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Environmental sustainability has emerged as an imperative for businesses operating in the 21st century. This is due to the dangers beset by the continued environmental degradation and the dangers wrought by modern day technology. The Fukushima Daiichi Nuclear Power plant accident that occurred slightly over two years ago in Japan presented serious and devastating effects to the inhabitants of the region and the situation has not been fully remedied to date. Nuclear power has emerged as a key option for several countries providing energy needs in the 21st century. In particular, nuclear energy is preferred as it has the capacity to improve energy security and mitigate the impact of volatile fossil fuels' prices besides reducing the harsh effects brought by climate change. As a consequence, this paper seeks to examine the environmental sustainability measures and principles engaged by the company with a view to averting a similar occurrence and indeed promote environmental protection.

The Fukushima Daiichi Nuclear power plant is owned by the Tokyo Electric Company. The company has laid out measures to ensure sustainable development and nuclear power safety. The company produces nuclear power as an alternative to energy produced from fossil fuels. The company produces the nuclear power at the plant by heating water into steam which is then used to drive turbine generators that provide electricity. It operates in a pretty similar manner to a fossil-fuel powered plant with the distinction being the source of heat used to heat the water. The heat used in heating water is generated from the breaking of uranium atoms through a process called fission. In this way, energy is released from the splitting of the uranium atoms in the nuclear reactor which in turns heats the water into

steam.

Nuclear power generation at the Fukushima Daiichi Nuclear plant poses a number of externalities whilst producing the nuclear power. The process of nuclear power generation has added capital and operating costs escalated especially following the Fukushima Daiichi disaster. Other externalities of a negative nature associated with Fukushima are that nuclear power popularity has substantially decreased among people following the accident and the dangers. This notwithstanding, nuclear power at the plant has positive externalities and advantages as it has a proven record of large scale base load power generation compared to other energy sources. Further, plants have a long life and increased dependence and use of nuclear power could result from a reduction of costs incurred in constructing plants. There are twin externalities of nuclear power generation mainly nuclear waste and the resultant risk. Nuclear power generation has externalized environmental and public health costs that arise out of nuclear waste. In addition, the energy generation poses economic and social harms or risks which obtain from the release of radiation from this plant as is currently the case following the accident. It is also notable that the scope of the Fukushima Daiichi nuclear plant as well as the externalities it poses are not only of a national nature but also international in nature. This is because the effects of the accident continue to affect people in an international scale. More so, the nuclear power plant produces electricity or energy consumed by people in an international scale and therefore the scope of the company extends to an international front.

The Tokyo Electric Company's environmental goals are discernible from the

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mission statement on the company's website. It states that the company aims at providing electricity to society in a safe and reliable manner. This is in recognition of the environmental imperatives undergirding their nuclear power production and understandably borrowing from the Fukushima accident. Further, the company adds that it shall pursue new social and environmental roles in support of low carbon era in its endeavor to enable comfortable lifestyles for the people. The motivation behind these environmental goals can be said to emerge from the need to avoid harm to people as happened after the accident. Further, the company website statement is instructive in the sense that it states that the company aims to achieve a good balance between stability, environmental performance and economic efficiency over the long term. Another motivation informing the environmental goals by the company would be the need to respond to the rapidly changing economic and energy situation in Japan and secure stable provision of electricity.

The company seeks to have these environmental goals in practice by setting in place global warming indicators such as taking care of carbon dioxide intensity. In particular, the carbon emission intensity dropped by 8 % from the year 2008 to the year 2009 owing to the re-commissioning of a number of units, increased efficiency and a decline in consumption of fossil fuel for energy production. More so, a resource recycling indicator initiated by the company for checking the industrial waste recycling stood at nearly 100% as a result of continued recycling efforts. In addition, the company has engaged in efforts to focus on developing new technologies in aid of reducing carbon emissions. Particularly, the company sought to develop an integrated coal

gasification combined cycle (IGCC) system which will enable the provision of high thermal efficiency of between 48 and 50%. Another measure that the company has engaged in, is research and studies as pertains to Carbon dioxide recovery technologies by use of small-scale test plants. This is in a bid to capture carbon dioxide released from power stations and plants and consequently storing it in the sea or underground so as to isolate it from the atmosphere.

In addition, the company has sought to achieve the environmental goals with the institution of an environmental management framework in the company where an Environmental Management Panel Committee has been established to set policies and targets of the company concerning the environment. The committee is further charged with the promotion of environmental measures and review of environmental performance. The Committee also acts to share information and disclose relevant information so as to reduce environmental risks. The company has also provided environmental training programs for its employees so as to enable the employees capable of acting in an environmental friendly manner.

The various measures employed by the company in a bid to achieve environmental sustainability are laudable though they are not adequate. The inadequacy of these measures obtains from recent revelations that there have been radioactive leaks from the Fukushima accident. The company failed to disclose this fact and specifically that the number of workers at the plant with thyroid radiation exposures exceeding threshold levels, had increased tenfold. It is the belief that radioactive water leaked from the nuclear reactors as a result of the accident is likely to have seeped into the

underground water system and subsequently escaped into the sea. As a result, it is the contention of this paper that the company could do better in making known or disclosing relevant information and facts as and when they occur as this acts as an accountability measure. More so, the company must not lose sight of the dangers associated with nuclear power generation such as radiation, even as it focuses on reduction of carbon dioxide gas emission.

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