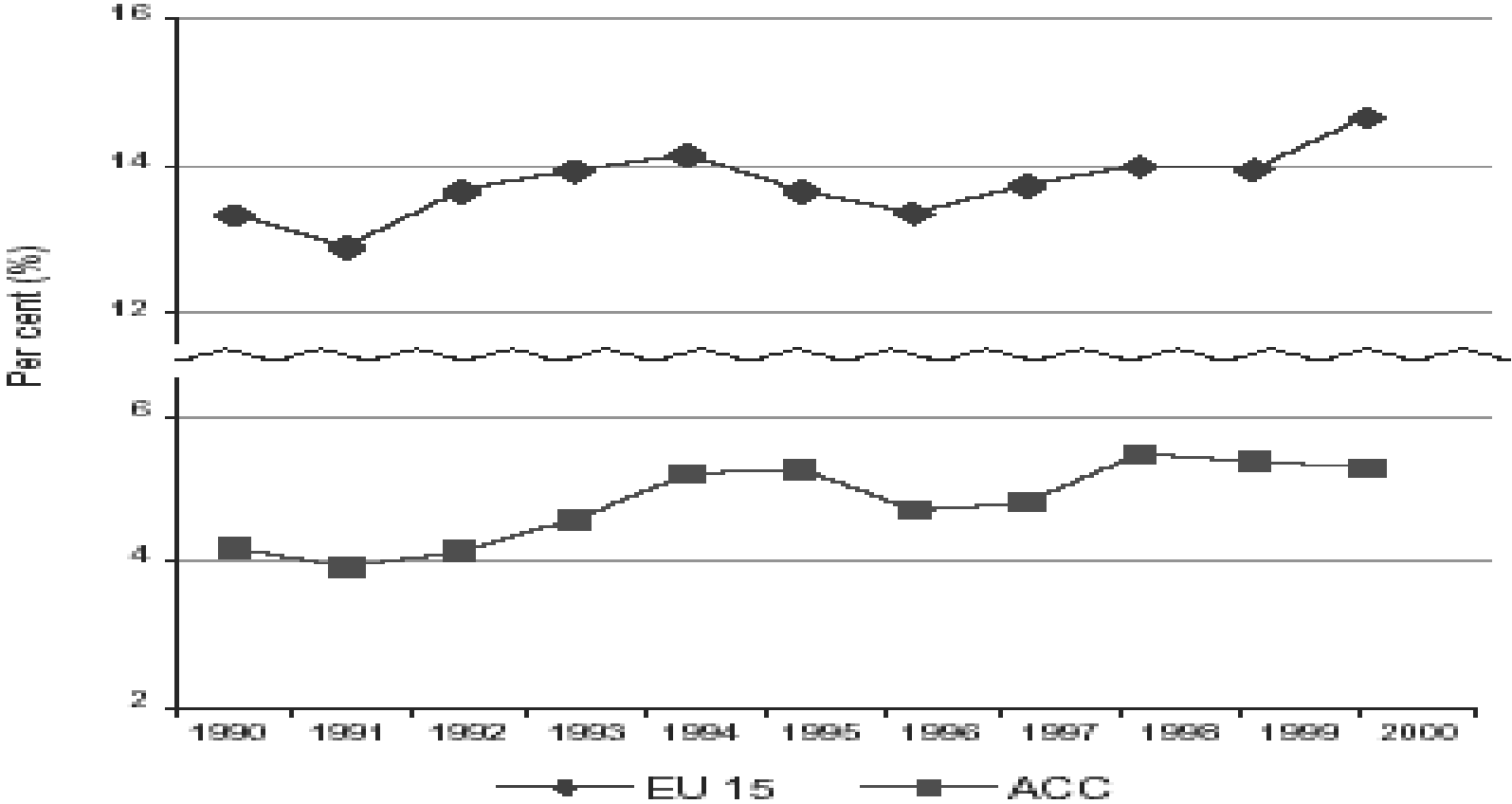


# Level 3 Energy indicators - feasible

- Renewable energy as % of GIC and as % of electricity production (with targets)
- Renewable energy as % of GIC and as % of electricity production (with targets)
- Energy efficiency by sector or by specific industries
- amount of high-level nuclear waste and spent fuel awaiting permanent disposal



