



Electricity (Rights of Consumers) Rules

Context: The Indian government has given its approval for amendments to the Electricity (Rights of Consumers) Rules of 2020.

➤ Faster and Easier Installation of Rooftop Solar Systems:

- Amendments aim to streamline the process of setting up Rooftop Solar PV systems.
- Exemption from technical feasibility study for systems up to 10 kW capacity.
- Reduced timeline for feasibility study to 15 days for systems above 10 kW.
- Distribution system strengthening for systems up to 5 kW capacity to be done by the distribution company at its own cost.
- Commissioning timeline reduced to 15 days.

➤ Separate Connections for Electric Vehicle Charging Stations:

- Consumers can now obtain separate electricity connections for charging Electric Vehicles.
- Aligned with national goals of reducing carbon emissions.

➤ Expedited New Connections and Modifications:

- Reduced timeline for new electricity connections: 3 days in metropolitan areas, 7 days in other municipal areas, and 15 days in rural areas (except hilly terrain).
- Additional time for rural areas with hilly terrain remains 30 days.

➤ Enhanced Rights for Consumers in Residential Colonies and Flats:

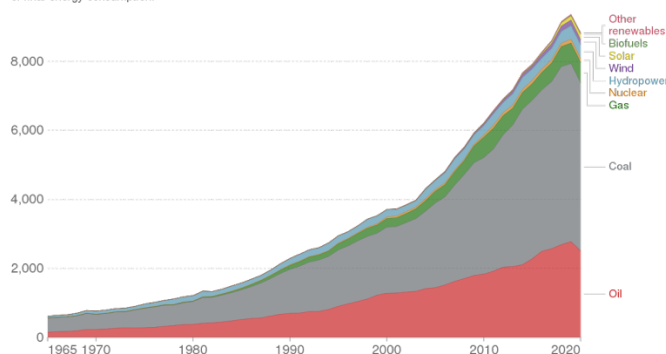
- Owners in residential complexes can choose between individual connections for each unit or a single-point connection for the entire premises.
- Transparent ballot conducted by Distribution Company for option selection.
- Parity in tariff for single-point and individual connections.
- Separate metering, billing, and collection for individual consumption, backup power, and common areas.

➤ Mandatory Additional Meter for Complaints:

- Distribution licensee required to install additional meter within 5 days of complaint regarding meter reading discrepancies.
- Additional meter used to verify consumption for minimum 3 months.

Energy consumption by source, India

Primary energy consumption is measured in terawatt-hours (TWh). Here an inefficiency factor (the 'substitution' method) has been applied for fossil fuels, meaning the shares by each energy source give a better approximation of final energy consumption.



Source: BP Statistical Review of World Energy
Note: 'Other renewables' includes geothermal, biomass and waste energy.

➤ Government's Consumer-Centric Approach:

- Amendments prioritize consumer interests and empowerment.
- Rules set standards for services provided by electricity distribution companies.
- Cover aspects such as billing, complaints, compensation, and timelines for new connections.
- Support for renewable energy generation by prosumers.
- Amendments further strengthen consumer empowerment.

Laser cooling of Positronium

Context: Researchers from an international collaboration have achieved a significant milestone by successfully demonstrating the laser cooling of Positronium for the first time.

➤ Breakthrough Achievement:

- Laser cooling of Positronium was achieved for the first time by the AEgIS collaboration at CERN.

- This achievement opens the door for advanced studies aiming to understand the interactions between matter and anti-matter.

➤ Contributions and Challenges:

- The Indian effort, led by a researcher from Raman Research Institute in Bengaluru, played a significant role.
- Recent technological advancements have facilitated the laser cooling of Positronium.
- Challenges were encountered due to the precise laser alignment requirements, particularly with ultraviolet and infrared lasers.
- The results, showcasing the cooling from approximately 380 Kelvin to about 170 Kelvin, were published in Physical Review Letters.
- The experiment was conducted in a challenging accelerator beam hall environment, necessitating innovative solutions for laser alignment and detection techniques.

