FOURTEENTH CONGRESS OF THE REPUBLIC)
OF THE PHILIPPINES)
Second Regular Session)

8 OCT -7

SENATE
S. B. No. 2665

Introduced by Senator Miriam Defensor Santiago

EXPLANATORY NOTE

The Constitution, Article II, Section 16 provides:

> The State shall protect and advance the right of the people to a balanced and healthful ecology in accord with the rhythm and harmony of nature.

National and international science academies and professional societies have assessed the current scientific opinion on climate change, in particular recent global warming. These assessments have largely followed or endorsed the Intergovernmental Panel on Climate Change position that *"An increasing body of observations gives a collective picture of a warming world and other changes in the climate system... There is new and stronger evidence that most of the warming observed over the last 50 years is attributable to human activities."*[1] A major part of these activities takes the form of fossil fuel burning to generate electric power.

Adverse air quality is lethal to a variety of organisms including humans. Ozone pollution can cause respiratory disease, cardiovascular disease, throat inflammation, chest pain, and congestion. Sulfur dioxide and oxides of nitrogen can cause acid rain which reduces the pH value of soil. Soil can become infertile and unsuitable for plants. This will affect other organisms in the food chain. Smog and haze can reduce the amount of sunlight received by plants to carry out photosynthesis.

Faced with all of these problems regarding the generation of energy and its repercussions, nuclear energy presents a viable alternative. It has one of the lowest

[1] http://www.grida.no/climate/ipcc_tar/wg1/index.htm

impacts on the environment of any energy source because it does not emit air pollution, isolates its waste from the environment and requires a relatively small amount of land. Nuclear power plants generate about 20 percent of U.S. electricity. By substituting for other fuels in electricity production, nuclear energy has significantly reduced U.S. emissions of nitrogen oxides, sulfur dioxide and carbon dioxide. The amount of nitrogen oxide emissions that nuclear plants prevent annually is the equivalent of taking more than 51 million passenger cars off the road. Also in 2006, U.S. nuclear plants prevented the discharge of 681 million metric tons of carbon dioxide into the atmosphere. This is nearly as much carbon dioxide as is released from all U.S. passenger cars. Nuclear power plants do not burn anything when producing electricity, so they do not produce combustion byproducts—such as nitrogen oxides, sulfur dioxide and carbon dioxide.

More than 400 nuclear power plants worldwide produce 16 percent of the world's electricity—while reducing carbon dioxide emissions by more than 2.6 billion metric tons per year. The nuclear power industry relies on Uranium for its fuel. The existing Uranium in the world can last for many centuries even at increased rates of consumption.

The Bataan Nuclear Power Plant, capable of producing 620 megawatts of power, is enough to power the islands of the Visayas. If made to operate, it can meet twenty percent (20%) of our expected shortfall of three gigawatts of energy by 2012. If allowed to run, the electricity production costs of this power plant will be cheaper per kilowatt hour compared to oil-fired thermal, coal or natural gas plants. The average generating cost of the industry in the United States is at USD $0.0166 or around PhP 0.73 per kilowatt hour at an exchange rate of P43 to a dollar. This already factors in the cost of waste disposal. The uptime reliability of nuclear power is more than ninety five percent, a rate unmatched by other power generating technologies.

With regard to safety issues, the plant site was studied for eleven years prior to its purchase. It has also been evaluated by the International Atomic Energy Agency and has been found to be made in accordance with their guidelines. The design of this plant is not uncommon. It has a design shared with other power plants in South Korea, Slovenia, Brazil and the United States all of which have impeccable safety records.

Given the increasingly prohibitive costs of the present sources of energy and the unreliability of wind, solar and other alternative sources, there is a need to revisit and utilize the nuclear power option. This bill seeks to address the problems of global warming and shortfall in the electric generating capacity of the country in 2012 by re-commissioning the Bataan Nuclear Power Plant.

MIRIAM DEFENSOR SANTIAGO

FOURTEENTH CONGRESS OF THE REPUBLIC)
OF THE PHILIPPINES)
Second Regular Session)

8 OCT -7

SENATE

RECEIVED BY

S.B. No. 2665

Introduced by Senator Miriam Defensor Santiago

AN ACT
MANDATING THE IMMEDIATE RE-COMMISSIONING AND COMMERCIAL OPERATION OF THE BATAAN NUCLEAR POWER PLANT

Be it enacted by the Senate and the House of Representatives of the Philippines in Congress assembled:

SECTION 1. *Short Title.* – This Act shall be known as the "Bataan Nuclear Power Plant Re-commissioning Act of 2008."

