



CURRENT AFFAIRS



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RENEWABLE ENERGY SCHEMES

This article covers “Daily Current Affairs” and the topic details “Renewable Energy Schemes”. The topic “Renewable Energy Schemes” has relevance in the Economy section for the UPSC CSE exam.

Relevance of the topic “Renewable Energy Schemes”

For Prelims:

What are the Renewable Energy Schemes?

For Mains:

GS 3: Environment

What is the status of Renewable Energy installation in India?

What is the significance of Renewable Energy?

Way Forward

Why in the news?

MNRE holds Review Meetings with States/ UTs on the Progress of Renewable Energy Schemes/ Capacities

What are the Renewable Energy Schemes?

- **Solar Parks Pradhan Mantri Kisan Urja Suraksha Evam Utthan Mahabhiyan (PM-KUSUM) Scheme**
- The PM-KUSUM (Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan) Scheme is designed to provide energy security to farmers in India while also fulfilling the country's commitment to increase the proportion of electricity generated from non-fossil fuel sources.
- By 2030, the scheme aims to achieve a 40% share of installed capacity from clean energy sources, aligning with India's Intended Nationally Determined Contributions (INDCs) to combat climate change.
- This initiative promotes the use of solar power, including the installation of solar pumps, solar grid-connected power plants, and solarization of existing agricultural pumps, thereby reducing farmers' reliance on traditional energy sources and enhancing their livelihoods.

Components:

- Component-A: For Setting up of 10,000 MW of Decentralized Grid Connected Renewable Energy Power Plants on barren land.
- Component-B: For Installation of 17.50 Lakh stand-alone solar agriculture pumps.
- Component-C: For Solarisation of 10 Lakh Grid Connected Agriculture Pumps.

Rooftop Solar Programme

- It aims to promote the adoption of solar energy systems on rooftops of buildings. It encourages individuals, communities, and businesses to install solar panels on their rooftops to generate clean and renewable electricity.
- The Rooftop Solar Programme offers various incentives and support mechanisms to facilitate the installation of rooftop solar systems.

National Green Hydrogen Mission

- It is aimed at promoting the production, deployment, and utilization of green hydrogen as an alternative energy source.
- Green hydrogen is produced by using renewable energy sources, such as solar and wind power, to electrolyze water and separate hydrogen from oxygen.

What is the status of Renewable Energy installation in India?

- The Renewable Energy capacity of 172 GW has already been installed and close to 129 GW is either under implementation or has been tendered.
- Thus, the total installed capacity would be 301 GW, which leaves approximately 200 GW capacity to be added in order to achieve the target of 500 GW capacity from non-fossil fuels.

What is the significance of Renewable Energy?

1. Climate Change Mitigation: It has the ability to reduce greenhouse gas emissions. Unlike fossil fuels, renewable energy sources such as solar, wind, hydro, and geothermal do not release significant amounts of carbon dioxide and other pollutants during electricity generation.
2. Energy Security and Independence: Renewable energy diversifies the energy mix and reduces dependence on fossil fuel imports.
3. Air Quality Improvement: Renewable energy sources produce clean energy, which helps improve air quality and reduces respiratory and other health-related issues associated with fossil fuel pollution.
4. Sustainable Economic Development: Investments in renewable energy projects, manufacturing, installation, and maintenance create employment across various skill levels.
5. Resource Efficiency: Renewable energy sources utilize naturally replenishing resources, such as sunlight, wind, and water, which are virtually inexhaustible.
6. Rural Electrification and Energy Access: Renewable energy technologies, such as off-grid solar systems and mini-grids, offer cost-effective solutions for electrifying remote and rural areas that are not connected to the centralized grid.

Source:

<https://www.pib.gov.in/PressReleaseDetail.aspx?PRID=1926777>

QUESTION FOR PRELIMS

Q.1 Which of the following is not a component of the PM KUSUM scheme:

1. Decentralized Grid-Connected Renewable Energy Power Plants
2. Solar agriculture pumps
3. Solarisation of Grid Connected Agriculture Pumps.
4. Green Energy Corridor.

Answer : (d)

Q.2 Consider the following pairs:

Types of Hydrogen	Process of formation
Green Hydrogen	It is produced from an electrochemical reaction that splits water into its components of hydrogen and oxygen, emitting zero-carbon dioxide in the process.
Grey Hydrogen	It is generated through electrolysis powered by nuclear energy.
Pink Hydrogen	It is created from natural gas, or methane, using steam methane reformation but without capturing the greenhouse gases made in the process.

Select the correct pair from the options given above:

Answer : (a)

QUESTION FOR MAINS EXAMINATION

Q.1 India has significantly increased its renewable energy generation capacity. What are the government initiatives being taken to enhance the renewable energy generation capacity of India? Discuss.

Mohit pratap singh

HEATWAVE

This article covers "Daily Current Affairs" and the topic details "Heatwave". The topic "Heatwave" has relevance in the Environment and Disaster Management section for the UPSC CSE exam.

Relevance of Heatwave

For Prelims:

What is a heatwave?

