

# **Capacity and Goals of the Belarusian Entities Providing Innovation Services in the Field of Energy Efficiency and Renewable Energy**

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## **Case Study from Belarus**

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## I. GOALS

- ◆ National innovation policy & system
- ◆ State energy policy of Belarus
- ◆ New challenges at the current stage

## II. CAPACITY

- ◆ Groups of the entities, providing EE & RES innovation services
- ◆ Case examples of capacity of every group
- ◆ Potential areas of EE & RES innovation services in the case of the engineering consulting companies

**I. Goals of the Belarusian Entities  
Providing Innovation Services in the Field of  
Energy Efficiency and Renewable Energy**

# National Innovation Policy & System

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**Law "About the State Innovative Policy and Innovative Activity in the Republic of Belarus" of July 10, 2012.**

Among the tasks of the innovation policy:

- ◆ Integration of the NIS into the global innovation system taking into account the national interests
- ◆ Creating an enabling environment for innovations
- ◆ Development of innovation infrastructure
- ◆ International cooperation in the field of innovative activities

The NIS of Belarus is improved on the basis of the **State Program of Innovation Development**.

**More detailed information:**

<http://www.gknt.gov.by/opencms/opencms/ru/nis/>

# State energy policy of the Republic of Belarus

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The **share of imports** in the total consumption of **primary energy resources** makes about **85%**.

The **share of gas** in the energy mix makes **96%**.

**A key principle of the State energy policy is energy security by:**

- ◆ Energy mix improving through its diversification including maximum RES and local fuels involvement
- ◆ Rational energy use
- ◆ Introduction of energy efficient, clean and secure technologies

# General characteristics of the energy system

## Electricity:

<b>Total installed capacity, MW, including:</b>	<b>10 035 (100%)</b>
- 41 TPPs (12 high pressure)	9 298.2 / 92.7%
- 23 HPPs	26.3 / 0.3%
- 1WP	1.5
- 206 block stations	709 / 7%
Total consumption, billion kWh	38.035
Generation, billion kWh	34.718
Energy import/export, billion kWh	3.826 / 0.508

## Heat:

<b>Total installed capacity, Gcal/h</b>	<b>35.7</b>
Delivery to consumers, million Gcal	34.376 / 50%

## Specific energy consumption:

Electricity – 246.8 g/kWh

Heat – 167.55 kg/Gcal

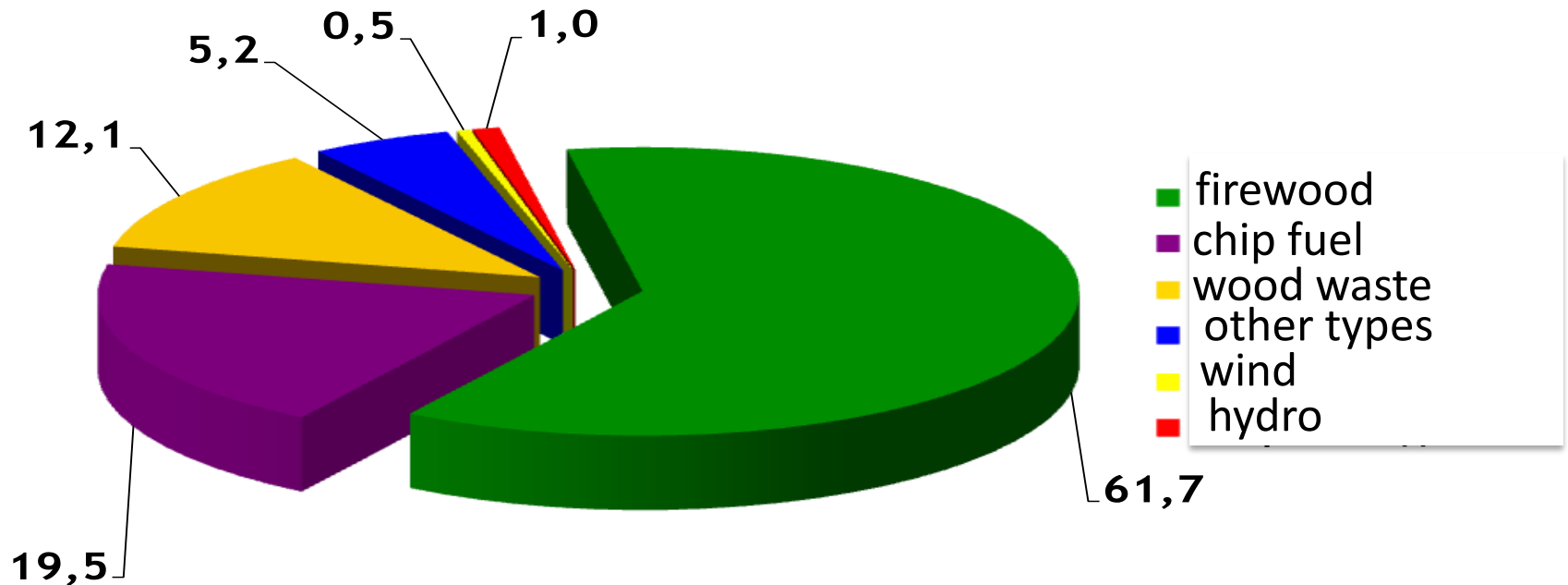
## Gas supply:

