



***Macedonia Needs a Power Plant:
A Reality or Near Future***

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Introduction

George Soros, in one of his talks delivered in 90ies, predicted a big crisis for the world. Later on when nothing of that sort happened he realized his mistake and clarified that it was due to the fact of not taking the internet into consideration. He further said it was the internet which prevented such crisis. How was that possible? Because the internet brought a new concept of economy. It became a totally new source for financial power, thus rendering Soros' big crisis theory void. His own remark on his theory's failure, nevertheless, showed how true his comment on the power of internet was.

Huntington's theory of 'Clash of Civilizations' has attracted wider international public attention. Even those who did not believe in such theory did not neglect taking precautions for their own safety and wellbeing. However, when looked at what is happening today all around the globe, the number of those who actually believe in this theory is not very few either. Perhaps one day Huntington himself will realize his mistake. But will he confess it courageously the way Soros did?

Since 1990s the world begun to see changes that had global effect. Global changes had to do with political systems, economies, financial structures, and security systems. Wave of globalization forced many people to conceptualize changes with global dimension in order to comprehend possible future impacts. Fewer predicted global warming as potential threat for the planet. None emphasized enough irreversible nature of climate change. The future of planet was left on the hands of country negotiators discussing ways to better address climate change, which has proved unsuccessful to disqualify the statement of Thomas Friedman that is 'It's too late for our generation'

Climate change or more accurately global warming, according to natural scientists is a phenomenon which has a deep impact upon the entire world. This is the most serious danger that the world has ever encountered. It has first caused climate change, which will be followed by a shortage of water supplies. According to some extreme views, this might even lead to the end of humanity. If this is the case then instead of clash of civilizations as pointed out by Huntington, the humanity will need to find ways to save our civilization. Pressing question is how we can save the planet?

The answer is clear. We should definitely struggle against the global warming. This could be done by stopping the use of fossil fuels as our energy sources. We cannot deny that technology and industry need energy in order to function. Therefore, for the last few years the attention has been drawn to alternative energy sources which will substitute fossil fuels. Nevertheless, since these alternative energy sources will depend on the development of necessary technology, we have not reached the required aim yet. We still continue using petrol and other fossil fuels that is further to lead to global warming.

The best possible way to avoid such scenarios at the moment is the nuclear energy. Although the first mention of it will remind us of Chernobyl and nuclear weapons, it is the only alternative we have at the moment. If used for peaceful purposes nuclear energy is able to save the world. The focus has been very much on this source of energy recently. For instance, the initiatives to build nuclear power plants all around the world, including in European countries, is the best indicator for this.

The aim of the present study is to show that, strategically speaking, Macedonia is in need of building a nuclear power plant and that it stands as important location for building the nuclear centre which will meet the needs of Western Balkans and even wider region of Southeast Europe. The following section examines the advantages and disadvantages of nuclear as compared to other sources of energy. The final

section concludes with a proposal for building a nuclear power plant in Macedonia as the only long-term solution to the energy crisis in the region.

Why Nuclear Energy

The renewables such as solar, wind, geothermal and biomass power deserve strong support for their potential to generate clean electricity and to contribute towards environmental mitigation. However, as contrasted to our vast energy demands which have an increasing trend for the future, what one should take into account is that the summative capacity of these technologies for electricity production has a modest potential and is hardly comparable with the volumes of electricity obtained from nuclear and fossil fuels. As advocated by the International Energy Agency projects even with continued subsidy and research support, these new renewables can only provide around 6% of world electricity by 2030.¹

In the pursuit to meet the energy demands, many of the countries inclined to the extensive deployment of fossil fuels in addition to their already existing nuclear energy capabilities. This is a case in France, Belgium, Taiwan, Switzerland, Germany, Japan, US, UK and other countries.² If we were not to include the nuclear energy as an alternative energy source, there would be a naive continuation with fossil fuels getting exploited maximally, whose reserves are anyhow time-limited and which produces vast amounts of carbon dioxide, sulfur oxides, nitrogen oxides gases being inevitably dumped into the atmosphere.

On a quantitative basis, for the same amount of electricity produced the requirement of uranium is much smaller than that of the fossil fuels. The spent nuclear fuel which is primarily in the form of a solid waste is kept under control throughout the generation process until it is being disposed and there is no

¹World Nuclear Association, *Realism about Energy*, <http://www.world-nuclear.org/why/cleanenergy.html>

²International Nuclear Safety Center, *Maps of Nuclear Power Reactors*, <http://www.insc.anl.gov/pwrmaps/>

emission of any ashes and particulates. The elimination of airborne dangers comprises its greatest environmental benefit. The main concern of every notion of the nuclear energy as an alternative energy source comes from the radioactivity of its waste.³ Even though the fossil fuels produce harmful solid wastes as well, the drawback of the same amount of nuclear waste is that it represents a higher environmental cost. In fact an average nuclear plant generates considerably smaller and better controlled waste quantities.

