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Renewable and Sustainable Energy

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ABSTRACT: ***Former hydrocarbons importers will likely be the biggest losers from the power shift, since renewable power is believed to worsen security problems and geopolitical conflicts relating to crucial materials and cybercrime. Many of the publications examined had the following flaws: an inability to explain the term "geopolitics"; an unfounded assumption that there has not been much published in the region previously; insufficient use of current forecasting, circumstance, or futurist methods; a lack of acknowledgment of the topic's complexities; a lack of theorizing Most writers do not differentiate between the geopolitical concerns connected with various wind and solar, and only a few make a clear distinction between the demographics of the transitional period and the demographics of a world after the energy transition. Only a tiny percentage of the literature is devoted to the demise of old fossil fuel powers, whereas key materials and cybersecurity get hugely disproportionate amounts of attention. There is an over there on oil companies and an insufficient attention to nations that depend significantly on coal that among periodicals that do mention the collapse of carbon fuels. The scope for improvement in India's energy system is vast.***

KEYWORDS: ***Energy, Fuel, Renewable, Resource, Sustainable.***

1. INTRODUCTION

It is vital to clarify these concepts due to the availability of publications on geopolitics and alternative resources. The parameters have consequences for which works should be included in the review and which should be omitted. The terms "sustainable" & "renewable" are most often used interchangeably to mean several main forms of

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electricity(Pradhan et al., 2016). These terms, meanwhile, have completely distinct meanings. Not everything that is renewable is also healthy, and not anything that is financially viable is also regenerative(Zafar et al., 2014).

We use the International Energy Agency's (IEA) description of "renewable energy," which includes "energy obtained from plants processes that are generally find [such as] solar, wind, bio fuels, geothermal, hydroelectricity, ocean resources [tidal and wave], and biofuels, electricity, and helium derived from those renewable energies(Goel & Sharma, 2017)."

The author has defined "renewable energy" and "geopolitics," and we've limited our evaluation to books that address topics that come within those criteria. This implies that other types of writing have been purposefully left out. The first are more philosophical works who are not directly linked to energy but concentrate on the idea of geopolitics in general. Second, publications on the geopolitical of carbon fuels that just briefly mention renewable power are excluded(Hosseini, 2020).

1.1 Renewable energy:

A renewable resource, which literally means "to create new again," is one that is refilled throughout time, such as via the birth of new creatures or spontaneous reusing materials. Any energy generation that utilizes one of these components is referred to as renewable energy. Renewable energies don't even have a finite supply; more may be produced at any time. Nonetheless, if the frequency of use outpaces of rejuvenation - that is, if the resource is depleted faster than it is replenished - its usage will become problematic(Güney, 2019).

1.2 Sustainable energy:

Environmental sustainability, literally defined as electricity production that can be sustained for a certain length of time, is aerobic respiration that can be continued for the coming years. Sustainable energy strategies must depend on resources that can meet our demands indefinitely. These resources must be utilized with caution so that they do not become depleted, exhausted, or otherwise useless(Moustakas et al., 2020).

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Even renewable resources might run out of steam. Even though a resource is renewable, If it is depleted faster than it can replace, it will eventually be destroyed. Non-renewable resources, on either extreme, may be permanent if used responsibly. If used recklessly, these, too, could be depleted in a brief span of space(Yoro et al., 2021).

For most people, responsible power consumption means that the environment is not significantly affected as a function of an economic practice's compounding effects. This is a strongly contentious part of the concept of alternative electricity supplies, with drastically diverse perspectives. Many promoters of fossil energy claim that lignite, petroleum, and natural gas and oil are everlasting due to their vast reserves, dismissing climatology issues(Baños et al., 2011).

1.3 Origin of the literature:

The energy geopolitical literature from the late 1950s forward focused mostly on the intersection of world diplomacy and petroleum resources. The scholarly establishment or the journalists paid close attention to this problem. University courses in foreign politics, global governance, economic relations, security studies, and energy scholarly articles often incorporated it in their curriculum(Amran et al., 2020; Klemeš et al., 2019; Luthra et al., 2015). Oil and gas continued to dominate the geopolitical research agenda in 2018, attracting much more emphasis than renewable. From approximately 2006, renewable power deployments began to grow at an exponential rate, and the economics of sustainable power began to gain more attention from the professional and academic community from 2010(Bhuiyan et al., 2021). Many of the publications that resulted emphasize the topic's uniqueness. It is not, however, as contemporary as one may believe. The National Association and the National Oceanic and Atmospheric Administration (NASA) stated in 1972 that solar power was strategically important to the US and that its use would necessarily have environmental, social, and political ramifications that needed to be understood. The development and use of sun's electricity on a broad scale, according to the author, would avert the world energy problems related with the usage of fossil fuels(Hosseini & Wahid, 2016; Manso & Behmiri, 2020).

