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ENERGY & YOU 巛

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Editor's Note

Animesh Mishra Head - Sales & PR, EESL

Dear Reader,

The geopolitical developments that are unfolding around the world today could lead to an energy crisis in the near future. Many countries are therefore looking for ways to individually and collectively address the need for energy security. There are two aspects to energy security; how energy is produced, and how it is consumed. At the COP26 Summit held in November last year, India's Prime Minister Shri Narendra Modi had outlined India's five-pronged approach for battling climate change. This "Panchamrit" (five nectars) entailed ramping up India's renewable energy production and consumption; reducing carbon emissions and the carbon intensity; and becoming a net-zero economy by the year 2070.

In line with these commitments, the Government is doing its best to develop India's clean-energy-generation capacities and has set clear, time-bound targets for achieving them. While the onus of that lies on India's energy producers and allied sectors, the responsibility of ensuring optimal utilization of energy and making environment-conscious choices rests with each and every Indian, including you and me.

Both energy generation and usage have a direct bearing on what is possibly the greatest global challenge of our times: global warming. It isn't too hard to empathize with the need and the urgency for driving climate change action through energy efficiency initiatives. India and many other countries of the world are suffering extreme weather events of increasing frequency and severity. The focus on carbon footprint is very strong and getting sharper every day, and every industry – whatever its emission intensity might be – is expected to assess and reduce their emission levels.

In this newsletter, themed "Energy and You", we examine energy efficiency and low-carbon measures in the context of three industries: media and advertising; automobile; and information technology (IT).

Media and Advertising is not among the first industries that would come to mind if we were to think of emissions. However, advertising companies too need to focus on decarbonisation and net-zero initiatives. To do this, they will need to relook at the tools, the media, and the frequency of media usage, among several aspects of their business. The choice of media and the nature of campaigns will, to a great extent, determine their emissions and carbon footprint. Formats that involve a high carbon quotient should be replaced with low-carbon alternatives that can deliver the same impact and quality of advertising.

The need for decarbonizing in the transportation sector is comparatively easier to appreciate because the carbon emissions and their effects which include pollution and smog are visible to the eye. Electric vehicles (EVs) have been touted for many years now as one of the solutions for decarbonizing the sector. And while EVs are becoming an increasing part of everyday conversations among consumers and businesses alike, the EV manufacturing ecosystem in the country needs to mature guickly and address existing issues pertaining to charging infrastructure, EV range, and battery disposal. EVs can yield benefits on several fronts: they can help in reducing India's crude oil imports; improve the air quality in our cities; and reduce the operating costs for vehicle owners.



The information technology (IT) industry, meanwhile, needs to tread the fine line between delivering technology advancements and innovations that will help us build a better world, while, at the same time, ensuring that the technologies and processes involved in it do not adversely impact the climate and the environment. On the plus side, the IT industry has significantly reduced its own energy consumption through the use of smart, energy-efficient devices. Where it needs to be careful is in managing the manner and the proportions in which current and future technologies use energy. On the whole, there is a huge potential for IT to drive sustainability for itself and for other industries, including the energy sector.

Implementing energy-related changes to business operations on a wider scale will entail a longish period of disruptive transformation, and the players who think and act in a lean and agile manner will have an advantage over the others.

Greening the Transport Sector



Shashi Verma Director, Strategy and Chief Technology Officer, Transport for London

The current energy crisis around the world has brought into sharp focus just how big a challenge energy security remains. It comes on top of the much slower burning but even bigger challenge of reducing, and eventually eliminating, carbon emissions.

By various estimates, transport accounts for 20%-25% of all greenhouse gas emissions worldwide, with road passenger transport accounting for about 45% within that and road freight another 30%. So, tackling emissions from road transportation becomes a key priority.

