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# Europe 2020 and Sustainable energy indicators

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## Overview

- Europe 2020 – meaning, priorities, targets, initiatives
- Europe 2020 – indicators for energy
- Bulgarian key sustainable development indicators
- Selection criteria for Sustainable development indicators for Bulgaria
- Sustainable energy indicators

# Europe 2020

## Meaning

- The EU's Europe 2020 strategy for smart, sustainable and inclusive growth was launched by the European Commission in March 2010 and approved by the Heads of States and Governments of EU countries in June 2010. The document sets out concrete targets to be achieved within the next decade in areas such as employment, education, energy use and innovation in order to overcome the impact of the financial crisis and put Europe back on track for economic growth.

# Europe 2020

## Priorities

- The Europe 2020 strategy is about delivering growth that is:
  - **smart**, through more effective investments in education, research and innovation
  - **sustainable**, thanks to a decisive move towards a low-carbon economy
  - **inclusive**, with a strong emphasis on job creation and poverty reduction. The strategy is focused on five ambitious goals in the areas of employment, innovation, education, poverty reduction and climate/energy.
  
- To ensure that the Europe 2020 strategy delivers results, a strong and effective system of economic governance has been set up to coordinate policy actions between the EU and national levels.

# Europe 2020

## Targets

- To measure progress in meeting the Europe 2020 goals, **5 headline targets** have been agreed for the whole EU:
  - 75% of the 20-64 year-olds to be employed
  - 3% of the EU's GDP to be invested in R&D
  - greenhouse gas emissions 20% lower than 1990 (or even 30%, if the conditions are right)
  - Reducing the rates of early school leaving below 10% and at least 40% of 30-34-year-olds completing third level education
  - at least 20 million fewer people in or at risk of poverty and social exclusion.
  
- These objectives are interrelated and critical. To ensure that each Member State will adjust the strategy "Europe 2020" to its particular situation, the Commission proposes the EU goals to be translated into goals and ways to achieve them at national level.



## Europe 2020

### Features of the targets

- They give an overall view of where the EU should be on key parameters by 2020
- They are translated into national targets so that each Member State can check its own progress towards these goals
- They do **not imply burden-sharing** – they are common goals, to be pursued through a mix of national and EU action
- They are **interrelated and mutually reinforcing**:
  - educational improvements help employability and reduce poverty
  - more R&D/innovation in the economy, combined with more efficient resources, makes us more competitive and creates jobs
  - investing in cleaner technologies combats climate change while creating new business/job opportunities.

## Europe 2020

### Overall energy targets:

- ✓ Share of RES in gross final energy consumption should be increased to 20% by 2020
- ✓ Energy efficiency should improve to 20% by 2020

### National energy targets:

- ✓ Share of RES in gross final energy consumption of Bulgaria should be increased to 16% by 2020
- ✓ Energy efficiency should improve to 25% by 2020.

# Europe 2020

## Initiatives

- Europe has identified new engines to boost growth and jobs. These areas are addressed by **7 flagship initiatives**. Within each initiative, both the EU and national authorities have to coordinate their efforts so they are mutually reinforcing. Most of these initiatives have been presented by the Commission in 2010:
  - **Smart growth:** Digital agenda for Europe, Innovation Union, Youth on the move
  - **Sustainable growth:** Resource efficient Europe, An industrial policy for the globalization era
  - **Inclusive growth:** An agenda for new skills and jobs, European platform against poverty.
- Other tools for growth and jobs:

The full range of EU policies and instruments must be used more effectively to achieve the Europe 2020 goals. This includes cross-cutting policies and tools such as: the **single market**, the EU **budget** and **external policy** tools.

## Europe 2020

- Bulgaria's national goals in implementing the strategy are defined in the **National reform programme (2011 - 2015)**.
- In 2011, the National Statistical Institute (NSI) of Bulgaria included in the National Statistical Programme regular provision of official statistics on indicators that measure progress on the objectives and reforms set out in the National Reform Programme. The information published on the NSI website at the following web address: <http://www.nsi.bg/spageen.php?SHP=8>
- Europe 2020 indicators in the field of energy are:
  - Primary energy consumption
  - Share of RES in gross final energy consumption.



# Europe 2020 indicators for energy

## Primary energy consumption (1)

Primary energy consumption is one of the leading indicators used to measure progress in terms of climate change and energy leading objective of the Europe 2020 strategy. Together with indicators Greenhouse gas emissions and Share of renewable energy sources in gross final energy consumption, it contributes to the measurement of the change to a resource-efficient, low-carbon economy to achieve sustainable growth.

Primary energy consumption is defined as Gross inland consumption excluding non-energy consumption of all energy carriers. Indicator is relevant for measuring the actual energy.



