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One Sun One World One Grid & International Solar Alliance: India's geopolitical power sway

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Abstract

When Prime Minister Narendra Modi presented the notion of "One Sun, One World, One Grid" (henceforth OSOWOG) at the inaugural assembly of the International Solar Alliance (ISA) in October 2018, it made its first appearance on a global scale .

The PM's OSOWOG vision is founded on the notion of sustainability, which argues that society's resources are limited and must be managed cautiously to ensure that there is enough for future generations while also guaranteeing that the current generation's quality of life is not continually harmed.

OSOWOG's strategy is a step toward developing a more sustainable source of electricity production by using solar power as a continuous renewable energy source, advancing the worldwide objective of sustainable development.

Since this is an idea so no work has been completed, started, or even proposed, and with the paucity of the literature on OSOWOG it would be worthwhile to study India's geopolitical power sway through ISA & OSOWOG.

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The aim of this paper is to the look at the positive aspect of the OSOWOG with India's geopolitical power sway through ISA & OSOWOG.

Keywords: ISA, OSOWOG, India, Grid, Solar, UK.

Introduction

Prime Minister Modi emphasised the importance of solar in 2018 during the commencement of the second edition of the global re-invest meet, using the phrases One Sun One World One Grid (OSOWOG), which indicated bringing the entire world together to harness solar electricity 24/7, rather than just during the day. India is separated into two wide zones at the centre of the sun spectrum: the far east, which includes nations such as Myanmar, Vietnam, Thailand, and Cambodia, and the far west, which includes West Asia and the African region (MNRE,2020). Through this effort, India intends to create a global network of interconnected renewable energy sources that can be easily shared for mutual benefit and global sustainability. On a worldwide scale, this effort will focus on linking solar energy sources, including decentralised systems such as solar rooftop systems. (ISA,2020)

In 2015, India and France announced ISA to promote solar energy to give energy security to everyone (ISA, 2015). One Sun One World One Grid can help them reach this goal. Furthermore, in phase1, the Indian grid will connect with the Middle East-South Asia-South East Asia system to share solar and other renewable energy resources to fulfil peak base and average demand. In addition, this system will be connected to African power pools in phase 2 to share solar and renewable energy. (ISA,2020) Because this is an idea, no work has been completed, begun, or even proposed, and because there is a scarcity of literature on OSOWOG, the majority of the methodological arguments made below are based on the initiative's goal, data collected from in-depth interviews with policymakers, and consulting research papers related to other mega projects around the world.

History of ISA

At the 2015 India-Africa Forum Summit, Modi announced the International Solar Alliance (ISA) foundation ahead of the UN Climate Change Conference in Paris. Solar energy is the declared goal of the organisation, especially for nations located between the Tropic of Cancer and the Tropic of Capricorn, as stated in the mission statement India's 2014 election

manifesto said that renewable energy sources were a "essential component" of India's energy mix and pledged to "extend and improve" the national solar mission, which was a practical expression of this promise.

Indian Prime Minister Narendra Modi spoke on India's efforts to build the world's biggest renewable energy development programme and the goal of fostering a global solar revolution at the 2018 ISA Founding Conference, which also included French President Emmanuel Macron. Reaffirmation of the BJP's commitment to expanding ISA membership throughout the world was made in the party's 2019 election manifesto. With his re-election, it became operational and has maintained policy consistency since it was formed.

The Shape of World Politics. More than 86 nations have signed the ISA Framework Agreement but have not yet approved it. As of May 2020, the following members have been confirmed as belonging to OSOWOG's MEMASEA zones:

"Middle East: United Arab Emirates (UAE), Kingdom of Saudi Arabia (KSA) and Egypt.

South Asia: Sri Lanka, Bangladesh and Maldives.

Southeast Asia: Myanmar and Cambodia."

