

Memo to Regional Development Commissioner Dr. Johannes Hahn,  
regarding the development perspectives of Western Macedonia on  
the Energy sector



TECHNICAL  
CHAMBER  
OF GREECE

DEPARTMENT OF WESTERN MACEDONIA

Kozani, 24 Okt 2014

## 1. Current status

The Region of Western Macedonia is for almost 60 years, the “Energy Center” of Greece, covering more than 50% of the electricity demand of the country’s interconnected system during the last decade. The main pillar of the region’s electricity generation is the utilization of domestic lignite. It has to be mentioned that Greece was the 3<sup>rd</sup> lignite EU producer in 2012 presenting an increasing trend through the last years as Germany and Poland and holds the 15<sup>th</sup> position, in terms of proven solid fossil fuels reserves, worldwide, while the majority of these reserves are located in the Region.

As concerns the energy sector, the main advantages of the Region of Western Macedonia, are summarized as follows:

- Energy sources, utilization and infrastructure
  - Lignite extraction and exploitation of about 50 million tonnes per year
  - Local lignite reserves are estimated in the magnitude of 1.8 billion tonnes
  - Thermal Power stations with a total installed capacity of 4,330 MW
  - Existence of extensive power transmission networks
  - District heating systems in large urban centers in the region
  - 65% of water resources at national level
- New infrastructure potential development
  - Scheduled development of natural gas pipelines (Trans-Adriatic pipeline TAP)
  - Improved exploitation of domestic lignite, through existing units upgrade and new units commissioning (eg Ptolemais V lignite-fired unit of 660 MW)
  - Opportunities for low carbon economy promising technologies applications such as carbon capture and storage and use
  - Potential for renewable energy applications
- Expertise - Human Resources
  - Accumulated expertise and significant presence of specialized scientific and technical staff in the entire range of the lignite exploitation
  - Consulting and construction companies as well as research institutes are active in the region
- Trans-national “energy center”
  - The Region can undertake the role of an energy platform of the wider area with cooperation with the neighboring countries, Albania and FYROM.

Through the years, local society has achieved understanding and coexistence with the energy large scale industrial activities for lignite exploitation. In conclusion, Region of Western Macedonia presents a significant role in the national electricity production, extensive infrastructure and accumulated know-how and aims to maintain its position as the prime energy region of Greece under the current and forthcoming challenges.

## 1. Problems and challenges

The lignite industry has a strong and multi-dimensional impact in both local economy and labor market at regional level, as illustrated through studies conducted by the Technical Chamber of Greece / Department of Western Macedonia. It has to be mentioned that lignite industry remains the strongest competitor to other alternative economic activities and more than 25% of the regional GDP arises uniquely from the productive activities of the lignite industry.

For each one of permanent staff involved in mining or power plants operation, 3.28<sup>1</sup> positions are created and maintained in the local labor market. For every euro spent by the lignite industry in salaries and contracts, more than three euros in the local economy are inductively resulted. For every tonne of lignite mined in Western Macedonia, the local economy gains cumulatively 23.81 euros, while for every thousand tonnes of lignite 0.45 jobs are maintained. The lignite capacity decommissioning of 300 MW from the region, will deprive the local economy in the magnitude of 83 million euros per year and will cause losses of almost 1560 jobs, mainly not directly connected to PPC SA.

The national and EU targets towards “20-20-20” are strongly effecting the future energy mix and therefore the presence and the future of domestic energy activities and infrastructure. Further to that, existing capacity is facing the sticker emissions limits of the Industrial Emissions Directive, resulting into limited operation or need for environmental investments for a number of incumbent installations. Land reclamation in the active open cast mines is another important issue for the local society, as well as the prospects for future uses.

The regional challenge, is considered to be the establishment of the proper combination of advanced utilization of local energy sources with the development of alternative perspective, towards a viable and prosperous future of the local society. This challenge is linked with the role of lignite in the national energy mix and therefore national strategies and policies should include, in collaboration with the Region of Western Macedonia, all necessary provisions to prevent unemployment, obsolescence of billions of investment, loss of accumulated know-how gained through decades, internal immigration and social and economic disruption of the entire region.

In addition, the Region of Western Macedonia, having the coldest weather during winter around Greece, is facing energy poverty condition<sup>2</sup>, taking also into account the current economic circumstances. Measures and policies towards an extensive buildings energy upgrade as well as financial support of households are needed.

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<sup>1</sup> Estimation of the Western Macedonia Transition Cost to a lower lignite production status, Technical Chamber of Greece / Western Macedonia Department, July 2012

<sup>2</sup> Study of Technical Chamber of Greece / Western Macedonia Department, Feb 2011

Technical Chamber operates as a national coordinator of the Covenant of Mayors Initiative in Greece providing know-how in preparation and implementation of SEAPs.

