

Environmental Aspects of the Slovakian Energy Policy

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Workshop on Environment and
Climate Change

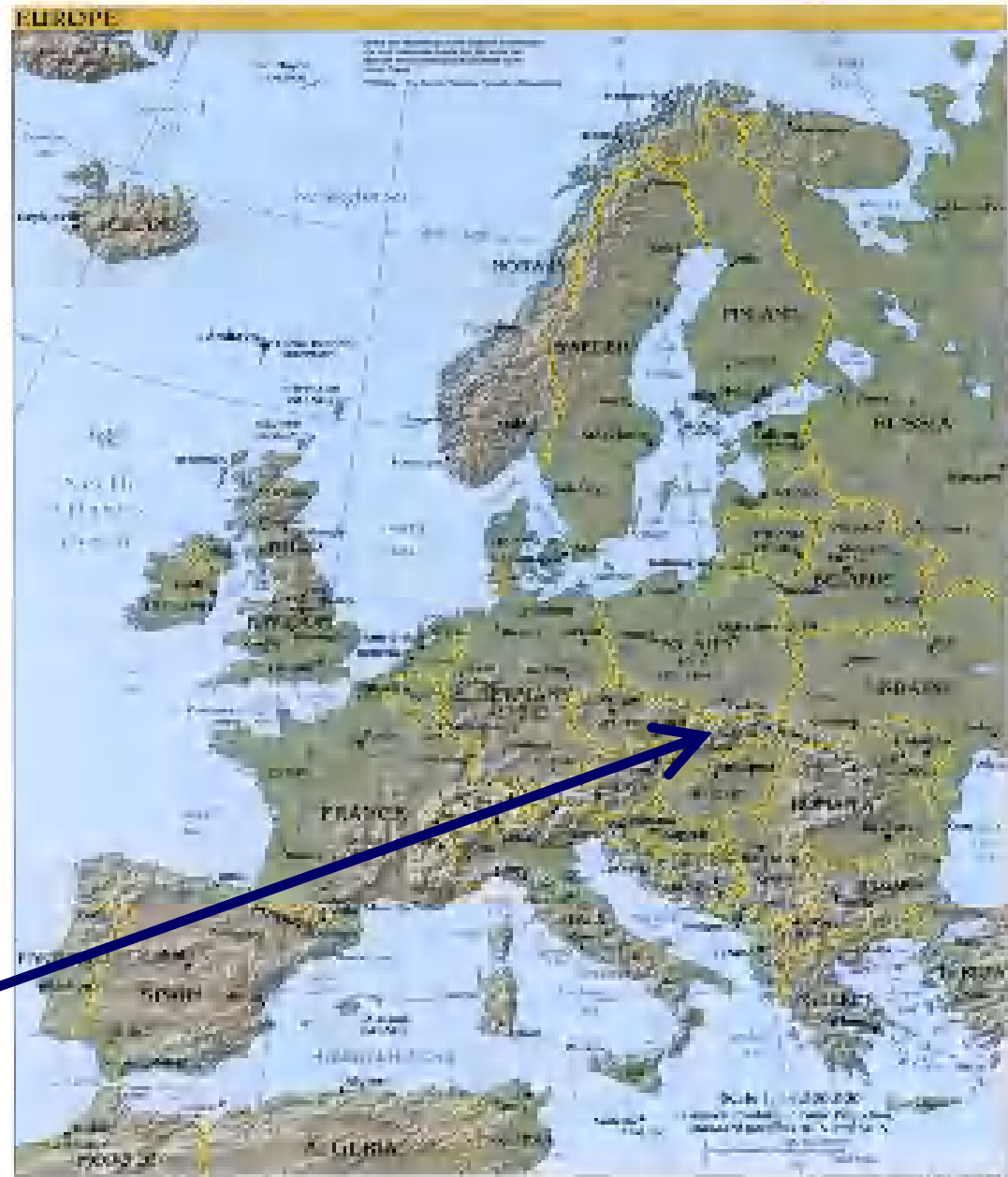
Tokyo 15 October 2009

Content of presentation

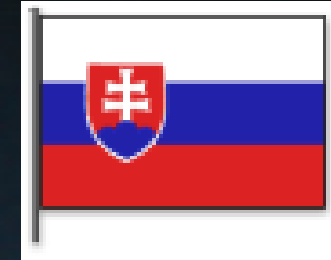
- **Introduction**
- **Environmental and Energy Policy (documents, principles)**
- **Targets for 2015, 2020 and 2030 (emissions, renewables)**
- **Current situation in Climate change and Renewables, measures (finance, legislation, use of RES)**
- **Advantages**
- **Areas for cooperation**

Location

The
Slovak
Republic is
located in
Central
Europe



Land and People



Population (year 2009):

5,416 mil.

Land area:

49 036 km²

**The lowest lying place:
level**

95 m above sea

The highest point:

2 655 m a.s.l. Gerlach

Population density:

110,1/km²

**Mean air temperature:
°C in su.**

-6°C in win., + 23

**Northern and central part of Slovakia is hilly
covered by the Carpathian mountain range.**

Population characteristic

- Nationalities - 85,6 % of the total are Slovaks, the rest consists of the Hungarian (10,5%), Romas (1,5%), Czech (1%) Ukrainian, Germans, Polish, Moravian and other national minorities. The most numerous one is the Hungarian minority,
- Religions - Roman-Catholic (60,4 %), Lutheran Church of the Augsburg Creed (6,2 %), Greek Orthodox (3,4 %), Calvinist (1,6 %), Russian Orthodox (0,7 %). There is also a Jewish Religious Community in Slovakia.