OSOWOG might be welcomed by the UAE, Saudi Arabia, and Egypt because of their shared geopolitical objectives. The UAE and Saudi Arabia are already contemplating a future without oil exports. Pakistan's indifference in the South Asian Association for Regional Cooperation (SAARC) seems to have little effect on the prospects in the region, since Afghanistan, Nepal, and Bhutan have shown little interest in signing on. Because of its political-security ties to India and its position as a key node in the Asia Africa Growth Corridor, Myanmar is India's best shot in Southeast Asia (AAGC). In order to resist China's expanding influence via the Belt and Road Initiative, the strategic goal of AAGC has long been formed (BRI).

The AAGC, unlike the BRI, is a marine corridor. India would need to forge strong ties with East African nations in order to bring together OSOWOG and AAGC in a significant way. According to the International Association of Sports Federations (ISA), 15 nations are already located on this border. When the Acquisition and Cross Serving Agreement (ACSA)

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goes into effect, India will have a distinct edge in Djibouti since it already hosts a Japanese overseas military facility.

The OSOWOG project's goals align with both the African Union's Agenda 2063 and the 2016-2025 ASEAN Plan of Action for Energy Cooperation (APAEC). China's growing influence in Myanmar and East Africa means that India will have to depend heavily on Japanese and US support in order to achieve strategic objectives.

OSOWOG aspires to position India as the primary source of renewable energy in the Indian Ocean Region, but its implementation might have unintended geopolitical ramifications for other nations in the region.

Importance to examine sustainability from a global perspective

Global interconnectedness was made obvious by the rapid dissemination of COVID19 around the globe. There is no such thing as a solitary corner of the globe when it comes to sustainability. As an example, chopping down trees in the Amazon rainforest does not only have an opposite effect on the Brazilian ecology, but it also helps maintain world temperatures and regulate weather patterns in South America. In response to climate change, a number of ecosystems and natural resources have been pushed beyond their boundaries, resulting in challenges such as increasing droughts and migratory plants in the northern forests. SDGs, which the United Nations approved to create a comprehensive framework for governments throughout the globe to address challenges such as poverty and climate change, were enacted in an attempt to address the same In addition to environmental issues, such as "Life Below Water" and "Life on Land," additional aims include "Affordable and Clean Energy" and "Decent Work" and "Economic Growth."

Shifting to Renewable Energy Is Essential

The pollution created by different non-renewable sources of power generation is one of numerous causes contributing to rising levels of greenhouse gas emissions, which is driving fast global warming. Oil, coal, and natural gas together account for one-third of all global warming gases. Consequently, it is essential to improve the quality of life by providing cleaner and more dependable electrical sources. To put it another way:

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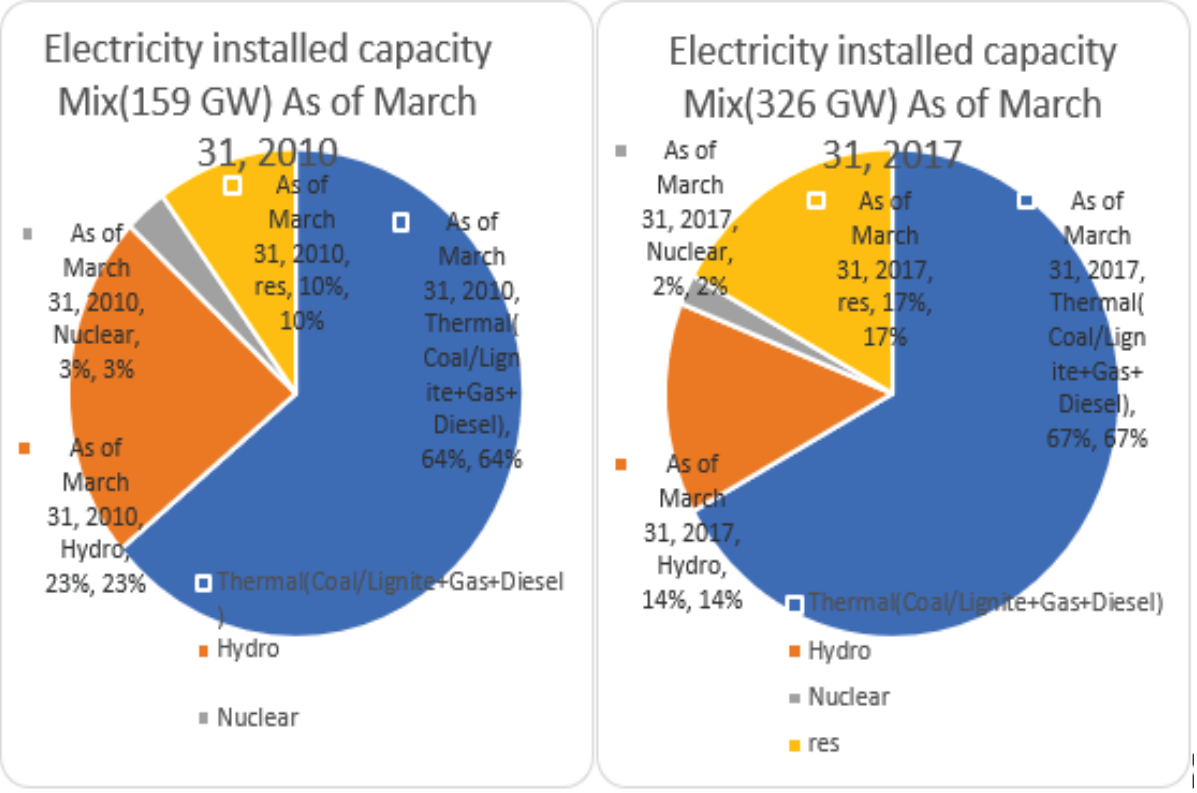
Since 2013, India has imported almost 1000 million tonnes of coal, according to a research from the Centre for Monitoring Indian Economic. With such a massive import and environmental impact, India has to make an immediate switch to a different form of energy production. As a result of this quick shift to renewable energy, the country's aim of sustainable development and climate change concerns were both addressed in the years to come. Positive news is that, from April to November 2020, coal imports decreased by 17% to 137.6 million tonnes as a consequence of the switch to renewable energy.

With this coordinated effort by Ernst & Young, India ranks third on the Renewable Energy Country Attractive Index in 2021, with an ambitious goal of 175 GW worth of renewable energy output by the year 2022, according to the study Renewable capacity has grown by two and a half times to 141 GW as of this writing. During this time, solar energy capacity grew at an exponential rate, reaching 41.09 GW, a 15-fold increase.

India at the Fulcrum- Renewable Energy growth: An Enabler for OSOWOG



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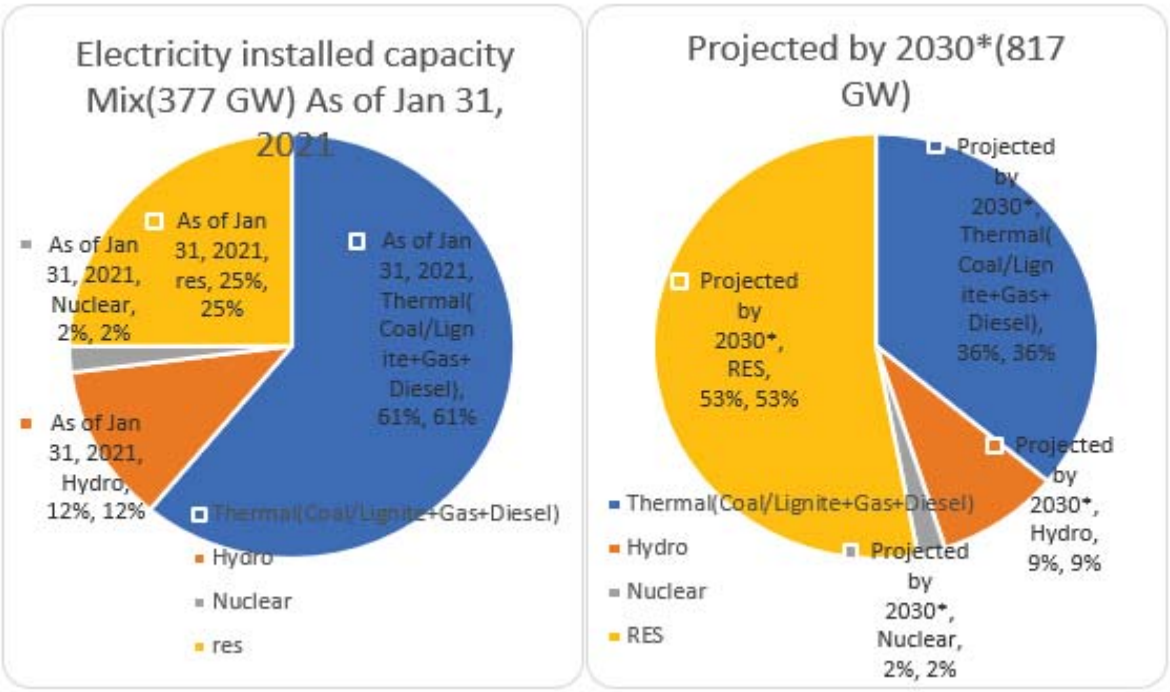