# Europe 2020 indicators for energy

## Primary energy consumption (2)

- Unit of measurement: 1 000 tonnes of oil equivalent (TOE)
- Availability: Data are available for the period 2004 - 2011
- Reference period: Year
- Institution responsible for the development of the indicator: BNSI.

# Europe 2020 indicators for energy

## Share of RES in gross final energy consumption (1)

The indicator is one of the eight headline indicators in the Europe 2020 strategy which includes the target of producing 20 % of total EU energy consumption from renewable energy sources by 2020, as well as measures for promoting renewable energy sources in the electricity, biofuels and heating and cooling sectors.

Indicator shows the share of energy from RES in gross final energy consumption as total and broken down by three sectors: transport, electricity, heating and cooling.



# Europe 2020 indicators for energy

## Share of RES in gross final energy consumption (2)

Eurostat has developed software for calculation of the indicator, using data collected through a joint Eurostat/IEA/UNECE questionnaires (Annex B of Regulation 1099/2008 on energy statistics), certain unit factors and additional information. High standards with regard to the methodology and ensuring a high degree of comparability are applied.

- Unit of measurement: %
- Availability: Data are available for the period 2004 - 2011
- Reference period: Year
- Institution responsible for the development of the indicator: BNSI.

Details about the renewable energy shares calculation methodology can be found in the Renewable Energy Directive 2009/28/EC.



# Bulgarian key sustainable development indicators

Theme	Indicators
<b>SOCIOECONOMIC DEVELOPMENT</b>	Growth rate of real GDP per inhabitant
<b>SUSTAINABLE PRODUCTION AND CONSUMPTION</b>	Municipal waste generated per capita
	Energy intensity
<b>SOCIAL INCLUSION</b>	At-risk-of-poverty rate before and after social transfers
	Long-term unemployment rate
	Early school-leavers
<b>DEMOGRAPHIC CHANGES</b>	Total fertility rate
	Coefficient of demographic replacement
<b>PUBLIC HEALTH</b>	Life expectancy at birth, by gender
<b>CLIMATE CHANGE AND CLEAN ENERGY</b>	Total greenhouse gas emissions
	Total final energy consumption and RES
<b>SUSTAINABLE TRANSPORT</b>	Modernization of transport infrastructure, by type
<b>NATURAL RESOURCES</b>	Population connected to urban waste water treatment plants with at least secondary treatment
<b>GLOBAL PARTNERSHIP</b>	-
<b>GOOD GOVERNANCE</b>	-



# Selection Criteria for Sustainable Development Indicators for Bulgaria

- The indicators should cover the main objectives of the Bulgarian SDS.
- The indicators should be relevant to Bulgaria.
- The indicators should be based on data which at present are and in the future will be recorded and collected regularly and in a homogeneous manner.
- The data for the indicators should be representative for the whole country.
- The indicators should be easily interpretable as positive or negative for sustainable development depending on their change.
- The indicators should be robust and statistically validated - this is fact when the indicator is considered as statistically reliable and accurate, comparable over time.
- The data should be available for a minimum of 3 years.



# Selection Criteria for Sustainable Development Indicators for Bulgaria

- There should be good comparability across EU Member States.
- The indicators should be timely and susceptible to revision.
- The measurement of the indicators should not impose on enterprises or to the citizens a burden disproportionate to its benefits - to be derived from existing indicators when this is possible.
- The indicators set should be balanced across themes and dimensions.
- The indicators should be mutually consistent within the themes - they should not have contradictory messages.
- The indicators set should be as transparent and accessible as possible to the citizens.
- The indicators should be easy to read and understand by the whole society, they and their metadata should be readily available.



# Sustainable energy development in Bulgaria

One of the main problems facing the Bulgarian economy and energy are highly dependence on imports of energy resources and also two times higher than the average for the EU-28 energy intensity of the economy. Actions and measures of Bulgaria for achieving sustainable energy development are aimed at:

- improving energy efficiency
- stimulating the production and consumption of energy from renewable energy sources (RES)
- development of nuclear energy
- promote the development of low-carbon energy production
- sustainable use of conventional energy resources.

## Sustainable energy indicators

Energy is essential to economic and social development and improved quality of life. However, much of the world's energy is currently produced and used in ways that may not be sustainable in the long term. In order to assess progress towards a sustainable energy future, energy indicators that can measure and monitor important changes are needed.

NSI of Bulgaria calculates and publishes seven sustainable energy indicators.

For this purpose the annual energy data are used.

# Sustainable energy indicators

## Final energy consumption by sectors (1)

This indicator expresses the sum of the energy consumed by final consumers for all energy uses. The indicator is defined as the total energy consumption in industry, transport, agriculture, services and households. It excludes fuels for transformation, consumption in the energy sector, distribution losses and marine bunkering.