Borders of Slovakia



It has borders with:
km),

Poland (597 km),
Rep.(265 km),

Austria (127 km),
(99 km)

Hungary (679

Czech

Ukraine

Environmental policy

National Sustainable Development Strategy (2001)

Action Plan for sustainable development for 2005-2010

Action for environmental technologies in Slovakia (2008)

Implementation of sustainability principles in the Slovak economy

Support of environmental technologies and use of existing programmes for their implementation in the Slovak economy

Support of all financial possibilities for sustainable development in Slovakia

Implementing sustainable development in the Slovak legislation



Energy Policy

Governmental documents:

Energy Policy of the Slovak Republic (2006)

**Strategy of higher use of renewable sources
(2007)**

a.

Energy efficiency Action Plan (2007)



**Energy Security Strategy of the Slovak
Republic (2008)**

Characteristic – influence energy sector of the SR

- High dependence on import of primary energy
- High energy intensity of the national economy
- Potential for higher utilization of RES
- Nuclear renaissance (EU), nuclear policy
- Volatility of energy prices on whole world market
- Climate change and its results
- Gas crisis
- The global economic crisis



Strategic target of the Energy policy of the SR

- to ensure such volume of electricity generation that will cover the demand on an economically efficient basis;
- a. • to ensure secure and reliable supply of all forms of energy in the required quantity and quality while at the same time ensuring maximum efficiency;
- to reduce the share of gross domestic energy consumption in the gross domestic product (reduction of energy intensity).

Climate change targets for Slovakia

- **RES:**
14% share in gross final consumption in 2020 – 60 PJ
10% share of RES in transport
- **non ETS: + 13%** in 2020 - 23,5533 mil.ton CO₂
transport, agriculture, households (including buildings), services, waste management
- **ETS:** - 21% for EU in 2020, not a specific national target

RES in Slovakia (2007)

Production from RES 40 PJ

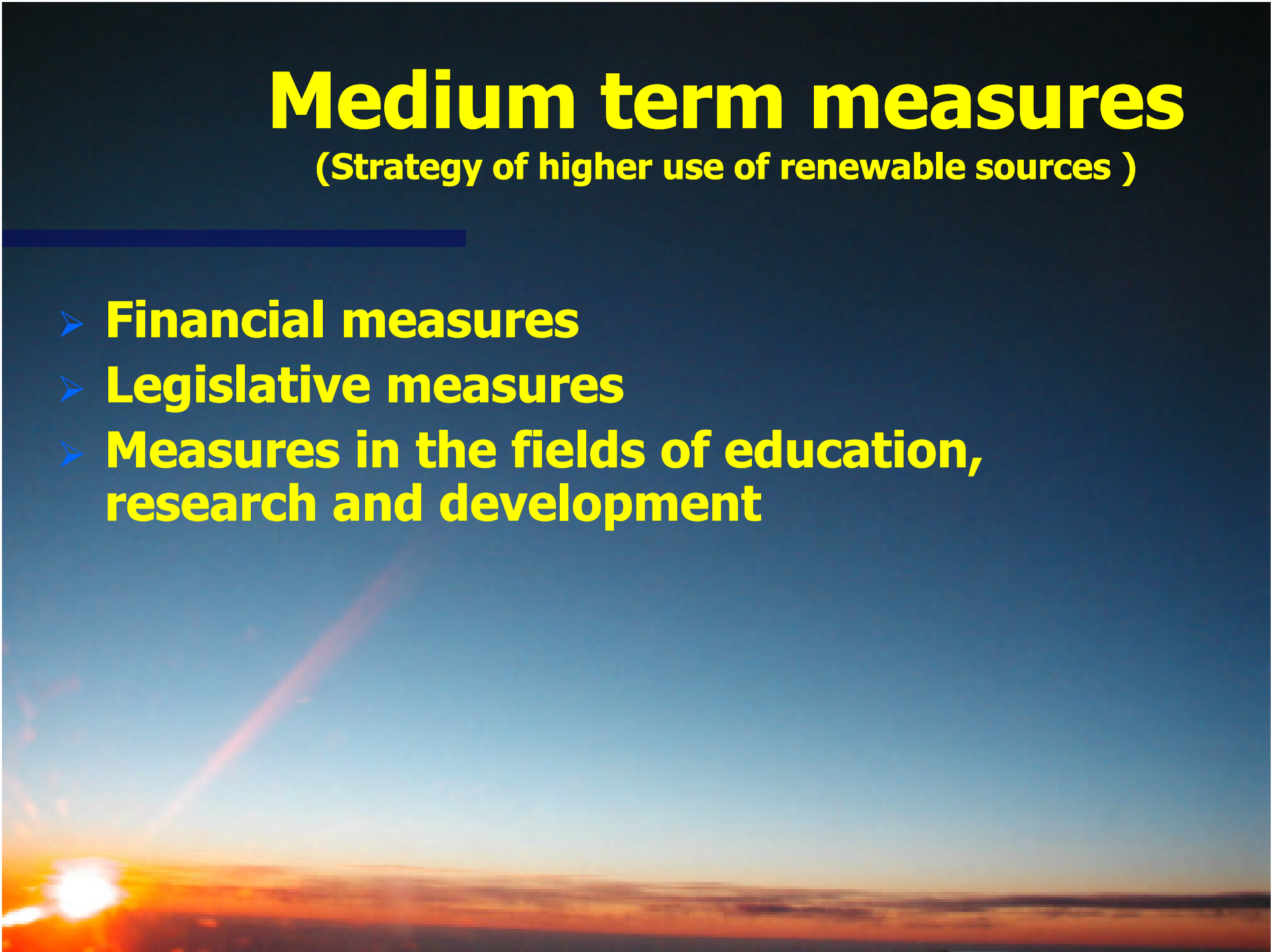
- biomass 19 PJ
- small hydro 16 PJ
- biofuels 4 PJ
- other 1 PJ

