

“Be the positive impact on the lives of others.” Roy T. Bennett

INTER NATIONAL & BILATERAL**REGIONAL WORKSHOP OF THE UNITED NATIONS CONVENTION TO COMBAT DESERTIFICATION**

It is a multi-nation counter-terror exercise that will take place under the framework of Shanghai Cooperation Organization. The main aim of the exercise will be to enhance counter-terror cooperation among the eight SCO member countries.

Peace Mission exercises are held once in two years. This year's exercises will be the 10th edition. The last time, it was held in 2016 in Kyrgyzstan.

The 2018 edition will be held in the Ural Mountains of Russia.

Significance of this edition: In a first, India and Pakistan will be part of this exercise. It will be for the first time since Independence that India and Pakistan will both be part of a military exercise, though the armies of the two nations have worked together in UN peace keeping missions.

SCO:

The SCO was founded at a summit in Shanghai in 2001 by the Presidents of Russia, China, Kyrgyz Republic, Kazakhstan, Tajikistan and Uzbekistan.

India and Pakistan were admitted as observers of the grouping in 2005. Both the countries were admitted as full members of the bloc last year.

NATIONAL**ALL OF INDIA'S VILLAGES HAVE BEEN ELECTRIFIED**

According to the government data, all of India's 597,464 census villages have been electrified.

A village is declared to be electrified if 10% of the households can access power along with public institutions such as schools, the panchayat office, health centers, dispensaries and community centers etc.

With the electricity now reaching all villages through the Deen Dayal Upadhyaya Gram Jyoti Yojana (DDUGJY), it is being termed as a game changer moment for readying the country towards achieving universal electricity access.

All Indian villages now have access to electricity.

The last village to be brought on the national power grid was Leisang village in the Senapati district of Manipur.

DDUGJY:

State-run Rural Electrification Corporation (REC) is the nodal agency appointed for executing the scheme aimed at providing round the clock power to rural households and adequate power to agricultural consumers, leading to complete rural electrification.

The scheme will also help improve India's per capita power consumption of around 1,200 kWh which is among the lowest in the world.

Household electrification remains the final frontier in providing electricity access.

Given its electoral potential, the next step now is to provide electricity connections to more than 40 million families in rural and urban areas by March 2019 under the Pradhan Mantri Sahaj Bijli Har Ghar Yojana (Saubhagya), wherein all households will be targeted.

The scheme funds the cost of last-mile connectivity to willing households and will provide the architecture through which the government seeks to reduce import of fossil fuels, boost underutilized power plants and meet its climate change commitments.

By providing universal access to electricity under the scheme, the government plans to leverage the same to promote induction cooking, heating and charging electric vehicles, apart from the initial target of providing lighting.

SAUBHAGYA Scheme:

Aim is to achieve universal household electrification in all parts of the country by providing the last mile electricity connectivity to all rural and urban household.

Under the scheme, the government will provide free electricity to all households identified under Socio-Economic and Caste Census (SECC) data 2011.

The Rural Electrification Corporation Limited (REC) is the nodal agency for operationalisation of scheme throughout the country.

Electricity connections will be given to APL families for Rs 500, which will be payable in 10 equal monthly installments. The BPL cardholders will get it for free.

For covering un-electrified households located in remote and inaccessible areas, solar power packs of 200 to 300 Wp with the battery bank, comprising of 5 LED lights, 1 DC fan, 1 DC power plug including the Repair and Maintenance (R&M) for 5 years.

DRAFT MISSION TO KICK-START RENEWABLE ENERGY STORAGE

Central Electricity Authority is considering a draft regulation to make storage mandatory for large-scale solar projects ranging between 100 MW and 200 MW.

This is to kick-start grid-connected energy storage in India, by setting up a regulatory framework and encourages the indigenous manufacture of batteries, under the Ministry of New and Renewable Energy (MNRE).

The draft sets a “realistic target” of 15-20 Gigawatt hours (GWh) of grid-connected storage within the next five years.

The mission will focus on seven verticals: indigenous manufacturing; an assessment of technology and cost trends; a policy and regulatory framework; financing, business models and market creation; research and development; standards and testing; and grid plan for energy storage.