Much attention today is focused on the switch from internal combustion engines to electric vehicles. Clearly, this is one significant method to reduce the reliance on petroleum-based transport. In India, it brings additional benefits: energy security from reducing the dependence on imported crude oil, improvements in urban air quality that remains a prominent cause of mortality, and, possibly, a reduction in vehicle operating cost as well.

Many hurdles remain in mass adoption of electric vehicles and even more in the elimination of internal combustion engines. Vehicle costs are declining but remain higher. Charging infrastructure is growing but is still small compared to the large installed base for refuelling conventional vehicles. This is particularly a challenge in denser urban areas where vehicles are parked on the street. These issues are being tackled creatively and so far, the promise of greater adoption seems to be an unstoppable march. It will still take time for widespread EV adoption and battery technology creates a new set of energy security issues that are yet to play out.

A world dominated by EVs will provide similar conveniences to today's vehicles except for extreme use cases. For most private owners, as long as charging can be sorted, EVs offer more convenience. For commercial uses, EVs present some new challenges. Public transport vehicles, for example, can be used so intensively that the need to leave gaps in the daily timetable for charging is a new constraint that has to be accounted for when setting timetables and depot infrastructure.

For heavier vehicles with more intensive use – long distance buses and freight trucks – EVs are still not a viable solution due to the weight of batteries. Green hydrogen is under investigation for such uses but remains economically unviable at this stage. A similar innovation curve as seen for battery technology is needed before green hydrogen offers a competitive alternative.

India, like all other countries in the world, is at a crossroad for energy transition. Unlike developed countries though, India's energy future could take a very different shape if energy efficiency is built into the growth path. It could lead to a different trajectory and a different outcome of how energy intensive the economy needs to be in order to be developed.

Energy efficiency consists not just measures to improve the conversion efficiency of production sources or the consumption efficiency at end use by means such as insulation, better servicing of machinery, etc. There are some core factors that determine how energy intensive an economy ends up being.

India's population density alone dictates a high use of public transport. Following a car-based model of urban development is not feasible for India as it is a recipe for gridlock. Whether that gridlock consists of diesel belching cars or much nicer and quitter EVs, it will still be gridlock. Instead, India's urban planning needs more focus on public transport that can use space more efficiently. The growth of metro is therefore welcome but in global cities where metros play a big role, it is still the case that buses usually carry more journeys. This is not just for the first and last mile but also for the vast variety of journeys where metros just don't provide the right connectivity.

A focus on buses, in increasing their number, quality and reliability is desperately needed. Even if these buses ran on diesel their overall impact on carbon emissions and the environment would be a huge positive. If the buses are themselves EVs they can accelerate energy transition even further. This should be one major thrust of public policy.



How can digital technologies transform the energy sector?

Pradipto Chakrabarty Regional Director (South Asia), CompTIA

Information Technology (IT) is the catalyst for radical process transformations across industries as diverse as manufacturing, retail, finance, defence, and aerospace engineering, among others.

The energy sector's engagement with IT can be viewed through two perspectives. On one hand, the IT sector has drastically reduced its energy consumption, by deploying cutting-edge research that has helped produce smarter and more energy efficient devices. On the other hand, rapid developments in emerging technologies such as Artificial Intelligence (AI), cloud computing and the Internet of Things (IoT) are directly impacting energy efficiency within businesses.

The IT industry first started its sustainability conversations around the practice of environmentally sustainable computing in the early nineties by coining the term 'Green IT'. The primary motive behind Green IT was maximizing the energy efficiency of tech products. During this period, the US Environmental Protection Agency (US EPA) launched Energy STAR ratings, which has helped reduce greenhouse gas emissions by accrediting products with better energy efficiency. Although 'Green IT' as a term is now redundant, the energy efficiency practices established then have become an integral part of the tech industry.



The dawn of the new millennium saw rapid democratization of technology. Data started becoming the most important commodity for organizations. The technology industry and their enterprise customers invested heavily in datacentres, which became large consumers of energy as business continuity demanded 24/7 power. In most cases, diesel generators serve as standard backup power for datacentres. However, amidst the global energy transition, many datacentres are considering adopting renewable energy coupled with battery and fuel cell technologies, toward the global mission of decarbonization.

