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Current News
மின் செய்திகள்

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Hydrogen as a fuel (Part-1)

Introduction

Hydrogen is the simplest element based on its atomic structures. It occurs in combination with other elements and can be extracted from oil, natural gas, water, and biomass. When used in a fuel cell, hydrogen creates only water as a by-product. Therefore, it acts as a clean fuel. However, it has never occupied a major role in the energy systems.

For the mass production of any new technology, there needs to be sufficient innovation and need. Now, there is a need to bring hydrogen into the mainstream energy systems as there is increasing concern about climate change and the need to decarbonise the energy sector. Hydrogen has immense potential to tackle emission-related issues. It can provide secure energy systems with reduced dependence on fossil fuels. However, there is a need to focus on high cost of infrastructure in production of hydrogen as a viable fuel source coupled with policy barriers in order to realise its effective implementation.

This article focuses on the various methods of hydrogen production, how hydrogen can be used as a fuel, obstacles in its growth, and policy recommendations.

Methods for producing Hydrogen : Hydrogen can be produced from diverse sources. Currently, most hydrogen is produced from fossil fuels. Electricity from renewable energy, such as solar and biomass, can also be used to produce hydrogen

Thermal Processes: In this process, hydrogen is produced by the reaction of steam with hydrocarbon fuel. Many hydrocarbon fuels are used for this purpose such as natural gas, diesel, gasified biomass, and renewable liquid fuels. Around 95% of the hydrogen produced globally is by using natural gas.

Electrolytic Process: In this process, water is split into hydrogen and oxygen in an electrolyzer using electricity. Depending on the source of electricity, this is potentially a carbon-free method of producing hydrogen.

Solar Driven Process: This process uses light to produce hydrogen. Different solar-driven processes are :

- Photobiological hydrogen production: This process uses micro-organisms like green microalgae or cyanobacteria, splitting water into hydrogen and oxygen in the presence of sunlight.
- Thermochemical water splitting: As the name suggests, high temperatures (500°C–2,000°C) are used to drive chemical reactions that produce hydrogen.
- Photoelectrochemical Process: Semiconductors are used in this process. These semiconductors split water when sunlight falls on it.

Biological Process: In this process microbes such as microalgae and bacteria produce hydrogen through biological reactions. The microbes act on organic matter such as wastewater or biomass to produce hydrogen.

(To be continued)

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Green Buildings – for a better environment and a brighter future (Part - 1)

In the constantly evolving digital era where environmental issues are of high concern, some industries are making conscious decisions to adopt eco-friendly and sustainable practices.The building sector is among the few experiencing a favourable shift towards green constructions. In the recent past, numerous initiatives have been advanced across the globe to promote green buildings. The term green building denotes both structures and practices that have minimal impact on the environment. Green buildings include sustainable structures that help overcome several present-day environmental issues such as air pollution, waste management, and increased energy consumption caused due to conventional buildings. Effective green construction techniques can produce tangible benefits to the environment and also help improve the quality of life.

Objectives: Green buildings aim to enhance the efficiency of a building in terms of energy, water and various other resources. The key objectives are:

- To develop building structures that rely more on natural resources
- To preserve the existing natural ecosystem
- To incorporate energy saving measures in the building
- To reduce water usage and also to use the harvested and treated water in building operations.
- To reduce the waste streams generated as a result of construction and operation of the building

Benefits of Green Buildings: Apart from the environmental benefits, these buildings offer significant economical and social advantages. These benefits can be classified as follows:

1. **Environmental:**
   - Minimum negative impact on the environment
   - Fewer greenhouse gas emissions
   - Accounts for less energy consumption
2. **Economic**
   - Significant energy savings
   - Increase in asset value
   - Generate more job opportunities
3. **Social**
   - Improved productivity of the occupants
   - Better indoor air quality
   - Heighten the aesthetics

Source: Sustainability of green buildings

The concept of Green Buildings in India:

In India, the green buildings sector is still up and coming, with only 5% of the country's buildings falling under the green category. In recent times, green building projects are gaining popularity in metropolitan cities like New Delhi, Bangalore, Mumbai, and Chennai. Now there are more than 4500 green building projects across these cities with a square feet built-up area of about 4.17 billion which is among the highest in the world, second only to the USA. Government of India has several initiatives and policy incentives at state and municipality levels that encourage green certification, energy efficiency, renewable energy, water efficiency, waste management and passive efficiency. These incentives range from providing fee reimbursement, rebate on property tax, reduction in electricity tariff to extending financial support such as granting loans, subsidies and cash awards. In Tamil Nadu, as per TN Industrial Policy 2021, a 25% subsidy is offered for setting up an environmental protection infrastructure subject to a limit of Rs 1 Cr. This incentive is eligible for both establishing and expanding industrial units, industrial parks, industrial innovation centers and research and development projects focused on promoting building infrastructure that is environment friendly.

