# NUCLEAR ENERGY IN POLAND FROM REGULATORY AUTHORITY PERSPECTIVE

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## "Energy Policy of Poland until 2025" January 4, 2005

In view of the need to diversify the primary energy carriers and the need to limit greenhouse gases emissions to atmosphere, the introduction of **nuclear energy** to the domestic system becomes substantiated. For this undertaking to be accomplished, social approval is required. Since the forecasts indicate the need to obtain electricity from a **nuclear plant** in the second decade of the period in question, considering the length of the investment period, immediate initiation of social debate on the subject is necessary.

4. Start-up of the first **nuclear power station** around 2021-2022 is projected in all the variants. Earlier start-up is considered not viable due to social and technological reasons, even if the decision on starting the investment preparations were to be taken today.



## Prime Minister Jaroslaw Kaczynski in his inaugural speech to parliament confirmed this policy stating: June 12, 2006

Poland should begin work on plans to construct its first nuclear power plant. Poland will not be in a position at the front of the nuclear renaissance, but should not be at the end. We can follow other countries in EU with developed nuclear industry as France for example.



# Nuclear power (for for electricity production) can observed from perspectives:

- 1. historical (activity in years 1980-2004)
- 2. industry
- 3. regulatory authority
- 4. radioactive waste management,
- 5. public information and acceptance





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Fig. 2. Primary energy consumption per capita in Poland and in EU-15





#### Poland (2004)

#### Structure of primary energy consumption in Poland and in EU-15



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Fig. 4. Electricity consumption per capita in Poland and in EU-15





Fig. 5. Forecast of final electricity demand by economic sectors Base scenario





Fig. 6. Projection of the system load and planned net capacities of existing system sources, Base scenario





Fig. 7. Cost optimal structure of new generating units for the reference conditions of development





Fig. 8. Optimal structure of new generating units for the variant with the limited nuclear construction (3 units by 2030) and without development of new lignite basin (Legnica)



J. Marecki, M. Duda: Why there is a necessity to build Nuclear Power Plants in Poland? NPPP-2006 (paper no 16), June 2006.

# 3 x E aspects:

 energy - necessity to cover the increasing demand for electricity and to ensure security of its supply
economic - structure of the electricity sources which would assure the lowest generation costs
environmental - structure of electricity generation sources with compliance of legally binding environmental requirements



### J. Marecki, M. Duda:

Why there is a necessity to build Nuclear Power Plants in Poland? NPPP-2006 (paper no 16), June 2006.

# **Conclusions:**

- necessity to build nuclear power plants in Poland, in order to ensure the country's energy security and to cover the expected demand for electricity and the construction will be rational from 3 x E viewpoints,
- conditions influencing development of the energy sector (economy, fuel prices, expected CO2 emission costs) justify the beginning of first nuclear plant operation by 2021,
- high investment expenditures for NPPs will limit the possible pace of building the subsequent nuclear units and may cause necessity to build new modern coal fired plants,
- 4) development of nuclear power in Poland will substantially reduce the health hazards for the society



 P. Korzecki, J. Niewodniczański:
Poland: principles for the NPP licensing and radioactive waste management concepts,
NPPP-2006 (paper no 16), June 2006.

Documents required in the situation when the application deals with the activities involving construction nuclear facility are:

- 1) safety report;
- 2) nuclear safety and radiological protection programme,
- 3) description of the principles for physical protection;
- 4) description of the principles of quality assurance;

The detailed content of these document is specified also in this Regulation. These documents should be submitted separately for construction, commissioning and decommissioning.



 P. Korzecki, J. Niewodniczański:
Poland: principles for the NPP licensing and radioactive waste management concepts,
NPPP-2006 (paper no 16), June 2006.

Regulations refer to research reactors and radioactive waste repositories but not to nuclear power plants.

Regulations for NPP has been left open purposefully (depend closely on the chosen design for the NPP)

From the viewpoint of the regulatory infrastructure, Poland is well prepared for the nuclear power programme initiation (nevertheless requires specific complements in case development of nuclear power programme).



S. Latek: The level of support for nuclear energy in Poland, NPPP-2006 (paper no 19), June 2006.

Detailed survey goals - learning opinions on the following issues:

- 1) use of coal as the source of electrical energy,
- 2) use of raw energy materials emitting  $CO_2$ ,
- use of nuclear energy for meeting national energy demands and to reduce CO<sub>2</sub> emissions,
- 4) building NPP in vicinity of the respondent's place of residence,
- 5) use of ionizing radiation in various fields,
- 6) objections to the nuclear power plant construction.



S. Latek: The level of support for nuclear energy in Poland, NPPP-2006 (paper no 19), June 2006.

Information activities for:

- politicians and decision-makers, opinion-makers
- media
- medical and scientific communities
- young people
- electricity consumers
- environmentalist communities.

Information campaign with following issues:

- why nuclear power is and will be a valuable,
- why nuclear power should be developed in Poland;
- nuclear power advantages (environmental, economic and technical viewpoints)
- safety of nuclear reactors
- management of radioactive waste and spent nuclear fuel
- European public attitudes toward nuclear power.



S. Latek: The level of support for nuclear energy in Poland, NPPP-2006 (paper no 19), June 2006.

Promotional activities:

- government agencies,
- interested utilities,
- associations
- educational institutions and research institutes
- public relation agencies
- media.





Example of titles of articles in 2005 Polish press on nuclear power plants construction



#### Badanie akceptacji energetyki jądrowej przez społeczeństwo



#### Wyniki badań w kolejnych latach

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□ YES			NO NO		DON'T KNOW	
U25	37%		55%		8%	
ни		65%		31%	59	
SE	64%		33%		3	
cz -	61%		37%			
LT	60%			27%	13 %	
FI	58%			38%	4	
SK	56%		40%		4	
FR	52%		41%		7%	
NL	52%		44%		59	
BE	50%			48%		
UK	44%		41%		15 %	
SI	44%		54%		3	
EE	40%		50%		10 %	
LV	39%		49%		12 %	
DE	38%		59	%	4	
LU	31%		65%		4	
IT	30%		66%		59	
DK	29%		66%		5%	
PL	26%		66%		8 %	
PT	21%		53%		26%	
мт]	17%		62%		2 1%	
ES	16 % <b>7 1%</b>			13 %		
IE	13% 70%				17 %	
CY 10	%		81%		10 %	
EL 9%	/0		86%		5%	
AT 8%			88%		4	

#### Responses to the question:

"Are you definitely for, rather for, rather against, definitely against the energy generated in NPPs?"

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Andrzej T. Mikulski SEP a współczesna energetyka - 21.06.2006



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# Conclusions

- 1) conditions for developing of nuclear energy in Poland
- 2) need (now or in future) of increasing electricity production
- 3) operation of NPP proved to be safe
- 4) no other choice (in my opinion)
- 5) some base to start construction and operation of NPP
- 6) last moment to start educational programme at our universities based qualified personnel previously involved in construction of NPP Zarnowiec