Microsoft's 'Project Natick' is a great example of bringing energy efficiency to the datacentre sector. Currently in the final stages of conceptualization, Natick can be seen as a successful case study for subsea datacentres in the future.

Relentless adoption of cloud technologies is also leading the industry toward hyper-scaled datacentres powered by cloud server providers such as Amazon, Google, Microsoft, and Alibaba. The global commercialisation of 5G services is expected to spur on cloud-based datacentres, which have extremely low energy needs.

Another interesting factor is the consistent improvement in the form factor of computing devices over the past decades, which has made devices more energy efficient. Today's devices are more or less similar to PCs in their computing power. The latest computing developments in Spin-transfer torque memory- RAM (STT-RAM), which offers zero leakage in power consumption by increasing computing scalability, stand to revolutionize computing technology.

There is enormous scope in how technology and digital transformation can enable sustainability in the conventional energy sector, the first and the most recognizable example is the implementation of digital oilfields. Gone are the days when a drill site was like a fairground milling with men and machines. The advent of IoT and advanced wireless communication has led to a sharp reduction in manpower requirement, and has made oilfields much more energy efficient. Another excellent example would be that of airline manufacturing giant Airbus, which has successfully used additive manufacturing (using 3D printing) to develop parts that are 55 per cent lighter in weight, as compared to parts made via traditional manufacturing. This has greatly reduced the weight of components while enhancing performance efficiency. More importantly, 3D printing has decreased energy used in production up to a whopping 90 per cent. Similarly, AI-enabled smart grids, which are becoming increasingly common, are using advanced data analytics for accurate demand forecasting and better fault identification in the network.

With these changes, the world is evolving from reckless consumption towards more sustainable processes. The energy dialogue is focussed on energy optimization without compromising on performance and productivity. In this new and environmentally responsible world, IT will remain a vital tool to achieve a nearly perfect energy efficient ecosystem.

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Electric vehicles: An efficient, clean & dependable mobility alternative

Vikas Sinha Head of strategy, M&A and Investor Relations, Mahindra CIE Automotive Ltd

When the then Finance Minister, Dr. Manmohan Singh stood up in parliament to launch the momentous financial reforms of 1991, he quoted Victor Hugo, "No power on earth can stop an idea whose time has come". As electric vehicles (EVs) catch the imagination of people globally, it is safe to say that they indeed are a technology whose time has come.

One may ask if characterizing EVs in the above manner is a giant leap of faith. After all, EV penetration in India is a blip compared to traditional petrol or diesel vehicles. But EVs are becoming a part of everyday conversation among people. A friend of mine, being a great believer in stars, went to an astrologer to ask if the time was right for him to replace his car. The learned man, after observing complex astronomical alignments, asked him to wait for a few months till the cosmic balance worked out for him. And to buttress his point, the astrologer added that many EV models are waiting to be launched and it would be better to buy one - after all they are the future of mobility!

Every year some part of the country experiences extreme heat, torrential rains & floods, numbing pollution or intolerable winter. People may not know the exact science behind it, but climate change is on their mind. A cleaner mobility technology like EVs is thus gaining ground. Some may question this proposition pointing to unresolved supply issues of NiMH & Li-ion batteries used in EVs, and disposal of the batteries themselves. But the current scientific consensus is that EVs are among the best ideas to fight climate change and pollution.



No customer will put their hard-earned money into a new product just to salve their conscience. EVs need to be a dependable alternative to existing vehicles. The visuals of burning electric two wheelers are an unsettling sight. The EV manufacturing ecosystem needs to mature quickly so that customer confidence is not dented. Charging bottlenecks and range anxiety are two other problems that plague EVs worldwide. Technological advances in these areas are continuing rapidly and it is now a question of 'how fast' these problems can be solved, rather than 'when' or 'if'.