(To be continued)

Tamil Nadu News

Tangedco to inspect 75,000 disconnected LT connections

After witnessing a dip in its revenue owing to the lockdown last year, Tangedco has been taking various measures to augment its revenue by arresting leakages. As per Tangedco's data, Chennai North and Chennai South Regions have a maximum number of disconnected LT connections in the state. Of the two Chennai Regions, the Chennai North distribution circle has the maximum disconnected connections of 11,641 followed by the Chengalpattu circle with 11,191.

Tangedco's CFO revenue wing directed the superintendent engineers of the electricity distribution circles to instruct assessment officers to check whether the disconnected service connections are actually under disconnection by inspecting the services. "Instruction may also be issued to concerned assistant account officers of the revenue branch to account close the services if the service connection is actually under disconnection and dully following the procedure for account closure. It has been noticed that many services which are showing as disconnected in the records are actually live, which are clear revenue leakage cases," it said. Central Organisation of Tamil Nadu Electricity Employees (COTEE) affiliated to the CITU on Wednesday served strike notice opposing the Union government move to adopt Electricity Amendment Bill 2021, which seeks to privatise power distribution companies, a day after the National Coordination Committee of Electricity Employees and Engineers (NCCOEEE) meeting with the Union Power Secretary failed. The union also demanded the repeal of the three farms laws which are against the farmers' interest and to control the price hike of essential commodities. "Due to 52,000 vacancies in Tangedco, accidents and fatalities have become a daily affair," it said, urging all the state governments to restructure the electricity boards like Kerala and Himachal Pradesh."The power plants of the Electricity Board should be utilised fully for power generation while stopping the high-cost power purchase," they demanded.

Source: DTNext, July 29, 2021

India News

India's peak power demand touched all time high of 200.57 GW on 7 July

In a reflection of revival of economic activity in the country, India's peak electricity demand recorded an all-time high of 200.57 gigawatts (GW) on 7 July, the Union power ministry said in a statement on Tuesday. Also, in a reaffirmation of India's push for green energy sources, solar and wind generation recorded an all-time high of 43.1 GW on 27 July compared with the previously recorded high of 41.1 GW on 11 June. This high peak power demand came against the backdrop of high temperatures and when a large part of the country was still awaiting monsoon showers last month. This assumes importance given that energy consumption, especially electricity and refinery products, usually linked to overall demand in the economy. "All India power-demand crossed 200 GW at 12:01 hrs today," the office of Union power and new renewable energy minister Raj Kumar Singh had said in a tweet on 7 July as was reported by Mint earlier.

The last recorded all-time high peak power demand of 197.06 GW was on 6 July, which was preceded by a high of 191.24 GW on 30 June. Before that, India recorded a high peak power demand of 189.64 GW on 31 January. This comes against the backdrop of India's peak electricity demand falling during the second wave, which has revived now. "The country witnessed highest-ever demand for power at 12:01 hours on 7th July 2021. This demand of 200,570 MW was 17.6 % higher than in July 2020 (on 2nd at 22 :21 hours). "The report also states that average energy consumption per day recorded in July (4,049MU) was 10.6% higher than in July 2020 (3,662MU). The "Maximum All India Energy Met" also showed an all-time high. It was recorded at 4,508 MU on 7 July 2021, which was 14.7% higher than 3,931 MU on 28 July 2020," the statement added. India is running the world's largest clean energy programme to achieve 175 GW of renewable capacity by 2022.

