Parliamentary Assembly
Assemblée parlementaire
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COUNCIL OF EUROPE
CONSEIL DE L'EUROPE

Doc. 11740
10 October 2008

Geothermal Energy: a solution for the future?

Motion for a resolution
tabled by Ms Guðfinna S. BJARNADÓTTIR and other members of the Assembly

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This motion has not been discussed in the Assembly and commits only those who have signed it

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Human dependence on fossil fuels for energy consumption causes major environmental, social and economical concerns in Europe and throughout the world. According to the Intergovernmental Panel on Climate Change (IPCC), human beings have contributed significantly to increased levels of CO2 in the atmosphere ever since the onset of the industrial revolution, with subsequent increase in the burning of fossil fuels. This increased carbon emission is likely to cause global warming on a scale that has devastating consequences for our planet and all of its habitants. In addition, fossil fuels are non-renewable and reserves are being depleted, causing great economic and social concerns. Furthermore regional and global conflicts throughout the world are caused by these limited and dwindling resources.

The magnitude of negative environmental, social and economic consequences related to use of fossil fuel depends to a large extent on our ability to make a fast transfer towards clean and sustainable energy systems in Europe and elsewhere. Increased use of clean, domestic energy contributes to economic independence and energy security. As Europe looks for alternative energy to replace the burning of fossil fuels, too little interest has been given to the harnessing of geothermal power even though it is one of Earth´s cleanest, least expensive and most accessible power sources.

With today's technology and understanding, more than 140.000 MW of electric power is believed to be untapped in the world´s high temperature geothermal fields, both in the developed and developing world. Geothermal resources have been located in some 90 countries. In 39 countries, with a cumulative population of over 750 million people, geothermal resources would be sufficient to meet all their electricity needs. Most European countries already have geothermal installations, but only a small fraction of the potential has been developed so far.

The traditional high temperature geothermal areas are typically located on the boundaries of the tectonic plates, in Iceland, Italy, Greece, Turkey, North-, South- and Central America, the African Rift Valley, Japan, Indonesia, Philippines and New Zealand to name a few. Lower temperature geothermal power is found widely, for example in Germany, Central and Eastern Europe, China, and many other countries. Electricity has been generated commercially by geothermal steam since 1913 and it has been utilized on the scale of hundreds of MW for around fifty years. Traditionally, geothermal power plants collect underground energy in the form of hot brine or steam. Geothermal energy efficiency is increased considerably by co-generation plants which produce both electricity and heat, mostly in form of hot water for district heating and other direct uses. There are in addition wide variety of applications for geothermal energy use, including fish farming, greenhouses, soil warming, swimming pool heating, industrial heating, and industrial processing. Heating of buildings requires considerable amount of energy and can easily be done using geothermal power in large parts of the world. This could replace traditional heating sources, including oil, coal or other fossil fuels.

Scientific research and operational experience is fast advancing our knowledge and understanding of geothermal power. Recent findings suggest that the harnessing of geothermal energy can be magnified with certain procedures. For example, scientists at the Massachusetts Institute of Technology (MIT) reported that Enhanced Geothermal Systems (EGS) could open up an additional 100,000 megawatts (MW) of cost-competitive base-load electricity, in the United States (US) alone, by 2050. Experts in the US are optimistic about achieving commercial viability of EGS over the next 10-15 years. In Iceland, a different approach to the generation of geothermal energy is under way. The Iceland Deep Drilling Project (IDDP) examines the technical and economic viability of using deep, unconventional geothermal resources. The IDDP technique is expected to produce more energy from a geothermal well than has been possible in the past by drilling 4-5 km down into the Earth in order to reach temperatures of 400-600°C and a pressure up to tenfold in conventional wells. Various other scientific investigations are under way making geothermal energy a potential major contributor in the quest for clean, sustainable and economically viable energy solution.

With its hydro- and geothermal power, Iceland is now leading in the use of clean and sustainable energy sources. Around 80% of the energy consumed in Iceland is generated through hydro- and geothermal power, whereof geothermal energy is around 55%. The goal of the government is to be the first country in the world free of fossil fuels.

The use of geothermal energy in Iceland is highly cost-effective, reliable, clean and socially important and it has provided an increased quality of life for the inhabitants. That energy production cost is very low, it provides base load power for 24 hours a day and is available throughout peak hours. Geothermal energy is clean, coal produces 35 times greater CO2 emission than equivalent amount of geothermal energy and research is being conducted on procedures to reduce emission from geothermal even further. Finally, the use of geothermal energy produces jobs. In Iceland, the use of geothermal energy has been powerful, with emphasis on house heating, electricity generation for the power grid and industry, green-houses, hot swimming pools and spas, skin-care- and beauty products, heating in industry and various other job creating processes and spin offs. The many uses of a single geothermal resources can make its development very economically feasible.

The Assembly should focus on geothermal energy and its potentials for contributing to clean and sustainable energy systems in Europe.

Signed (see overleaf)

Signed[1]*:*

BJARNADÓTTIR Guðfinna S., Iceland
ALONSO Alejandro, Spain, SOC
DEITTERT Hubert, Germany
DORIĆ Miljenko, Croatia, ALDE
ETHERINGTON Bill, United Kingdom
FALZON Joseph, Malta, EPP/CD
FARKAS Iván, Slovak Republic
GARCÍA PASTOR Eva, Andorra
IVANOV Ivan Nikolaev, Bulgaria
JAKAVONIS Gediminas, Lithuania
JAZŁOWIECKA Danuta, Poland
KOÇ Haluk, Turkey, SOC
KORKEAOJA Juha, Finland, ALDE
LOTMAN Aleksei, Estonia, UEL
LUNDGREN Kerstin, Sweden
MARQUET Bernard, Monaco, ALDE
MEALE Alan, United Kingdom, SOC
MELO Maria Manuela, de, Portugal, SOC
SARIKAS Fidias, Cyprus, SOC
TIMCHENKO Vyacheslav, Russian Federation, EDG
ÜNAL Mustafa, Turkey, EPP/CD
VIS Rudi, United Kingdom
WAALKENS Harm Evert, Netherlands
ZISSI Rodoula, Greece

1. ALDE: Alliance of Liberals and Democrats for Europe
EDG: European Democrat Group
EPP/CD: Group of the European People's Party
SOC: Socialist Group
UEL: Group of the Unified European Left