

One Sun, One World, One Grid: Initiative to Re-balance Environment and Sustainability

The mammoth project in the name of One Sun, One World, One Grid (henceforth OSOWOG) originated at the Paris Agreement during the United Nations framework convention on climate change in 2015, where India announced (INDC) Intended Nationally Determined Contribution to aim at clean energy. India has vowed that by 2030 its share of non-fossil fuels based on electricity will increase to 40 per cent.

India and UK have on 30th November 2015 jointly launched the International Solar Alliance (ISA) at Paris (CoP21). ISA was finally launched on 6th December 2017 after rectification by a minimum number of countries and its first assembly was organised in 2018.

The ambitious project is driven by the idea that Sun never sets and can supply solar energy constantly to the entire world, which is the safest and cleanest energy source in the universe. India with Britain in partnership with World Bank and the international Solar Alliance is all determined to convert the idea of One Sun, One World, One Grid into a colossal project by constructing a trans-national electricity grid that will supply solar power across the globe. The project will bring together a global coalition of international technical and financial organisations, power system operators, knowledge leaders to address the issues of harmonising the large scale solar energy between solar rich countries lying between the Tropic of Capricorn and Tropic of Cancer and the countries having a high electricity demand. Such efforts will have a progressive impact on sanitization, food, poverty reduction, availability of clean water along with other positive impacts on socio-economic issues.

The idea is simple, India inspire to connect all the grids of the world to one grid and produce solar power which will then be supplied all over the world thereby, building a healthy and sustainable global eco-system. In the first stage, the Indian grid will entail interconnectivity with South- East, Middle East and South Asian grids (MESASEA) for sharing solar and other renewable energy sources. While in the second stage, MESASEA will be interconnected with the African power grids. The tremendous level of solar energy from the Sahara desert can be harnessed to solve the electricity requirement in the African countries as their requirement for electricity is quite high. In the final stage, all the grids will be interconnected to form one electricity grid for the entire world.

With the available technical know-how with India and its current experiences, it can effectively lead such ambitious projects. Presently India with its power trade system is supplying electricity to Bangladesh, Nepal, Bhutan and Myanmar. Several plans are in pipeline to even connect Sri Lanka with power transmission lines. Cochin airport is the world's first solar-powered airport where the entire energy needs are met by solar energy. The airport produces 50,000 to 60,000 units of electricity per day from 46000 installed panels. The total estimated cost of this project is rupees 620 million which is expected to recover within 4 years.

The project is seen as India's counter to China's one belt one road initiative to earn world leadership. Now with the economical and social uncertainties arising from Covid-19, the permutations of every participating have

greatly altered. The process of cost-sharing of the project will be demanding. Even dealing with governments of different countries with varied market forces can also be a grim experience. Grid management in terms of transmission of electricity through thousands of kilometres will be a difficult task and would add a huge cost. Moreover, difference in frequency, voltage and specification of the grids across the globe will be a stern technical glitch. Leveraging the difference of resources, time zones, seasons and prices between countries and regions will be a matter of consequential concern. Doubtlessly, one Sun, one world, one grid is a move towards clean and renewable energy for attaining the global goal of sustainable development and re-establish environmental balance. OSOWOG in its efforts to synergize has joined hands with the green grids initiative to form a unified GCI-OSOWOG. The initiative is backed by over 80 countries and approximately 2600 GW of interconnection capacity may be possible up to 2050 delivering around power saving of 226 billion euros per year at the global level.



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