

Rooppur Nuclear Power Plant: A New Era for Power Sector in Bangladesh

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Abstract—Bangladesh is a developing country. In last 15 years. Bangladesh did a tremendous development in its power sector. But still, Bangladesh is not achieved its desired goal for providing power to all sectors. One cause behind this, Bangladesh is dependent on fossil fuel based power and hydro power. Though, solar power is contributing in power sector since last 10 years, but still Bangladesh needs more and more power and energy as government of Bangladesh is establishing more industries and they need a huge amount of power. So, Rooppur Nuclear Power Plant is one of the best establishments by Bangladesh to meet its power demand. Full phase power plant will go for operation in December, 2024. In this article, we tried to put some information about Rooppur Nuclear Power Plant according to the information published in several news portals and previous articles researched by researchers.

Keywords— Radioactivity, Safety, Waste management, Nuclear Reactor, Fossil Fuel, Rooppur Nuclear Power Plant.

I. INTRODUCTION

Electricity demand in every sector is growing in a rapid way while the amount of fossil fuels is being decreased every day. Consequently, we need to think another way for power generation rather than generation of power from fossil fuel. Energy generation from Nuclear Fuel is one of the best jobs in power generation system considering that 1951 [1]. Bangladesh is a country which electricity demand could be very high in previous couple of years & growing at a fast rate with the ongoing improvement of the USA. But the USA mainly dependent on natural fuel to fulfill its excessive energy call for which aid isn't always sufficient to provide demand & is jogging out. Therefore, it is time for the USA of a to look ahead to different power generating alternatives. Numerous renewable strength resources can be a solution, but it desires an amount of time and big investment, which does not appear to a solution. Lately the authority of the USA is looking ahead to nuclear energy technology mission named Rooppur Nuclear energy Plant to remedy this electricity disaster. But protection is a totally critical aspect in nuclear electricity technology. If we investigate a few current nuclear failures like 3 Mile Island (USA) Chernobyl (united states) & Fukushima Daiichi (Japan) where remaining two are the worst nuclear electricity plant accident & rated as seven at the seven-factor worldwide Nuclear occasion Scale, so the main problem in nuclear power era will be the safety. However, at gift safer reactors were invented and used worldwide. The maximum lately invented nuclear reactors are referred to as third era reactor and called easy and secure. Then again fuel of nuclear power plant could

be very available than traditional generations. Some years earlier, the army misuse of nuclear techniques becomes a provocative question, but now recent technologies save you the ones possibilities, which make the machine more secured and dependable. fee is one of the most important elements of power era which could be very low in nuclear though its initial fee could be very a whole lot better than some other structures however era and renovation fee could be very a great deal low that makes nuclear economically possible. Nuclear waste management is a further critical challenge at the way to nuclear strength. Even though amount of this waste is very low, comparing to the alternative fossil gasoline used strategies [2]. But this waste can be technically disposed and not so difficult to manipulate. Greenhouse fuel emission is other essential aspect that is a lot lower in nuclear than different conventional electricity technology strategies meaning its far quiet environmentally pleasant to a few factors. As the density of population in Bangladesh is alarming so any undesirable situation may additionally cause extreme loss of both existence and assets in addition to environmental risks. However, to address the prevailing in addition to upcoming electricity crisis some scale of nuclear may be applied whilst protection must be the concern maximum factor. Again, as lifecycle of a nuclear reactor is much higher than a conventional fossil gasoline reactor so from this sense it may be referred to as reliable additionally. Formerly a few studies have been executed where common protection look at and technological details had been not discussed with key situation [3], [4]. Hence, this paper mainly cantered on technical info of nuclear power as well as RNPP and unique safety.

II. THE IMPACT OF REPLACING FOSSIL FUELS WITH RENEWABLES AND INCREASING ENERGY EFFICIENCY

The impact of replacing fossil fuels [19] with renewables and increasing energy efficiency can have several positive effects on reducing emissions and mitigating climate change. Here are some of the key impacts:

A. Reduction in greenhouse gas emissions:

Significantly less greenhouse gas emissions result from the replacement of fossil fuels with renewable energy sources including solar, wind, and hydroelectric power. When operating, renewable energy sources emit minimal to no greenhouse gases, in contrast to fossil fuels, which lowers the total carbon footprint of energy production.