- ❑ 5,3 % share of RES in the domestic consumption
- ❑ 8,7 % share of RES in the domestic final consumption
- ❑ 16,6 % share of electricity from RES in the electricity consumption
- ❑ 2,6 % share of biofuels in the transport fuels consumption

Medium term measures

(Strategy of higher use of renewable sources)

- **Financial measures**
- **Legislative measures**
- **Measures in the fields of education, research and development**



Financial measures

□ Programme of higher use of biomass and solar energy in households

budget of 8 mil. Euro/year – a support for households

- Solar collectors : 100 €/m²
- Biomass boilers : 25 % from the price

□ EU Funding

- OP Competitiveness and economic growth (MoE)
- OP Environment (MoEnv)
- Programme for rural development (MoA)

Operation Programme Competitiveness and economic growth

Measure 2.1: Raising energy efficiency on the supply and demand side and introduction of progressive technologies in energy sector (144 mil. EUR)

Energy savings in all sectors of industry and services

- ❑ Cogeneration
- ❑ Use of RES - construction, modernization or reconstruction:
 - ❑ Small hydro
 - ❑ Installations for the use of biomass
 - ❑ Installations for biofuel and biogas production
 - ❑ Installations for the use of solar energy
 - ❑ Installations for the use of geothermal energy
- ❑ Reconstruction or modernization of existing energy sources with the aim to increase efficiency or using RES
- ❑ Reconstruction of existing heating installations (eg. improving piping insulation, installing systems for monitoring of heat leakage and other)
- ❑ Other activities that support the targets of the measure.

Operation Programme Environment

Measure 3.2 Minimalization of negative climate change impacts including support for renewable energy sources

Aimed at the fulfilling of the international agreements for GHG emission reduction and the implementation of European Directive 2004/101/ES.

- Emission reduction together with the reduction of emissions in heat production, including fuel switching and increasing share of RES (including measures to lower energy intensity such as insulation)
- Assessment of climate change impact including analysis of economic costs, increasing the quality of monitoring and awareness

Impact assessment and proposed measures (including social impacts)

Projects for increasing the quality of monitoring, inventarisation and GHG emissions projection

Projects for horizontal cooperation in climate change issues

Increasing awareness and information campaigns for land owners and technical staff in energy facilities

Projects for awareness in fuel switching to RES

Legislation measures

- ❑ **The Law on the support of renewable energy sources and cogeneration**
- ❑ **The form of electricity support**
- ❑ Setting stable electricity prices according to the technology and the installed capacity (by the Regulator)
- ✓ Guarantee of stable prices for the duration of 15 years
- ✓ The coefficient is taking into account the core inflation
- ✓ mandatory off take of electricity
- ✓ The possibility to shift divergence responsibility for installations under 2 MW

❑ **Priority interconnection**

- ✓ It is compulsory for the distribution system operator to give priority to such connection if the producer demands it and fulfills the technical standards
- ✓ The obligation occurs in the geographically closest area, where the costs are lowest