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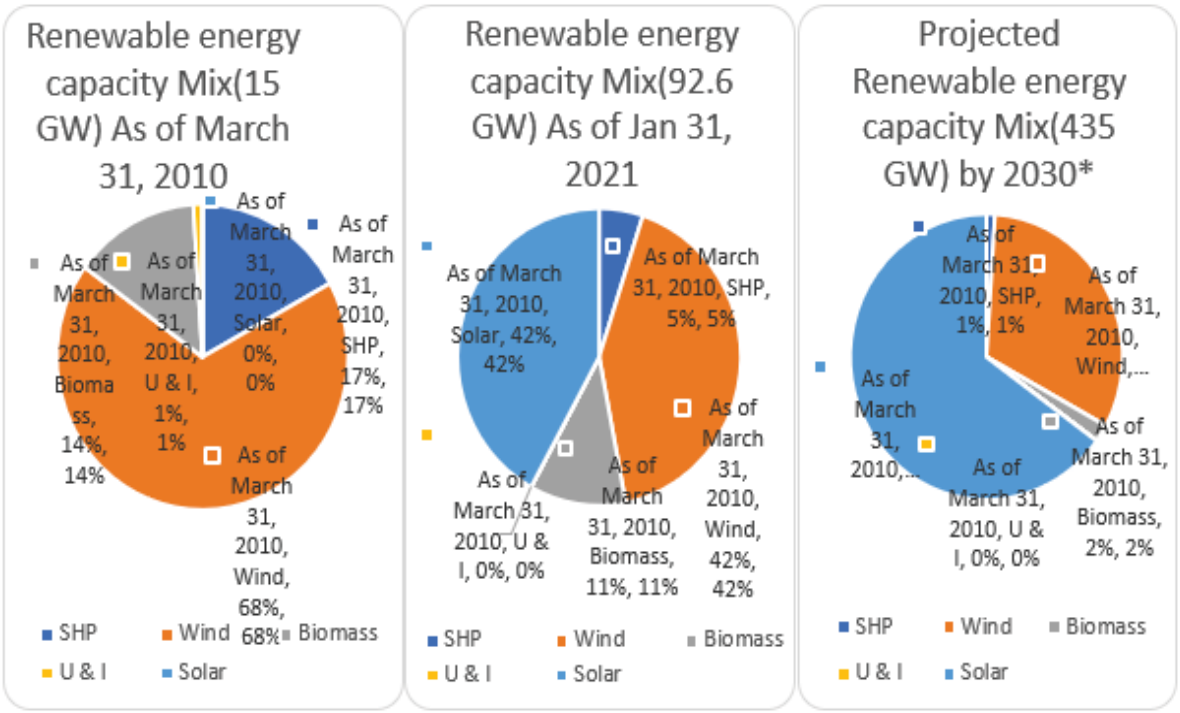

Data Source: CEA

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Why India invests in solar energy

There are three major reasons why India urgently needs a change from coal to solar power as a source of energy: If India's global energy demand doubles to 11 percent by 2040, it is no longer a choice but a need for the country to look at energy sources that would help it become more self-sufficient in power production while keeping environmental costs in check. If we can't use solar energy to meet the rising need for electricity, our reliance on fossil fuels like coal, oil, and natural gas will grow. A rise in oil imports and a rise in local coal output would have both economic and environmental consequences.

