

БЕЛОРУССКИЙ ГОСУДАРСТВЕННЫЙ УНИВЕРСИТЕТ

**ГЕОГРАФИЧЕСКИЕ НАУКИ
В ОБЕСПЕЧЕНИИ СТРАТЕГИИ УСТОЙЧИВОГО РАЗВИТИЯ
В УСЛОВИЯХ ГЛОБАЛИЗАЦИИ**

(к 100-летию со дня рождения
профессора Н. Т. Романовского)

**GEOGRAPHICAL SCIENCES
IN REALIZATION OF SUSTAINABLE DEVELOPMENT STRATEGY
IN GLOBALIZING WORLD**

(to the 100th anniversary
of Professor N. T. Romanovskij)

Материалы
Международной научно-практической конференции
25—28 октября 2012 г., Минск, Беларусь

Минск
Издательский центр БГУ
2012

УДК 33:911.3(100)(06)

ББК 65.049я431

Г35

Редакционная коллегия:

декан геогр. факультета БГУ д-р геогр. наук, проф. *И. И. Пирожник* (гл. редактор);
проф. каф. экон. географии зарубежных стран
д-р геогр. наук, проф. *Е. А. Антипова* (отв. редактор);
зав. НИЛ озераведения БГУ д-р геогр. наук, доц. *Б. П. Власов*;
зав. каф. геогр. экологии БГУ д-р геогр. наук, проф. *А. Н. Витченко*;
зав. каф. почвоведения и земельных информационных систем БГУ
д-р с.-х. наук, доц. *Н. В. Клебанович*;
канд. геогр. наук, доц. каф. экон. географии Беларуси
и государств Содружества *Г. С. Смоляков*;
канд. геогр. наук, доц. каф. экон. географии зарубежных стран
Л. В. Фокеева (ученый секретарь)

Рецензенты:

зам. директора Ин-та природопользования НАН Беларуси д-р геогр. наук *В. С. Хомич*;
чл.-кор. НАН Беларуси, д-р экон. наук, проф. *В. Ф. Медведев*

Географические науки в обеспечении стратегии устойчивого развития в условиях глобализации (к 100-летию со дня рождения профессора Н. Т. Романовского) = Geographical sciences in realization of sustainable development strategy in globalizing world (to the 100th anniversary of Professor N. T. Romanovskij) : материалы Междунар. науч.-практ. конф., 25—28 окт. 2012 г., Минск, Беларусь / редкол. : И. И. Пирожник (гл. ред.) [и др.]. — Минск : Изд. центр БГУ, 2012. — 362 с.

ISBN 978-985-553-057-3.

В издании отражены научно-методические и прикладные результаты научных исследований в области современных структурных и региональных сдвигов в мировом хозяйстве, социально-экономической модернизации стран, регионов СНГ и Беларуси в условиях глобализации, демографического развития и социально-демографических рисков стран, современных проблем развития туризма, природно-ресурсного потенциала стран и регионов, геоэкологических аспектов стратегии устойчивого развития.

Адресуется преподавателям, научным работникам, студентам и аспирантам вузов, сотрудникам органов управления.

УДК 33:911.3(100)(06)

ББК 65.049я431

ISBN 978-985-553-057-3

© БГУ, 2012

CURRENT STATE AND UTILIZATION OF NONTRADITIONAL AND RENEWABLE ENERGY SOURCES IN POLAND

Szymańska D., Chodkowska-Miszczuk J.

Nicolaus Copernicus University, Faculty of Earth Science, Toruń, Poland

Introduction

Nowadays, the sustainable development is one of the main patterns of the socio-economic development of particular countries and regions. It is defined as a kind of compromise between the needs of environmental protection and both economic and social needs. One of the effects of implementing the principles of sustainable development is the energy production from renewable sources.

The aim of the paper is to analyse and assess the use of renewable energy sources in the Polish energy balance for the period 2006-2010. In Poland, in according to the Energy Law (1997), renewable energy sources are sources using the processing power: wind energy, solar radiation, geothermal energy, waves power, energy of currents and tides, energy of river gradient, biogas and biomass. Biomass could be divided into forest biomass, agricultural biomass (mainly energy crops, but also consumer waste from the agro-industrial production) and biomass originating from industrial and municipal organic waste (Jasiulewicz 2010).

Energy production from renewable energy sources in Poland

In Poland, in the years 2006-2010, there was more than 44% increase of energy from renewable sources. During the period there was also an increase in the share of energy from renewable sources in total primary energy. In 2006 it amounted to 6.1% of total primary energy, but in 2010 was already 10.2%.

Considering the structure of the renewable energy sources should be indicated that the most important is biomass and also wind energy (Szymańska, Chodkowska-Miszczuk 2011). The advantage of biomass is universality. Moreover, the use of biomass cause reduces the outflow of capital from various countries and regions (Chodkowska-Miszczuk, Szymańska 2011). Importance of biomass, mainly energy crops, also related to the role in the diversification of agricultural activities. Thus, it is not surprising that among the renewable energy sources, in 2010, up 85.4% was biomass. In turn, the largest increase in use was recorded for wind energy. In the years 2006-2010 was 6.5-fold increase in acquisition of wind energy in Poland. It is the wind power the fastest growing sector of energy technology and is one of the most cost-effective renewable energy sources in the world.

Renewable energy sources play an increasing role in **electricity production**. Gross electricity production from renewable energy sources in Poland in 2006 amounted to 4289.5 GWh (i.e. 2.65% of total gross production of electricity in the country). In subsequent years, there has been an increase in production as derived electricity. In 2008 the production amounted to 6442.4 GWh (4.14%), and in 2010 - 11 457 GWh, i.e. 7.3% of total gross electricity production in Poland.

The relatively rapid increase of renewable energy sources in the **heat production** in Poland is noticed. In the period 2006-2010 was more than 3-fold increase in heat production from renewable energy sources. At the same 93% of heat from renewable sources is produced from biomass.

Conclusions

In light of the study states the increasing importance of renewable energy sources in the Polish energy balance. In the years 2006-2010 was more than **2.5-fold increase** in the share of renewables in **electricity production** and more than **3-fold increase in heat production**. The analysis shows that biomass and wind energy are the most important. The use of renewable energy sources is a immense opportunity socio-economic development. Furthermore, their use contributes to the implementation of sustainable development principles and ecological attitudes.

References

1. Chodkowska-Miszczuk, J, Szymańska, D. 2011: Update of the review: Cultivation of energy crops in Poland against socio-demographic factors. In: *Renew Sustain Energy Rev*, Vol. 15: 4242–4247 doi:10.1016/j.rser.2011.07.126.
2. Szymańska, D, Chodkowska-Miszczuk, J. 2011: Endogenous resources utilization of rural areas in shaping sustainable development in Poland. In: *Renew Sustain Energy Rev*, Vol. 15: 1497–1501, doi:10.1016/j.rser.2010.11.019.
3. Jasiulewicz, M. 2010: The potential of biomass in Poland, Koszalin: The Koszalin University of Technology.
4. The Energy Law of 10th April 1997 (Official Journal of The Republic of Poland 1997, No 54, pos. 348).