EVs contain fewer moving parts than traditional vehicles. This represents a challenge to component suppliers like us, as it may reduce the addressable market. But it is a blessing in disguise for efficiency, as energy loss in form of friction & heat is reduced. EVs thus consume less energy for travelling the same distance, reducing the cost of running the vehicle. Lesser moving parts lead to lesser maintenance cost. It also means less noise and more comfort for people sitting inside the vehicle. It is often said that once you get used to the ride quality in an EV, it is hard to go back to traditional vehicles.

India is reputed to be a country of value conscious consumers, not swayed easily by new technology. But as the smartphone revolution indicates, Indians can take to new technology like a fish to water if the value proposition is right. EVs are on the cusp of breakthrough in the Indian market. And change can happen quickly. A search on the internet will show up two sets of photographs of the 5th Avenue in New York – one taken in 1900 and the other thirteen years later. The first has a sea of horse carriages and a solitary car, the second has one little horse carriage trying to keep up with the cars around. The traditional vehicles could go the way of the horse carriage.



The advertising and media industry needs net-zero heroes to lead a wide-scale transformation towards sustainability

Ajit Gurnani Chief Growth Officer, Publicis Media Services

The advertising and media industry needs net-zero heroes to lead a wide-scale transformation towards sustainability

The advertising industry is facing a largely unspoken – but not insignificant – challenge today with regard to media investments in digital advertising assets. It is not about justifying the investments to the CXOs; it is not even about the severe crunch of quality talent amidst the great digital reset that we are seeing all around; nor is it about "The Great Resignation" phenomenon. It is about the carbon impact that digital media and digital advertising have on the planet, and the need to take immediate steps to avoid becoming a carbon hotspot.

The global warming situation is grim indeed. Already, this year, India is battling one of its most intense summers in recent history, posing a challenge to the country's food security as wheat crops get singed by the unprecedented heat. Against this backdrop, it is hardly surprising that every aspect of a company's operation and value chain is being examined for the possibility of decarbonising it, so that its environmental impact is reduced.

Media planning, tools, and data are in the spotlight

For the advertising industry, the focus is naturally on the decarbonisation of media and the need to partner with each other on net-zero initiatives. Such initiatives and collaborations are essential for ensuring the long-term survival and prosperity of advertising and media agencies as well as their clients. We are already seeing some important initial steps being taken towards measuring the environmental impact of media. What is also needed is a clear and decisive shift towards sustainability in the behaviour and mindset of all stakeholders across the marketing, media, and advertising ecosystems.

Among the various advertising functions, media planning will be the most instrumental in determining the success of the industry's efforts at decarbonisation. This is because the strategic and tactical choices pertaining to the media, channel, vehicle and creative asset mix are crucial for optimizing cost, reach, frequency, continuity, accuracy and quality of advertising in different scenarios and environs. Figuring out how to deliver a successful campaign vis-à-vis the company's marketing goal is a complex equation, and it is now further complicated with the need to minimize emissions and carbon footprint.

In the challenge, lies an opportunity

This is a profound and deep-reaching change that will require the marketing and media industries to relook or rebuild the tools and the data that they currently use to achieve their desired objectives. Every media channel has a carbon footprint, and the rapid expansion of the digital medium in a hyper-connected, always-on world is compounding the challenge for the industry. However, at the same time, it has also created a huge opportunity for the digital industry to sharpen its focus on best practices such as addressing impression wastage by capping frequency; optimising copy length; reducing high-carbon impact formats; eliminating data waste associated with excess and vanity data; and continuously relooking at supply chain optimisation.