100% of cities, regional centers; 11.6% of rural settlements

# RES development

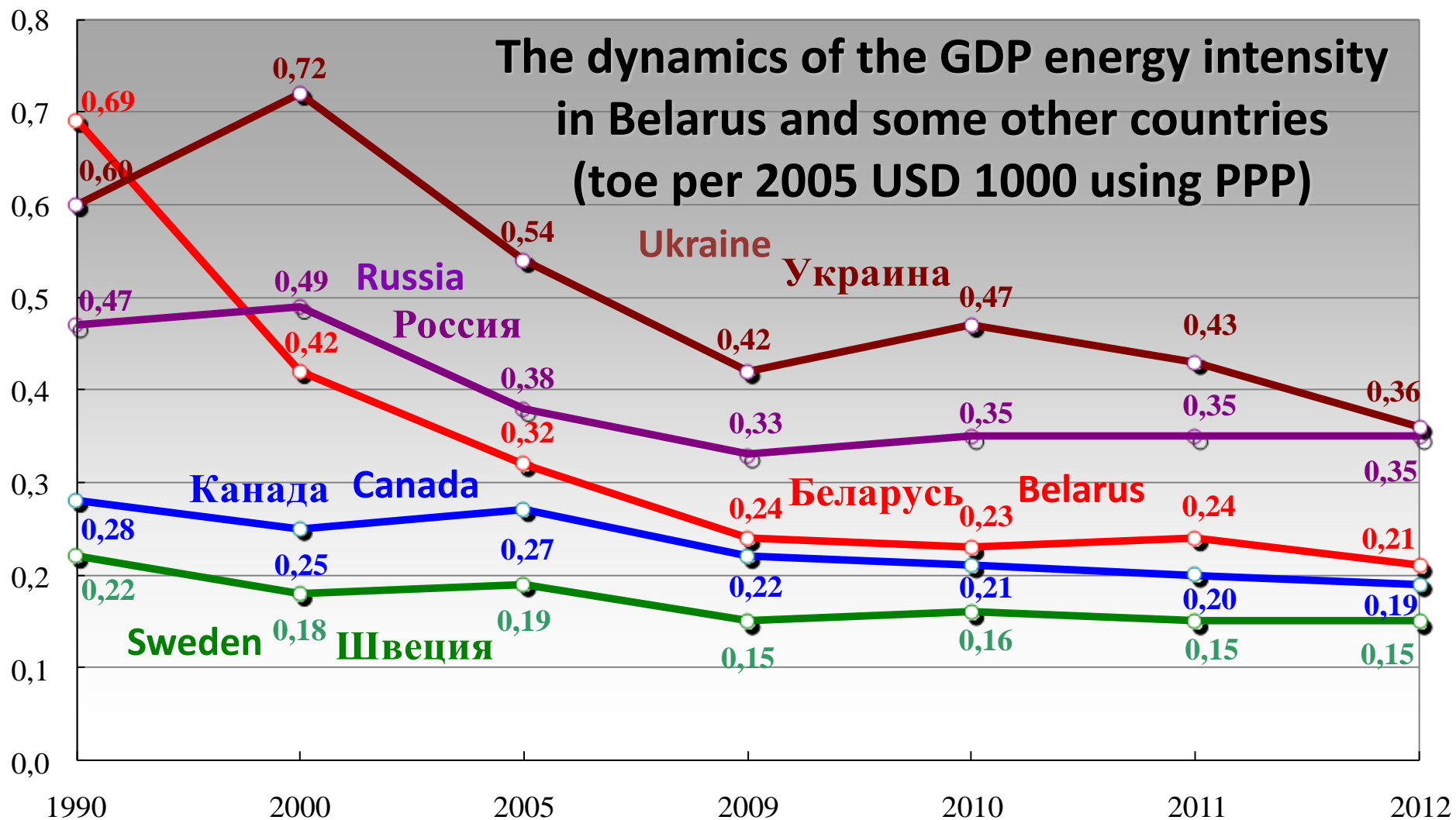
The **RES share** in the total energy consumption - about **5%**.  
The share of the domestic energy resources in the energy mix for heat and electricity generation made **25.9% in 2014 instead 12.8% in 1990**

