

SC C6, "Distribution Systems and Dispersed Generation"

Activity Report (April 2004)

Highlights

After creation in Paris, August 2002, the SC C6 identified the strategies, assessed in the Strategic Plan, that will allow to achieve the objectives and to accomplish the scope assigned by the TC. A suitable operative plan provides the main guidelines to drive the actions to be undertaken: creation and co-ordination of working forces, development of a new (for CIGRE) know and promotion of the name of the new SC within and out of CIGRE.

Status of SC reference model implementation

The structure adopted by the SC is in line with the reference model stated by the TC. The first objective assumed by the SC Chairman was focused on the definition of a strategy to tackle scope and issues assigned by the TC to this new SC and on the creation of suitable working forces. Details are hereunder given; in total 5 working groups are now active, one of them is including two TF. The creation of additional two or three WG is now in progress. All the WG will complete their work in two – three years, starting from the kick-off meeting (some delay experienced in getting suitable chairmanship could require some extension of working forces duration).

A Strategic Advisory Group is also active.

Main technical directions currently being pursued by the SC

Impact of dispersed generation on the whole power system and the different aspects related to their integration, especially in the MV and LV distribution networks, is one of the main subjects now investigated by the working forces created within the SC. Issues studied are taking into account:

- ✓ the technology used for generation and for interfacing with the network,
- ✓ the primary energy sources used,
- ✓ the size of generators or of the cluster of generators and therefore the voltage level of the network where the generators are connected.

The technical and economic impact as well as requirements, rules and practices for the integration of dispersed generators are the main topics now considered as well as the utilisation of information and communication technology for the operation of dispersed generators.

The methodologies and practices for electrification of villages in rural areas is another subject now studied: solutions for efficient electrification are examined, starting from analysis of the effective energy needs and looking for application of new technologies under development, as high efficiency appliances, information technologies, distributed generation and renewable energy sources.

Adoption of DSM actions and utilisation of storage are additional subjects now considered by the SC to undertake new activities.

SC working groups and task forces

The WG C6.01 (*ex 37.33, Development of DG technologies and consequences on the power system*) completed its activity; the final report, approved by the SC, is available on the SC website and a summary was proposed for publication on ELECTRA. The second WG integrated in the SC after

creation in 2002 (C6.02, ex 37.34, *Connection of generators and customers*) will conclude its activity in 2004, the final report should be available for 2005.

Four new WGs (C6.03, “*Operating DG with ICT*”, C6.04, “*Connection and protection practices of DG*”, C6.05, “*Technical and economic impact of DG on T&G systems*”, C6.07, “*Rural electrification*”) were created and their activities are already in progress; within the WG C6.04 two TFs are also created, dealing the first with the connection criteria and the second with techniques for analysis and design of DG systems.

The preparation of the ToRs of other WGs is now in progress respectively dealing with the economic benefits of storage, DMS and integration of fluctuating generation.

The Advisory Strategic Group AG C6.01 created to assist the SC Chairman to perform the mission and to pursue the assigned scope is still active.

Joint working groups and task forces

The SC is not now involved in joint WGs and TFs.

SC publications

The Advisory Strategic Group prepared the report “**Distribution Systems and Dispersed Generation: a New Focus for CIGRE**” to be published on the April issue of ELECTRA.

The report “**Development of Dispersed Generation and Consequences for Power Systems**”, summary of the final report of SC C6.01 was proposed for publication on ELECTRA.

SC website

The SC prepared its own website, following the general guidelines stated by the General Secretary. The website is at present hosted on a server made available by the SC Secretary (Pisa University). Linkage with the CIGRE Central office website is in progress.

SC Strategic Plan and Action Plan

The Strategic Advisory Group prepared in 2003 a draft of the Strategic Plan that was circulated among all the members. Remarks were collected and integrated in the final text that is now available on the SC website; the plan indicates the main targets to fulfil mission and scope of the SC, as well as the short and long term actions to be undertaken.

The relevant Action Plan is mostly focused on the establishment of the SC working forces and in the further investigation and deepening of the SC strategies. In order to achieve this last objective a workshop was organised, during the 2003 SC meeting, on “Strategies of DG concept application”. The conclusions of the workshop, summarised in the report to be published in the April issue of ELECTRA confirmed the validity of the activities already undertaken and suggested to start a new activity relevant to the power system integration of fluctuating generation.

SC meetings

The 2003 SC meeting was held in Montreal, Oct. 6 and 7.

As regards the 2005 meeting the SC received a formal invitation from the Greek National Committee and from the South African National Committee. During the Montreal meeting it was

decided to accept the invitation coming from South Africa: it will be possible to take the opportunity to organise a session on rural electrification within the “CIGRE Southern African Regional Conference” that will be organised at the same time by the South African Committee.

SC participation to Regional Meetings and Symposia

The SC contributed and supported the CIGRE/IEEE-PES Symposium on “Quality and security of electric power delivery systems”, Montreal Oct. 7-10, 2003; the SC Chairman was called to coordinate the Session on Dispersed Generation.

In 2005 the SC will support the organisation of the Symposium on “Power systems with Dispersed Generation: Technologies, Impacts on Development, Operation and performances” to be organised in Greece on April, and will participate to the aforesaid regional conference in South Africa.

Relations with other organisation

Under the umbrella of MoU already agreed, the link with EURELECTRIC, CIRED are well established through the action of the Chairman and of some members who are also active in the two associations; an adequate link will be also assured with IEEE Committees and WGs active on topics of interest of the SC by the action of the USA member.

The Chairman was recently invited (March 2004) to contribute to an IEA workshop on “Distributed Generation: key issues, challenges, roles for its integration into main energy systems”

The Chairman and other members are also involved in a number of international projects (mostly EC funded).