

SC C6, "Distribution Systems and Dispersed Generation"

Activity Report

Highlights

After creation in Paris, August 2002, the SC C6 is now engaged in the third year of full activity; all the efforts are finalised to achieve the objectives and to accomplish the scope assigned by the TC. Such objectives are the basis of the Strategic Plan prepared by the SC; 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. The already existing WG, integrated in 2002 within the SC, already completed their working program. The publication of the relevant results is now in progress.

Status of SC reference model implementation

The activity of the SC is mostly carried out by WGs and TFs; in total 6 WGs and 2 TFs are now active (see details hereunder). All the WGs and TFs shall complete their work in two – three years, starting from the kick-off meeting.

A Strategic Advisory Group is also active; the creation of a Tutorial Advisory Group was also agreed and his finalisation is now in progress. The organisation of the SC is really in line with the reference model stated by the TC.

Main technical directions currently being pursued by the SC

The first actions undertaken were focused to study the 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. The technical and economic impact as well as requirements, rules and practices for the integration of dispersed generators are the main topics now considered; the utilisation of information and communication technology for the operation of dispersed generators is considered too.

Rural electrification and DSM, that are part of the SC Scope are also the objective of two dedicated WGs. Moreover, under the pressure of the astonishing development and penetration of wind energy utilisation now occurring in many countries, a further WG is studying the effect of a high share of wind turbines in electric power systems.

Looking at the future, now within the Strategic Advisory Group the search for new subjects to be examined was started; the search is following two main directions:

- To identify additional aspects related to the connection and the integration of dispersed generators.
- To study the application of the DG concept as a part of the medium long - term evolution of distribution system, i.e. creation of active distribution network able to contribute to the improvement of the overall performances of electric power systems.

The opportunity to extend the activity of the SC to study the evolution of distribution networks including subjects that are not strictly related to the application of DG concept is also considered.

The results of this action should also involve the revision of the SC Strategic Plan.

SC working groups and task forces

List of working forces now active.

Type	Number	Title	Name of Convenor	Created	Disbanded
WG	C6.03	Operating dispersed generation with ICT (Information & Communication Technology)	S. Odagiri (JP)	2003	2004
WG	C6.04	Connection and protection practices for dispersed generation	N. Hatziargyriou (GR)	2003	2006
TF	C6.04.01	Connection criteria at the distribution network for distributed generation	N. Hatziargyriou (GR)	2003	2005
TF	C6.04.02	Computational tools and techniques for analysis, design and validation of distributed generation systems	K. Strunz (US)	2003	2005
WG	C6.05	Technical and economic impact of DG on transmission and generation systems	G. Strbac (UK)	2003	2005
WG	C6.07	Rural electrification	J. Bouckaert (BE)	2003	2006
WG	C6.08	Integration of a large share of fluctuating power	H. Weber (D)	2004	2006
WG	C6.09	Demand side response	A. Baitch (AUS)	2004	2007
AG	C6.01	Strategic advisory group	A. Invernizzi (IT)	2002	Permanent

Joint working groups and task forces

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

SC publications

- ELECTRA, February 2004 “*Distribution Systems and Dispersed Generation: a New Focus for CIGRE*”, by the Advisory Strategic Group.
- ELECTRA, August 2004 “*Development of Dispersed Generation and Consequences for Power Systems*”, summary of the final report of WG C6.01
- Technical Brochure,2005, “*Connection of Generators and other Customers - rules and practices*”, final report of WG C6.02, publication in progress.
- ELECTRA, 2005, “*Connection of Generators and other Customers - rules and practices*”, summary of the Technical Brochure of WG C6.02, publication in progress.
- Athens Symposium, April 2005, “*Connection of Generators and other Customers*”, paper on behalf of WG C6.02

By the end of 2005 and early 2006 two TFs and two WG should be able to publish technical brochures and the relevant summary on ELECTRA.

SC website

The SC website, prepared on the basis of the general guidelines stated by the General Secretary is at present hosted on a server made available by the SC Secretary (Pisa University). The SC website is now linked with the CIGRE Central office website.

SC Strategic Plan and Action Plan

The Strategic Plan prepared in 2003 is still fully valid; the Plan, now available on the SC website, 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; the annual update is in progress.

SC meetings

The SC shall meet in Oct.2005 in South Africa thank to the invitation of the South Africa national Committee of CIGRE. The meeting will be joined to the “5th CIGRE Southern African Regional Conference”

There is a preliminary invitation from the Malaysian National Committee to meet in 2007 in Malaysia, jointly with the organisation of a regional event to deal with “Development of dispersed generation and cogeneration in developing and rapidly industrialising countries”. The proposal should be discussed during the next TC meeting.

SC participation to Regional Meetings and Symposia

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

In 2007 the SC could be involved in the above said event to be organised in Malaysia.

Relations with other organisation

Relations with EURELECTRIC, CIRED and IEA are well established through the action of the Chairman and of some members who are also active in the two associations; an adequate link is 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 invited (March 2004) to contribute to an IEA workshop on “Distributed Generation: key issues, challenges, roles for its integration into main energy systems” and to contribute to the AORC – CIGRE “Distribution network design & operation” held in Malaysia on Dec. 2004.

The Chairman is also invited to chair/coordinate some round tables during the next CIRED Conference.