# Renewable energy as % electricity production



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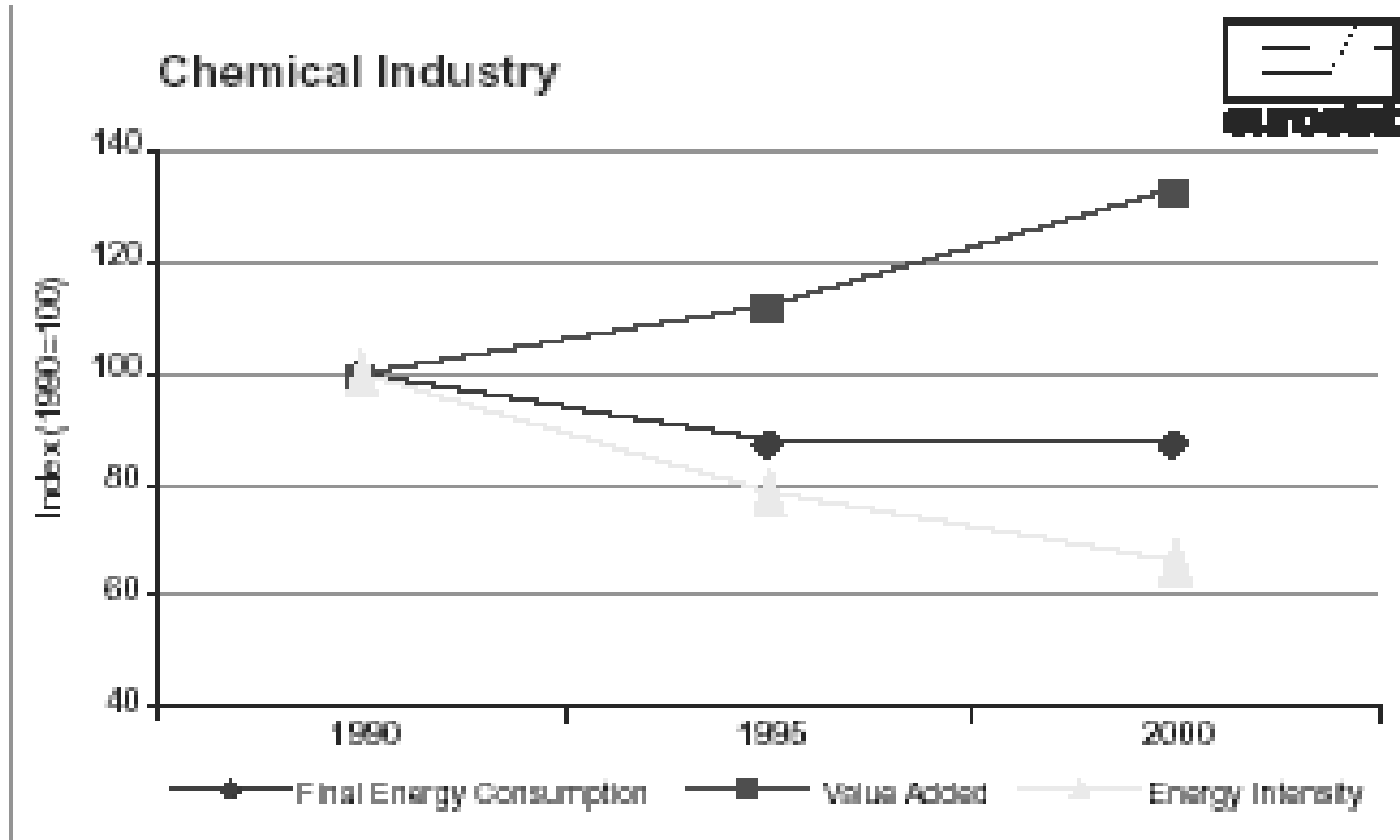
# Energy efficiency by sector

Some examples:

- Energy use in industry per unit of value-added
- Energy use by road transport per passenger-km
- Household energy use per capita, or total household energy use vs. number of households



# Energy efficiency by specific industries



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# Nuclear waste

Included in SDS under the theme Climate Change and Clean Energy

Several indicators discussed:

- Nuclear waste generated per unit of energy produced from nuclear power
- Amount of nuclear waste produced annually vs. amount properly disposed of annually

