Context

- IEEE in India
- LVDC in India
- IEEE & IEEMA
IEEE in INDIA

- Early Establishment and Presence of nearly 38 years
  - IEEE India Council was established on 20th May 1976
  - 10 IEEE Sections in India & 9 Sub Section known as IEEE entity catering to the needs of a specified geographical areas in India.

- IEEE appears to have received a committed support/funding nearly US$ 5 Million to promote US technology/standards in India

- IEEE-SA (Standards Association)
  - SIG (Standards Interest Group) in India, Smart Grid, Smart Meter, Cloud Computing Innovation Council & now LVDC
  - IEEE has become member of India Smart Grid Forum (ISGF) as associate member
  - Indian electrical body IEEMA inks pact with IEEE (MoU)
  - IEEE MoU with BIS (Bureau of Indian Standards) is in final stages (legal approval at Ministry of External Affairs)
  - IEEE-working very closely with CPRI (Central Power Research Institute)
IEEE started Indian Low Voltage DC Forum

Objective

- Thought leadership platform to effectively engage with policymakers and regulators
- Facilitate technology application and demonstration to evolve LVDC standards and catalyze the technology’s commercialization.

The LVDC Forum to focus on products, systems and solutions upto 600VDC.

Four Working groups to evaluate key applications for LVDC.

- DC in Microgrids, DC in Commercial Buildings, DC in homes and guidelines for indoor LVDC power distribution.
- Test DC on AC appliances and equipment and install photovoltaic panels to provided DC.
- The system will include storage, distribution and protection of the DC system, as well as the interconnection to the utility AC system.

“Executive committee” will oversee the program, no IEEE sponsoring committee
LVDC in INDIA Contd.

- IEEE appears to have recruited the services on some eminent scientists to endorse the whole concept of LVDC in India
  - Professor Jhunjunwala from Indian Institute of Technology (IIT), Chennai is a stronger supporter of this technology and associated research

- Already, more than 30 global technology manufacturers and suppliers, research organizations, academic institutions, industry consortia and government agencies have joined the LVDC Forum
  - ABB, CEA, CPRI, CROMPTON GREAVES, EMERSON, GE, IBM, INFOSYS, ISGF, JUWI, PANASONIC, PHILIPS, Schneider-Electric, SIEMENS
    - Philips Research for LVDC @Home (DC@Home)
  - Promoting National Electrical Code: NFPA 70

- IEEE is working closely with two consortia which are investigating similar issues:
  - EMerge Alliance DC initiative & DC Components and Grids (DCC-G) in Europe
    - EMerge Alliance Expands DC Power Initiative to South Asia

- LVDC Forum has partnered with the India Smart Grid Forum (ISGF), which is a public private partnership of the Ministry of Power (MoP), Government of India
LVDC in INDIA Contd.

- Funding by contributions from the participants in the form of cash, equipment, and/or in-kind services.
  - The Indian Central Power Research Institute (CPRI) is also expected to contribute resources and provide the test bed environment.

- BIS & IEEE MoU covers LVDC as technology for co-operation
  - BIS has shown keen interest to work on the subject of LVDC
  - BIS has agreed to work with IEC SMB SG4 following up letter from IEC
    - Plann to start adhoc group soon on LVDC by setting up a committee, which shall form ToR and start engagement with IEEE and IEC
  - BIS has nominated Mr. Vimal Mahendru (Past President IEEMA) nomination for IEC SMB from India: Positive, shall be supported
    - DG CPRI name is also recommended for IEC Council Board

- IEEE being early mover on this subject, with IEEE ↔ BIS MoU in place soon and in absence of IEC developed standards, Adoption of IEEE developed standards by BIS is the way forward
IEEE and IEEMA

- IEEE promoting building Smart Cities with Smart Electricity, LVDC integrated in it.
  - Government of India has recently announced allocation of budget for developing 100 smart cities in India

  - [http://www.meteringindia.in/](http://www.meteringindia.in/) 12-13th Feb 2014
  - Intelect 22-24th Jan 2014 [http://intelect.in/](http://intelect.in/)
  - 40 CEO delegation from US visiting India for this event and promoting LVDC, Smart Grid, Micro Grid, Solar etc.
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