Currently a lot of research is devoted for exploring the aim of managing the waste and its potential utilization for further use. There are many efforts for employment of a comprehensive technology that would include full actinide recycle. At this point, when countries are unable to firmly decide for the desirable stream and better environmental gain out of two unwanted evils, there is nothing left except to stand for the one having more worthwhile gains such as the amount of the overall electricity produced and the lesser waste stream aggregate. By far this is certainly the nuclear energy.

For a successful implementation of the nuclear technology, a significant government involvement is being essential due to the concerns of safety, proliferation and waste. It is certainly a task requiring long term commitments. In addition, a lot of academic support and leadership ought to be readily available via providing national academic program in order to enable both the efficiency and efficacy of the future power plant. As in average it takes roughly 15 years for building a nuclear power plant, sustaining public acceptance and support is critically decisive for the establishment of a nuclear power plant.⁴

The nuclear power stands well in coordination with the greenhouse gas management strategy due to its capability to meet future energy needs without

³ H H Dam, D N Reinhoudt and W Verboom, *Multicoordinate ligands for actinide/lanthanide separations*, Chem. Soc. Rev., 2007

⁴ *Considerations to Launch a Nuclear Power Programme*, International Atomic Energy Agency: 07-11471, pg. 3-4.

emitting carbon dioxide and other atmospheric pollutants.⁵ The abundance of the uranium fuel, which is the generator of the nuclear power, could contribute towards reducing the dependence on imported fossil fuels. That is why the nuclear power is back at the top of the political agenda in the EU and the world, in the need of achieving security (sustainability, reliability and affordability) of energy supply.⁶ Additional causes are also the arising oil and gas prices as well as the decreasing fossil fuel reserves. The main causes for eroding the enthusiasm in building new power stations were certainly the lethal accidents, spiraling decommissioning costs and the nuclear waste problem.

A solution for the Macedonian Energy Defficiency - Nuclear Power Plant

Planning and deciding on the most beneficial investment sphere is one of the most important goals for the government as is the practice with the adoption of its Public Investment Programmes. Witnessing the success of several countries in various economic fields, Macedonia has begun to approach different methods to achieve and even surpass that success.

However, the overall policy for appropriately handling the budgetary expenses, has not been at the required level. Rather than budget revenues being spent on skillfully devised activities and public investments, they go for the repayment of the country's debts, earlier than provided deadlines. Consequently, this leads to what is considered to be one of the most eminent problems in Macedonia, i.e. unemployment. By all means the chain will not stop here. Unemployment brings poverty and low growth.⁷

⁵ *The Future of Nuclear Power- Summary report*, An interdisciplinary Massachusetts Institute of Technology Study 2003, pg. 6

⁶ *Meeting The Energy Challenge A White Paper On Energy*, UK Department of Trade and Industry: CM 7124, Section 5.5 – Nuclear Power

⁷ *In-depth Review of Energy Efficiency Policies and Programmes - Macedonia 2007*, Energy Charter Secretariat 2007, pg. 7-8,

One of the possible answers lies in the nuclear power plant. With the construction of the latter, at least the electricity requirements for Macedonia would be satisfied. A generator of this kind and potential would provide with abundance the overall electrical and energetical needs. It would be an ideal solution to the well established electricity hassle. Bulgaria would be a typical example for running a nuclear power plant, even though the obsolete technology led towards its closure (as urged by the EU).⁸

Troubles in coping with hydro and electrical capacity are also evident in the neighboring countries. A unique advantage of Macedonia is its central spanning in the West Balkans, making it strategically convenient. This could lead towards winning a wider support for the Macedonian government and the attraction of investors. As every big step, this would certainly bring severe critics. Is the nuclear power plant advantageous enough to succeed in convincing the skeptics? Some other means of renewables are the wind and solar energy. But these sources in addition to the fact of being expensive, do not provide sufficient quantities of energy and certainly not in the circumstance of every day providing increasing energy needs.

For a long period of time, the setting up of a new nuclear power plant eroded interest. Relying upon an improved technology, the European Parliament has brought the building of new power plants back into the scheme of interests. The expenses for this type of a power plant have a rising tendency which our government cannot provide at the present state. Therefore attempt are to be made in order to get the support from both the EU and USA. Accordingly, a well developed strategy and politics ought to be advanced.

Once Macedonia gets invitation for NATO membership and starts the accession talks with the EU, the developed world where a nuclear technology is professionally exploited and is being prioritized in the energy production,

⁸ *Early Soviet Reactors and EU Accession*, Australian Uranium Association, <http://www.uic.com.au/nip56.htm>

wouldn't be out of reach. The decision for this opportunity will need a lot of preparations as well as a devoted work. Many internal political conflicts will be avoided and the energy produced will be utilized for the country's benefits. On the other hand the thoughts and judgements that the nuclear energy and the nuclear power plants can bring a lot of natural hazard circumstances are only due to the low public knowledge and the lack of information. The application of modern technologies provide the way to overcome any harmful side effects.

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