AFS Intercultural Programs India

MUNIVERSITI

IWS

INDORE WORLD SUMMIT

PARLIAMENT OF INDIA

AGENDA:

Deliberation on the energy crisis in India.

LETTER FROM THE EXECUTIVE BOARD

Greetings Members!

It gives us immense pleasure to welcome you to this simulation of RAJYA SABHA at IWS 2022. We look forward to an enriching and rewarding experience.

This study guide is by no means the end of research, we would very much appreciate it if the leaders are able to find new realms in the agenda and bring it forth in the committee. Such research combined with good argumentation and a solid representation of facts is what makes much as possible, as fluency, diction or oratory skills have very little importance as opposed to the content you deliver. So just research and speak and you are bound to make a lot of sense. We are certain that we will be learning from you immensely and we also hope that you all will have an equally enriching experience. In case of any queries feel free to contact us. We will try our best to answer the questions to the best of our abilities.

We look forward to an exciting and interesting committee, which should certainly be helped by the all-pervasive nature of the issue. Hopefully we, as members of the Executive Board, do also have a chance to gain from being a part of this committee. Please do not hesitate to contact us regarding any doubts that you may have.

All the Best!

Abhinav Narayan

Valid Sources

1. Government Reports (Each ministry publishes its own reports including External Affairs Ministry)
2. PTI, PIB
3. Government Websites
4. Government run News channels i.e. RSTV, LSTV, DD News
5. Standing Committee Reports/ Commission Reports
6. RTI Proofs
7. Parliamentary Standing Committee reports
8. Questions and Answers of the parliament
9. SUPREME COURT AND HIGH COURT JUDGEMENTS
10. ANY STATUTORY LAW OF INDIA
11. CONSTITUTION OF INDIA

INTRODUCTION

India is at the cusp of a renewable energy revolution. As of 2020, 38% of India's installed electricity generation capacity is from renewable sources. This comes to 136 GW out of 373 GW. And the government has already set an ambitious target to achieve 175 gigawatts (GW) of renewable energy capacity by 2022.

What Is Renewable Energy?

Renewable energy often referred to as clean energy, comes from natural sources or processes that are constantly replenished. For example, sunlight or wind keep shining and blowing, even if their availability depends on time and weather.

Types of Renewable Energy Sources

The most common renewable power technologies include:

Wind
This takes advantage of wind motion to generate electricity. Wind motion is brought about by the heat from the sun, and rotation of the earth, mainly via the Coriolis Effect.

Solar
It taps heat from the sun to produce energy for the generation of electricity, heating,

lighting homes and commercial buildings.
Hydropower

Utilizes moving water to produce electricity. Moving water creates high energy that can be harnessed and turned into power.

Biomass
Organic matter that constitutes plants is referred to as biomass, which can be utilized to generate electricity, chemicals, or fuels to power vehicles.

Ocean
Takes advantage of the rising and falling of tides to generate electricity

Geothermal
Leverages heat from underneath the earth to generate electricity.

THE ADVANTAGES OF RENEWABLE ENERGY RESOURCES

A Fuel Supply That Never Runs Out

- Renewable energy is created from sources that naturally replenish themselves – such as sunlight, wind, water, biomass, and even geothermal (underground) heat.

- While fossil fuels are becoming harder and more expensive to source – destroying natural habitats and significant financial losses – renewable energy never runs out.

Zero Carbon Emissions

- There are no greenhouse gasses or other pollutants created during the process. Coal power plants on the other hand create around 2.2 pounds of CO2 for every kilowatt-hour of electricity.

- As we race to decarbonize our world and embrace energy sources that don't contribute to global warming, renewables are helping to provide us with emission-free energy.

Cleaner Environment

- Burning fossil fuels causes global warming and causes pollution.
- Coal power stations, for example, release high volumes of carbon dioxide (CO2) and nitrous oxide
- (N2O) directly into the atmosphere – two of the most potent greenhouse gasses. In addition, they also emit mercury, lead, sulfur dioxide, particulates, and dangerous metals – which can cause a host of health problems ranging from breathing difficulties to premature death.
- On the other hand, renewable energy creates no pollution, waste, or contamination risks to air and water.