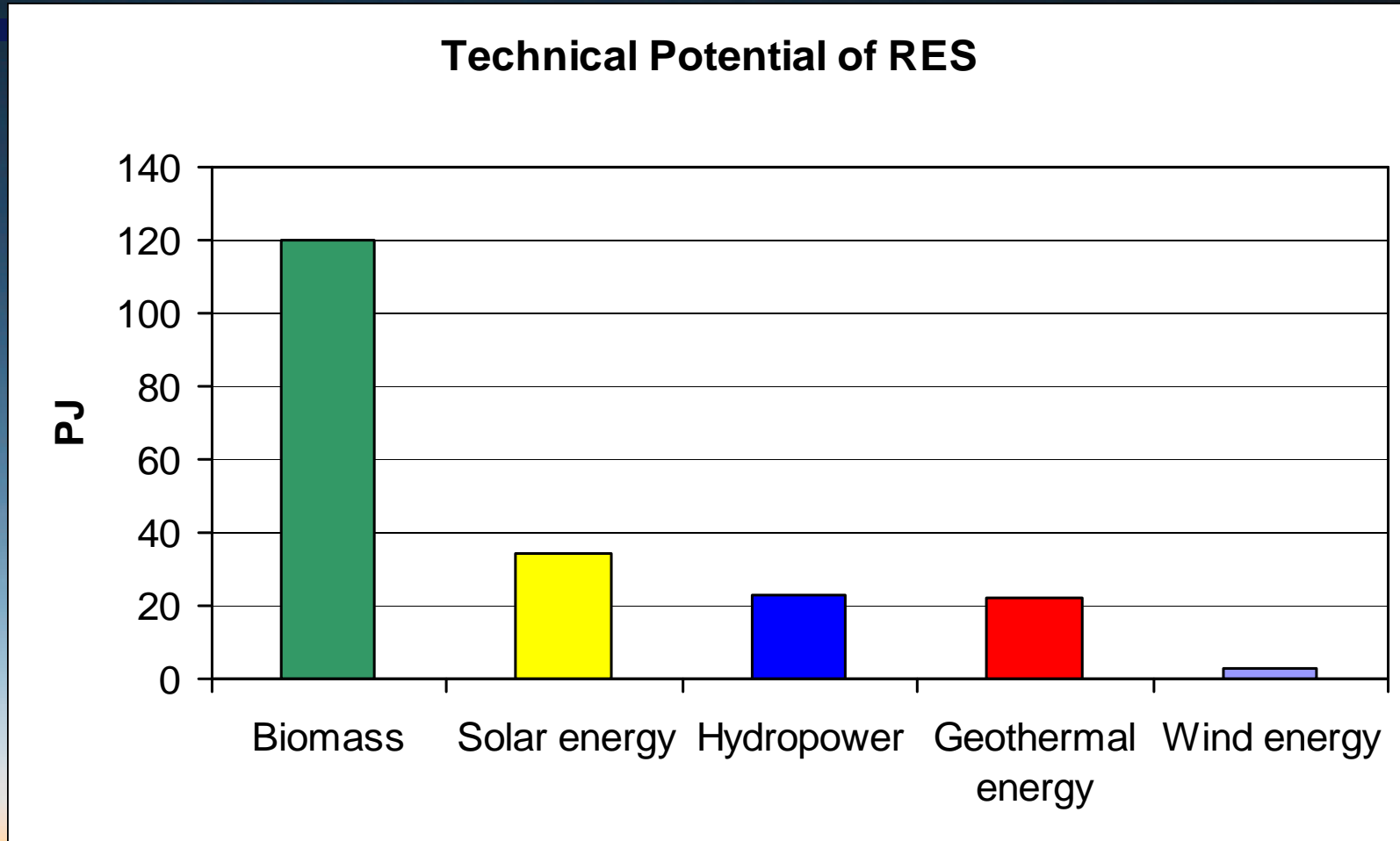
❑ **Biomethane production support**

- ✓ issue of guarantees of origin (Regulator)
- ✓ issue the certificate of the amount of distributed biomethane (gas grid)
- ✓ The sale of biomethane for the producer of electricity by cogeneration
- ✓ The sale of this electricity made by cogeneration plants for the price of biomethane

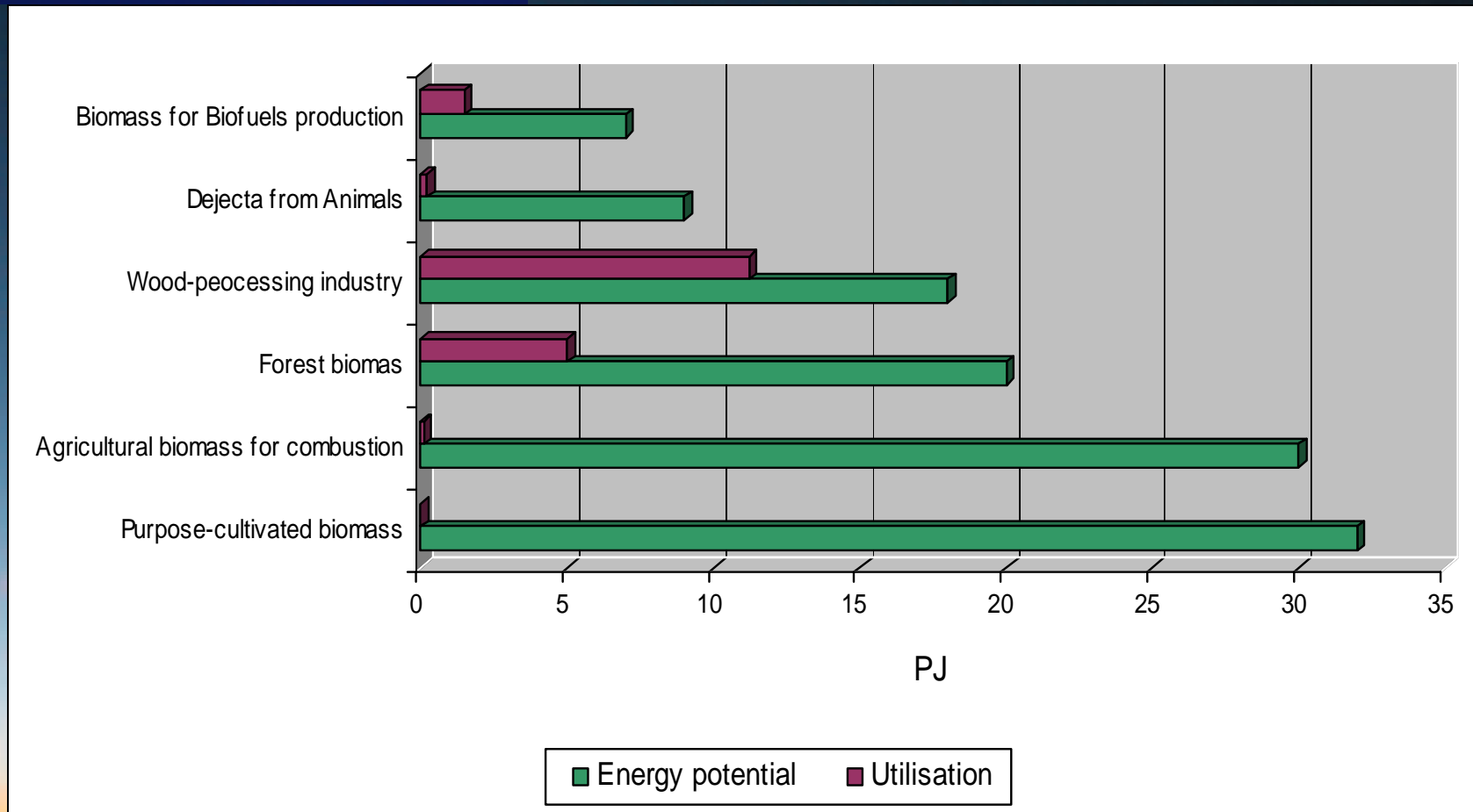
Measures in the field of education, research and development