SECTION 2. *Mandate & Authority to Re-commission* – It is hereby mandated and authorized that the immediate re-commissioning and commercial operation of the Bataan Nuclear Power Plant (BNPP) shall be undertaken by the National Power Corporation (NAPOCOR), in consonance with its mandate under R. A. 6395, Series of 1971. This vested mandate and authority shall be under the direct supervision and control by the Department of Energy and regulations and safeguards by the Philippine Nuclear Research Institute (PNRI), or the subsequent governmental agency mandated to oversee the licensing and regulations of a nuclear power plant. The NAPOCOR may spin-off portions of its organization which are presently overseeing the preservation and maintenance of BNPP, its engineering, technical and administrative staff to a subsequent government owned corporation to further hasten and streamline the re-commissioning process of the nuclear plant.

SECTION 3. *Warranty over Mechanical & Civil Portions including the Nuclear Steam Supply System* (NSSS) *and Balance of Plant Equipment (BOP)* - The NAPOCOR, after thorough assessment, evaluation, maintenance, repair, replacements, rehabilitation or upgrades, necessary for the Mechanical & Civil Portions including the Nuclear Steam

Supply System (NSSS) and Balance of Plant Equipment (BOP) shall warrant that the BNPP conforms to the Philippine nuclear industry standards as of 1 July 1986.

It must also retain and/or include modifications to allow all US Nuclear Regulatory Commission rulings regarding operating guideline revisions pertinent to "the Three Mile Island" nuclear accident. Where applicable, subsequent operating guideline revisions shall also be made as regards the series or model of nuclear plants to which the BNPP belongs.

SECTION 4. *Warranty over Instrumentation and Control (I & C) Equipment* - The existing main instrument and control equipment may be scrapped, selectively or in whole as needed. The NAPOCOR or the subsequent government corporation shall also ensure that the Instrumentation and Control (I & C) portions, i.e. electronic controls, sensors, and data communication systems (servo drives and actuators - non-mechanical) are modernized according to the latest state of the art equipment standards in the nuclear power industry as of the date when this Act shall take effect. Digital systems should be employed similar to the upgrades being implemented by old nuclear plants implementing improvements of its I & C systems, but only applicable to the series or model of nuclear plants to which the BNPP belongs, where applicable. Such systems must also be mature, stable, and well accepted (in prior mainstream use) by the western nuclear power industry.

Should there be a delay in the implementation of this Act, then, in no case shall any I & C equipment be installed that will be greater than or equal to ten (10) calendar years into its product life cycle, i.e. the commercial launching date of the product. The reckoning date for these products age will be computed from the date of re-commissioning of the BNPP.

Such upgrades in the I & C equipment should already include all revisions and guidelines pertinent to the Three Mile Island and Chernobyl accidents, but only applicable to the series or model of nuclear plants to which the BNPP belongs, where applicable.

Nothing in this section shall be interpreted as giving the NAPOCOR or the subsequent government corporation the blanket authority to implement, apply or institute physical changes or other operating guidelines not otherwise applicable to the series or model of nuclear plants to which the BNPP belongs.

SECTION 5. *Hiring of Technical Personnel* - Upon the enactment of this Act, the NAPOCOR or the subsequent government corporation shall forthwith hire, recruit, and/or engage the services of the necessary skilled manpower for the management and operation of all the technical aspects of the plant.

For the first ten years of operation, the Philippine nationality requirements for the filling up of the technical, supervisory and managerial positions required by the plant shall be suspended.

SECTION 6. *Development of Local Skilled Manpower* - The NAPOCOR or the subsequent government corporation shall implement a program for training, cultivating and developing a pool of necessary local skilled manpower for the management and operation of all the technical aspects of the plant and for a future nuclear power industry.

The University of the Philippines is hereby mandated to offer courses in nuclear engineering and nuclear plant operation.

A separate budget for hands on training, simulator training and/or further academic training abroad of operating personnel shall be allocated, chargeable against government revenues generated from all power generating and power distribution entities, and shall be of a magnitude that is of a substantial percentage if not equal to the BNPP manpower budget.

SECTION 7. *Compensation/Salary Rates* - The state is authorized and empowered to pay competitive rates which is defined as the average between the United States, Canadian (denominated in U.S. Dollar) and France-based (denominated in Euro) rates for technical personnel in managerial and supervisory positions, and half of the

average rate of the United States, Canadian (denominated in U.S. Dollar) and France-based (denominated in Euro) rates for technical non-supervisory position.