A Cheaper Form of Energy

- With the rapid growth of renewable energy over the last ten years, solar and wind power are now the cheapest sources of energy in many parts of the world. In the United Arab Emirates, a new sun farm recently secured the world's lowest price of solar energy at just 1.35c per kilowatt-hour.
- Whereas green energy was once a "clean-but-expensive" alternative – it's now helping to reduce energy bills for people in many parts of the world.

Renewable Energy Creates New Jobs

- With an increasing focus on global warming and many governments setting ambitious carbon-reduction goals, renewable energy has quickly become a major source of new job growth.

CHALLENGES OF RENEWABLE ENERGY

Higher Capital Costs

- While renewable energy systems need no fuel and can deliver substantial long-term savings, their up-front costs can still be prohibitive.

- On a larger scale, wind farms, solar parks, and hydropower stations require significant investment, land, and electrical infrastructure.

Electricity Production Can Be Unreliable

- Renewable energy systems rely on natural resources such as sunlight, wind, and water, and therefore, their electricity generation can be as unpredictable as the weather. Solar panels lose efficiency on cloudy days, wind turbines aren't effective in calm weather, and hydropower systems need consistent snow and rainfall to maintain reliable production.

- At the same time, when renewable systems produce too much energy, they risk overloading the grid and causing major problems for network operators.

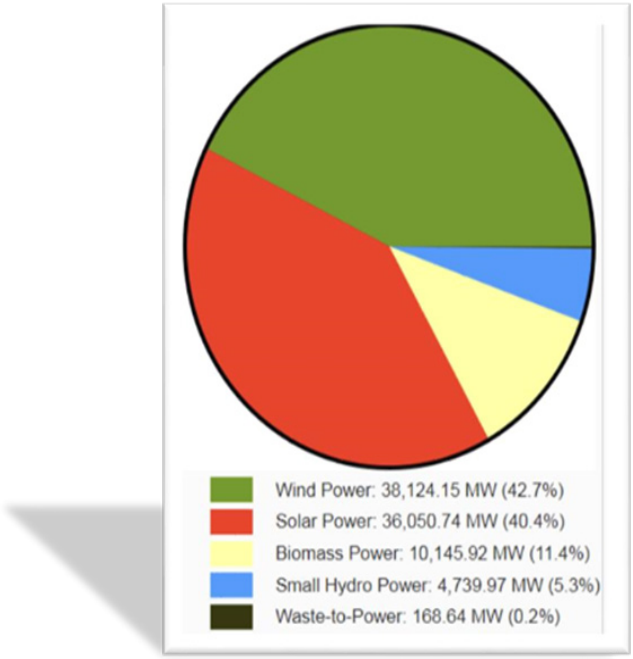
Energy Storage

- Due to the intermittent nature of renewables, they need forms of energy storage to capture and release electricity in a consistent and controlled way.

- Despite falling costs, storage technology is still relatively expensive.

Renewables still have a Carbon Footprint

- While solar panels and wind turbines produce no carbon emissions as they make energy – their manufacturing, transport, and installation still create a carbon footprint



TARGETS

Paris Agreement Targets

- In the Paris Agreement India has committed to an Intended Nationally Determined Contributions target of achieving 40% of its total electricity generation from non-fossil fuel sources by 2030.

Central Electricity Authority's strategy blueprint

- We are also aiming for a more ambitious target of 57% of the total electricity capacity from renewable sources by 2027 in Central Electricity Authority's strategy blueprint.

- According to the 2027 blueprint, India aims to have 275 GW from renewable energy, 72 GW of hydroelectricity, 15 GW of nuclear energy, and nearly 100 GW from "other zero emission" sources.

- There is also a target for installation of Rooftop Solar Projects(RTP) of 40 GW by 2022 including installation on the rooftop of houses.

UN Climate Summit

- In 2019 at the UN climate summit, India announced that it will be more than doubling its renewable energy target from 175GW by 2022 to 450GW of renewable energy by the same year.

- These targets would place India among the world leaders in renewable energy use and place India at the center of its “Sunshine Countries” International Solar Alliance project promoting the growth and development of solar power internationally to over 120 countries.

