The Indian Market has always been a dynamic & unique one, and the recent developments have once again made it both attractive & challenging. To successfully establish a sustainable future in the Indian Power Sector now buzzing with enormous opportunities in almost every domain, there is no doubt, that the complexities of the sector and the business environment in general need to be understood thoroughly before taking the final business call.

2014

Market Entry Strategy for Energy Storage Solutions

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Energy Storage Systems

Energy storage systems are an evolving means of utilizing the existing generation most effectively and taking the place of peaking power plants while simultaneously contributing to Demand Side management (DSM).

Energy is stored in the form of electrical, mechanical or chemical energy and released in the form of electricity as these systems operate. Thus these systems act as a complimentary source of electricity generation. When coupled with Renewable Energy Systems, they act as sources of firm power/electricity, thereby showing eligibility as Renewable Energy Generators also.

It has been a hugely successful business model worldwide and is being considered the need of the hour in India to raise the efficiency level of the existing generators and to help bridge the demand supply gap in a much shorter span. It is thus important to consider these systems under the purview of the Electricity Act 2003 and its subsequent amendments.

The report aims at reviewing the relevant clauses of the Electricity Act 2003 and the Renewable Energy Policy of the Central Electricity Regulatory Commission to see the perfect fit for such solutions in the Indian Power Market.

Renewable Energy Tariff Regulations and Regulations on Renewable Energy Certificates have in some earlier experiments abroad and also in some proposals shared in India, played an important role in raising the financial feasibility of such solutions. The report thus tries to also give a detailed perspective over the same to arrive at a more clear positioning of the Energy Storage Systems with respect to regulatory and policy issues.

The overall growth of the power market, the demand supply mismatch and the regional imbalances because of the Transmission Constraints, Delay in Commissioning and Subdued Demand Growth etc, also form a crucial area of assessment to gauge the opportunity cost of lack of power availability and the alternative mechanisms and costs associated with such measures. The report thus not only tries to deal with the overall All India need for such solutions and the potential market size, but also looks at the pockets within the country where the need and acceptance for such solutions may be relatively higher, because of various reasons.

It has also been observed that the cost of solution of this kind would also depend on the size of need and the duration of such need for different category of clients. The report tries to delve into these issues to bring forth a clearer need assessment for the Indian Market.

The financial model for Energy Storage Systems has also be discussed based on the connected sensitivities, followed by a list of recommendations based on the study at the end of the report suggesting Market Entry Strategy for the ESS business in India.

Energy Storage Systems – A Necessity for India

In India the demand for electricity varies through the day and throughout the year. Even though the power generation attempts to meet the peak hour requirement, it invariably falls short, resulting in a peak hour deficits across the country, depending on the demand supply scenario in different states.

On the other hand, the off peak hour requirement is considerably lesser than the available power leading to an off peak hour surplus of power. Given that electricity is generally not being stored, the off-peak surplus electricity sourced becomes an unproductive asset with very low returns, impacting adversely utilities' recovery of investments in power procurement and also across the value chain.

Some of the observations from the recent past, which highlight the need for Energy Storage Solutions, are discussed here:

1. For example the state of Gujarat faced a shortfall in electricity generation during peak hours to the tune of 190 MW in 2011-12. The peak hour deficit clocked by Gujarat was, however, far less compared to the annual figures of other larger and industrialised states like Maharashtra (4,600 MW), Karnataka (2,000 MW) and Tamil Nadu (2,200 MW). The country's peak hour electricity supply fell short by over 11% during April-February 2012.

   Effective interventions through Energy Storage Systems could have dispersed the demand during the day and reduced the difference between peak & off-peak need.

2. In June 2012, the Tamil Nadu Generation and Distribution Company (TANGEDCO) made a plea to the Tamil Nadu Electricity Regulatory Commission that banking of Wind Power was hurting the organization, because wind power producers put electricity into the grid when there is enough power - they are paid Rs 3.39/unit but exercise their option to draw power when there is a scarcity of power. As TANGEDCO is bound to supply them the power, it has to purchase power at high rates from the market for that purpose. In the bargain, TANGEDCO makes a loss.

   Energy Storage Solutions, could not only reduce problems associated with banking of power, but may also help to meet the peak demand requirements and get better revenues for the Wind Generators, while also reducing the problems for Discoms.

High capital costs of ESS had typically made them unviable in past. Considering their benefits for the power sector and their support to renewable generators without any polluting component, it is important to look for business opportunities where such solutions can not only make independent business sense, but also offer a sustainable business solution for power demand variations across the day, through energy storage.