SECTION 8. *Allocations for Disposal of Spent Fuel and Decommissioning of the BNPP* – In the operation of the plant, the NAPOCOR or the subsequent government corporation shall allocate as a sinking fund U.S. ¢ 0.1-¢ 0.2/Kwh to cover the expenses for the future decommissioning of the plant at the end of its operational life. NAPOCOR or the subsequent government corporation shall also allocate U.S. ¢0.1/Kwh for costs of radioactive waste disposal and spent fuel disposal program of BNPP.

Upon collection of fees for its product, the BNPP shall turn over the said funds to the National Treasury on a monthly basis. The said fund shall then be converted at the first day of every month into hard currency, which is defined as a fifty percent (50%) mix of U.S. Dollar and Euro.

These funds shall be under the custody of the Treasurer of the Philippines.

Disbursement and fund management shall be governed by implementing guidelines to be agreed upon by DOE, NAPOCOR or the subsequent government corporation, PNRI and the Department of Finance. These institutions will exert their utmost effort to ensure that the value of the fund is not eroded. These institutions shall also ensure that the funds earn at least the market rates of interest in dollar or euro currencies, if not better.

The disposal of radioactive wastes may be through a local scheme to be worked out by Congress or through an IAEA recognized re-processor. The account for the funds shall be called The BNPP Spent Fuel Disposal Fund (BSFDF). The BSFDF can only be utilized for final disposition of spent fuel.

The account for the funds set aside for the purpose of decommissioning the plant and making safe the plant site at the end of its operating or physical lifetime of forty years shall be called The BNPP End of Life Decommissioning Fund (BELDF).

SECTION 9. *Reuse of Reprocessed Fuel* - Reprocessed Fuel may be reused by the BNPP, provided that in such a case, the BNPP Spent Fuel Disposal Fund shall not be utilized.

SECTION 10. *Definition & Extension of Operational Lifetime* - The operational lifetime of the BNPP shall be defined as forty (40) years from the date of its commercial operation.

Extension of the defined operational lifetime of the BNPP may be granted by the PNRI or the subsequent governmental agency tasked to perform the licensing and regulations of nuclear power plants in the country at the time of application for the extension of its operational lifetime. Provided, that the duration of the extended operational lifetime does not exceed twenty (20) years per extension.

Such an extension of BNPP's commercial life is to be determined by the technical realities of the day, and the prior experience of license extensions for similar plants operated in Canada, the U.S. and France.

SECTION 11. *Emergency Evacuation Plan* - The NAPOCOR shall establish an emergency evacuation plan within the prescribed boundaries around the plant in accordance with the regulatory requirements of PNRI.

SECTION 12. *Cost of Rehabilitation* - The NAPOCOR shall endeavor to complete this mandate at a cost that is substantially below one half of the cost of a brand new coal fired power plant of equal capacity. Under no circumstances shall the cost exceed the price of a brand new coal fired power plant of equivalent power generating capacity.

SECTION 13. *Mode of Re-commissioning* - The President through the DOE or a subsequent agency which may be created by the President or Congress is hereby given the authority to determine and decide the mode by which the mandate of this Act is to be

attained, as long as the conditions provided for in the preceding sections are met. Such mode may be by administration, and/or by contract to rehabilitate but not to operate.

SECTION 14. *Implementing Rules and Regulations* - The Secretary of Energy, in coordination with the President of the National Power Corporation and the Director of the Philippine Nuclear Research Institute, shall promulgate the necessary rules and regulations for the effective implementation of this Act.

SECTION 15. *Oversight Committee* - An Oversight Committee is hereby created which shall be composed of Chairmen of the Committees on Energy of the Senate and the House of Representatives and four (4) additional members from each House to be designated by the Senate President and the Speaker of the House of Representatives, respectively. The Oversight Committee shall monitor and ensure the proper implementation of this Act.

SECTION 16. *Appropriations* - The amount necessary for the initial implementation of this Act shall be charged against the appropriations of the Department of Energy under the current General Appropriations Act, or appropriated and covered by NAPOCOR or subsequent government corporation in its annual budget. Thereafter, such sum as may be necessary for its full implementation shall be included in the annual General Appropriations Act as a distinct and separate item.

SECTION 17. *Separability Clause.* – If any provision, or part hereof is held invalid or unconstitutional, the remainder of the law or the provision not otherwise affected shall remain valid and subsisting.

SECTION 18. *Repealing Clause.* – Any law, presidential decree or issuance, executive order, letter of instruction, administrative order, rule or regulation contrary to or inconsistent with, the provisions of this Act is hereby repealed, modified, or amended accordingly.

SECTION 19. *Effectivity Clause.* – This Act shall take effect fifteen (15) days after its publication in at least two (2) newspapers of general circulation.

Approved,