With an AQI of 382 placing Delhi in the "severe pollution" category, India is still struggling with an aggressive problem of air pollution. More than 40% of the region's pollution comes from uncontrolled industrial and vehicular sources, on top of the already high levels created by stubble burning in the region's surrounding areas. Reduced usage of fossil fuels may be made possible by the utilisation of solar energy generation. It is clear that ground water and yearly rainfall are diminishing at an alarming pace, indicating the need to diversify energy sources and not depend too much on hydroelectricity as a source of energy. An example of this is the fact that groundwater levels in India decreased by 61% between 2007 and 2017. Even now, it remains a worry even though India is the world's greatest consumer of groundwater for agriculture, household consumption, and industrial purposes. In addition, unlike coal, solar power generation does not depend extensively on water for production, and hence does not put a burden on groundwater supplies.

There is a perception among many that a world powered entirely by clean, renewable energy is an unrealistic goal—but the usage of solar power plants is an important first step. There is no better alternative to fossil fuels in terms of renewable energy than algae. In addition to being simple to maintain, they may be placed both on a utility size and on a personal or household level. solar panel installation may cost more up front but in the long term saves money on power bills and serves as a barrier to rising energy prices.

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What makes OSOWOG special.

According to a 2020 proposal suggested by the Ministry of New and Renewable Energy (MNRE), a "common grid" of solar electricity would be utilised to link 140 nations in the OSOWOG. According to the plan's motto, "the sun never sets" since the sun is always a constant everywhere in the world at any given moment. Using the sun's rays to power the planet 24 hours a day, seven days a week is the goal of the endeavour.

It is envisaged that OSOWOG will be deployed in three primary phases:

As part of the first phase, the Indian grid will be linked to other Asian continent grids to exchange solar energy and other renewable energy sources such as wind and hydropower.

First phase would be connected to Africa's renewable resources via the second phase. 'Far East' includes nations like Thailand, Laos, Cambodia, Vietnam and Myanmar, while 'Far West' include countries in Africa and the Middle East, such as Egypt and Jordan. This spectrum is centred on India.

This is the third and final phase, which attempts to link the world. The goal of the project is to develop a "one power grid of renewable energy" that can be accessible by nations throughout the world.

Significance of OSOWOG

By using technology, funding, and expertise, the initiative aims at helping all of its collaborating entities to attract successful investments in renewable energy sources.

All stakeholders will benefit from decreased project costs, better efficiency, and increased asset utilisation if all nations work together.

Using a more cost-effective source of energy generation, such as wind or solar, may help alleviate poverty, provide access to drinking water, sanitary facilities, and food security.

Increased investment in research and development centres like the Center for National Renewable Energy Management in India will result from global cooperation, since these centres will now serve as both global and regional management centers.

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India gains from OSOWOG

India and the United Kingdom are publishing a joint statement on OSOWOG at the Conference of Parties (CPO26). This initiative would consolidate India's leadership position for India's economy and the ISA.

COP 26 Summit and OSOWOG

- "At the COP-26 climate summit in Glasgow, India launched 'One Sun One World One Grid' (OSOWOG).
- **Key Highlights**
- Prime Minister Narendra Modi also mentioned that the Indian Space Research Organisation (ISRO) will develop a solar calculator application to inform countries about the solar potential of any place on the earth using satellite data.
- He also said that fossil fuels powered many nations to become wealthy during the industrial revolution, but it made the earth and environment poor.
- This initiative was jointly launched by the **United Kingdom** and in partnership with **ISA** and the **World Bank Group."**

An "intercontinental power infrastructure" is a relatively new notion in India's efforts. India's geopolitical situation might greatly benefit from such a move. Despite the fact that battery and storage technology has gotten more affordable, importing solar energy from other countries seems to be a more practical and inventive solution given the problem of land bank scarcity and the restricted number of hours of sunlight each day throughout the world.