## RES structure



**By 2020**, it is assumed that the overall RES share will amount **to 6%** in the total energy consumption

# Energy saving policy results



**For 20 years the energy intensity of GDP was reduced from 0.69 toe in 1990 to 0.21 toe in 2012 (IEA data)**



# **New challenges at the current stage**

**Concept of Energy Security by 2035 is developed:**

**The aim is to ensure the energy self-sufficiency of the country.**

**The important areas of the new energy policy include:**

- ◆ **The RES using: wind and solar energy, biogas and hydro**
- ◆ **Improving the EE of the Belarusian economy**

**The basis of policy - the EE & RES innovations**

**New challenges are generation and transfer of new knowledge, creation of favorable conditions for the innovative services development to integrate capacities and efforts of science and business**

## Goals of the Belarusian entities providing EE & RES innovation services

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- ◆ To obtain an additional push to increase the national economy competitiveness and its integration into the global economy on the basis of innovative EE technologies
- ◆ To improve national energy sector through the RES development
- ◆ To get synergistic results through collaboration with the European and East European partnership colleagues.

## II. CAPACITY OF THE BELARUSIAN ENTITIES

Let us take a brief look at the capacity  
of the Belarusian entities providing  
EE & RES innovation services

## **Three groups entities, providing EE & RES innovation services**

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- ◆ **Research institutions, technology transfer centres, technology parks and the entities of the State Committee on Science and Technologies (SCST) of the Republic of Belarus:**
  - Research institutions - Institutes of the National Academy of Sciences of Belarus: the Institutes of Power, of Heat & Mass Transfer; Energy departments of the higher educational institutions
  - 3 centres for technology transfer, including Republican Centre for Technology Transfer (RCTT) with its branches in eight cities of Belarus
  - 12 scientific and technological parks in all regions of Belarus
  - The entities of the SCST: “BellISA”, “Innovation Fund of Belarus (Belinfund)”, others

# Three groups entities, providing EE and RES innovation services

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- ◆ **Engineering consulting companies:** NP LTD “Malaya energetica”, ALC “ENECA”, ALC “Acvaecologiya”, PUE “Energovind”, LTD “Solyaris” and many more.
- ◆ **Associations and public non-government organizations:**
  - **2 associations rendering EE & RES innovation services:**
    - “BelAPE” represents the interests of industrial energy users at all levels;
    - «Renewable Energy» includes 57 members – state, private companies and individual entrepreneurs;
  - **Non-governmental public institutions:** Fund “Ecomir”, OO «Chistaya Usha», «Centre for Environmental Solutions”, IPO “Ecopartnership” and other

# **Fulfilment of the conditions for cooperation in the Horizon 2020 “Secure, Clean and Efficient Energy”**

**Condition 1 – the priorities and interests of the EU and Belarus in the EE & RES policy as a part of sustainable development completely coincide**

**Condition 2 – Proven quite a high capacity of the Belarusian entities in the EE & RES field**

**Condition 3 – Some Belarusian entities have the partners;  
One of the purposes is to find common interests and subjects and invite new colleagues for cooperation**

The Belarusian legislation provides a variety of preferences and tax benefits to subjects of innovation activity and infrastructure, especially in the EE & RES

## **Case examples of capacity of every group**

The following case examples illustrate capacity of representatives from every group of the Belarusian entities including possible areas of future cooperation with EU and EEP colleagues

# Case of the Research Institutions

## Institute of Power of the National Academy of Sciences of Belarus

(<http://ipe.by/>)

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### Structure:

- laboratories “Energy security”, “Renewable energy” and “Energy efficiency”
- sectors “Energy supply of agribusiness industry” and “Energy saving at the enterprises”
- Integrated design department and Centre of collective use for an energy audit

### Areas of activity:

- ✧ Development of the Concept of energy security, forecasting of energy complex of Belarus, scientific support for the state programs on energy, EE & RES
- ✧ Fundamental and applied research in the fields of energy and EE
- ✧ Energy audits and development of specific norms of consumption
- ✧ Training of scientific personnel of higher qualification.