Coal Crisis

- ndia in October 2021 was on the verge of a power crisis as the stock of coal held by the country’s thermal power plants had hit critically low levels. Many power plants were operating with zero reserve stock or with stocks that could last just a few days. Coal-fired power stations, which produce 70 per cent of India’s power, announced they had an average of four days of coal left, the lowest in years.

REASONS BEHIND THE COAL SHORTAGE

The crisis is being ascribed to the following reasons:

i) Rise in electricity demand due to the economic revival after the lifting of curbs: Power consumption in the last two months alone jumped by almost 17%, compared to the same period in 2019.

ii) With a delayed and scattered monsoon, coal production was also impacted at CIL's mines from July onwards. Moreover, heavy rains in September impacted coal production especially in central and eastern India due to severe flooding in mines. This has also impacted certain key logistic routes.

iii) A spike in imported coal prices by more than 40%: China, the biggest consumer, and producer of coal is facing a severe shortage. Therefore, it has effectively put restrictions on the export of coal and is competing for imported coal in the international market. This has led to thermal coal prices and freight costs soaring in the international market, witnessing over a 100% increase this year. Hence, power plants in India that usually rely on imports are now heavily dependent on Indian coal, adding further pressure to already stretched domestic supplies.

iv) Inadequate stocks at power projects: Power plants used their coal stocks and did not replenish them. They even did not adhere to the CEA guidelines of stocking the coal for 22 days.

v) Lower generation from other fuel sources.

vi) Non-payment of coal dues: Power tariffs are set by the respective states in India and are among the lowest in the world. State-run distribution companies have absorbed higher input costs to keep tariffs steady. This has left many such companies deeply indebted, with cumulative liabilities running into billions of dollars. The companies' strained balance sheets have consistently triggered delayed payments to power producers, often affecting cash flows and disincentivizing further investment in the electricity generation sector.

vii) Also, as part of the largest global household electrification drive through the Saubhagya scheme, the electricity load shot up.

viii) Inadequate mining exploration by CIL and non-CIL entities: Legacy of nationalization and the long monopoly of government-owned Coal India Limited has resulted in inadequate exploration and mining of the mineral leading to a shortage of coal. The production has stagnated and stands at 600 MT for the past three years. Several mines were allocated to entities other than CIL. These mines have not augmented

coal production. Non-CIL coal production fell from 128 MT in 2019-20 to 120 MT in 2020-21. As a major reform, the government has ended Coal India's monopoly over the commercial production of domestic coal in early 2020. Since then, some coal blocks have been auctioned for commercial use, but it will take time for these blocks to start producing. This is because several clearances have to be obtained before commencing production.

ix) Ideology also has a big role to play in this crisis. In India, coal imports have been traditionally high. Under its Atma Nirbharta drive, the government has voiced concerns on this issue and asked generators to be more self-reliant. Coal dependency came down over time, which also coincided with a lower phase of economic growth. The same has happened in China where the government has taken the greening concept seriously and asked coal producers to control production and power generators and move over to other greener fuels. This has made coal producers less willing to increase investment.

x) Lack of enthusiasm and participation in the auctions because coal is no longer seen as a fuel of the future.

ESCALATION OF THE ISSUE

As India's economy picked up after a deadly second wave of Covid-19, power demand rose sharply. Power consumption in the last two months alone jumped by almost 17%, compared to the same period in 2019. At the same time, global coal prices increased by 40% and India's imports fell to a two-year low. India is the world's second-largest importer of coal despite also being home to the fourth-largest coal reserves in the world. Power plants that usually rely on imports are now heavily dependent on Indian coal, adding further pressure to already stretched domestic supplies.
In recent years, India's production has lagged as the country tried to reduce its dependence on coal to meet climate targets. Prices of power-generation fuels are surging globally as electricity demand rebounds with industrial growth, tightening supplies of coal and liquefied natural gas. India is competing against buyers such as China, the world's largest coal consumer, which is under pressure to ramp up imports amid a severe power crunch. Rising oil, gas, coal, and power prices are feeding inflationary pressures worldwide and slowing the economic recovery from the COVID-19 pandemic.

What is the likely impact of coal shortage?

