

ENERGY NEXT

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In Conversation ► Sriram Ramakrishnan

'Govt role in energy conservation significant'

An increase in power outages coupled with scarcity have compelled the industry and the consumer to look for viable options. In such a scenario, energy efficiency has gathered ground and the market now has products and lighting that help conserve energy. **Sriram Ramakrishnan, CEO, Consul Consolidated**, speaks to **Sapna Gopal** on what this means for the sector and why policy continues to be relevant



How according to you is the energy efficiency sector positioned in India?

With the increasing problems due to power outages and quality of delivered power in India, the Indian government in the past 20 years has introduced a lot of policies, laws and regulations to address the energy issues. The issue can be looked at from three perspectives - energy generation, power distribution and energy consumption. On the generation front, we are aware that in most parts of the country, there is a 10 to 15 per cent gap between generation and demand. Unfortunately, the challenges faced in setting up new thermal power and nuclear power plants and growing energy demand means that this gap is not going to be bridged in the near future. While cost per unit of

power generated is lower with central generation, there is considerable wastage of energy in the transmission and distribution (T&D) systems. The losses in T&D systems are partially being addressed by Smart Grids being set up in several parts of the country. Another option is to look at distributed power generation where renewable energy sources like solar and wind can play a big role. The renewable energy systems can be set up in a much faster time frame compared to conventional thermal power plants and can partially help bridge the supply demand gap. Finally, the gap between energy supply and demand can be more

effectively bridged if there is energy conservation at the consumption (user) level by using energy efficient products and best practices to conserve energy. Also, local generation of power at site today is viable using solar power and this can further help reduce the load on the Utility power system as well as act as a backup power source when there is a power cut.

What is the scope of energy conservation equipment in the country? Has the demand for them increased over the years?

The largest consumption of electricity in India apart from the

industrial loads is for lights and air conditioners loads. Today, energy efficient lighting options and air conditioners are available, but still not widely adopted. While demand for energy efficient products has increased over the years, many consumers still do not use them either due to lack of awareness or because they are not willing to spend any additional capital. Further, the enforcement and incentives provided by the government are not attractive and effective. The scope for energy conservation equipment today is more relevant in India and extends beyond manufacturing sector with the growth of the service sector such as offices, data centres, hospitals, hotels, retail outlets, malls and commercial complexes.

Could you elucidate on the energy conservation equipment used for lighting in India? What is the present level of usage? Can it be bettered?

Lighting loads are one of the largest consumers of electricity in India. Many energy efficient lighting options like Compact Fluorescent lamps

(CFL), T5 fluorescent lamps and now LEDs are available. But their adoption and usage is not very wide spread and is only slowly catching on. Today, there are many industries, hospitals, hotels which still use incandescent or gas discharge lamps like fluorescent, metal halide or halogen lamps. It is very difficult to convince customers with a large installed base to change over to more energy efficient lamps overnight. Even under these conditions, there are solutions available to reduce the energy bill for lighting.

We have developed an innovative solution called Consul Conserver for lighting applications which can reduce the lighting power bill by around 25 to 30 per cent when used in sites with gas discharge lamps. The Consul conserver also helps increase the life of the lights by ensuring there is no over voltage on the lamps which can reduce the lamp life dramatically. The energy saving is achieved by providing a higher starting voltage to start the lamp and then reducing the voltage below nominal to reduce the power consumption without

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appreciable loss in lumen output. The solution also has programmable features to further automatically dim the lights when required to allow further reduction in power bills.

Our Energy Conserver for Lighting Applications are widely use in various industries for factory lighting, street lighting, work yard lighting, stadiums, office blocks, hotels, etc. These customers have realised considerable savings and the solutions can be



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customised from small single phase systems to large three phase systems.

Recently, Consul acquired a controlling stake in Megatech Power Equipments Ltd. In what way will this help the solar inverters sector?

Megatech is now a 100 per cent subsidiary of Consul Consolidated. Megatech product range complements the existing range of products offered by Consul and positions Consul as one of the only Indian manufacturer to offer a full range of power conditioning, power back up, power conservers and solar energy products.

Megatech acquisition allows us to offer our customers a range of innovative solar power products like off-grid solar inverters and solar power conditioning units (PCUs) which have been developed for Indian power and site conditions, tested and approved to IEC standards. With an installation base of over 7MW of off-grid solar installations in India, it provides a solid reference base of our offering of robust solar power products to our customers across India. Through this investment, we have moved forward in our aim to be India's leading power solutions provider. We also continue to invest heavily into R&D to develop the next generation solar PCUs and inverters and have a team of over 20 engineers working in our DSIR approved R&D centre. We are working on new solar



Energy Conservation Lighting Equipment: A unique feature of these conservers is that it helps to reduce electrical consumption by gas discharge lamps and also cuts down the electricity bill by up to 25 per cent.

products that allows us to be well placed to offer products and services for both off-grid and on-grid solar power.

As of now, what is the market potential for off-grid and on-grid solar power solutions in India?

India has a huge potential for solar off grid and on grid solutions as the gap between demand and projected supply of power is expected to widen in the coming years. Solar is a viable alternate source to bridge the gap considering that most parts of the country get up to 300 days of sunshine.