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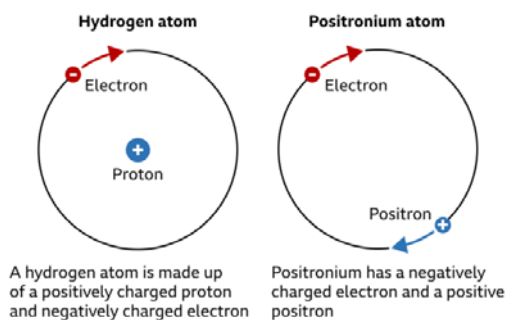
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- Laser cooling of anti-atoms and spectroscopic comparisons are critical tests for Quantum Electro Dynamics (QED).
- This breakthrough paves the way for creating exotic systems like Bose Einstein Condensates and further experiments aiming to test the equivalence principle.

➤ Positronium

• Composition and Characteristics:

- Ps is composed of an electron and its anti-particle, a positron, forming an exotic atom known as an onium.
- Unlike hydrogen, Ps lacks protons and is unstable, leading to annihilation and gamma-ray emission.



Source: BBC research, Cern



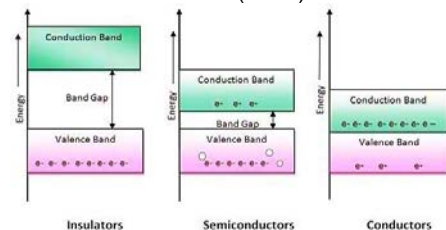
- Energy levels resemble those of hydrogen, but spectral line frequencies are lower due to reduced mass.
- **Formation and decay:**
 - Positrons, emitted in β^+ decay, may form positronium before annihilating with electrons in materials.
 - Approximately 60% of positrons directly annihilate with electrons, producing two gamma rays.
 - About 10% form para-positronium, decaying promptly into two gamma rays.
 - Roughly 30% form ortho-positronium, which then annihilates within nanoseconds, often emitting two gamma rays.
 - Only around 0.5% form self-decaying ortho-positronium, releasing three gamma rays due to a slow natural decay rate.
- **Exotic Compounds and Molecules:**
 - Predictions suggest molecular bonding for Ps, leading to compounds like positronium hydride (PsH) and cyanide.
 - Di-positronium (Ps₂) molecules, comprising two Ps atoms, were first observed in 2007.
- **Differences from Muonium and Natural Occurrence:**
 - Ps lacks a nucleus analogue due to equal masses of electron and positron, unlike muonium.
 - Ps shows significant differences from hydrogen in size, polarisability, and binding energy.
 - Positronium did not naturally occur in early universe events or in present-day interactions, being too thermally energetic before annihilation.

Semiconductor industry in India

Context: Rajeev Chandrasekhar, the Minister of State for Electronics and IT, has officially stated that both the Tata Group and Tower Semiconductor, an Israeli chip company, have submitted applications to establish foundries within the country.

➤ Semiconductor Industry in India:

- **Integral to Various Sectors:** The semiconductor industry has become indispensable to virtually all sectors, emerging as one of the most vital industries, shaping the efficiency and intelligence of modern living.
- **Versatile Applications:** Semiconductors or chipsets find applications across a wide range of electronic devices and technologies, spanning electronic products, IT hardware, defense technology, industrial electronics, medical electronics, automation, and Internet of Things (IoT).
- **Hub for Semiconductor Design:** India has established itself as a hub for semiconductor design, with nearly 2,000 chips designed annually and over 20,000 engineers engaged in various aspects of chip design and verification.
- **Attracting Foreign Investments:** India is actively seeking foreign investments and partnerships in the semiconductor industry, as demonstrated by initiatives such as the collaboration between the US Semiconductor Industry Association (SIA) and the India Electronics and Semiconductor Association (IESA).



