



INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

IEC SC 8A: Grid Integration of Renewable Energy Generation and WG 2: Renewable energy power prediction



Frank Martin

11th of October 2024



□ **SC 8A title :**

Grid Integration of Renewable Energy Generation

□ **Secretariat :** China

| Role | Name | Nationality |
|---------------------|---|-------------|
| Chair | Mr. Frank Martin | DK |
| Vice-Chair | Mr. Bernhard Ernst | DE |
| Secretary | Mr. Yongning CHI | CN |
| Assistant Secretary | Mr. Zhankui ZHANG | CN |
| P-Member: 27 | Algeria, Australia, Belgium, Canada, China, Chile, Germany, Denmark, Spain, Finland, France, United Kingdom, Italy, India, Ireland, Japan, Korea, Republic of, Malaysia, Norway, Netherlands, Portugal, Thailand, United States of America, Russian Federation, Switzerland, Sweden, South Africa | |
| O-Member: 9 | Austria, Czech Republic, Hungary, Israel, Iran, Mexico, Romania, New Zealand, Poland | |

□ Scope of SC 8A

- To prepare and coordinate, in co-operation with other TC/SCs, the development of international standards and other deliverables **for grid integration of variable power generation from renewables** such as PV, wind energy **with emphasis on overall system aspects** of electricity supply systems (grids) as defined in TC 8 scope, but not covering issues usually covered by regulation such as renewable energy policies e.g, infeed tariff schemes for renewables.
- SC 8A focuses on **the impact of a high percentage of renewables connected to the grid**, considering that their variability and predictability impact the functioning of the whole electricity grid.
- It **covers grid integration standards for renewable energy**, aggregating contributions of all grid users and prescribing **interaction modes between the grid and power plants**. This includes **requirements for interconnection and related tests for grid code compliance**, as well as standards or best practice documents for planning, modeling, forecasting, assessment, control and protection, scheduling and dispatching of renewables with a grid level perspective.
- **SC 8A deals with the grid level requirements** enabling secure, non-discriminatory and cost-effective operation of electricity supply systems with a significant share of renewable generation and **cooperates with TC 82, TC 88, TC 95, TC 114, TC 115, TC 117, TC 120 and other product committees** to ensure technical feasibility and verification of the implementation of the grid level requirements.

Existing Groups in IEC SC 8A

| WG No. | Title | Convener | No. of project |
|-------------|---|--|-------------------|
| JWG 1 | Terminology | Mr. Lingzhi Zhu Mr. Ajay Garg | 1 (IS) |
| WG 2 | Renewable energy power prediction | Mr. Shuanglei Feng | 1 (TR) 1 (TS) |
| AHG 3 | Roadmap of grid integration of renewable energy generation | Mr. Bernhard Ernst Mr. Yongning Chi | 1 (PWI) |
| JWG 4 | Grid code compliance assessment for grid connection of wind and PV power plants | Mr. Qing Li | 2 (TS) |
| JWG 5 | System issues regarding integration of wind and PV generation into bulk electrical grid | Mr. Jason MacDowell Mr. Jiabing Hu | 4 (TR) 1 (PWI) |
| WG 6 | Connection of Renewable Energy with HVDC System | Mr Yan Li | 1 (TR) 1 (TS) |
| WG 7 | Integrating distributed PV into DC systems and use cases | Mr Miao Zhu Mr Chenhui Niu | 1 (TR) 1(NP) |
| WG 8 | Modeling of renewable energy generation for power system dynamic analysis | Mr Hua Geng | 1 (TS) |

□ Why should we work on standards and spend our valuable time?

- Back at the World Fair in St. Louis in 1904 Electric energy focus area
- Challenge of different voltages, different frequencies and DC, 1ph, 2ph, 3ph supply
- Today we are much further, but we are at a similar point:
 - Forecasting
 - Grid Forming



St. Louis 1904
Palace of electricity

□ The 7 stages of standards development

| | Stages | Action | Documents |
|---|------------------------|---|---|
| 1 | Preliminary (optional) | Preliminary work item added to the work programme |  PWI P-members decision required (simple majority) |
| 2 | Proposal | Proposal to start a new project comes from NC, TC, SMB, liaison org. |  NP |
| 3 | Preparatory | Preparation of working draft (WD) within the working group |  WD  RVN Internal to WG, not circulated |
| 4 | Committee | Working draft circulated as committee draft (CD) |  CD  CC Comments |
| 5 | Enquiry | When mature, the CD is circulated as a committee draft for vote (CDV) |  CDV  RVC Vote + Comments |
| 6 | Approval | Final draft international standard (FDIS) prepared from approved CDV and NCs comments |  FDIS  RVD Vote + Comments |
| 7 | Publication | IEC publishes international standard (IS) |  IS |

Thank you for your attention!

In case of any questions, please contact:

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