The coal shortage problem is very serious as it affects the power supply, which is the backbone of all economic activity.
i) Delay in economic recovery: Electricity shortages faced by industry could delay India's economic recovery as businesses might be forced to downscale their production.

ii) Inflationary impact: If coal shortage continues and if companies start importing expensive coal then the cost would be passed down to consumers. This would result in an inflationary impact on the top of already high retail inflation.

iii) Impact on steel: Increase in coal prices will have an impact on steel, the price of which may also go up due to this unprecedented rise. Steel players use coal as fuel to produce power to run plants and produce steel through the direct reduced iron (DRI) route.

iv) Rise in spot prices of power: Spot prices of power sold through the Indian Energy Exchange jumped more than 63% year-on-year in September to average Rs 4.4 ($0.06) a kilowatt-hour and were as high as Rs 13.95.

v) Impact on outcome of COP26 at Glasgow: The great hope was that the success of

renewable energy in recent years would allow for countries to speed up their transition away from high-emissions fossil fuels — particularly coal. It is hard to see how the news of an economic recovery being hampered by a coal shortage in the two biggest engines of global growth will aid in achieving consensus at Glasgow.

THREATS

The desire to cut its reliance on heavily polluting coal-burning power plants has been a major challenge for the government in recent years. The question of how India can achieve a balance between meeting demand for electricity from its almost 1.4bn people has to be answered.

GOVERNMENT'S INITIATIVES FOR GENERATING RENEWABLE ENERGY Grid

Connected Solar Rooftop Programme

For achieving a cumulative capacity of 40,000 MW from Rooftop Solar (RTS) Projects by the year 2022.

Solar Park Scheme

MNRE has come up with a scheme to set up several solar parks across several states,

each with a capacity of almost 500 MW. The scheme proposes to offer financial support by the Government of India to establish solar parks to facilitate the creation of infrastructure required for setting up new solar power projects in terms of allocation of land, transmission, access to roads, availability of water, etc.

International Solar Alliance

The International Solar Alliance (ISA) is an alliance of 121 countries initiated by India, most of them being sunshine countries, which lie either completely or partly between the Tropic of Cancer and the Tropic of Capricorn. The primary objective of the alliance is to work for efficient consumption of solar energy to reduce dependence on fossil fuels. The initiative was launched by Prime Minister Narendra Modi at the India Africa Summit and a meeting of member countries ahead of the 2015 United Nations Climate Change Conference (COP 21) in Paris in November 2015. The framework agreement of the International Solar Alliance opened for signatures in Marrakech, Morocco in November 2016, and 200 countries have joined.

PM KUSUM

Pradhan Mantri Kisan Urja Suraksha even Utthan Mahabhiyan (PM KUSUM) Scheme for farmers aims for installation of solar pumps and grid-connected solar and other renewable power plants in the country.
The scheme aims to add solar and other renewable power capacities of 25,750 MW by 2022.

National Green Corridor Project

The green energy corridor is a grid-connected network for the transmission of renewable energy produced from various renewable energy projects.

National Wind-Solar Hybrid Policy

This policy essentially aims at establishing a structure based on which large-scale wind-solar hybrid power projects can be promoted.

National Offshore Wind Energy Policy

The objective is to develop offshore wind energy in the Indian Exclusive Economic Zone (EEZ) along the Indian coastline.

Sustainable Rooftop Implementation for Solar Transfiguration of India (SRISTI) scheme

The Central government will offer a financial incentive to the beneficiary for installing Solar power plant rooftop projects within the country

Biomass Power & Cogeneration Programme

It is being implemented with the main objective of promoting technologies for optimum use of the country's biomass resources for grid power generation.

Draft National Wind-Solar Hybrid Policy

The main objective of the Policy is to provide a framework for the promotion of large grid-connected wind-solar PV hybrid systems for optimal and efficient utilization of transmission infrastructure and land, reducing the variability in renewable power generation and achieving better grid stability.

FDI Policy

100% FDI is allowed in the renewable energy sector under the Automatic route and no prior Government approval is needed.

Akshay Urja Portal and India Renewable Idea Exchange (IRIX) Portal

Promotes the exchange of ideas among energy-conscious Indians and the Global community.

National Biogas and Manure Management Programme

Central Sector Schemes that provides for setting up of Family Type Biogas Plants mainly for rural and semi-urban/households.

