BEST PRACTICES IN GRID OPERATION AND MAINTENANCE - WHITE PAPER

The exchange program comprised of meetings/discussion not just limited to transmission operators, but it also included discussions with regulatory bodies i.e. FERC, US Department of Energy, Legal firms like Schiff Hardin etc. Therefore, the best practices covered both technical and administrative aspects. Participants were asked to share their observations after return and describe challenges and their recommended solutions at NTDC. Participants briefly explained the following:

Transparency/availability of data

Transparency of data about the energy bought and sold on daily basis and regular dispatches may prevent irregularities.

Recommended Solution

Publishing daily energy usage data, dispatches and payments followed by periodic reports. Availability of public data will effectively mitigate the unnecessary hue created by people as they will be able to understand the system constraints and supply/demand gap of power generation.

Delays in procurement processes

Most of the critical delays in the implementation process are caused due to disputes in award of contracts and bidding process.

Recommended Solution

There should be a tribunal solely responsible for dealing with procurement processes. In case of any unusual happening, the subsequent inquiry/investigation report should be available online so that respective formations can be improved in future.

Creation of parallel/free markets

In US, Wholesale transactions (bids and offers) in electricity are typically cleared and settled by the market operator or a special-purpose independent entity charged exclusively with that function.

Recommended Solution

NTDC anticipates a market similar to US market by formulating an independent Contract Registrar and Power Exchange Administrator (CRPEA) to regulate the open market in Energy sector. However an abrupt paradigm change in this regard may not sound effective. Parallel free markets along with the existent set-up may open new avenues for the prospective investors. Standardization of wheeling

contracts and terms and enforced by regulatory agencies may spur investment by users and third parties.

Independent regulatory body

An independent and competent regulatory body like FERC is required to formulate regulations for generation, transmission and distribution utilities ensuring the development of safe, reliable and efficient energy infrastructure at reasonable cost.

Recommended solution

Independent regulatory body should develop SOPs for power system operation, protection, planning and monitoring to be followed by all the utilities. Pakistan have NEPRA as a regulatory body to regulate the electric power sector to promote a competitive structure for the industry and to ensure the co-ordinate, reliable and adequate supply of electric power in the future, but apart from determining the electricity tariff rate NEPRA has not been able to play an instrumental role as a regulatory body.

Demand Response and Net metering Programs

The distribution utilities in US have introduced demand response and net metering programs for the consumers to facilitate them in reducing their power usage. In **demand response** the consumer refrains from using power during peak hours and in turn receives an incentive in the form of lower electricity bill, similarly in **net metering program** consumers having solar PV on their residence can export the spare power to the grid and reduce their power bill. Such programs cannot only decrease the load on the national grid but also give the consumer more power over their power usage.

Recommended Solution

NTDC can introduce similar programs for reducing the load on National Grid and benefit the end consumer.

Implementation of SCADA system effectively at Grids

Most of the Grid stations in USA are un-attended due to proper implementation of SCADA system.

Recommended Solution

Effective Implementation of SCADA system at our Grid stations will not help NPCC to operate the grids with fewer grid operating staff but will save time and money.

Enhance solid waste management generation

In USA, Generation of Electricity from municipal Solid waste is a very profitable and reliable source of generation where people pay for the resource (garbage) to be utilized in efficient manner.

Recommended Solution

Solid waste generation in Pakistan must be enhance as it is the quick and relatively cheap way of generation of electricity and easy to implement.

Asset management

Poor asset management at NTDC is causing trouble e.g. non availability of data including surveys giving details of the equipment being used currently, keeping track of the useful life of material/equipment, and then prioritize by carrying out studies which equipment is unavoidable to be replaced/augmented.

Recommended Solution

Asset management at NTDC is required as it doesn't require huge financial resources but a little attention. This implementation can not only be done for the grid stations but also for the inventory of the offices which will ensure timely completion of pending tasks.

Capacity Building

More training should be given to engineers on new software concerning Substation and Transmission line designing.