➤ Government Initiatives:

- **Promotion of FAB Units:** The Indian government has sought proposals for setting up or expanding semiconductor wafer/device fabrication plants (FABs) in India and unveiled programs for developing a sustainable semiconductor and display manufacturing ecosystem.
- **Design Linked Incentives:** Various schemes, including the Design Linked Incentive (DLI) Scheme, aim to incentivize semiconductor design and deployment in India.
- **Infrastructure Development:** Plans for setting up chip-making facilities and electronic manufacturing clusters, along with initiatives to establish NIELIT centers in Northeast India, underscore the government's commitment to infrastructure development in the semiconductor sector.
- **India Semiconductor Mission:**
 - **ISM's Objective:** The India Semiconductor Mission (ISM), operating under the Digital India Corporation, aims to build a vibrant semiconductor and display ecosystem to position India as a global hub for electronics manufacturing and design.
 - **Semicon India Program:** The Semicon India Program, approved in 2021, seeks to provide incentive support to companies engaged in semiconductor fabs, display fabs, compound semiconductors, sensors fabs, semiconductor packaging, and semiconductor design, thereby fostering semiconductor and display manufacturing in India.

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NEWS IN BETWEEN THE LINES

UNCTAD



Recently, the UN Conference on Trade and Development (UNCTAD) reported that the disruption of Red Sea shipping, primarily due to attacks, has significantly impeded traffic through the Suez Canal.

About UNCTAD:

- The United Nations Conference on Trade and Development (UNCTAD) is a **permanent body of the UN General Assembly**.
- It was **established in 1964** to promote trade, investment and development in developing countries.
- Its **aim is to promote sustainable development**, particularly in developing countries, through international trade, investment, finance and technology transfer.
- It **publishes the Trade and Development Report, World Investment Report and the Least Developed Countries Report**.
- Its headquarter is in **Geneva, Switzerland**.

The Suez Canal:

- The Suez Canal connects **Port Said on the Mediterranean Sea** to the Indian Ocean via the Egyptian city of Suez on the **Red Sea**.
- It serves as a crucial **international shipping route**, facilitating navigation **between Europe and Asia without circumnavigating Africa**.
- Universal Suez Ship Canal Company formed in **1858**; canal opened for international navigation in **1869**.
- British powers controlled until **1956**; nationalized by Egypt during the Suez Crisis; reopened for international navigation in **1957**.

National Green Tribunal



Recently, the National Green Tribunal criticized the Central Ground Water Authority for its generic response and lack of concrete action regarding toxic arsenic and fluoride contamination in groundwater.

About National Green Tribunal:

- The National Green Tribunal is a **statutory body in India** that was **established in 2010** to handle environmental cases.
- The National Green **Tribunal Act of 2010** allows for the creation of a special tribunal to expeditiously dispose of cases related to environmental protection and the conservation of forests.
- It is a specialized judicial body that can **handle environmental disputes** with multi-disciplinary issues.
- The Tribunal has a Chairperson, Judicial Members, and Expert Members, who **serve for 5 years and cannot be reappointed**.

Central Ground Water Authority:

- The Central Ground Water Authority (CGWA) is a **statutory body that regulates and controls groundwater development** and management in India.
- It was established in **1997** under the **Environment Protection Act of 1986**.
- Its headquarter is in New Delhi.
- It **periodically monitors groundwater levels** across the country through a network of monitoring wells.
- It issues a **No Objection Certificate (NOC)** that is valid for two years.
- It also implements penal provisions in sections 15–21 of the **Environment Protection Act of 1986**.

Thamirabarani River



Recently, a workshop was conducted by ATREE's Agasthyamalai Community Conservation Centre and the Department of Zoology, Sadakathullah Appa College, focusing on conserving the endemic and endangered fishes of the Thamirabarani river.

About the Thamirabarani River:

- The Thamirabarani River, also known as Tamraparni or Porunai, is a **perennial river in Tamil Nadu**.
- It originates in the **Pothigai hills** of the Western Ghats, flows through Tirunelveli and Thoothukudi districts, and **empties into the Gulf of Mannar**.