Production Linked Incentive (PLI) Scheme

Incentives for High-Efficiency Solar PV Modules for Enhancing India's Manufacturing Capabilities and Enhancing Exports

INDIA'S FOCUS AREAS Methanol and Biomass

- Utilizing other alternatives like methanol-based economy and biomass.
- Bio-CNG vehicles with 20% blending in petrol is also a target for the government.
- Generating energy from Biomass is a better option since it will clean the cities and also decrease our energy dependence. Fuels created from biomass have a high calorific value and are cleaner than traditional biomass.

The Twin Challenge

- ● India has a twin challenge of providing more as well as cleaner energy to the population in India.
- ● It should focus on getting into the manufacturing of solar panels under the Aatma Nirbhar Bharat initiative because the demand is to generate jobs and supply de-centralized energy to all the households in India.
- ● Developing the whole supply chain of all the components besides the manufacturing sector.

Hydrogen Based FCV

- ● It is likely to change the landscape of renewables and moving towards Hydrogen Based Fuel Cells Vehicles (FCV) is another area of focus.

Grid Integration

- ● It is the practice of developing effective ways to provide variable renewable energy (RE) to the grid.

GREEN INDIA MISSION

Green India mission is one of the missions that come under the umbrella of the National Action Plan on Climate Change (NAPCC). Every country has an obligation to arrest the downward spiral of climate change. Hence, India as a responsible growing global power took up the responsibility of reducing the deleterious effects of climate change by launching different missions under NAPCC.
Green India Mission was launched in 2014. The primary aim is to protect, restore and enhance India's diminishing forest cover.

Objectives of Green India Mission (GIM)

1. Growth in forest or tree cover to 5 million hectares (MHA) and increase the quality of forest cover in another 5 million hectares of forest or non-forest lands. There are separate sub-targets for a variety of forests and their ecosystems namely, grassland, dense forest, wetland, etc.

2. Increase the quality of degrading moderately dense forests – 1.5 million hectares (ha).

3. Ecologically restore open forests which are being degraded – 3 million hectares (ha)

4. Grasslands revival – 0.4 million hectares

5. Wetlands revival – 0.10 million hectares

6. Ecological restoration of shifting cultivation areas, mangroves, scrub, ravines, cold deserts, & abandoned mining areas – 1.8 million hectares with different sub-targets.

7. Increase in forest cover in urban areas and its outskirts – 0.20 million hectares.

8. Increase in forest and tree cover on marginal agricultural lands/fallows and other non-forest lands which comes under agroforestry – 3 million hectares.

9. Increase forest-based livelihood income for about 3 million households in and around these forest
areas.

10. Increase Carbon Dioxide sequestration to a range of 50 to 60 million tonnes by 2020.

Implementation of Green India Mission (GIM)

1. At the national level implementation is done by the Ministry of Environment and Forests.

2. The State Forest Development Agency to guide the mission at the state level.

3. At the district level, the implementation will be done by the Forest Development Agency.

4. The gram sabha and various committees are the key institutions for planning and implementation at the village level.

5. In urban areas, the ward level committees like Residents Welfare Association (RWA) linked to the
municipality/municipal corporations facilitate planning and implementation under the mission.

6. Potential to develop 1 lakh skilled local community youth who would provide support in community-based forest conservation. They would act a a bridge between the community and
implementing agencies such as the forest department.

PARLIAMENTARY COMMITTEE REPORT – PERFORMANCE OF THE NATIONAL ACTION PLAN ON CLIMATE CHANGE

As per the observation of the Parliamentary Committee, approximately Rs 47 crore was allocated during 2017-18, which the committee found to be woefully insufficient, to meet the committed liability of approximately Rs 89 crores for 2 years i.e. 2015-16 and 2016-17.
Forest cover in India currently stands at around 81 million hectares (The report mentions 75 million). The Parliamentary Committee raises a concern on the targets set for carbon sequestration. As per the Nationally Determined Contribution (NDC) of India, by the year 2020-30, the target to achieve is approximately 2.5 billion tonnes of carbon, and to meet this target, India needs an additional forest cover to the tune of 30 million hectares. The Parliamentary report observes that till the year 2016-17, the target set for the afforestation was approximately 51,000 hectares, which comprises a minuscule proportion of the requirement. GIM was supposed to be launched in 2012, but owing to financial constraints the mission was launched after 3 years in 2015.