- "Apart from addressing environmental concerns, India also seeks to have a geopolitical edge over China. Experts are of the opinion that OSOWOG is the answer to China's One Belt One Road initiative.
- These same experts are also of the opinion that announcing infrastructure projects in other countries is a way of asserting superiority.
- Other potential benefits also mean improving the quality of life. The potential benefits include widespread scale-up in energy access, abatement in carbon emissions, lower costs of living and improved livelihoods.

- Annually, India imports about $250 billion worth of fuels. This includes oil, diesel, LNG, fossil fuels, coal etc.
- If OSOWOG can be implemented, then India has alternative means to meet its energy requirements through sustainable energy that may reduce imported inflation pressures."

Powerful geopolitical organisation

The energy industry already has a powerful geopolitical organisation, such as OPEC, and international alliances are not new. International Solar Alliance (ISA) is a cooperation of nations with abundant solar resources. It was officially launched during the 2015 UN Climate Change Conference in Paris. There are now 121 nations who have consented to join the International Sailing Association (ISA). There are a lot of nations from Africa, South-East Asia, and Europe represented here. ISA does not include Pakistan and China. Additional agreements between Bhutan and Nepal include energy trading and hydropower project development. The Central Electricity Regulatory Authority approved new legislation for 'Cross-border power commerce' last year, making the transfer of electricity to neighbouring nations easier. As part of this process, a nodal organisation for bilateral power trading was established and monitoring and planning by government authorities. More than 70 nations will be invested in as part of India's response to China's One Belt One Road infrastructure programme. However, the concept of an intercontinental electrical infrastructure is still relatively new. As part of the Australia-ASEAN Power Link (AAPL), Sun Cable will provide renewable energy from Australia to Singapore, and then Indonesia, as part of the project. There will be "three technological groups" involved: a 4,500-kilometer high voltage direct current (HVDC) transmission line, the world's biggest lithium-ion battery, and a solar/storage complex in Australia, Singapore, and Indonesia. What is the purpose of OSOWOG and how useful is it? Numerous countries' infrastructure initiatives in other nations, particularly China, are considered a symbol of power by some policy experts. With ISA and OSOWOG, India intends to assume a leadership role, while being a partner country with most trade organisations. "It's clear that this is a massive undertaking. However, we are at a critical juncture in terms of power production and consumption, necessitating a shift in the sector's paradigm. Energy availability, reduction of carbon emissions, fewer costs, and better lives are

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among the possible advantages. An worldwide coalition is necessary for India to achieve this goal.

Geopolitical relevance of solar energy for India

The geopolitical relevance of solar energy needs to be examined in three ways. First and foremost, it may be obtained for free and in large quantities by harnessing the power of nature. While oil and gas are concentrated in particular regions of the globe, such as West Asia, North Africa and Eurasia, renewable energy may be found all over the world.

When the majority of energy was imported from remote areas and at a high cost, there was a tinge of unease among energy-dependent nations. In the 20th century, this led to the majority of geopolitical confrontations. Researchers that focus on energy security claim that the desire for oil and gas was a major factor in both the First and Second World Wars and the intensification of the Cold War. Several geopolitical concepts, such as the Carter Doctrine and the Iran-Iraq conflict, may be traced back to the demand for energy, which in turn led to the Carter Doctrine. Post-1991, the Clinton administration utilised the same catchphrases to gain sway in the energy-rich Caspian area.

Increasing radicalization in various regions of the globe may also be ascribed to geopolitical factors. Boko Haram terrorists in Nigeria; religious extremists in Russia's North Caucasus and other Caspian regions; and ISIS militants in West Asia are instances of religious extremists using oil money to achieve their goals.