**Participate in international cooperation** (CEU, Lithuania, Poland, Lithuania, Ukraine, Moldova, Russia, Azerbaijan)



# Case of the Technology Transfer Centres

## Republican Centre for Technology Transfer (RCTT)

(<http://ictt.by/eng/>)

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**Primary goal of the RCTT** - promoting cooperation between the developers, entrepreneurs and investors.

RCTT offers wide range of services to innovation activity agents in Belarus and foreign companies and investors.

RCTT has:

- **5 regional branches and offices** in the different towns of Belarus
- **29 affiliates** in a lot of institutions and companies
- **Belarusian Business Innovation Network (BBIS)** through the EEN

Has the partners not only in Belarus but also in Kingdom, Australia, Austria, China, Germany, India and other countries.

# Case of the Technological Parks

## CJSC “Technological Park Mogilev” (TPM)

(<http://www.technopark.by/>)

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The Park structure:

- **Incubator of small innovative business** (support of young innovative business)
- **Business Innovation Centre** (training, presentation, meeting and exhibition facilities, information and consulting services, communication, arranging negotiations)
- **Technology transfer centre** (assistance to finance the projects, analysis of sales markets, search of buyers, representation of interests of companies in the region)
- **Information and advice centre for energy saving** (providing the population with information and consulting in the EE field)

# Case of the Associations

## Association of the industrial power men “BelAPE”

([web-energo.by/belape.html](http://web-energo.by/belape.html))

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**Members of the “BelAPE”** – the industrial enterprises represented by chief power engineers, and also the enterprises and companies specializing on research, design, installation, adjustment works, consulting services, production and supply of equipment, technologies, materials in the field of energy.

### **Main objectives:**

- Consolidation of energy specialists in promoting progress in the areas of management of energy economy of the enterprises, effective use of energy, environment protection
- Representation of the interests of the industrial energy users
- Assistance to develop the national market of the equipment, technologies, materials and services in the energy sector

**Main forms of activity** – organization of congresses, seminars, exhibitions; consulting, international cooperation and services to promote energy production in the Belarusian market; edition of the magazine "Energy and Management", the Reference book "Who is Who in the Energy Sector of Belarus”

# Case of engineering consulting companies

## Energy engineering & consulting company ALC “ENECA”

(<http://www.eneca.by/energetics/>)

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- ◆ **Experience** more than **10** years in the different branches:
  - power engineering, industry, trade, ecology, economy
- ◆ Performs the following kinds of works and services:
  - **Design and adaptation of the projects:** CHP, RES, heat, electrical and gas networks; energy transport and storage systems...
  - **Predesign works:** feasibility studies, calculations of fuel requirements and load, engineering surveys; energy audit...
  - **Economic works:** cost-effectiveness analysis, business plans of investment projects and for new ventures, assistance in fundraising...
  - **Environmental services:** impact assessment, development of the environmental protection, standards for allowable air pollutant emissions, calculations of pollutant dispersion and noise, emission and waste inventories...
- ◆ All the licences and certificates including the international
- ◆ Focuses on innovative technologies
- ◆ More than 100 specialists (about 70 of the top skills) using modern methods and software

# Potential areas for cooperation in the Horizon 2020 “Secure, Clean and Efficient Energy” in the case of the engineering consulting companies

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Function of the **SMEs Instrument in the Horizon** - to support activities closer to market deployment.

## Potential areas of the engineering consulting companies from Belarus:

seamless business innovation support from idea to market  
at the stages of:

- concept and feasibility assessment,
- demonstration market replication R&D,
- commercialisation.

Can be used at the TRL3 – TRL8.

**Thank for your attention**

**Always ready to cooperate with you**

**[www.eneca.by/energetics/](http://www.eneca.by/energetics/)**