The report also observed that in a span of 2 years 2015-16 and 2016-17, the mission failed to meet its targets by 34%. The target was to cover approximately 67,000 hectares of land, with the green cover but only approximately 44,000 hectares of land could be provided with the green cover.

The other shortcoming noted in the report is that the mission only aimed at increasing the number of trees without taking into account the weather conditions and soil conditions. It is imperative to plant trees that solve environmental problems not inflate the problem. Hence planting trees like eucalyptus is doing a disservice in solving the environmental crisis. Incompatible trees will only create a drought-like situation and thus stagnating and destroying the biodiversity of the concerned region.

The report also takes cognizance of the differentiation between forest and a plantation and how plantations can never be a substitute for forests, although plantation activities are undertaken with the noble cause of increasing the green cover. Forests are an amalgamation of a variety of plants and trees which come in varied sizes and shapes. The report also observes that the growth of forests happens naturally and can be attributed to the climatic conditions prevalent in that particular area.
The contributions of plantations come in the form of economic value associated with timber, whereas the most important ecological factors like soil erosion prevention, increasing biodiversity can only happen with the assistance of the forests.

CONCLUSION & WAY FORWARD

India's clean-energy initiatives have the wind at their back thanks to global advances in green technology—especially solar power, wind power, and energy storage. These technologies are progressing exponentially and have entered a virtuous cycle- as prices for these technologies fall, demand for them rises, and as production is expanded to meet demand, prices fall some more; all of which contributes to accelerating adoption.

Two burning questions for India — and the world — are how fast the use of renewables and related clean energy technologies can scale, and to what extent can they mitigate the increase in fossil fuel use. As the second-largest coal-producing and -consuming country on earth and the third-largest emitter of greenhouse gasses, India's transition from carbon-intensive resources is a critical front in the global climate change fight.
India has reduced its emission intensity by 21% over 2005 levels. Over the last decade, India focused mostly on adding solar and wind energy capacity as fast as possible. The next phase will require deep structural reforms to create a cleaner, more flexible, and more efficient power system.

The world is in an **energy transition stage** when there is bound to be an imbalance in demand and supply throughout. Since most of the consumptive and fast-growing world economies are heavily dependent on **thermal energy**, it will be a rather difficult task to switch to renewable sources of energy quickly. Thus, it is also imperative that we divide our attention towards **sustainable alternatives** also to achieve better stability in the future and avoid future energy crises.

Necessity is the mother of invention- on these lines, many countries are trying to set the right balance between green energy and fossil fuel usage.

California has installed solar-powered batteries connected to the grid. These batteries help power the grid during the heatwave and store excess energy during peak solar hours. This stored energy is dispatched back into the grid after sunset.

The offshore wind energy farm of Denmark was a global first in 1991 but now has been taken up by many countries including India. Now, Denmark is building another global first- an energy island in the North Sea that could eventually be capable of supplying energy to approximately 10 million homes. The move will create a critical boost to the world's offshore wind capacity. The first 'hub and spoke' energy scheme will involve building an island 80 kilometers off the Danish coastline to act as the transmission center for hundreds of wind turbines surrounding it.

The Green Grids Initiative, the one sun one world one grid concept introduced by India is also the right step in harnessing and saving energy for the future.

It is imperative in today's scenario that climate change mitigation and tackling the energy crisis have to go hand in hand as both are complexly interlinked. The countries need to come up with solutions to control, mitigate and balance the future with the present.

The Union government has sprung into action in response to the current energy crisis. Domestic coal production and coal off-take have increased. The government has suggested blending 10 per cent of imported coal with domestic coal, which would soften high coal price.

It has asked power plants with captive mines to use these mines to the fullest. Nearly half of the annual output of captive mines can now be sold in open market.

We should be progressively shun coal by constructing clean, cheaper domestic alternatives as quickly as possible. Coal is a 'zombie fuel'.

Almost any knee-jerk reaction that urges more investment in coal is completely unhelpful. Costs associated with coal-based generation are high and inflationary.