? Proposed indicator: amount of high-level nuclear waste and spent fuel awaiting permanent disposal

- Data source : Euratom, a Commission service



# Level 3 Energy indicators - feasibility being assessed

- Energy prices/taxes  
(how to combine into one indicator?)
- Government revenue from energy taxes  
(as % of government budget)
- Use of Biofuel



# Energy related indicators in other themes

- Under Public Health: Population exposed to air pollution by particulate matter
- Under production and consumption patterns:
  1. Non GHG emissions associated with energy use
  2. Electricity consumption per dwelling for light and domestic appliances
  3. Under management of natural resources: Excedance of critical loads of acidifying substances in sensitive natural areas
- Under transport:
  1. Energy consumption by transport vs. GDP at constant price
  2. Energy consumption by type of transport
  3. Emissions of air pollutants by transport activities
- Environment-adjusted flows of materials in EU imports



# Overview

Level I	Level II	Level III
<b>1. GHG emissions vs. Kyoto target</b>	<b>1. GHG emissions (breakdown by sector, including aviation emissions)</b>	<ul style="list-style-type: none"> <li>• CO2 intensity of energy use (CO2 emissions per GJ of GIC)</li> <li>• <i>Losses caused by extreme weather conditions (insurance payouts)</i></li> <li>• <i>CO2 sinks</i></li> <li>• (Average mean temperature in Europe)</li> </ul>
	<b>2. Energy intensity (GIC/GDP constant prices)</b> <b>3. Final energy consumption by sector</b> <b>4. Electricity production by fuel</b>	<ul style="list-style-type: none"> <li>• Renewable energy as % of the gross inland energy consumption and as % of electricity production (with targets)</li> <li>• Combined heat and power generation as % of gross electricity generation</li> <li>• Energy efficiency by sector or by specific industries</li> <li>• <i>Energy prices/taxes</i></li> <li>• Government revenue from energy taxes as % of government budget</li> <li>• <i>Fuel poverty</i></li> </ul> <hr/> <ul style="list-style-type: none"> <li>• Amount of high-level nuclear waste and spent nuclear fuel awaiting permanent disposal</li> </ul>



# OVERVIEW OF DATA AND GRAPHS AVAILABILITY SITUATION AS OF 11 JUNE 2004

Theme	Number of ('Best Available') Indicators -			Data available			Charts available			Number of ('Best Needed') Indicators -		
	Level 1	Level 2	Level 3	Level 1	Level 2	Level 3	Level 1	Level 2	Level 3	Level 1	Level 2	Level 3
Economic Development	2 (1)	5(3)	36 (14)	2	5	34	2	5	34	-	-	1
Poverty and Social Exclusion	1	3	23 (10)	1	3	23	1	3	23	-	-	7
Ageing Society	1	2	11 (6)	1	2	9	1	2	8	-	1	3
Public Health	1	4	19 (11)	1	3	17	1	3	17	1	4	1
Climate Change and Energy	8 (2)	22 (4)	8	8	22	8	8	22	8	-	-	3
Production and Consumption Patterns	1	9 (5)	20 (9)	1	9	18	1	9	18	1	3	5
Natural Resources	10 (2)	8 (4)	5 (3)	6	6	5	6	6	5	4	2	9
Transport	1	8 (4)	11 (2)	1	8	11	1	8	11	1	1	2
Good Governance	3 (1)	6(2)	13 (3)	3	6	2	3	6	2	-	3	11
Global Partnership	1	14 (5)	14 (7)	1	14	10	1	14	10	-	2	3
<b>TOTAL</b>	<b>29 (12)</b>	<b>81 (27)</b>	<b>160 (73)</b>	<b>25</b>	<b>78</b>	<b>137</b>	<b>25</b>	<b>78</b>	<b>136</b>	<b>7</b>	<b>16</b>	<b>45</b>



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# FUTURE ACTIVITIES

- **Set of SDI**
  - April 2004: initial set of SDI incl. progressively data, charts, metadata and quality profile
  - Beg. 2005: final recommendations to the SPC (methodology, data needs, further work)
- **Participation in the SDS review process**
- **2005: Eurostat publication on the list of EU SDI**
- **Support to international activities on SDI**

