Proceedings for Second Brainstorming session on Smart Grid issues "MANTHAN" held on 23rd May 2016 at The Ashok, Chanakyapuri, New Delhi.:-

Session started with welcome speech of Sh. Prabhu N Singh, Director- NPMU. Inaugural address was given by Sh. Vishal Kapoor, Director-Distribution, MoP and Sh. R.K.Verma, Chief Engineer CEA .

Sh. Vishal Kapoor, Director-Distribution introduced NSGM and NPMU to the guests and emphasized on slogan 'Smart is neither static, nor salient and smart is not a scheme as well'. He told that 'NSGM is not a scheme to support utility with grants and loans but the main idea behind NSGM is to have a self-sustainable model to have a win-win situation for all the stakeholders.'

Sh. R.K.Verma, Chief Engineer, CEA also shared his thoughts on Smart Grid. He told that 'smartness is a relative term and not an absolute thing'. He further added that 'smartness is natural process of evolution and emphasized on need of Distribution Utility people to become smartest among all the stakeholders because they are the people who own and run the system'.

First session of Manthan- 'Learning from Smart grid Pilots'

First Presentation of the day – 'Global Smart Grid Pilot Projects' was made by Dr. Kanan Tinnium, Technology Leader, GE global research. He shared experiences of global micro grid pilot projects done at Bella Coola (Canada), 29 Palms, California (USA) and Postdam, NewYork (USA) by GE and stressed on way forward with customized microgrids focusing on value prepositions. Customization may be required to meet the needs of the system like in Bella Coola high cost of air transportation of Diesel in the Island was major driver and whereas in New York requirement was to ensure supply in extreme weather conditions. He said adequate planning is required for interoperability, interconnection requirements, standards, testing and asset ownership in the Indian context.

Second Presentation was made by Sh. J.R.Chaudhary, UGVCL on 'Smart Grid Pilot- PoC studies'.Total 5 consortiums were involved in PoC – Wipro, Reliance Infra, L&T Automation, CG Global and Tapesh Energy. These consortiums were evaluated on these 5 criteria- Reliability of data, Inter-operability, Data reading speed,Events and alert notifications speed, Implementation approach and methodology. He also shared experience of PLCC and RF performance under different conditions

Third Presentation was made by Sh. Tara Shanker, Director, DeitY and Sh. Aby Joseph, Joint Director, CDAC on 'R&D initiatives of DeitY in Smartgrid technology through NaMPET'. He touched upon initiatives in the field of Renewable energy integration, Microgrids, Power Quality mitigation

technology, Phasor Measurement Units, Wide Area Monitoring, Smart Energy Meters, Net Zero Energy Building(NZEB) and Low Voltage DC system under National Mission on Power Electronics Technology(NaMPET).

As a response to query raised by CE, CEA, DeitY told that there are two voltage levels 48V and 110V in practice globally and due to shock safety 48V is chosen in India for LVDC systems. Another query was on type of battery and ESS best suited for Smart Grid Applications. Dr. Kanan, GE Global Research told that type of battery depends on type of loads to be fed. He added that control technology and converter technology has to be agnostic to the type of the battery and ESS & Cost Effectiveness may be another criteria for selection of technology.

Second session- Smart Grid – Bussiness Models

Sh. Sanjay Banga, VP, TPDDLpresented OPEX Model to increase billing efficiency from the current national average of 71%, to make projects self-sustainable. Sh. Vishal Kapoor Director-Distribution, MoP asked that whether we can devise a business case where NSGM can also generate revenue for itself as it is also investing in the project. Sh. Sanjay Banga, VP, TPDDL replied that Ideally it should be the case and this will also ensure better involvement of NSGM in executing the projects but generally grants are given to provision gap funding.

Second Presentation was made by Sh. Manaen Srigiri, CEO, JnJPowercom on 'Sharing Odisha Experience on Smart Prepaid System on BOOT Model' for installation of Prepaid Meters for Government / PSU Consumers; initially about 20,000 Government Consumers were to be covered. It was decided to install prepaid meters on lease basis for a term of 4 years& asset transferred to DISCOM thereafter. Utility benefited in terms of improved cash flows and the IA was paid monthly amount on per consumer basis. As in this case all capital investment is by Implementation partner, he emphasized on need of Bi/Tripartite business model to ensure timely payments for the investor and in turn building a better infrastructure for common people. As a response to query regarding whether billing efficiency can be improved by targeting consumers consuming energy above a certain threshold as proposed in UDAY, Sh. Sanjay Banga replied that all the consumers in an area should be covered for getting the desired results.

