



News Analysis (21 Jan, 2019)

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World Energy Outlook 2018

The **World Energy Outlook 2018 report** released by **International Energy Agency's (IEA)** highlights the crucial considerations for the global energy industry in 2040, including the rise in demand for renewables and major fossil fuel concerns.

- **Electricity** is the **special focus of the 2018 edition**. The share of electricity in global energy use is growing while the rise of low-carbon technologies is prompting a major transformation in the way electricity is generated.
- It examines future patterns of a **changing global energy system** at a time of increasing uncertainties and finds that major transformations are underway for the global energy sector, from growing electrification to the expansion of renewables, upheavals in oil production and globalisation of natural gas markets

Findings

- **Special Focus: Electricity**
 - Electricity is increasingly the “fuel” of choice in economies that are relying more on lighter industrial sectors, services and digital technologies.
 - Policy support and technology cost reductions are not only increasing its share in global consumption but also putting the power sector in the vanguard of emissions reduction efforts.
 - On the demand side, **efficiency gains** from more **stringent energy performance standards** have played a pivotal role in holding back demand. E.g.: 18 out of 30 IEA member economies have seen declines in their electricity use since 2010.
- **Energy Scenario**
 - **Demand**
 - Rising incomes and an extra 1.7 billion people, mostly added to urban areas in developing economies will push up global energy demand by

- more than a quarter to 2040.
 - In 2000, Europe and North America accounted for more than 40% of global energy demand and developing economies in Asia for around 20%. By 2040, this situation will be **completely reversed**.
 - All the growth comes from **developing economies, led by India**.
- **Production**
 - Fifteen years ago, European companies dominated the list of the world's top power companies, measured by installed capacity; now six of the top-ten are Chinese utilities, i.e **domination of Asia by 2040**.
- **Shale Gas**
 - By 2025, the United States will account for more than half of **global oil and gas production growth** (nearly 75% for oil and 40% for gas).
 - This will exert the **pressure on traditional oil and gas exporters** that rely heavily on export revenues to support national development.
- **Energy Trade**
 - International energy trade flows are **increasingly drawn to Asia** from across the Middle East, Russia, Canada, Brazil and the United States.
 - However, new ways of sourcing energy are also visible at local level, as digitalization and increasingly cost-effective renewable energy technologies enable distributed and **community-based models of energy provision**.
- **Flexibility**
 - The rise of solar Photo Voltaic (PV) and wind power gives unprecedented importance to the flexible operation of power systems. Renewables and coal switch places in the power mix: the rises from 25% today to around 40% in 2040.
 - By 2040 many countries in Europe, as well as Mexico, India and China, are set to require a degree of flexibility.
 - However, conventional power plants remain the main source of system flexibility, supported by new interconnections, storage and demand-side response. E.g.: The European Union's "**Energy Union**" illustrates the role that regional integration can play in facilitating the integration of renewables.
- **Fossil Fuels**
 - Coal use rebounded in 2017 after two years of decline, but **final investment decisions** in new coal-fired power plants were well **below the level** seen in recent years.
 - **Natural gas** will overtake coal in 2030 to become the **second-largest fuel** in the global energy mix.
- **Emissions and Access**
 - Countries are set to **meet the national pledges made as part of the Paris**

Agreement. But these are **insufficient** to reach an early peak in global emissions.

- The projected emissions trend represents a **major collective failure** to tackle the environmental consequences of energy use.
- Around 93% of the world's carbon capacity is already in use up to 2040. Carbon capacity refers to the level of CO₂ emissions that can be released without causing significant global warming effects. This means that there is very little space for future fossil fuel projects to be developed over this period without contradicting international objectives around climate change.
- In **2017, for the first time**, the number of people **without access to electricity dipped below 1 billion**.

Challenges

- **Affordability:** The costs of solar Photo Voltaic and wind continue to fall, but oil prices climbed above \$80/barrel in 2018 for the first time in four years; and hard-earned reforms to fossil fuel consumption subsidies are under threat in some countries.
- **Reliability:** One-in-eight of the world's population has no access to electricity and new challenges are coming into focus in the power sector, from system flexibility to cyber security.
- **Sustainability:** After three flat years, global energy-related carbon dioxide (CO₂) emissions rose by 1.6% in 2017. Energy-related air pollution continues to result in millions of premature deaths each year.

International Energy Agency

- The International Energy Agency (IEA), an **autonomous organisation**, works to ensure reliable, affordable and clean energy to its **30 member countries, 8 association countries and beyond**.
- It was established in the **wake of the 1973 (set up in 1974) oil crisis** after the OPEC cartel had shocked the world with a steep increase in oil prices. **The IEA has four main areas of focus, i.e. 4Es:**
 - Energy **security**,
 - Economic **development**,
 - **Environmental awareness** and
 - **Engagement** worldwide.
- India became an **associate member of International Energy Agency in 2017**.
- **Mexico** officially became the **International Energy Agency's 30th member** country in February 2018, and its first member in Latin America.
- It is **headquartered in Paris, France**

Conclusion

- Rapid, least-cost energy transitions require an acceleration of investment in cleaner, smarter and more efficient energy technologies. Policy makers need to ensure that all key elements of energy supply, including electricity networks, remain reliable and robust.
 - Frameworks put in place by the public authorities also shape the pace of energy efficiency improvement and of technology innovation. Therefore, the National governments will have a significant role to play in the direction of the future global energy mix.
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Important Facts for Prelims (21st January 2019)

Indian Ocean Humpback Dolphin

A pod of Humpback Dolphins was spotted near the Bandra-Worli sea link in Mumbai.