Fish Diversity:

- The river basin hosts a highly diverse fish fauna with **125 species recorded, including six endangered and four threatened species**.
- Thamirabarani's fishes contribute to **about 86%** of the total freshwater fish diversity of Tamil Nadu, with many endemic species found only in this river basin.
- Invasive species like **Common carp, Tilapia and Guppies** have been recorded since the **1970s**.

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Personality in News

Sant Guru Ravidas



Recently, the President of India has greeted fellow citizens on the eve of birth anniversary of Guru Ravidas.

About Guru Ravidas:

- Guru Ravidas was born at **Seer Goverdhanpur in Varanasi**, Uttar Pradesh, in 1450, into an **untouchable leather-working caste**.
- His birth anniversary, **Ravidas Jayanti**, is celebrated on Magh Purnima, the full moon day in the month of Magh.
- Influenced by the Bhakti movement, particularly the teachings of **Ramananda** and **Kabir**, Guru Ravidas dedicated his life to serving sadhus, saints and the less fortunate.
- He became a prominent **poet and saint of the nirguna bhakti** tradition.
- The **Adi Granth, the sacred text of Sikhs, incorporates 41 verses by Guru Ravidas**.
- Guru Ravidas openly opposed the caste system and **Brahminical society**, playing a significant role in spreading the Bhakti movement's message of love and devotion in worship.
- Saint Ravidas had said, "**Jo Man Changa to Kathauti me Ganga**" This means that if one's mind and thoughts are pure, one need not seek purity in external places.

Bhakti Movement:

- Originating in Tamil Nadu between the **7th and 9th centuries**, the Bhakti movement emphasized emotional devotion in worship, as seen in the **poems of Nayanars and Alvars**.
- It **spread slowly to North India**, facilitated by the use of regional languages by Bhakti saints.
- Notable saints like **Kabir, Surdas, Tulsidas and Mirabai** composed in regional languages, contributing to the movement's expansion in the North.

Place in News

Netherlands

Recently, **Raksha Mantri Shri of India held a bilateral meeting with the Netherlands Defence Minister Ms. Kajsja Ollongren in New Delhi**.

Netherlands (Capital: Amsterdam)

Location: Netherlands, also known as **Holland** is a country located in northwestern **Europe**.

Boundaries: Netherlands shares its border with **Germany** (East), **Belgium** (South), **North Sea** (North and West).

Physical Features:

- The highest natural point in the Netherlands is the **Vaalserberg**.
- The Netherlands is intersected by rivers such as the **Rhine, Meuse and Scheldt** which play vital roles in transportation, agriculture, and shaping the country's landscape.

India-Netherlands Relations:

- India and the Netherlands established diplomatic relations in **1947**, marking 75 years of diplomatic engagement in **2022**.
- The Netherlands ranks as India's 4th largest trading partner in Europe and it is also the **4th largest investor in India**.
- India exported a diverse range of commodities valued at **USD 3.29 billion to the Netherlands** during April-May **2023-24**, including **petroleum** products, telecom instruments, **aluminum**, electronic instruments, **iron** and **steel**.



POINTS TO PONDER

- Recently, two Badami Chalukya temples, along with a label inscription dating back approximately 1,200 years, were discovered in which state along the banks of the Krishna river? - **At Mudimaniyam village in Talangana**
- Where did the Russian President recently unveil the newly modernized Tupolev Tu-160M nuclear-capable strategic bomber? - **At the Kazan Aviation Plant in Kazan, Russia**
- Indian and Sri Lankan coast guard ships participated in which trilateral coast guard exercise recently held in the Maldives? - **Exercise Dosti 16**
- Which organization based in Hyderabad announced the development of the world's first Pigeon Pea speed breeding protocol? - **International Crops Research Institute for Semi-Arid Tropics (ICRISAT)**
- In which city were the holy relics of Lord Buddha enshrined recently, marking a significant event between India and Thailand? - **Bangkok**

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