

## THE DEVELOPMENT OF NUCLEAR ENERGY IN CENTRAL AND EASTERN EUROPE: AN OPPORTUNITY OR A THREAT?

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During the last few years Europe, along with many other countries in the world, has been moving steadily in the direction of developing nuclear energy (to generate electrical power). The measures entailed in the Kyoto protocol and more generally the need to reduce greenhouse emissions is pushing European politicians and the European Commission to find new sources of energy to satisfy the growing demand of European economies. This task should be accomplished, according to the official European Energy Policy, without increasing the level of emissions already produced.

Thus the European Commission is aiming to significantly increase the production of power obtained from nuclear fission in the European Union, on the premise that it does not cause polluting agents and will help to cut Europe's emissions over the long-term. With renewable resources still producing only a small proportion of power, every single country is taking into consideration the expansion of the proportion of its energy obtained from nuclear plants. This is widely seen as the best way to reduce greenhouse emissions in the medium term, without decreasing energy use and therefore economic development in its current commonly accepted sense. East European nations are most interested in developing nuclear energy, partly because of their rapid development requiring higher consumption of power available within a short time, partly because of the Soviet nuclear heritage and in part because those states are weaker vis-à-vis nuclear economical and financial lobbies.

In the EU each member state can decide whether or not to accept the presence of nuclear plants on its own territory. In any case, the framework of the emerging European climate change strategy makes it impossible to ignore the guidelines regarding this strategic issue. Apart from Western Europe, the above mentioned framework has been gladly accepted by Central and Eastern European governments. Moreover, the major political parties in eastern

Europe all endorse nuclear energy production, thus shielding the nuclear projects already approved from possible institutional changes which may happen in the future.

In this political, economic and geographic context there is talk of a “nuclear renaissance” following the sector’s decline after the Soviet collapse. Almost all central and east European countries are thinking about upgrading existing Soviet era reactors or building new ones in the short-medium term. There are five countries directly involved in this “renaissance”, with three more states considering or implementing projects that are still on paper. These include Romania, Russia, Poland, Slovakia, Bulgaria, Lithuania, Estonia and Latvia. These countries see nuclear energy as a possible partial solution to their growing energy demands and a way to satisfy the ecological requests coming from Brussels. This trend could mean an opportunity for the east European member states, but at the same time the “nuclear revival” brings up a number of disturbing and largely unanswered questions. Following are some of the critical points underestimated by political and economical elites in the EU and by the governments of the states committed to increasing or maintaining nuclear energy in the upcoming years.

The first element to be considered is plant safety. Although the latest generation of reactors is quite safe, we cannot underestimate problems which could arise due to external factors such as extensive arson (see the Russian case in August 2010) and large, sudden flooding (happening more frequently and more intensely every year in central Europe). Moreover, as for all things man-made, failures should be anticipated before building and operating something (see the Gulf of Mexico case in the summer of 2010). In view of the huge potential risks and very expensive investment required, the forecast energy gain is comparatively small. In fact the costs of a leak or accident would be so big and long-lasting that they are hardly conceivable in terms of money, public health and environmental damage. On the other hand the contribution in terms of energy produced by nuclear fission would be in the best of cases only 20%-30% of electrical consumption (therefore not 20% of total energy use) in the above mentioned countries.

The second factor to consider is dependence on energy imports. To partially replace oil and gas imports for the countries of central and eastern Europe, uranium (for reactor fuel) would be bought from foreign nations often thousands of kilometres away. This not only implies that energy demand will continue to be dependent on imports from abroad, thus deepening, if possible, these states’ high energy dependence on imports, but (apart from the extremely high security threats during transport) there is also an added amount of CO<sub>2</sub> emissions caused by the transport and enrichment of uranium by exporting countries, in addition to the destructive mining operations required to extract uranium.

A third crucial aspect is the high costs of operating nuclear power plants. All nuclear plants in the planning or construction phases are made possible by large public grants. Tens of billions of euros are currently committed to the construction and maintenance of nuclear power plants in Europe. This is much more than what is left to improve energy efficiency policies. A vast

upgrade of east European countries' electrical and production infrastructure would be cheaper (if environmental costs are counted) and the resulting savings would make up for the electrical energy supplied by a full-size nuclear plant. Furthermore, the treatment and disposal of radioactive waste is not only difficult and dangerous, but very costly. These costs are both financial and ecological, though usually they are not taken into account in the construction plans. In the end the cost-benefit outcome is negative, given that the same amount of money (approximately 7 - 8 billion euros for constructing a plant, plus the recurrent storage of waste) could be invested in renewable sources of energy and power savings. These are expanding market sectors, which will be economically and geopolitically important in the future. On the other hand nuclear plants will leave a heritage of costly and hazardous waste management and safeguarding. Is it right to burden present and future generations for hundreds (if not thousands) of years with unforeseen safety issues and the high costs of nuclear storage sites in conditions of possible future regional and international instability? Considering the monetary and environmental expenses entailed in nuclear fission, the whole process can be considered unviable.

A fourth and final reflection should be made about water and its essential role for human existence, particularly in reference to the future. As we all know every year water reserves are becoming more important for states and regions, both due to the pollution of fresh water and predicted imminent shortages. Nuclear reactors use huge quantities of water (mainly fresh water) to cool reactor structures and some of their parts. It is not by coincidence that possible sites for the construction of nuclear plants in central-eastern Europe are in areas rich in this most precious natural element. Once again, the risks and enormous costs (possibly also human) of using fresh water for this purpose are far higher than the expected benefits (a non-determinant source of electricity).

The countries of central-eastern Europe are undervaluing the environment-friendly options necessary for an economically and environmentally sustainable energy policy to address long term challenges and collective needs instead of short term profits.

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