

**IEEE PES-IAS Delhi Chapter**

**18<sup>th</sup> Thomas Alva Edison Memorial Lecture**

**on September 17, 2014 at NLDC, POSOCO, New Delhi**

**Evolution of EMS Control Centers - Managing the Future Smart Grid**

**PMU Synchrophasor Measurements at Control Centers**

**Dr. Jay Giri, Fellow, IEEE, PES DL**

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The 2014 Thomas Alva Edison memorial lecture was delivered by Dr Jay Giri of Alstom Grid on September 17, 2014 at NLDC, POSOCO, New Delhi on the Evolution of EMS control centers; Managing the future grid. The lecture was attended by 46 people in person (18 IEEE members) and around 30 people from WRLDC, ERLDC and NRLDC by video conferencing. The event started with the welcome by Dr Mini S Thomas, Past Chair of the IEEE PES-IAS Delhi Chapter followed by a short address by Mr. Vinod K Agrawal, Executive Director, POSOCO.

Dr Jay Giri took the stage and conducted a two part tutorial from 10.45 am till 1.45pm, with the audience wanting more of his basic explanations and simple handling of very complex power system dynamics issues.

The topics covered include:

- The history and evolution of the EMS from its digital genesis in the 1970's.
  - The primary functions of a modern EMS such as Generation Management, Transmission Management, SCADA, Training Simulator and Electricity Markets
- Emerging new industry drivers, technology trends
- Impact of growth of microgrids, renewables and distributed generation on the EMS
- Growth of Phasor Measurement Units (PMUs) and synchrophasor measurements worldwide
- Wide Area Monitoring (WAMS), Situational awareness tools

- The EMS for the future grid
  - Integration of synchrophasor PMU data, Monitoring grid dynamics, Island detection and restoration tools, Big Data Analysis, Fast forensic analysis, Training for grid dynamics, Advanced visualization tools
  - Providing grid operators with “actionable information” for prompt decision-making
  - Practical examples of utilities where such advanced tools are deployed.
- Concluding thoughts on the challenges and opportunities to manage the future grid

The lecture was very well received by all present and was followed by a large number of questions from audience from across India. The event concluded with Dr. Mini S Thomas thanking POSOCO for making all the arrangements for the event. POSOCO provided working lunch for the attendees.