



European Commission  
Directorate General Enterprise & Industry



**REPORT FROM WORKSHOP**  
**“A perspective of the Polish energy sector development – a possibility of financing and sources of primary energy demand coverage to 2050”**

held on 01. 02. 2008

Organized by the **INSTITUTE OF POWER ENGINEERING**  
**Warsaw**

*Session Report 1<sup>st</sup> February 2008*



# 1. Main topics discussed on the workshop

## European Strategic Energy Technology Plan (Set-Plan)

- ✓ The EU strategy documents for sustainable, competitive, and secure the Energy sector, a technology plan and a low carbon future,
- ✓ EU Energy priorities and targets to 2020 and 2050,
- ✓ Active methods to achieve EU energy policy targets,
- ✓ European industry initiatives (European Wind Initiative, Solar Europe Initiative , Bio-energy Europe Initiative, European CO<sub>2</sub> capture, transport and storage initiative, European electricity grid initiative, Sustainable nuclear fission initiative ).

## Fuel Cells and Hydrogen Joint Technology Initiative (JTI)

- ✓ The Treaty Establishing the European Community - Art. 171 ,
- ✓ Joint Undertaking – a legal entity established under the Treaty - efficient execution of Community research, technological development and demonstration programmes,
- ✓ Joint Technology Initiatives - instruments proposed specifically within the Decision creating the 7th Research Framework Programme,
- ✓ European Technological Platforms - research and development priorities, timeframes and action plans, at national and regional levels,
- ✓ European Industry Grouping for a Fuel Cells and Hydrogen Joint Technology Initiative.

## Energy forecast of the Polish energy sector to 2050

- ✓ Structure of energy consumption in EU countries and Poland,
- ✓ Energy sources and reserves classification,
- ✓ Reserves of non-renewable energy sources,
- ✓ Main objectives and determinants of the energy policy in Poland,
- ✓ Macroeconomic assumptions for the development - demographic forecast and Growth of the Gross Domestic Product,
- ✓ Forecast of a primary energy balance,
- ✓ The primary energy demand and sources of energy demand coverage,
- ✓ Forecast of a electricity balance - electricity demand, generation and its structure,
- ✓ Development and directions for the subsectors and energy sources; coal mining, oil, gas, electricity industry,
- ✓ CO<sub>2</sub> emission – main issues.

## Financing proecological investments in energy sector

- ✓ Bank of Environmental Protection - Bank Ochrony Srodowiska SA (BOS SA) – briefly presentation,
- ✓ BOS SA experience with financing ecological investments,
- ✓ Environmental effects from tasks provided by a BOS SA credit,
- ✓ Investments in the energy sector – renewable energy, carbon capture and a storage technology, cogeneration, thermomodernisation, etc.
- ✓ Pro-ecological preferential and commercial credits from BOS SA ,
- ✓ BOS SA Polish partners (National Fund for Environmental Protection and Water Management, Provincial Funds for Environmental Protection and Water Management, The Agency for Restructuring and Modernization of Agriculture, etc.)

- ✓ BOS SA's European partner and co-operation with foreign banks eg.: Kreditanstalt für Wiederaufbau, Nordic Investment Bank, Council of Europe Development Bank, European Investment Bank,
- ✓ BOS SA credits procedures and support for pro-ecological actions.

### ***EU innovation policy - The Energy Innovation Financial Network***

- ✓ The EU policy - European Union Council decision,
- ✓ The Lisbon Strategy – III 2000,
- ✓ Innovation characteristics and barriers in the energy sector,
- ✓ Innovation policies in Europe - 7 FP, EU Structural Funds, EU initiatives: PAXIS, Gate 2 Growth, Europe Innova, PRO INNO EUROPE, support for EIC, Joint Research Centers and clusters, established European Institute of Technology,
- ✓ Architecture of the Europe Innova Initiative – budget and activity,
- ✓ Energy Innovation Financial Network – objectives and activity,
- ✓ Access to the financial services for energy innovation projects,
- ✓ The role of a Stakeholder Committee,
- ✓ Designed and developed methodologies, tools and procedures.

### **Roads 2 HyCOM**

- ✓ Assess and monitor the Hydrogen and Fuel Cell technology for stationary and mobile energy applications – project overview,
- ✓ Structure of Roads to HyCom - mapping, analysis and engagement activity,
- ✓ Developing a methodology for evaluating information,
- ✓ General Metrics used to characterise the technology, the infrastructure and communities,
- ✓ Innovation and development actions - H2 vehicles and infrastructure technology, a sustainable H2 supply, fuel cells for CHP and the power generation, fuel cells for early markets .