- ❑ Information campaign
- ❑ Teaching RES in schools
- ❑ Programme „Sun in schools“
- ❑ Demonstration projects
- ❑ Strengthening of RES research

Technical Potential of RES



Biomass – the source with the most perspective



Medium term perspective

(Strategy of higher use of renewable sources)

Electricity production

- small hydro (capacity less than 10 MW)
- biomass and biogas
- geothermal energy
- wind energy

Year	Electricity production (GWh)	Share in the electricity consumption
2004	291	1 %
2010	1 240	4 %
2015	2 300	7%

Medium term perspective

(Strategy of higher use of renewable sources)

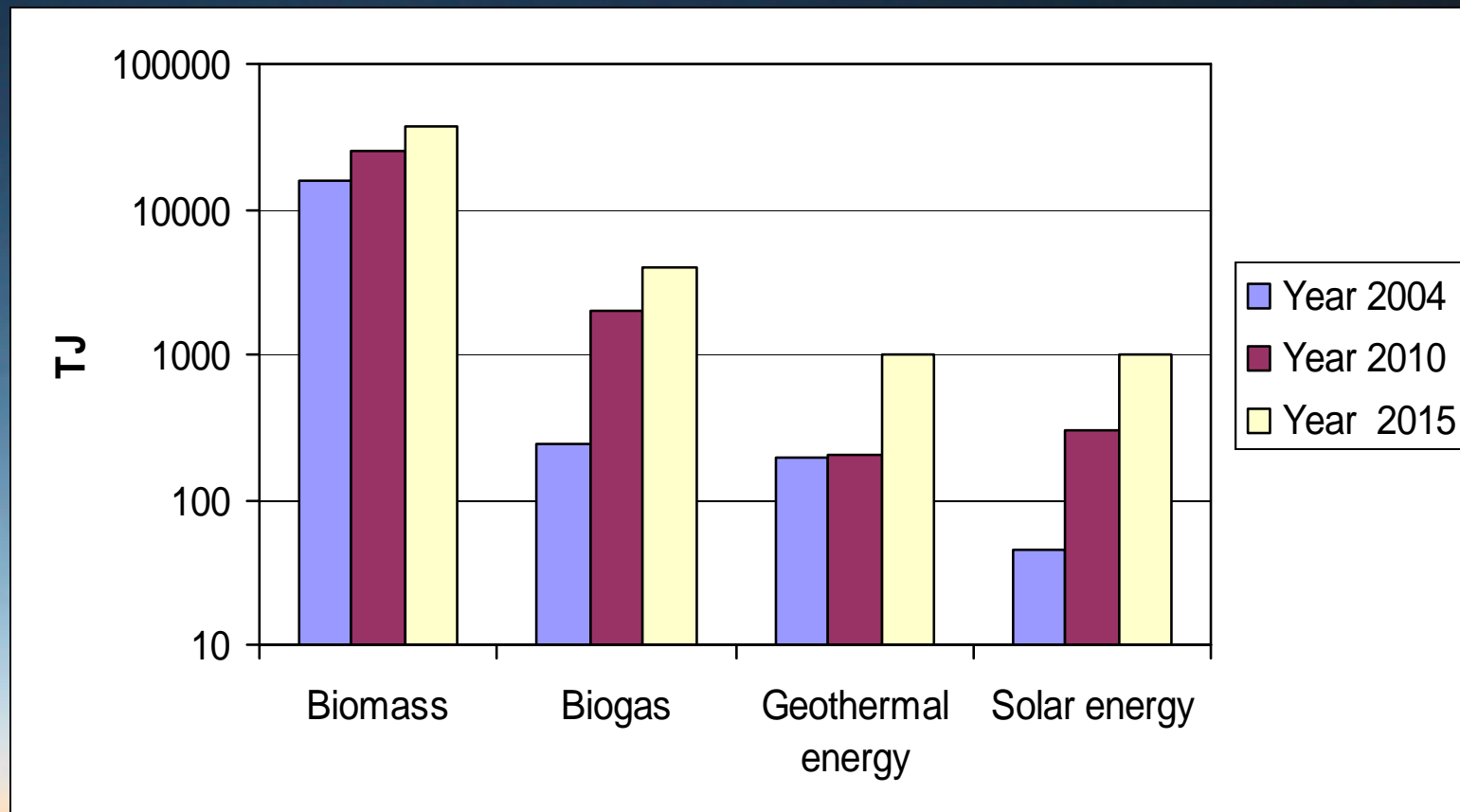
Heating from RES

- ❑ biomass
- ❑ biogas
- ❑ geothermal energy
- ❑ solar energy

Year	Heat production (PJ)	Heat from biomass (PJ)
2004	14	14
2010	27	25
2015	43	35

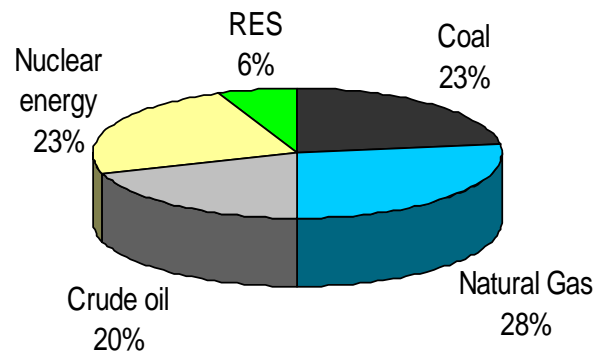
Medium term perspective

(Strategy of higher use of renewable sources)

