

## **History and development of the Power Systems Computation Conference**

The Power Systems Computation Conference or, in brief, PSCC was the outcome of the needs, interests of and almost natural steps seen by academics, power system planners and operators, as well as engineers dealing with computers in the power system area. There was already a model that existed by 1961 in the USA of the Institute of Electrical and Electronic Engineers (IEEE) in the form of the Power Industry Computer Application (PICA) conference. The development of digital programs for the simulation and analysis of power systems, machinery and equipment gave the incentive for gatherings where specialists, teachers and students had the possibility to exchange their ideas and findings. Transatlantic travel in the early days was not so common and hence it was found necessary to establish a meeting in Europe that would serve the upcoming needs.

The first meeting, which was not even an official conference, was a spontaneous meeting in 1962 initiated by university professors at the institute of mathematics in Mainz. Two individuals, who were instrumental in organizing this meeting, have to be mentioned namely, Professor Humphrey Davies, Queen Mary College, London, and Professor Richard Baumann, University of Mainz. It was a small group, which got together; however there were already present representatives of industry, utilities and Universities from both Europe and America. They met in a small seminar room and talked about computer applications and decided to organize a larger conference.

The first PSCC, which can be called a conference, took place in London in 1963 and subsequent conferences followed at three year intervals in Stockholm (1966), Rome (1969), Grenoble (1972), Cambridge (1975), Darmstadt (1978), Lausanne (1981), Helsinki (1984), Cascais (1987), Graz 1990), Avignon (1993), Dresden (1996), Trondheim (1999), [Seville \(2002\)](#), [Liège \(2005\)](#), and [Glasgow \(2008\)](#).

The first PSCC conferences were, by their nature, private colleges, with quality established through the mechanism of attendance by selective invitation. The mode was, to a certain extent, taken from the CIGRE conference in the way that rapporteurs presented the main findings of the papers in the session, initiating the discussions. The idea of national representatives was also introduced and created a worldwide basis for participation, spreading the idea of the conference and recruiting young engineers to be included in the community of the conference. Later, the individual presentation of paper was introduced, motivated by the advantage especially for young participants to present their own papers and, not for the least reason, themselves.

It was the aim right from the beginning to allow the ordinary participant to get a good overview of the various sessions. So it was tried to keep the number of parallel sessions down to a maximum of three. As the conference developed it became increasingly difficult to meet this objective as the number of papers submitted increased. Usually a PSCC meeting would at the early conferences have about hundred and fifty papers over a five-day period with participants from some thirty countries. From 1987 onwards a Technical Program Committee and a review process was introduced thereby selecting the appropriate number of papers and ensuring the high quality of the conference. Fortunately, several individuals had the chance to participate in the Technical Program Committee of PICA and other similar conferences as well as being members of the corresponding committee of PSCC,

which improved the coordination and contributed to the choice of topics of common interest. At the more recent conferences more than two hundred papers have been presented and a one day tutorial by experts on a selected topic has been introduced.

Over the various conference periods more than two thousand articles were presented and published on all aspects of power system analysis, planning and operation. In the early days the emphasis was on simulation of dynamics and transients, steady state and transient stability, power flow and short circuit analysis, computational efficiency, expansion planning and power system control. All presented articles were published in proceedings, which serve as an excellent reference to the development of the use of computers in power. It is commonplace to note the continual advance of computing power and information processing technologies. The more recent conferences give evidence of these developments, e.g. various AI techniques. After the liberalization of the power industry many papers have been presented on power markets and their implications on power system operation, control, design, and planning. At the same time optimization methods and reliability of power systems were treated extensively. Different aspects and implications of new renewable power generation, e.g. wind power, have attracted a lot of attention at the more recent conferences.

The papers from the PSCC 2002 and later can be found [here](#).

PSCC as it stands today attracts engineers and scientists from all over the world. Some 300 participants from about 50 countries, though there is a strong base in Europe, attended the last conferences. The conference itself has taken on a traditional pattern, with presentation of research papers – more than two hundred at the last conferences - invited plenary presentations, and a one day tutorial given by experts on a selected topic. Still, the conference schedule allows sufficient time for personal meetings and discussions through receptions and an excursion. PSCC has established a formal relationship with a publisher such that outstanding articles from the conferences could be documented in a standard form in the Electrical Power & Energy Systems Journal (Elsevier). In addition, members of the PSCC community have the possibility to publish articles in the same journal where members active in PSCC serve as reviewers.

From the very beginning PSCC has put a lot of emphasis on the quality of the presented papers. In order to guarantee this, an extensive review process takes place before each conference within the Technical Programme Committee. All submitted papers are peer reviewed by several experts, and based on these reviews the most suitable papers are selected. The acceptance rate has been around 40% at the recent conferences.

Curiously enough PSCC has operated for a long time on a private basis, i.e. where the organisation is shared by a local organizing committee and a group of permanent participants take all responsibilities and risks. In 1991 PSCC was established as an association according to article 60 of the Swiss Civil Code with a seat at ETH Zürich (Swiss Federal Institute of Technology, Zurich), Switzerland. It operates under the legal guidance of a General Assembly consisting of about 20 Council Members and an Executive Board. For each conference a Technical Programme Committee is set up that prepares the Call for Papers, selects submitted articles and organizes the technical

programme of the conference. PSCC still relies on the support of a local organizing committee, usually at the University where the conference takes place. The character of a conference is styled to a large degree by this Local Committee and the success of the events is the result of the efforts of the members in this group.

Large numbers of individuals have been associated with PSCC, including most of the prominent figures in the history of modern power systems analysis, and contributed their ideas and efforts to the shaping the character and quality of the conference. At this point the appreciation of the Council is expressed to all of them.