## 2. Workshop Programme

### Workshop Programme 1<sup>st</sup> February 2008

10.00 - 10.15	<b>Opening of the workshop</b> <i>dr hab. inż. Jacek Wańkowicz, Director of Institute of Power Engineering</i>
10.15 - 11.00	<b>European Strategic Energy Technology Plan (Set-Plan) Fuel Cells and Hydrogen Joint Technology Initiative (JTI)</b> <i>dr Andrzej Sławiński, National Contact Point</i>
11.00 - 11.45	<b>Energy forecast of Polish energy sector to 2050</b> <i>dr Jan Soliński, World Energy Council</i>
11.45 - 12.15	<b>Break</b>
12.15 - 13.00	<b>Financing proecological investments in energy sector.</b> <i>Mgr inż. Anna Żyła Bank of Environmental Protection</i>
13.00 - 13.45	<b>EU innovation policy - The Energy Innovation Financial Network.</b> <i>dr Hanna Bartoszewicz-Burczy, Institute of Power Engineering</i>
13.45 - 14.15	<b>Roads 2 HyCOM</b> <i>Mgr inż. Marcin Błesznowski, Institute of Power Engineering</i>
14.15 - 15.00	<b>Conclusions, questions and discussions</b> All participants

## 3. General Comments on Discussions

In the seminar took part representatives of the Polish Power Industry Sector i.e. The Ministry of Economy and The Energy Regulatory Office, Transmissions System Operator researches (Technical Universities, The Warsaw School of Economics, The Warsaw University of Life Sciences, Institutes), bank and energy companies.

Accordance to EU Set Plan the European Union energy and research policy were presented and discussed.

Key elements of the Polish energy policy should be an energy security, an economic energy supply, a growth of energy efficiency and a friendly environment.

Coal was and will be dominating component of primary energy consumption in the next decades. Considerable increase of oil and natural gas imports will be necessary. Unfortunately, future import of oil and natural gas will cause growth in the country energy dependence from 11% in 2000 to ca. 30-35% in 2030.

The growth of electricity demand and environmental restriction require new clean generation capacity, of which at least in nuclear plants. Significant growth of renewable

energy utilisation is necessary. A primary energy demand forecast and the forecast of electricity balance for Poland were shown, as well.

The environmental protection and necessity to limit CO<sub>2</sub> emissions need broad activities e.g. elimination of old low efficient and highly polluting equipments, construction of nuclear units as well as finding solution for the SO<sub>2</sub> sequestration. In the next decades due to many disadvantages reasons increase of energy costs and prices will be inevitable.

The Bank of Environmental Protection presented a wide range of credit facilities for financing investments in environmental protection. Pro-ecological preferential credits from the resources, or with subsidies of, earmarked ecological funds (National Fund for Environmental Protection and Water Management, Provincial Funds for Environmental Protection and Water Management) and other entities disposing resources for pro-ecological activities. They provide financing for various actions within the innovation projects, within the protection of water, air, and surface of the land, waste economy, protection against noise, and protection of nature.

Pro-ecological commercial credits from the Bank's own resources and in co-operation with external entities (Bank Gospodarstwa Krajowego, manufacturers and vendors of equipment and products serving environmental protection).

These organizations are assigned to finance predetermined pro-ecological activities, i.e.: thermo-modernization of buildings, modernization of lighting, pro-ecological investments carried out in the third-party formula, purchase and assembly of equipment fostering environmental protection, pursuance of infrastructural investments covered by a subvention within the EU programme.

The workshop widened a knowledge of the EU innovative policy and the energy priority as well as EIFN objectives and Europe Innova Networks. A business plan, NPV analysis, Real Option Approach, Montecarlo methodology and other tools were presented by IEn-CENERG. The hydrogen and fuel cells research road were shown as well.

During the Seminar participants took part a very constructive discussion.

***Mrs. Elzbieta Wroblewska – Ministry of Economy***

*According to a SET plan, EU has changed approach to coal. However despite growth in use of alternative energies, coal will remain main energy sources in Poland and could be a strategic reserves for EU for next decades .*

*CCS is important for sustainable energy future. There are number of CCS initiatives in place in EU and Poland, but in apply clean coal technology there are research and economic barriers.*

***Professor Wojciech Nowak - Czestochowa University of Technology***

Professor Nowak stated that technologies and fundamental science for CO<sub>2</sub> capture are well understood and are already being applied. Now is very important to search new innovative technology convert CO<sub>2</sub> to new fuel. For example researches and industry from Japan and Norway have worked for new fuel from CO<sub>2</sub> . He noted that for economic reason we should storage SO<sub>2</sub> together with CO<sub>2</sub> .

***Dr inz. Dariusz Czekański - Warsaw University of Life Sciences***

Coal is attractive energy sources to many countries special the US and China, and large CO<sub>2</sub> emissions is in this countries, but signifiect. financial outlays for renewable and clean coal technologies are in EU.

***Dr Andrzej Sławiński - National Contact Point***

Low carbon technologies is main tendency in EU energy policy.

***Professor Andrzej Pilatowicz - Institute of Power Engineering***

New renewable technologies e.g. biomass could cause energy cost grow, decrease of energy reliability of supplies. In France there is no such a problem, because of high share of nuclear energy in energy balance.