Source: Livemint, July 07, 2021

Consumer Focus

The petitioner, a homeowner, had let out his property on rent to a software company. His residential tariff was subsequently changed to a commercial tariff on 12.4.2017 based on his request. Given that the commercial tariff was applied, an additional security deposit amount was collected in line with regulations. Subsequently, the company moved out and the property returned to its original use as a residence on 17.6.2020. The petitioner's tariff was also converted into a domestic tariff. However, the high security deposit (SD) remained with the EB and the petitioner wrote to the Executive Engineer (EE) on 20.07.2020 demanding a refund of the excess SD available against his service connection. The petitioner stated that a higher amount of Rs. 18,254 plus interest was available as SD based on his former connection which was commercial. He requested the EE to retain Rs. 2000 as the SD amount needed for a domestic service connection and return the balance amount. Since the petitioner did not get a proper response from the EE, he approached the Consumer Grievance Redressal Forum (CGRF) on 11.09.2020.

During the hearing the petitioner quoted (i) *TNERC Distribution code Regulation 33 - Agreements, clause 5*, (ii) *TNERC Supply code, Regulation 17 - Agreement with Respect to Supply: Issues on Recovery of Charges*, and (iii) Ombudsman Order, AP No. 71 of 2019 which suggests that the petitioner is eligible to be refunded within 3 months from the date of termination of the agreement of the earlier commercial service. On the other hand, the TANGEDCO Officials stated that according to *TNERC Distribution code Regulation 33 - Agreements, clause 3 and 4*, if a consumer submits a request letter to disconnect the electricity service connection and termination of the agreement within the one month notice period, then any pending amount that needs to be paid by consumer/TANGEDCO, can be paid within 90 days from the date of agreement terminated. However, the petitioner did not apply for disconnection and termination of the agreement, so the petitioner's argument on TNERC Distribution code Regulation 33, clause 5, was not applicable to this. On hearing arguments from both parties, the CGRF ordered TANGEDCO to review the petitioner's ASD during 2021-2022 and if there was an excess amount, for it to be adjusted in two billing cycles and the balance amount to be refunded. Hence CGRF dismissed the case. Aggrieved by the order, the petitioner appealed to the Electricity Ombudsman.

During the Ombudsman hearing, the same set of arguments were put forth. The Ombudsman quoted DSOP Regulation 9 - Change of tariff and informed that the change of tariff doesn't result in termination of the Agreement. Hence, the Ombudsman ordered that the petitioner was not eligible to get the refund of any excess Security Deposit as arrived at by him under Regulation 33(5) of the TNERC Distribution Code 2004. The petitioner would instead be refunded after the review as per the TNERC Supply code Regulation 5(5)(v). *(In the case of termination of the agreement either by the consumer under sub – regulation (3) or by the licensee under sub – regulation (4), as the case may be the licensee shall recover the dues if any due from the consumer after making such adjustment of the dues, due to him by the consumer as may be necessary to clear the dues from the consumer against the security deposit or additional security deposit or any other deposit made by the consumer and after making such adjustment, refund the balance deposit, if any, to the consumer within three months from the date of termination of the agreement.)*

Source - Ombudsman case, TNERC

ECC VOICE

திருச்சி மாவட்டம், ரெட்டிமாங்குடி கிராமத்தில் வசிக்கும் திரு. சேகர் என்பவர், தனது வீட்டிற்கு புதிய மின் இணைப்பு வேண்டி இணையதளத்தில் விண்ணப்பம் செய்துள்ளார். ஆனால், ஆவணம் சரி இல்லை என்று குறிப்பிட்டு விண்ணப்பம் நிராகரிக்கப்பட்டுள்ளது. திரு. சேகர், சிறுகனூர் மின் வாரிய அலுவலகத்தினை நேரில் அணுகி விளக்கம் வேண்டியுள்ளார். ஆனால் அவருக்கு மின் வாரிய அலுவலகத்திலிருந்து சரியான பதில் கிடைக்கவில்லை. அப்பொழுது, திருச்சி மின் நுகர்வோர் மையத்தினை பற்றி, தொலைக்காட்சி நிகழ்ச்சியின் மூலமாக அறிந்து, அதன் மின் ஆலோசகர் திரு. செல்வம் அவர்களை தொடர்பு கொண்டு பிரச்சனைகளை கூறி புகாராக அளித்தார். புகாரினை பெற்றுக்கொண்ட மின் ஆலோசகர், இளநிலை பொறியாளரை அணுகி, தகுந்த நடவடிக்கையினை எடுக்குமாறு கேட்டுக் கொண்டார். அதற்கு அவர், திரு. சேகர் அவர்களின் உரிமை சான்றிதழில் (Ownership Certificate) பிழை இருப்பதாகவும், கிராம நிர்வாக அலுவலரிடம் கையொப்பம் வாங்கி சரி செய்து வர அறிவுறுத்தியுள்ளார். அதன்படி, திரு. சேகர் உரிமை சான்றிதழை சரி செய்து சமர்ப்பித்துள்ளார். பிறகு மின்வாரிய அலுவலர்கள், மின் இணைப்புக்கு தேவையான தொகையினை செலுத்துமாறு திரு. சேகர் அவர்களிடம் கூறினர். குறிப்பிட்ட தொகையினை செலுத்தியபின், இரண்டு நாட்களுக்குள் மின் இணைப்பினை வழங்கினர். நீண்ட காலமாக தொடர்ந்து வந்த பிரச்சனைக்கு தக்க நடவடிக்கை எடுத்து உதவிய திருச்சி மின் நுகர்வோர் மையத்திற்கும், மின் ஆலோசகர் திரு.செல்வம் அவர்களுக்கும் திரு. சேகர் தனது நன்றியினை தெரிவித்தார்.