Third presentation was made by Sh. PankajBatra, Chief Engineer, CEA who deliberated different building blocks of a business case to be customized on case to case basis. He stressed upon optimum utilization of Transmission & distribution assets. He took test case of UP to demonstrate cost effectiveness of smart grid technologies in practice.

Third session - 'Smart Grid Functionalities'

First Presentation of the final session was made by Sh. Anand Srivastava, Landis+Gyr on 'Smart Metering'. He told that there are 4 key components of AMI system- Data Reading, Data transportation, Data acquisition & control and Data analytics. He covered advantages of RF Mesh canopy Highway with routers & collectors over the conventional RF Mesh with DCU. He also mentioned about TPDDL AMI project where in L+G has deployed 250 HT AMI solution with Demand Response functionality along with Pilot at BYPL (Patparganj Industrial area) with 20-30 Consumer in the consumption range of 20kW to 30 kW.

Second Presentation of the final session was made by Sh. Vinoo S Warrier, VP, Kalkitech on 'Interoperability Challenges in AMI-Indian Context'. He discussed Various Communication Standards involving – Data Model and Protocol services, Layering etc. He stressed upon Interoperability and InterchangeabilityChallenges for AMI involving- Network Topology. He explained the salient features of DLMS/COSEM protocol for Smart Metering as well.

Third Presentation of the final session was made by Dr. Mini S. Thomas, Professor, JMI New Delhi on 'Smart Grid Initiatives @ JamiaMiliaIslamia'. She introduced JamiaMiliaIslamia and gave a glimpse of SCADA and Substation Automation LAB to the guests.. She stressed on the dire need of funds to support the research activities in the Smart Grid Domain and urged corporate entities to come forward and fund projects through institute- industry- government collaboration. She also suggested NSGM to introduce a scholarship for PhD students to work in Smart Grid area.

Final presentation of the day was made by Sh. N.S.Sodha, Ex ED, PGCILon'Smart Grid Journey-Actions required'. He discussed about drivers for Smart grid in India, distribution sector problems and strategy for making DISCOM's financially healthy. He urged DISCOM's to take the ownership of Smart Grid Projects and not to treat it like other regular projects running with aid from GoI.

In Q&A session a query was raised with reference to UGVCL, PoC studies. It was enquiredwhether 2 different makes of meters communicating through single DCUwill be treated as interoperable system. Sh. Vinoo Warrier, VP, Kalkitech told that these two meters were installed by the same vendor and they achieve interoperability with the use of API. It may not be treated as interoperability case due to use of sharing of secret codes to talk to two different makes of meters through API. If the different OEM's design their system based on standards and do not need to exchange codes for interoperability then only true interoperability will be achieved.

Sh. R.K.Verma, Chief Engineer, CEA was invited by Sh. Prabhu N Singh, Director- NPMU to share his final thoughts to conclude with. He started with the task ahead- Smart Grid Deployment in full scale instead of pilots. He informed the house that we have already formulated standards for Smart Meters for accuracy class 1&2. And soon we will be ready with standards for AMI and communication. He told that mechanism for roll out of smart meters have to be re-thinked. Whether we should follow a system integrator approach or we need to have separate tenders for AMI and system integrator. Or should we fix performance parameters instead of technical specs. He mentioned that developing a standard chip for communication module by Govtbody can be taken up as suggested by Director(NPMU) and it can be made mandatory for all makes of smart meters to bring uniformity and ultimately bring down the price of Smart Meters. Over the Business models he shared his thoughts and said that realization of revenue for used energy can't be the basis of business case as it targets reducing inefficiency towards billing and collection. He suggested that business models should be developed based on holistic benefits of Smart Grid implementation

Session ended with vote of thanks to all the guests and dignitaries from Sh. Sachin Shukla, Senior Manager, NPMU.