These are large-scale, disruptive transformations, and the players who think and act in a lean and agile manner will have an advantage over the others. It is time for the visionaries and the change-makers to step forth and lead the way in creating a robust, efficient, and sustainable media ecosystem that delivers not only on the all-important brand and business goals but also on the universally essential net-zero and decarbonisation objectives. For this movement to succeed, all actors in the supply chain – right from brand owners to media broadcasters and planners – will need to invest in and align with a carbon reduction mindset. We need this to become the war cry for the advertising industry's net-zero heroes.

Top energy trends from India & across the globe

Govt to finalise energy efficiency plan by July

Uttar Pradesh aims to have a full-fledged plan on energy efficiency ready by mid-July. This will be the first ever energy efficiency plan for UP. The plan will reduce energy consumption and carbon emissions. The department of environment, forest and climate change and UPNEDA will work together to implement the plan. The four sectors that have been identified for high energy consumption and that need to adopt energy efficient practices are agriculture, construction, transport and MSME. The cold storages in agricultural sector consume lot of energy to maintain a certain temperature. The plan will focus on making cold storages energy efficient and take up similar initiatives for other sectors, like MSME for which efforts have already started. The carpet sector in and paper and pulp industry in Muzaffarnagar have also been identified for this plan.

Renewable energy projects worth 197 billion dollars is underway in India

Union minister of state for ministry of new and renewable energy, Bhagwant Khuba recently addressed the event 'Intersolar Europe 2022' in Munich, Germany on India's solar energy market. During the event Khuba said that renewable energy projects worth nearly \$197 billion are underway in India. A total of 493 projects are underway including 464 government-aided projects, according to government data. "India offers a great opportunity for investments. Currently around \$196.98 billion worth of projects are underway in India. I once again invite all the developed countries and major RE players to utilise the opportunity India is offering to the world," he added. The minister also said that Centre is committed to promoting domestic manufacturing in the solar photovoltaic (PV) sector to achieve its ambitious deployment goals. Several policy measures have been undertaken to support the domestic PV manufacturing sector.



Energy expert warns of global 'crisis'

The world's biggest oil company warned that the global energy crisis is poised to get even worse as demand from key sectors rebounds. Oil producers worldwide have less than 2% of spare capacity that they can use to increase output, Saudi Aramco CEO Amin Nasser pointed out on the sidelines of the World Economic Forum in Davos. Meanwhile, the aviation industry is still consuming 2.5 million barrels per day less than it was pre-COVID, he added. While Russia's invasion of Ukraine sent oil prices soaring and has moved Europe toward a full oil embargo on Moscow, Nasser made clear that the current energy crunch predates the war.

India to launch national green hydrogen mission in 2 months

The union government plans to launch a comprehensive green hydrogen mission in two months to take forward the green hydrogen policy announced in February. The mission is expected to announce a green hydrogen purchase obligation in fertilizer production and petroleum refining, akin to renewable purchase obligations (RPO). Noting that the national green hydrogen policy outlined the "preparatory measures", an official said: "What we will have is a full-fledged national green hydrogen mission; hopefully in two months." The mission is also expected to list the sectors that will have to start using green hydrogen on a voluntary basis and a roadmap for sectors such as fertilizer and petrochemicals to use the green fuel mandatorily.

Maharashtra government signs Rs 50,000 crore MoU in Davos for renewable energy

The Maharashtra energy department recently signed an MoU of Rs 50,000 crore with ReNew power, one of India's leading renewable energies companys, at Davos for investments in renewable energy in the state for the next six to seven years. It was signed in the presence of Maharashtra tourism and environment minister Aaditya Thackeray in Davos, where he is attending the World Economic Forum (WEF) along with state industries minister Subhash Desai and energy minister Nitin Raut. MSEDCL managing director Vijay Singhal, who signed the MoU, highlighted that this was one of the biggest investments for the state in the energy sector. He further added that the MoU has been signed for renewable energy generation in the state through solar and wind. MSEDCL official pointed that the in vestment will also be done in renewable energy projects like solar, wind, hybrid energy, green hydrogen plant.

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