

Availability Based Tariff Systems (ABT)

Availability Based Tariff (ABT) Mechanism is adopted for pricing bulk power across various stakeholders.

ABT is concerned with the tariff structure for bulk power and is aimed at bringing about more responsibility and accountability in power generation and consumption through a scheme of incentives and disincentives.

CMS provides high-end ABT systems that help power generators monitor in real time the demand created from the various stakeholders and consumers. Adani Power is one such power generator that utilizes CMS's ABT system to bring organization and regulation into its power generation procedures.

The Solution

In order to better manage power generation for Adani power, CMS took on the project to bring in a whole new level of efficiency and cost saving into Adani's power generation cycles.

In order to measure power demand effectively, CMS placed its ABT meters at each of Adani's power generator stations. These meters were responsible for measuring power demand at each line. There are typically 10 lines that are used to deliver the power.

Now, power is such a commodity that it can't be seen or felt. Which is why it needs to be measured in real time. CMS's ABT meters measure this power demand in real time and update the centralized information systems with the requirement at each level.

Typically if frequencies of power drop, the demand is high and vice versa. Based on these minute frequency changes, ABT meters are able to estimate the amount of power that needs to be distributed and calculates deficits in real time. Thus if there is going to be a drop in demand, it becomes clear early on in the generation cycle.

CMS provided a centralized architecture featuring its e-Tools information system to monitor the demand in real time. This system makes it easier and more transparent to understand things like revenue loss due to drop in demand, which becomes very important to maximize revenue.

Challenges

Before the introduction of CMS's ABT system there were a number of challenges that were being faced. In the case of unscheduled interchange, which is a situation where demand requirements shared by power distributors and consumers are not as predicted, there is a direct impact on revenue.

ABT works on the concept of scheduling blocks. Any power generation and demand estimation that happens takes place within these blocks of time. Each block is 15 minutes in time and each day typically has about 96 blocks. The quantum of demand measurement takes place in these blocks. So typically in the case of Adani power, which is a 4600MW plant, a typical deficit would be

estimated around 1%, i.e. 46MW. Thus in case of excess demand, it is usually a straightforward transaction with revenue being gained for the generator. However in case of a deficit, typically the generator stands to lose lakhs of rupees in 15 minutes. If you extrapolate this to the entire day, then you're looking at crores of losses. This is where ABT systems really come in as saviors. These systems are able to bring about an untold amount of transparency as to what real time expected revenues are, demand deficits, instant incentive mechanisms and so on. This helps in understanding how much power has to be generated on the basis of block schedules. ABT systems are to power generators what cricket scoreboards are to a match of cricket, key performance indicators.

In addition to the above, unacceptably rapid and high frequency deviations (from 50 Hz) cause damage and disrupt large-scale industrial consumers. Frequent grid disturbances also result in generators tripping, power outages and power, both of which are avoided using ABT systems.

Benefits

As mentioned above, unmeasured power generation without ABT systems can result in massive unpredictability for power generators. This unpredictability can lead to losses in industrial equipment to loss of revenue (amounting to crores) for generators.

While implementing an ABT system can result in a fairly large investment, the benefits are far more. It is well invested since it brings in the clarity needed for planning and helps to gain and maximize revenues.

Some other direct benefits seen by Adani power were:

- Less power loss
- Enhanced grid discipline
- Economically viable power with right pricing
- Addressing grid disturbance issues
- Gaming and avoiding the same
- Effective implementation and benefits to all. Capability to control cost of production as well as flexibility in operations