For Mains:

GS 3: Environment, Disaster Management.

Why heatwave frequency is increasing?

What are the Implications of Heatwaves?

Remedial Measures to be taken?

Why in the news?

Heatwaves warning has been issued in parts of north and central India. With temperatures touching 45 degree Celsius in parts of northwest India on Sunday, the Indian Meteorological Department has issued fresh heatwave warnings over Delhi-NCR and the nearby areas.

What is a heatwave?

A Heatwave is a period of abnormally high temperatures, more than the normal maximum temperature that occurs during the summer season in the parts of India. Heat Waves typically occur between March and June.

Heatwaves need not be considered till the maximum temperature of a station reaches at least 40°C for Plains and at least 30°C for Hilly regions.

When the normal maximum temperature of a station is less than or equal to 40°C Heat Wave Departure from normal is 5°C to 6°C, Severe Heat Wave Departure from normal is 7°C or more.

Why heatwave frequency is increasing?

- **Climate Change:** One of the primary factors contributing to the more frequent occurrence of heatwaves is climate change. As greenhouse gas concentrations, such as carbon dioxide, continue to rise in the atmosphere, the Earth's average temperature increases.
- **Amplified Weather Patterns:** Climate change can also alter weather patterns, resulting in atmospheric conditions that favor the occurrence of heatwaves.
- **Urban Heat Island Effect:** Urban areas with dense buildings, concrete, and asphalt tend to absorb and retain more heat, creating localized heat islands. This effect exacerbates heatwave conditions in urban environments.
- **Land Use Changes:** Modifications to the land surface, such as deforestation or urbanization, can affect local climate conditions. These changes can alter surface albedo (reflectivity), disrupt natural cooling processes, and increase the retention of heat.
- **Natural Climate Variability:** Alongside long-term climate change, natural climate variability, such as El Niño and La Niña events, can influence the occurrence of heatwaves.

What are the Implications of Heatwaves?

- **Human Health Impact:** Heatwaves pose a severe risk to human health. Exposure to extreme heat can lead to heat-related illnesses, including heat exhaustion, heatstroke, and dehydration. Vulnerable populations, such as the elderly, children
- **Agricultural and Food Security:** Heatwaves can have detrimental effects on agriculture and food security. High temperatures can cause crop failure, reduced crop yields, and damage to livestock. Heat stress on plants can disrupt photosynthesis and lead to water shortages, affecting crop quality and quantity.
- **Water Resources and Drought:** Heatwaves exacerbate drought conditions by increasing evaporation rates, reducing water availability, and intensifying water scarcity.
- Higher temperatures contribute to the depletion of surface water bodies and groundwater resources, affecting agriculture, ecosystems, and human water supplies.
- **Ecosystem Disruption:** Heatwaves can disrupt ecosystems and biodiversity. Increased temperatures and water scarcity can lead to the loss of habitat, reduced biodiversity, and alterations in species distribution.
- **Social and Economic Impacts:** Heatwaves can have wide-ranging social and economic impacts. Decreased worker productivity, increased absenteeism, and reduced outdoor economic activities are some of the consequences of extreme heat on economies.

Remedial Measures to be taken?

Mitigating Climate Change:

- Reduce greenhouse gas emissions
- Promote afforestation and reforestation
- Support to clean technologies

Adaptation Measures:

- Enhance urban planning
- Improve building design
- Implement early warning systems
- Provide heatwave relief and cooling centers

- Enhance public health measures

International Cooperation:

- Collaborate on climate change initiatives
- Share knowledge and best practices
- Provide support to developing nations

Source:

<https://indianexpress.com/article/india/india-heatwave-weather-update-may-22-8621988/>

Q.1 Consider the following statements regarding heatwaves:

- 1: Heatwaves are prolonged periods of excessively hot weather, characterized by high temperatures and often accompanied by high humidity.
- 2: Heatwaves primarily occur due to natural climate variability and are not influenced by human activities.
- 3: Urban areas are more prone to the urban heat island effect, which exacerbates the intensity and duration of heatwaves.

Which of the statements given above is/are correct?

- (a) 1 Only
- (b) 1 and 2 Only
- (c) 1 and 3 Only
- (d) 1, 2, and 3

Answer: (c)

Q.2 Which of the following statements regarding urban heat island (UHI) is/are correct?

- 1: UHI refers to the phenomenon where urban areas experience higher temperatures compared to surrounding rural areas due to human activities and urbanization.
- 2: High concentration of materials such as concrete and asphalt, reduced vegetation cover, and waste heat from buildings and vehicles does not have a significant contribution in UHI effect.
- 3: UHI can have various negative impacts, including increased energy consumption, heightened heat-related illnesses, reduced air quality, and altered precipitation patterns.

- (a) 1 and 2 only
- (b) 1 and 3 only
- (c) 1 only
- (d) 3 only

Answer: (b)

Q.3"Examine the role of mitigation and adaptation strategies in combating the increasing frequency and intensity of heatwaves, highlighting their importance in ensuring resilience and minimizing the socio-economic and environmental consequences."

(15 marks)

Rishabh