***Mr. Ryszard Nodzynski – Energy expert***

Energy situation in Poland is not good. We need new electric capacity. There are low renewable energy resources and possibilities to use in Poland. Transporting and storage CO<sub>2</sub> demand storage location.

***Professor Marek Jaczewski - Institute of Power Engineering***

CO<sub>2</sub> emission is not only men activity, but mainly connected with increased solar activity.

***Dr Janusz Rakowski - Institute of Power Engineering***

Reducing CO<sub>2</sub> emissions in the EU policy is the main targets. Is a big economy problem in Poland.

***Mr. Adam Voran - Podwodne Systemy Energetyczne SA***

There is no problem to reach the EU renewable targets in all European countries. We have overcome existing barriers.

***Mr. Włodzimierz Charzyński- Institute of Power Engineering***

Main problem with CO<sub>2</sub> storage is lack of storage capacity and location in Poland.

***Dr Hanna Bartoszewicz- Burczy - Institute of Power Engineering***

New EU energy targets 3 x 20 for 2020 bring new targets for Poland.

## **4. Impressions on the Workshop**

The seminary has become a real productive, and a good opportunity to discuss EU and Polish energy policy, the possibility of organising and financing innovation projects in energy sector as well as.

## **5. Speakers**

- Jacek Wańkowicz (Institute of Power Engineering)
- Andrzej Sławiński (National Contact Point)
- Jan Solinski (World Energy Council)
- Anna Zyla (Bank of Environmental Protection)
- Hanna Bartoszewicz-Burczy (Institute of Power Engineering)
- Marcin Błesznowski - (Institute of Power Engineering)

## 6. Lists of Participants

Lp.	Name	Company
1.	Andrzej Piłatowicz	Institute of Power Engineering
2.	Włodzimierz Charzyński	Institute of Power Engineering
3.	Henryk Gaj	Ecofys
4.	Lidia Gruza	Institute of Power Engineering
5.	Elżbieta Wróblewska	Ministry of Economy
6.	Zbigniew Pacek	PSE- Operator SA, Transmission System Operator
7.	Mare Wawrzyszczuk	PSE- Operator SA, Transmission System Operator
8.	Magdalena Rogulska	EC Baltic Renewable Energy Centre (EC BREC)
9.	Zygmunt Parczewski	EnergSys
10.	Wojciech Nowak	The Czestochowa University of Technology
11.	Piotr Jeżowski	Warsaw School of Economics
12.	Grazyna Wojtkowska-Łodej	Warsaw School of Economics
13.	Zbigniew Turlej	Electrotechnical Institute
14.	Dariusz Greloff	The Warsaw Municipal Government Office
15.	Andrzej Chochowski	Warsaw University of Life Sciences (SGGW)
16.	Rafał Korupczyński	Warsaw University of Life Sciences (SGGW)
17.	Dariusz Czekalski	Warsaw University of Life Sciences (SGGW)
18.	Artur Kiszczak	Warsaw University of Life Sciences (SGGW)
19.	Mare Jaczewski	Institute of Power Engineering
20.	Jan Soliński	World Energy Council
21.	Hanna Burczy	Institute of Power Engineering
22.	Anna Żyła	Bank of Environmental Protection (BOS SA)
23.	Marcin Blesznowski	Institute of Power Engineering
24.	Andrzej Sławiński	National Contact Point
25.	Maria Kaska	National Contact Point
26.	Hanna Dytry	Institute of Power Engineering
27.	Urszula Dąbrowska	Institute of Power Engineering
28.	Mare Gonera	Instytut Tele i Radiotechniczny
29.	Tadeusz Dąbrowa	Gmina Piekoszków
30.	Jacek Wańkowicz	Institute of Power Engineering
31.	Lech Dziewiesz	Association of Polish Electrical Engineers SEP
32.	Aleksander Lisowiec	Tele & Radio Research Institute
33.	Janusz Karolak	Institute of Power Engineering

34.	Jerzy Przybysz	Institute of Power Engineering
35.	Edward Anderson	Institute of Power Engineering
36.	Dariusz Dzirba	Oil and Gas Institute
37.	Paweł Obstawski	Warsaw University of Life Sciences (SGGW)
38.	Sonia Jarema-Suchorowska	Energopomiar
39.	Anna Nitarska	Energopomiar
40.	Mare Krawczyński	The Energy Regulatory Office
41.	Adam Voran	Podwodne Systemy Energetyczne - Polska Sp z o.o."
42.	Krzysztof Lipko	EPC SA Consulting
43.	Ryszard Nodzyński	Energy Ekspert
44.	Mare Hryniewicz	Tele & Radio Research Institute
45.	Janusz Rakowski	Institute of Power Engineering
46.	Maciej Knap	The Warsaw University of Technology
47.	Krzysztof Jagiełło	Institute of Power Engineering

Anna Nitarska, Magdalena Rogulska, Hanna Dytry were apologies.