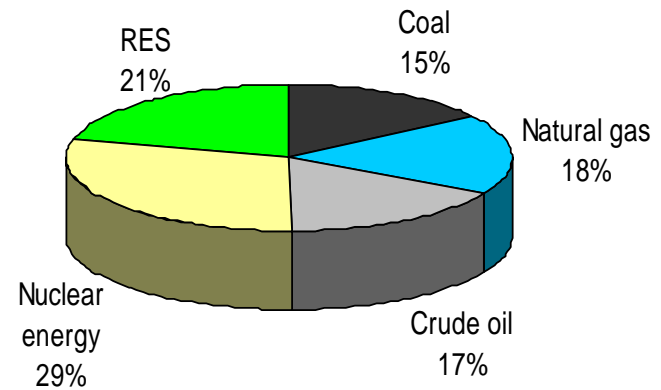


Future energy mix

Energy mix v in 2010



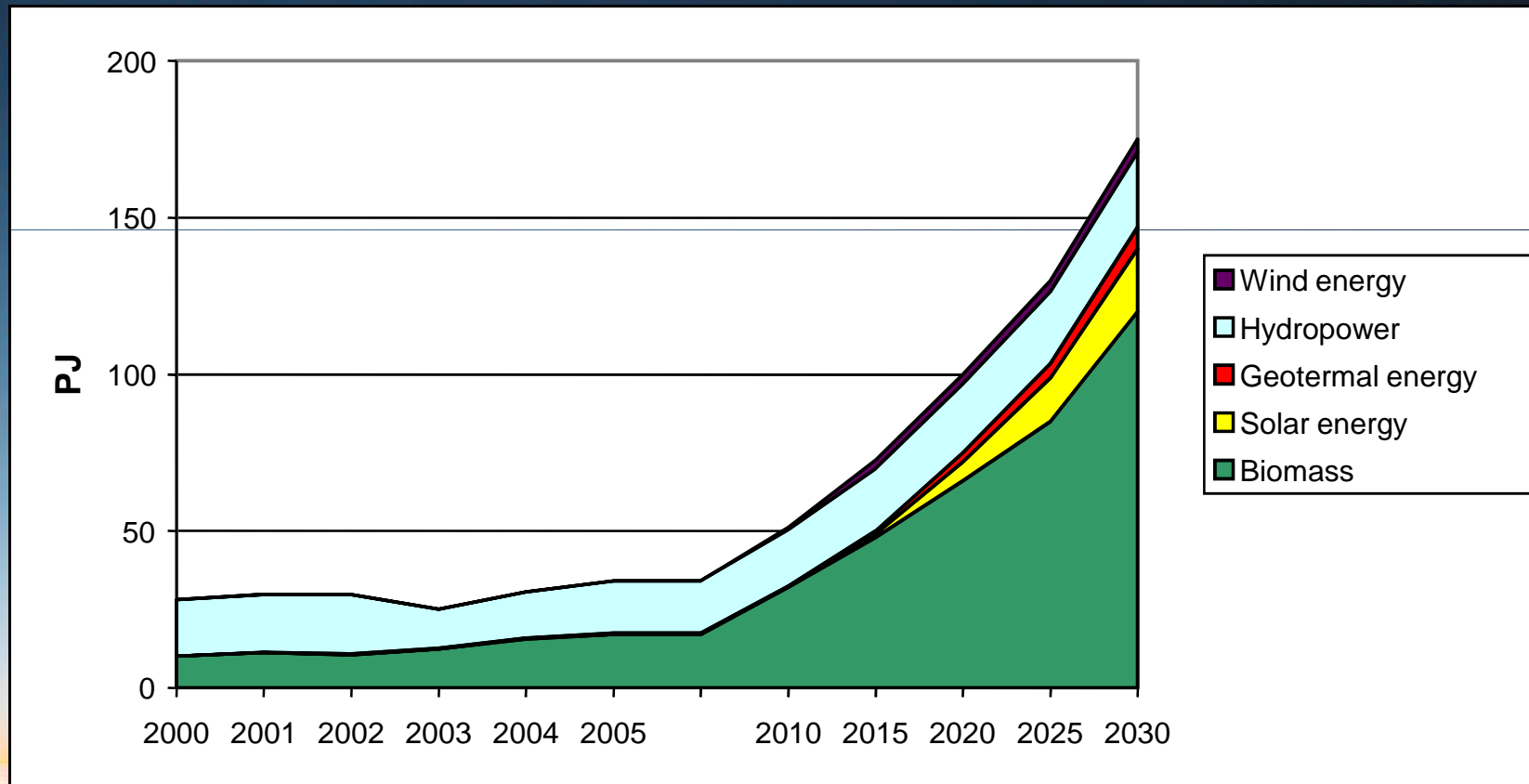
Energy mix v in 2030



Long Term Targets