Habitat

- The Indian Ocean Humpback Dolphin occurs **within the Indian Ocean from South Africa to India.**
- These dolphins usually **live in shallow, coastal waters.**
- The habitat preference of the dolphins for shallow waters places them in some of the **world's most intensively utilized, fished, shipped, modified and polluted waters.**

Conservation Status

- The **International Union for Conservation of Nature (IUCN)** categorizes the Indian Ocean Humpback Dolphin as **Endangered.**
- In India, Dolphins are endangered cetacean species, protected under **Schedule I of the Wildlife Protection Act, 1972.**
- Indian Humpback Dolphin is listed in **Appendix I of The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).**

Super Blood Wolf Moon

- The Super Blood Wolf Moon, a total Lunar Eclipse, was visible in many parts of the world on 20-21 January 2019.
- It was visible in North America, Central America, and South America. But the total lunar eclipse was not visible in India.
- **Super Blood Wolf Moon is a lunar eclipse that will last 62 minutes.** The **moon will appear to be red in color** as a result of sunlight scattered and refracted around Earth.
- This super blood moon is called as Super Blood Wolf Moon because in many cultures

the first full moon of the year is named as Wolf Moon.

Related Terms

- **Lunar Eclipse:** A lunar eclipse occurs whenever the moon passes through Earth's shadow, also known as its umbra.
- **Super Moon:** Super Moon occurs when the full moon is at the closest point of its orbit to the Earth, which is also called the perigee. The moon appears brighter and bigger than the usual full moon.
- **Blood Moon:** The moon turns into red color during the height of the eclipse as some light reach it even though the moon is in the shadow of the Earth. Fine particles in the atmosphere like dust scatter the blue component of the solar spectrum.
- **Blue Moon:** When two full moons appear in the same calendar month, the second is termed a "blue moon".

RailWire

- RailWire WiFi at 746 railway stations across the country has emerged as **one of the world's largest and fastest public WiFi networks.**
- Within a month Rail Wire has around 2.6 crores login's and over 9,400 TeraBytes (TB) data consumption.
- Free WiFi services to commuters are being provided under 'RailWire', **RailTel's retail Broadband initiative.**
- **RailTel is a 'Mini Ratna', a central public sector undertaking (PSU) under the Ministry of Railways.**
- RailTel has started providing WiFi at rural railway stations, which are small stations catering to rural populations that do not have access to state-of-the-art telecom infrastructure.
- RailTel is also playing a major role in developing Telecom Networks of national interests like National Knowledge Network, National Optical Fiber Network etc.
- WiFi has been provided to railway stations either through the **Universal Service Obligatory Fund (USOF)** of the Union Government or through railway stations' own or other funding.

Universal Service Obligation Fund (USOF)

- USOF was envisaged in the **new telecom policy - 1999** (NTP'99).
- NTP provided that the resources for meeting the Universal Service Obligation (USO) would be raised through a 'Universal Access Levy (UAL)', which would be a percentage of the revenue earned by the telecom operators.
- USOF was given statutory status by the **Indian Telegraph (Amendment) Act, 2003.**
- The USOF has to be utilized exclusively for meeting the Universal Service Obligation.
- **Universal Service Obligation is defined as access to telegraph services to people**

in rural and remote areas at an affordable and reasonable price.

Ladakh's Dard Aryan Tribes

- Dard Aryan tribe of Ladakh has requested the **central government to intervene to protect their culture and legacy.**
- Dard Aryan — **believed to be the original descendants of 'pure Aryan race'** — tribe is known for its liberal customs and ornate costumes. Many researchers believe that the 'Aryans of Ladakh' or the 'Brokpas' were a part of Alexander's army and had come to the region over 2,000 years ago.
- They live in the villages of Dha and Hanu (commonly called as Dhahanu), Darchik, and Gahanu - situated 163km southwest of Leh, the administrative capital of Ladakh.
- **The rich heritage of the Dard Aryans is under threat due to rapid modernization, migration and religious conversion.**
- The 'Dard' is derived from a Sanskrit word, 'Daradas', which refers to people who live on hillsides.
- Article 46 of the constitution of India the State shall promote with special care the educational and economic interests of the weaker sections of the people, and, in particular, of the Scheduled Castes and the Scheduled Tribes, and shall protect them from social injustice and all forms of exploitation.

Pulicat Lake

- A three-day Flamingo Festival has begun at Pulicat lake.
 - It is the **second largest brackish water ecosystem in the country after the Chilika lake in Odisha.**
 - The arrival of birds, which usually starts in the month of September, was delayed this year till December because of 47% deficit rainfall in the wake of climate change.
 - **It is located on the border of Andhra Pradesh and Tamil Nadu with over 96% of it in Andhra Pradesh and 4% in Tamil Nadu.**
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