## **2. Development perspectives**

### **Energy Production Sector**

For the next programming period 2014-2020, towards Smart Specialization and under European funding initiatives for the Region of Western Macedonia the following main development priorities in the energy sector are emerged:

- Clean technologies for solid fossil fuels
- Capture and storage technologies for carbon dioxide
- Extensive use of solid fossil fuels mainly in decentralized combined heat and power systems, with a view of substitution of heating oil in the majority of Western Macedonia region
- Use of solid fossil fuels in high value added products such as fuels
- Management of environmental impacts of mining and restoration of depleted mines
- Utilization of local energy resources, focusing on biomass fuels
- Development of energy storage technologies and smart energy systems

It has to be stated, that aforementioned technological developments are not exclusively related with the utilization of the 1.8 billion tonnes of domestic lignite but are also refer to solid fossil fuels future utilization in the Balkan countries as well as to EU main lignite players, which could significantly contribute to the security of European energy supply, fulfilling also the requirements of climate change mitigation, as well as establishing a good cooperation and trust in the sensitive area of the Balkans.

Key role on the technological development is foreseen for the research organizations located in Western Macedonia, whose research expertise and effort are mainly focused on the enhancement of local energy sources utilization. Namely the University of Western Macedonia, the Centre for Research and Technology Hellas / Chemical Process and Energy Resources Institute and the Technological Education Institute of Western Macedonia are expected to contribute with their expertise and infrastructure to the innovation and technological development.

The new University Campus that is planned to be constructed during the new period 2014-2020, using EU Funds (ERDF), will boost technological innovation and related activities through the Application of Smart Specialization.

### **Transportation Sector**

Western Macedonia region, after the completion of Egnatia Highway is no longer isolated and is connected by a modern and highly specified road network with

neighbouring Greek regions. The basic issue towards the achievement of sustainable road transport in our region is the completion of vertical axes of Egnatia Highway, in order to connect secondary nodes to TEN-T infrastructure.

Technical Chamber of Greece / Western Macedonia Department had repeatedly submitted proposals regarding Florina - Kozani secondary road which connects Greece with its northern borders<sup>3</sup>. Additionally, Technical Chamber of Greece / Western Macedonia Department insisted diachronically in the essential completion of the studies and the subsequent construction of the Road Axis Kozani - Larissa, which will become a decisive transport axis connecting north-western Macedonia with Athens.

Towards the direction of sustainable transport systems, Western Macedonia region lacks effective railway facilities. More specifically, there is a certain need for a new alignment design of the railway network of the region in order to become an alternative to private car use (passenger transport) and to contribute decisively in freight transport of northern Greece and neighbouring countries. New alignment design of the railway network and relocation of its central railway stations must be priority issues of European policy in the transport sector of Western Macedonia region.

Western Macedonia is a region with intense terrain and particularly cold climate but with strategic position in northern Greece. Multimodal transport must become the ultimate goal of transport sector in Western Macedonia region, including modern railway infrastructure and urban and suburban park and ride facilities in order to promote sustainable transport systems.

### **Infrastructure development for the Energy Sector**

A significant drawback concerning the energy upgrade potentials in Greece is related to the reduction and/or delays on the progress of national public investments, mainly due to the current economic situation in Greece. That results into low exploitation of the existing human and technical resources increasing the unemployment rates as well as brain leakage. Technical Chamber of Greece efforts aim to contribute into reversing the current trends, with an amount of 120,000 members, of which 2,200 are active in the Region of Western Macedonia, affording the ability and the means.

### **Discrepancies created by the sole use of GDP in Western Macedonia's classification**

During the new programming period Western Macedonia is classified as one of the Transition Regions based on the per capita GDP indicator (2007–2009), which amounts to 80% of the EU-27 average.

This classification, however, does not reflect the current situation of Western Macedonia since the unprecedented economic crisis affecting the country. The EU should reconsidered Western Macedonia's classification, taking into account the high

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<sup>3</sup> Proposal of Technical Chamber of Greece / Western Macedonia Department, Sep 2011

rate of Unemployment and more specifically Youth Unemployment<sup>4</sup> which is the highest in Greece.

The above classification leads to restrictions in financing which have to be tackled.

The Technical Chamber of Greece, as authorized technical advisor of Greek Authorities, will remain at your disposal for any question and/or information.

Dimitrios Mavromatidis



Chairman, Technical Chamber of Greece / Department of Western Macedonia

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<sup>4</sup> 2<sup>nd</sup> higher position in EU 27 [Eurostat April 2014]