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The continued conflict and decreased conflict camps are difficult to reconcile because they are based on differing underlying assumptions about the growth of sustainable power and geopolitics. A sceptical group of experts proposes the most basic compromise, arguing that the effects of the electricity system are yet unknown, making it premature to make judgments about future geopolitical difficulties. The construction of numerous, opposing future renewable scenarios is one variation of this indecisive posture nexus of geopolitics(Eltrop, 2013).

2. DISCUSSION

Since 2010, researchers of industrial politics and international science have been paying more attention. Previously, practically all of these academics concentrated on oil and gas when researching food safety or geopolitical, while sustainable energy professionals focused on new technology development, system integration, and market diffusion, generally neglecting the implications of alternatives for global relations. As a result, the two literary threads seldom came into touch with one another. After 2010, the scholarship on energy geopolitics began to divide into two streams. One's emphasis remained on hydrocarbons, shale gas, nontraditional oil, and the rapidly growing LNG sector. The other is the material discussed in this post, which is concerned with the geopolitics of increasing renewable energy consumption. The literature has increased significantly in a brief span of time, as seen by the length of this article's references.

There is still a lot of ambiguity regarding the geopolitical ramifications of sustainable power, but there are several recurring flaws in these reports. Several potentially essential subjects are overlooked, among other things. To begin with, only a few writers differentiate between various sources of sustainable energy and its geopolitical implications. The authors discovered that hydro power and wind power have the most potential to increase China's food independence, while renewable energy has the least possibility, based on their qualitative and quantitative studies.

Former fossil fuel suppliers are clearly recognized as the largest losers in terms of possible strategic winners or losers, whilst the winners are more difficult to agree upon.

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Many nations will profit from lower import dependency, and some will prosper from abundant renewables energy supplies, and yet only a few would be able to determine ourselves as clean-tech industrial champions.

The ramifications for worldwide relations in general might include a change away from current energy alliances and toward regional grid communities, as well as a wider range of entities active in energy policy. In general, renewable energy is projected to modernize domestic globalization and social relations while also sustaining them

However, the preponderance of academics uses the terms "renewable energy" or "clean energy" in a broad sense without specifying which kinds they are referring to. Because this is a novel scenario, it's difficult to assess the strategic ramifications of increased sustainable fuel use. In contrast to the geopolitics of hydrocarbons, where supply-demand equilibria has been the most significant element, no conceptual underpinnings exists has been developed to completely handle the complexities of renewable power geopolitics. For example, has proposed a new analytical framework based on political and social systems and power security research. However, this paradigm only considers the issues that arise directly from the geotechnical characteristics of renewables, not those that will arise as a result of the shift to renewable sources.

3. CONCLUSION

The extant research on the geographical ramifications of the transformation to renewable energy has been examined, systematized, and consolidated in this article. It quickly reviewed the scholarly literature on the issue before delving into five major themes: renewable energy's promise for peace, prospective geopolitical losers and winners, the influence of sustainable energy on foreign policy, the distastefulness of crucial materials, and cybersecurity. Even still, it wasn't until around 2010 that it truly took off, and the great bulk of the articles we found were since after that.

There's almost a deliberate inability to define what "geopolitics" entails, as well as a lack of theory and frameworks to deal with the topic's complexity. Methodologically, established forecast, scenario-building, or foresight approaches are seldom used, and

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empirical data is lacking. Most publications also fail to differentiate between the geopolitical hazards associated with various source of sustainable energy, and only a few discriminate correctly between transitioning geopolitical and post-transition demography. Finally, a disproportion big fraction is devoted to critical materials and cyberattacks, whereas only a tiny portion of the literature is concerned with the collapse of previous fossil fuel powers.

Future studies in this topic may now take one of three paths. It may, for starters, solidify and simplify the actual foundation for analysis. Second, it may use well-established forecasting and scenario approaches to provide policymakers with information on energy policies for a gradually more renewables future. That would have been a short-term endeavor targeted at enlightening policymakers and the business community. Third, in the long run, appropriate analytical methods may be constructed to systematically analyses situations in order to improve our knowledge of energy geopolitics and build a theory which can be used to forecast the geopolitical ramifications of alternatives. This would need a sustained intellectual endeavor.

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