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Citizen consumer and civic Action Group (CAG) is a non-profit, non-political and professional organization that works towards protecting citizen's rights in consumer and environmental issues and promoting good governance processes including transparency, accountability and participatory decision making.

World News

Current News

Japan boosts renewable energy target for 2030 energy mix

Japan will raise its target for renewable energy in the country's electricity mix for 2030 as it pushes to cut emissions to meet commitments under international agreements on climate change, according to a draft of its latest energy policy. The country's revised basic energy strategy leaves unchanged its target for nuclear power, even though the country has struggled to return the industry to its former central role after the Fukushima disaster of 2011. The industry ministry's policy draft released on Wednesday says renewables should account for 36-38% of power supplies in 2030, double the level of 18% in the financial year to March 2020. The earlier target was for renewables to contribute 22-24% of electricity in 2030. The use of coal, the dirtiest fossil fuel, will be reduced to 19% from 26% under the new plan.

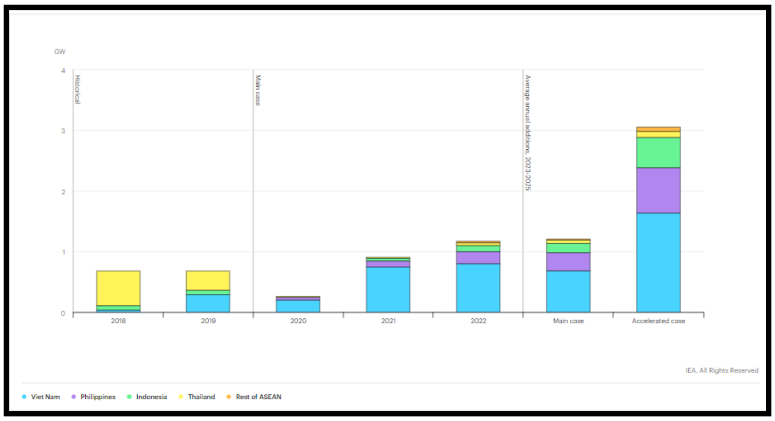
Gas, which comes to Japan in the form of imported liquefied natural gas, will make up most of the rest of the fossil fuel portion of the target energy mix, which was set at 41%, down from 56%. Japan's nuclear target was left unchanged at 20-22%. New fuels like hydrogen and ammonia will account for about 1% of the electricity mix in 2030, the draft said. Nine reactors are operating now, the highest number since the disaster. The country had 54 operable reactors previously. The draft did not mention building new nuclear plants or replacing plants, which some industry and corporate executives had urged the government to include. Japan aims to reduce its reliance on nuclear power as much as possible while it boosts renewable power capacity, but nuclear power will remain as an important base-load power source, the draft says. The industry ministry declined to comment on when the revised energy plan will be finalised. The government revises its basic energy plan once every three to four years.

Source: Reuters, July 21, 2021

Publications / Regulations

- Renewable Energy Benefits: Leveraging Local Capacity for Solar Water Heaters,IRENA 2021
- Electricity Market Report, IEA, 2021
- Provisional renewable energy generation report,CEA, 2021

ASEAN annual wind capacity additions 2018-2022 and average annual additions 2023-2025



Source: IEA