At the moment, solar has the advantage of not being constrained by the requirement for clearances and regulation that is faced by the conventional power generation methods of thermal, nuclear and hydel. Solar power systems can also be deployed from less than 1kW off-grid systems to large MW range on-grid systems. This type of scalability is not feasible in any other form of power generation. Also, off-grid solar solutions are a viable power back-up alternative in areas with poor power situation and is also able to transcend the constraints of grid connectivity

and the cost of setting up grids in unmapped rural and geographically challenging regions.

Despite considerable reduction in the cost of solar power systems with the dropping prices of photo voltaic panels and Balance of System components, the current market in India is supported by the subsidies and programmes of the government to encourage solar energy. Off-grid or Hybrid Solar power systems today are already a viable economic alternative to other forms of backup power generation like Diesel Gensets (DG Sets). On-grid solar systems are also expected to reach grid parity in the near future. But presently, government subsidy and policies are still critical for the wide spread adoption of solar power in India.

While the use of LEDs is on the rise, what about those like solar inverters and solar AC systems? Do you see those replacing conventional lighting systems?

All new technologies have a similar adoption cycle which was seen in LED adoption too. At the beginning there was much scepticism, the initial usage results were mixed, but as the technology reliability improved and people started seeing the benefits, it self-propelled a cycle of cost reduction and increased availability.

With increasing awareness about solar as a power backup source for lighting applications, we expect that over a period of time, the shift to solar power solutions will happen. Though initial costs is still seen as a potential barrier, we see solar inverters and solar AC systems will co-exist with the conventional lighting systems. Over a period of time, more lighting systems will be on solar especially in areas with severe power cuts or no reliable grid power.

Consul offers a wide range of solar power products including PCUs, MPPT Charge controllers among others. Megatech has executed several solar power system projects used for lighting applications in schools, colleges and primary health



Turbo series inverter



Solar Inverter with MPPT Charger Controller: Hybrid design (grid and solar charging) with an inbuilt MPPT (Maximum Power Point Tracking) charge controller.

care centres across India.

What kind of support does the manufacturing sector (in the energy efficiency segment) require from policy? What are the measures which will help?

The government must play an important role in energy efficiency and energy conservation in the country. The Bureau of Energy Efficiency (BEE) must extend the energy efficiency of rating of products beyond consumer products like air conditioners and water heaters to other big consumers of power. They must also play a big role in educating the consumers and industries and provide incentives for users to adopt energy efficient products and solutions.

With regards to awareness in energy efficiency, what is the kind of knowledge that the industry and people have? How can it be improved?

Most people are aware of energy efficiency from a narrow perspective and this is due to the fact that there has been no sustained nationwide campaign on energy efficiency. Awareness on energy efficiency has largely been led by the efforts of manufacturers of energy efficient

equipment and solutions. This has been viewed with suspicion by users as an approach to sell more expensive equipment. Instead, we need to see the government and industry bodies like CII actively promoting energy efficiency concepts like Green Buildings.

Some concerns have been raised about the safety aspect of solar photovoltaic systems in the country. What is your take?

Like every product and technology, solar photovoltaic systems too need adherence to certain operating and manufacturing standards to ensure the safety of consumers and the connected systems. Keeping this in mind, consumers need to ensure that the solar photovoltaic systems that they are purchasing are from a reputed manufacturer and are also equipped with appropriately rated safety and protective devices that can sense any abnormality in the system and automatically isolate it from the grid and connected powered devices. It is equally important that the solar system is installed by a trained installer and good installation practices are followed. Also, proper electrical grounding and lightning protection systems must be ensured. In general, solar PV systems are no

more or no less safe than any other electrically powered equipment.

What are the energy saving equipment's that you intend to develop? How will these help the industry and the people?

We are looking at improving the efficiency of products we supply like UPS, inverters and voltage stabilizers. For example, in applications requiring a power backup where an online UPS is not required and a momentary power interruption of a few seconds is acceptable, we are promoting the use of inverters instead of UPS. We offer a full range of Inverters including large three phase systems up to 200kVA and this becomes an extremely energy efficient power backup solution as the inverter are operational only during a power interruption unlike an online UPS system which is consuming power on a 7x24 basis. In fact, we have done many installations of large three phase inverters to provide power backup for emergency lighting applications in commercial buildings, malls and offices.

We are also looking at areas of high consumption of electricity and zeroed in on lighting and air conditioning as two areas of focus. Our lighting conserver developed under an initiative with the CII, has been well received by the industry with many manufacturing industries using these to reduce their power bill for their lighting application. We have also developed an AC conserver for use with window and split AC systems to reduce the power bills of even older ACs in offices and commercial establishments. In addition, we have also launched an innovative product for unmanned banking ATM sites called iPEMS-ATM (Intelligent Power and Energy Management Systems for ATMs) which will control the AC and lights based on customer traffic and time of day thereby saving on power bills.

Built-in remote diagnostic capability will help identify problems proactively like a clogged filter or an improper temperature setting which may be running up the power bills. 