Currently, Power grids do not have storage options that would help in smoothly

integrating renewable energy sources with conventional power grids

And the Solar Energy Corporation of India (SECI) is expected to issue tenders for grid-connected storage by the end of the year

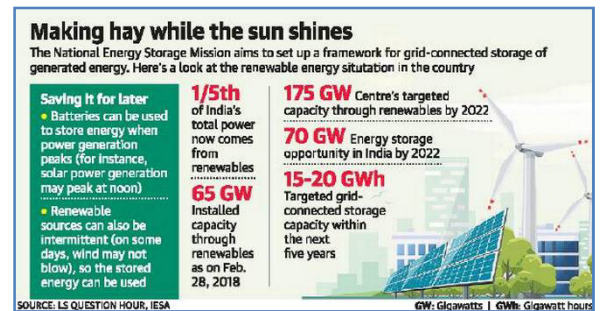
Issues in integrating Renewable to the Grids:

The problem of Peak Supply and Peak Demand: Solar energy generation may be at its peak at noon, but unless stored, it will not be available when needed to light up homes at night.

Renewable sources are inherently intermittent: There are days when the wind doesn't blow or the sky is cloudy.

Grid Stabilization Issue: Batteries could help store surplus energy during peak generation times, but are more immediately needed to stabilize the grid when shifting between renewable and the base load thermal power (currently in surplus).

Limited Storage Capacity: Once the installed capacity of renewable reaches 100 GW [currently 65 GW], it will become critical to incorporate storage options with current storage capacity. Up to 10% of [solar] power can be injected into the grid without storage, after that, storage will become vital.



Way Forward:

It is important to look beyond mere CapEx costs, and also consider life-cycle costs and the distributor's costs due to grid instability and transmission and distribution losses while granting tenders, we need a viable commercial plan for storing renewable energy.

The lithium-ion cells needed for battery storage are not manufactured in India, although major players, including Indian Oil

Corporation and Exide are working to develop indigenous manufacturing capacity.

The three-stage solution suggested by NITI Aayog i.e. incentivized land awards, tax credits per job created and lowering the number of permits, for indigenous storage infrastructure should be duly implemented.

SCIENCE AND TECHNOLOGY

INTERIOR EXPLORATION USING SEISMIC INVESTIGATIONS, GEODESY AND HEAT TRANSPORT

NASA is set to launch Interior Exploration using Seismic Investigations, Geodesy and Heat Transport (InSight) on May 5, the first-ever mission to study the heart of Mars.

InSight is part of NASA's Discovery Program, managed by the agency's Marshall Space Flight Center in Huntsville, Alabama.

It will be the first mission to peer deep beneath the Martian surface, studying the planet's interior by measuring its heat output and listening for mars quakes, which are seismic events similar to earthquakes on Earth.

It will use the seismic waves generated by marsquakes to develop a map of the planet's deep interior.

The findings of Mars' formation will help better understand how other rocky planets, including Earth, were and are created. But InSight is more than a Mars mission – it is a terrestrial planet explorer that would address one of the most fundamental issues of planetary and solar system science – understanding the processes that shaped the rocky planets of the inner solar system (including Earth) more than four billion years ago.

SENTINEL-3B SATELLITE

The European Union has successfully managed to launch its new, highly-advanced Sentinel Earth observation satellite into space. The earth observing satellite is called Sentinel-3B and it flew to space atop a Russian Rocket launcher.

The main aim of the Sentinel-3B satellite is to monitor the Earth's ocean. Along with that it will map the vegetation growth on the earth surface and will measure the thinning ice sheets.

The Sentinel-3B was the seventh rocket that was launched by the European Union for its ambitious Copernicus mission.

Copernicus programme:

Copernicus is the most ambitious Earth observation programme to date. It will provide accurate, timely and easily accessible information to improve the management of the environment, understand and mitigate the effects of climate change and ensure civil security.

Copernicus is the new name for the Global Monitoring for Environment and Security programme, previously known as GMES.

This initiative is headed by the European Commission (EC) in partnership with the European Space Agency (ESA).

ESA coordinates the delivery of data from upwards of 30 satellites. The EC, acting on behalf of the European Union, is responsible for the overall initiative, setting requirements and managing the services.

Services provided by Copernicus: land management, the marine environment, atmosphere, emergency response, security and climate change.

ESA is developing a new family of satellites, called Sentinels, specifically for the operational needs of the Copernicus programme. The Sentinels will provide a unique set of observations, starting with the all-weather, day and night radar images.