In addition, research shows that most oil-producing countries have supported extremist organisations in order to achieve their own goals. Because of their backing for the existing regime, the political class in these nations never took substantial steps to checkmate these extreme organisations. A few of them worried for their own safety if they didn't back these Islamist organisations, fearing a local rebellion. There will be less reliance on energy from a few regions of the planet if solar energy is utilised widely throughout the globe. By doing so, nations (mostly in West Asia) that sponsor terrorist operations will be forced to share the spoils. With less resources at their disposal, radicals may witness a decline in their activism in the future.

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An equal footing for India

Last but not least, as most ISA member nations are poorer, they may band together and deal with oil-rich ones to break their monopoly on oil and gas. When it comes to solar energy, India, which is one of the founding members of the International Solar Alliance (ISA), may minimise its dependency on West Asian nations by using solar power. Because of this, you'll save a lot of money. States with a lot of solar energy, like Afghanistan, Uzbekistan, and Turkmenistan, may band together to create an institutional body to harness it. This might lead to the development of a solar-powered electrical system.

Within the ISA, efforts have already been undertaken in this regard. An example of this is the Indian Ocean Renewable Ministerial (IORM) conference that took place in October 2018. During that conference, the ISA and IORM concluded an institutional agreement. Both organisations agreed to "exchange technology" and "jointly collaborate" as part of the plan in order to work together more closely on solar energy harvesting. The Organizational African Union, the Shanghai Collaboration Organization, and the Group of Latin American and Caribbean Countries might all benefit from such cooperation.

It's worth recalling that ISA and the African Development Bank announced a deal in 2018 to harvest solar energy. Joint Declaration's main goal was to build a "roadmap for finance for the development of solar energy in potential African ISA member nations," as stated in the agreement.

Similar arrangements may be made in Latin America to access resources like lithium. For example, lithium resources in Latin American nations like Chile, Argentina, and Bolivia are among the greatest in the world. Lithium can be procured more easily if more nations are involved. Bolivia and India decided to work together on lithium battery development during Indian President Ram Nath Kovind's visit, and Bolivia also indicated its interest in joining the International Solar Alliance (ISA).

With the example of India and Bolivia's combined collaboration, it is clear that trans-regional solar energy cooperation may lead to a more equitable and equitable world energy system. The fact that diverse areas are working together to develop solar energy is a good thing because it lends fresh life to the concept of the Global South. As part of its regional

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cooperation, the International Solar Alliance (ISA) is also making a significant effort to address issues such as "technology transfer," "storage of solar energy," and even financial support to member nations, as has been proposed on the ISA website.

Positive Impact on India

In the previous decade, India has made significant investments in renewable energy to reach 175 GW by 2022. (MNRE,2015) India's solar capacity has increased tenfold in the last decade, as a growing number of coal mines become less lucrative as they age and coal prices fall. In fact, India's largest coal producer, Coal India Limited, has announced that it will become a net-zero energy company by 2023-24, and NTPC, India's largest coal-based power company, has won a bid for 470MW of solar power at a tariff of Rs 2.01/kWh (Chandra Bhushan, 2020), which is nearly 40% lower than the current coal power in India. However, most solar systems available in India will have no impact because they are not completed with a storage system. As a result, the only alternative for meeting peak power demand at night will be to operate a conventional coal power station. As a result, OSOWOG is brought into play. India hopes to bring renewable energy from Africa (noon) to India through OSOWOG (night). As a result, India does not need to run its dirty, expensive (given current tariffs) coal plant at night. This has a number of advantages for India.

First, having access to renewable energy 24 hours a day, 7 days a week at a cost well below grid parity. This will aid in the systematic reduction of traditional coal dependency by effectively switching to low-cost renewables. Many countries will be enticed to join OSOWOG because India believes the cost of solar will drop dramatically, and because nations will be joining on their own, it will be simple to cooperate and become responsible on their own to prevent any tragic system collapse.

