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#### WORKSHOP ON INDICATORS FOR SUSTAINABLE ENERGY DEVELOPMENT 13 - 17 May 2002

#### Indicators of Sustainable Energy Development -Case Study Slovakia

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CRP working plan - main issues:

- Major priority area
- Review of energy statistics , relation to ISED
- Time series of selected data
- Creation of ISED, trend and analysis

Workshop presentation issues:

- Trend of Macroeconomic indicators
- Its impact on Energy Indicators
- GHG emission, present and future trends
- Trend of energy prices, subsides removing

New Energy Policy establishes the framework for the way of changes in energy sector and it has three main aims:

- Preparation on integration into EU internal market,
- Security of energy supply
- Sustainable development

Considering the above issues, the following items seems to be very important for the future development of energy system in Slovakia:

- 1. Legislation and institution framework in accordance with EU requirements, free energy market, transparent energy prices
- 2. Diversification of energy import, increase share of renewable, energy conservation policy
- 3. Environmental issues.



#### GDP, TPES and CO<sub>2</sub> emission



#### Historical trends of GDP, TPES and CO<sub>2</sub> emission



#### **Energy and Carbon Intensity**





GDP, TPES and CO<sub>2</sub> per capita

### Trends:

- 1 In period 1990- 1992 the GDP decline is accompanied by the decline of TPES and CO<sub>2</sub> emission
- 2 The increase of GDP since 1993 is not accompanied by similar TPES increase and trend of additional  $CO_2$  decline can be seen

#### **Questions:**

1 Is this TPES trend caused by AEEI or preferably by structural changes?
2 What is role of TPES mix on the CO<sub>2</sub> emission?

#### **GDP by sectors**



#### **GDP** by industrial branches



#### **Trend of structural changes**

Trend 1995 = 100%	
Agriculture	86%
Industry	113%
Construction	126%
Commercial	131%
Non-commercial	119%
Other	143%

Trend of GDP increase in industry is lower as in services, especially commercial services. It has positive impact on El

The highest trend of GDP increase was in machinery, followed by food production. The energy intensive branches as chemistry, metallurgy and production of construction materials has lower trend of GDP increase.

×	Trend 1995 = 100%
/	Mining 98%
	Food 127%
	Chemistry 99%
	Metal 116%
	Machinery 146%
	Other 97%
	Energy 107%

#### CO<sub>2</sub> emission by fuel types,



#### **Baseline scenarios of CO<sub>2</sub>**

High- previous El and industrial structure BAU- business as usual

Low - impact of env. legislation



#### **Aggregated GHG scenarios of Slovakia**



### **Energy prices**

The main issues:

- Trend of main primary energy sources prices in transition period
- Subsides of final energy carriers
- Difference of energy prices in residential and industrial sectors

### Trend of primary energy sources cost



#### **District heat prices**



### **Electricity prices**



#### Trend analysis

#### 1 Primary energy cost trend 1991 = 100%

	1998
Steam coal	184%
Brown coal	165%
Natural gas	135%
Oil	108%
Nuclear	123%

#### 2 Final energy carriers

- Subsides in district heating are removing
- Cross subsides in electricity are removing

Result - price for residential and industrial & services difference is diminished

# State released annually subsidies to heat price for households



### **THANK YOU**

## HAVE A NICE DAY