- Unit of measurement: 1 000 tonnes of oil equivalent (TOE)
- Availability: Data are available for the period 2000 - 2011
- Reference period: Year
- Institution responsible for the development of the indicator: BNSI.



# Sustainable energy indicators

## Final energy consumption by sectors (2)

- Final energy consumption in industry covers the consumption in all industrial sectors with exception of the 'Energy sector'. The fuel quantities transformed in power plants of industrial autoproducers (incl. fuels for sold heat) and the quantities of coke transformed into blast-furnace gas are not part of the overall industrial consumption but of the transformation sector.
- Final energy consumption in transport covers the consumption in rail, road (incl. households), air transport and inland navigation.
- Final energy consumption in households, services, etc. covers quantities consumed by private households, commerce, public administration, services, agriculture and fisheries.

# Sustainable energy indicators

## Energy Intensity (1)

The energy intensity of the economy is a measure of the amount of energy needed to produce one unit of economic output. A reduction in energy intensity means that less energy is needed to produce the same output and is thus related to energy efficiency. The indicator presented here is calculated as the ratio of gross inland energy consumption (in kilograms of oil equivalent) to Gross domestic product (at constant 2005 prices, in euro).

- Unit of measurement: kgoe per 1 000 euro
- Availability: Data are available for the period 2000 - 2011
- Reference period: Year
- Institution responsible for the development of the indicator: BNSI.



# Sustainable energy indicators

## Energy Intensity (2)

- Energy intensity depends on changes in energy efficiency, changes in fuel mix, and economic structural changes. Improving energy efficiency and decoupling economic development from energy consumption, particularly of fossil fuels, is essential to sustainable development.
  
- National target to be achieved is:
  - Decrease of energy intensity by 50 % by 2020.



# Sustainable energy indicators

## Energy Dependency (1)

Energy dependency shows the extent to which an economy relies upon imports in order to meet its energy needs. The indicator is calculated as net imports divided by the sum of gross inland energy consumption plus marine bunkers. The nuclear energy is assumed to be a local source which is equal to the triple quantity of electricity generated from nuclear plants. Data is collected through a joint Eurostat/IEA/UNECE questionnaire applying high standards with regard to the methodology.

- Unit of measurement: %
- Availability: Data are available for the period 2000 - 2011
- Reference period: Year
- Institution responsible for the development of the indicator: BNSI.

# Sustainable energy indicators

## Energy Dependency (2)

- One of the objectives of the EU sustainable development strategy is that the energy policies of the Member States should be connected with the security of the energy supply. The increasing European countries' dependency on the imports of energy introduces the needs of a decreasing consumption of energy, of using local and renewable sources of energy, diversification of the sources and routes of supply of energy from abroad.



# Sustainable energy indicators

## Share of CHP electricity generation in total gross electricity generation

- Unit of measurement: %
- Availability: Data are available for the period 2004 - 2011
- Reference period: Year
- Institution responsible for the development of the indicator: BNSI.
- The combined heat and power generation or cogeneration is a technology used to improve the energy efficiency through simultaneous generation of heat and power in the same process, using gas turbine with heat recovery. Heat delivered from CHP plants may be used for process or space-heating purposes in any sector of economic activity including the residential sector. CHP thus reduces the need for additional fuel combustion for the generation of heat and avoids the associated environmental impacts, such as CO<sub>2</sub> emissions.

# Sustainable energy indicators

## Share of RES in gross final energy consumption

- The indicator Share of RES in gross final energy consumption was presented as part of the key indicators of Europe 2020.

## Sustainable energy indicators

### Share of electricity from renewable energy sources in gross electricity consumption

- Unit of measurement: %
- Availability: Data are available for the period 2000 - 2011
- Reference period: Year
- Institution responsible for the development of the indicator: BNSI.
- This indicator is defined as a ratio between the electricity produced from renewable energy sources and the gross inland electricity consumption. The share of electricity from RES in Bulgaria is due mostly to the electricity produced from hydro power plants. The trend of change is dependent on climatic factors.



# Sustainable energy indicators

## Energy consumption of transport by mode

This indicator covers the consumption of energy from all modes of transport, with the exception of maritime and pipelines.

- Unit of measurement: 1 000 tonnes of oil equivalent (TOE)
- Availability: Data are available for the period 2000 - 2011
- Reference period: Year
- Institution responsible for the development of the indicator: BNSI.
- Transport demand is closely linked to economic growth. Strong economic growth leads to spending more energy both for production of goods and travelling. The different transport modes have different negative impacts, which is why it is advisable to achieve strong economic growth with slower growth in transport and with enhanced innovation creating more environmentally friendly, safe and energy-effective transport solutions.



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# Thank you for your attention!

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