Whereas, from India's foreign policy perspective, this project provides its leaders with a global platform on which they can express their global climate mitigation policies and future roadmap and potentially pave the way for them to portray themselves as a future global leader in the world order. This also gives India's multinational firms a platform to address the current global energy problem in several Asian and African countries by using their technical advantage.

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OSOWOG is just a decentralised solar rooftop system that adds solar energy to an existing grid in a certain country. This would not constitute a significant danger to existing producers' ability to continue operating, but it would be in the long run. African countries that lack an electrical infrastructure will profit the most from this perspective. They do not have to invest any money to transition away from the fossil fuel system because they are receiving direct support for creating renewable energy infrastructure from ISA, WB, and WSB under the OSOWOG. Furthermore, millions of people benefit from improved energy access and security. Because the project is being implemented in phases, beginning with national infrastructure development at the micro-level in various locations and then proceeding step by step, there will be plenty of time to speak with diverse stakeholders and address their particular issues. This idea, on the other hand, talks about a harmonised distribution and platform with common ownership, but even if a country decides to leave after joining and sharing energy for a while, that country's sudden absence will not pose a fatal threat to the OSOWOG system's comprehensive, multifaceted nature. Finally, OSOWOG may partially overcome the challenge of most renewables' storage system. Because the grid is directly connected to the system.

Geopolitical Considerations and Challenges

India and the ISA are currently the only active stakeholders in OSOWOG. However, the endeavour involves a number of geopolitical stakeholders, many of whom have internal conflicts and disagreements. States must consider this integration drive as a benefit to grid stability and efficiency rather than a backdoor threat to national sovereignty because it necessitates collision building across a wide range of stakeholders. The intended Vietnam-Laos-Thailand link was shelved after the (Thai) owner of a major transmission line portion along that route in Laos refused to allow it to be utilised for that purpose (Asian Development Bank,2013). The country's relationship and government trust, which is among the lowest in the African area, is perhaps the most catastrophic failure in collision building. After 11 years, the battle between Ethiopia, Sudan, and Egypt over a dam on the Blue Nile in Ethiopia remains unsolved (JC Veilleux,2015). With a history like this, I don't think they'll agree to transfer renewable energy. And many African countries are in the same boat. Furthermore,

persuading many African countries to connect in order to generate and transfer renewable energy is difficult. After that, move it to West Asia or Southwest Asia.

"In geopolitics, the past never dies, and there is no modern world," remarked Robert D.Kaplanin, referring to the Middle East, where anti- and pro-western players have vied for dominance for many years. As a result, several regional and global powers have enlisted the help of various non-state entities to increase their impact. When a country is unable to adopt a single foreign policy orientation, bilateral relations and foreign policy alignments suffer. In this scenario, one country joins while the other does not, posing a difficult situation for the negotiators. Finally, in the most volatile area in the world, India's significant political issue is the perception that the programme is a one-sided vehicle for India to gain economic clout and satisfy global net-zero ambitions.

Way Forward

For the implementation of OSOWOG, areas that might be enhanced include mechanisms for cost sharing, a well-defined implementation process, and a future method for preserving local, regional and global grid stability that considers concerns like frequency and voltage.

One Sun, One World and One Grid is the future of renewable energy systems because these projects will help balance and distribute renewable energy across international borders. As a result, the global carbon footprint would be reduced, supporting the concept of sustainable development. This means that the future of OSOWOG is brighter than the sun.

Conclusion

The ISA, launched at COP21 in Paris and recently expanded to include all UN member states, aims to help mobilise USD 1 trillion of funding by 2030 to assist developing countries in expanding their solar power grids.The initiative is widely seen as a big and bold move in ISA's ongoing efforts to realise a global solar transition. To summarise, ISA and OSOWOG will undoubtedly inject fresh dynamism into international energy diplomacy in the twenty-first century. If solar energy and other kinds of renewable energy are harnessed more effectively in the near future, one may expect to see a fair and equitable energy order.

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