(Energy Security Strategy of the Slovak Republic)

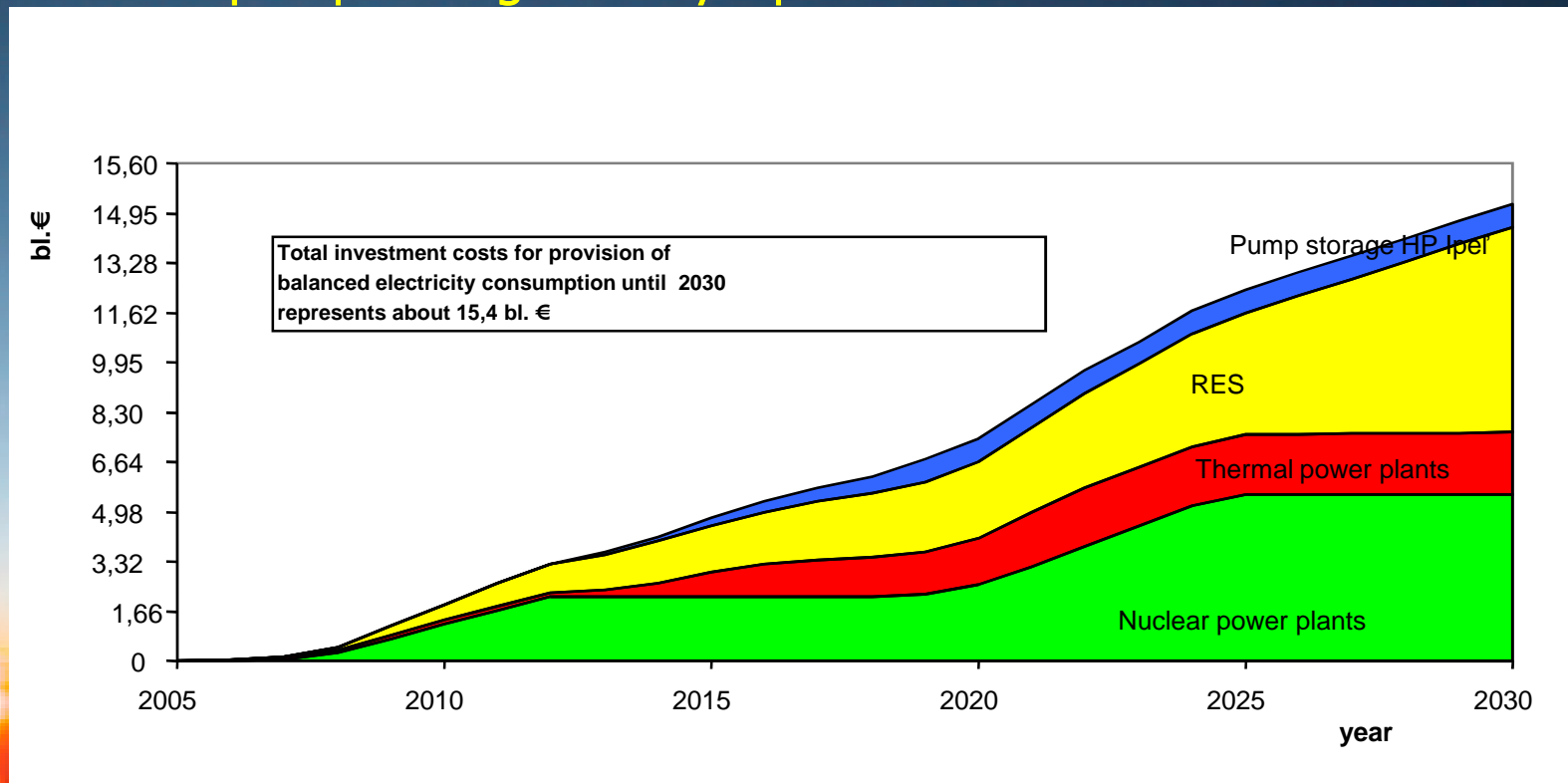
- **12%** in 2020 (100 PJ) – primary consumption
- **21%** in 2030 (180 PJ) - primary consumption



Opportunities - Investment until 2030

for electricity production aprox. **15 bl. EUR**

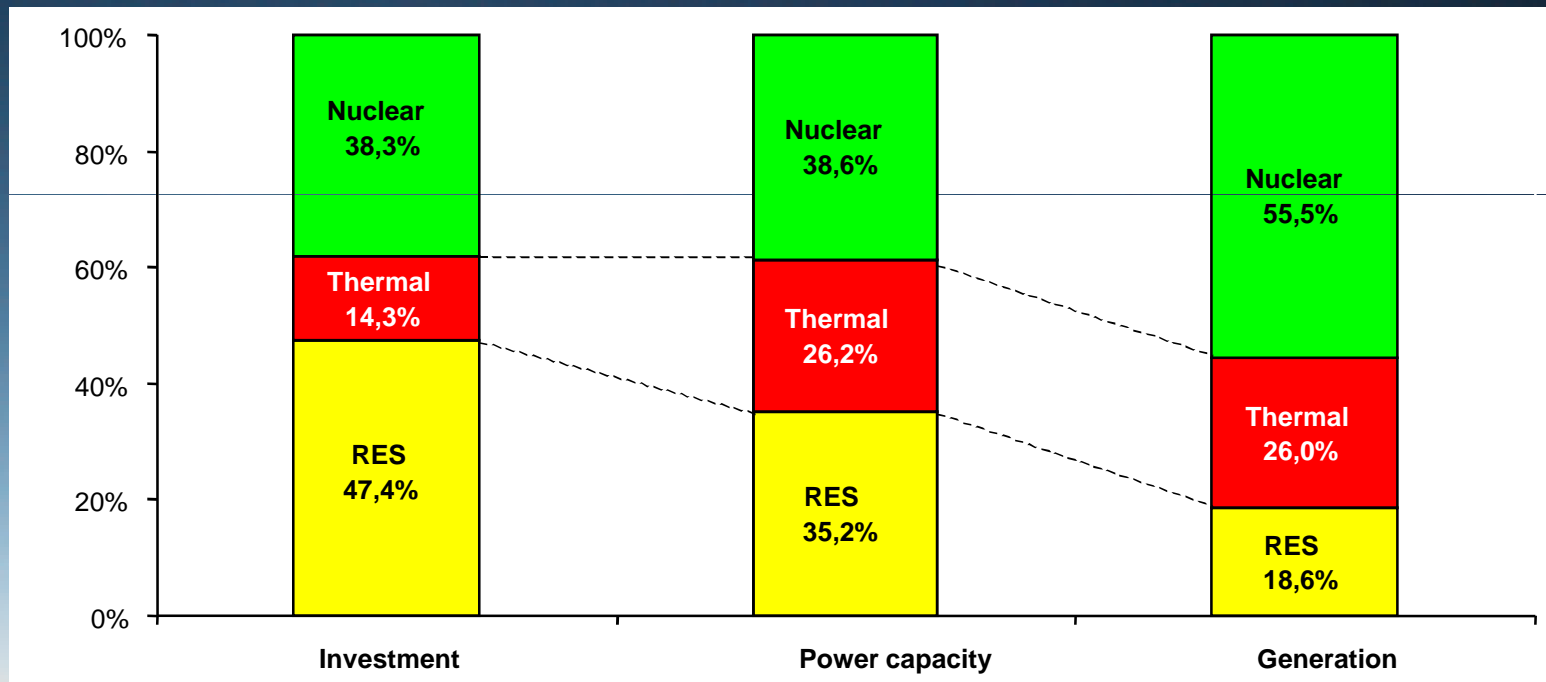
- RES 44 %
- nuclear 36%
- thermal 15%
- pump storage facility Ipeľ 5%



The comparison between investment and production

High investment demands for RES

almost half of all investments in production capacities
the production of electricity of about 20%



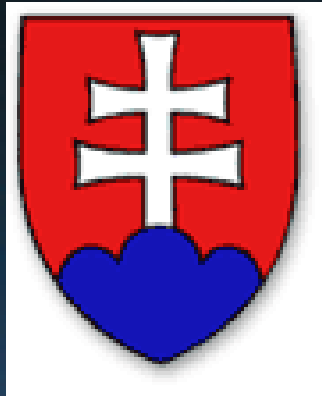
Challenges in RES

Increasing the share of RES from 40 PJ to 60 PJ

The biggest increase in use

- Biomass: heat production – replacement of gas cogeneration (also as biogas) biofuels production
- Solar energy: hot water production and solar cooling (electricity production after r. 2015)
- Hydro: electricity production
- Geothermal: district heating





Thank you for your attention

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