

Research on Electric Power Systems

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ABSTRACT

“Electric Power Systems Research” is a special issue of Energies for the publication of original papers about the generation, transmission, distribution, and utilization of electrical energy. This special issue presents important results of work on power systems. Papers can present applied research, the development of new procedures or components, an original application of existing knowledge, or new design approaches.

Key Words: Electric Power, Power Systems, electrical energy, Effective design,

INTRODUCTION

Customers request electric utilities to deliver electric power in a stable, reliable, secure, and sustainable manner from a generation system through transmission and distribution systems to end-users. Consequently, the need to develop advanced technologies and novel methods applied to the modern power system is essential. Recently, the concept of smart grids that incorporate renewable generation, power electronics-based facilities, and information/communication technologies has been receiving increasing attention.

Authors were invited to submit papers on “Electric Power Systems Research”, including, but not limited to, the following areas:

- (1) Power system stability;
- (2) Power system reliability;
- (3) Flexible alternating current transmission systems (FACTS) applied to power systems;
- (4) Application of optimization methods to power systems;

- (5) Architectures and models of smart grids;
- (6) Power market;
- (7) Control, operation, and planning of distributed generation resources;
- (8) Smart home with energy management systems;
- (9) Microgrids and active distribution networks;
- (10) Virtual power plants and demand response.

The status of this special issue is as follows. A total of 72 articles were submitted, but only 22 articles were accepted for publication following a strict review process. The mean processing time was 78.39 days. Among the published 22 articles, the numbers of research and review articles are 21 and 1, respectively. The authors of the published articles are in Asian, North American, and European countries—specifically, China (11), Korea (6), USA (3), Spain (2), Taiwan (2), Japan (1), Canada (1), and Ireland (1) (the number in parentheses is the number of papers; a paper may have authors from different countries)

OBJECTIVE OF THE WORK

These 22 published papers can be classified into five categories, which are generation systems, transmission systems, distribution systems, end-users, and the power market, as shown in Figure 1.

The generation category covers distributed generation, stability, dynamics, and transients [1–4, 8,10,13,15–17]. The transmission system category covers high-voltage direct current (HVDC) FACTS, and thermal standards [5,8,12,21]. The distribution system category covers many topics, such as voltage control, network reconfiguration, microgrids, power quality, smart distribution, and multi-agents [6,10,11,14,20,22]. The end-users category covers demand response, frequency control, and critical peak pricing [7,15,18,19]. The power market category deals with problems of contract design and load serving entities [9,18]. Several papers [8,10,15,18] cover more than one subject. Energies 2016, 9, 824 2 of 3 multi-agents [6,10,11,14,20,22]. The end-users

category covers demand response, frequency critical peak pricing [7,15,18,19]. with problems of contract

Conclusion

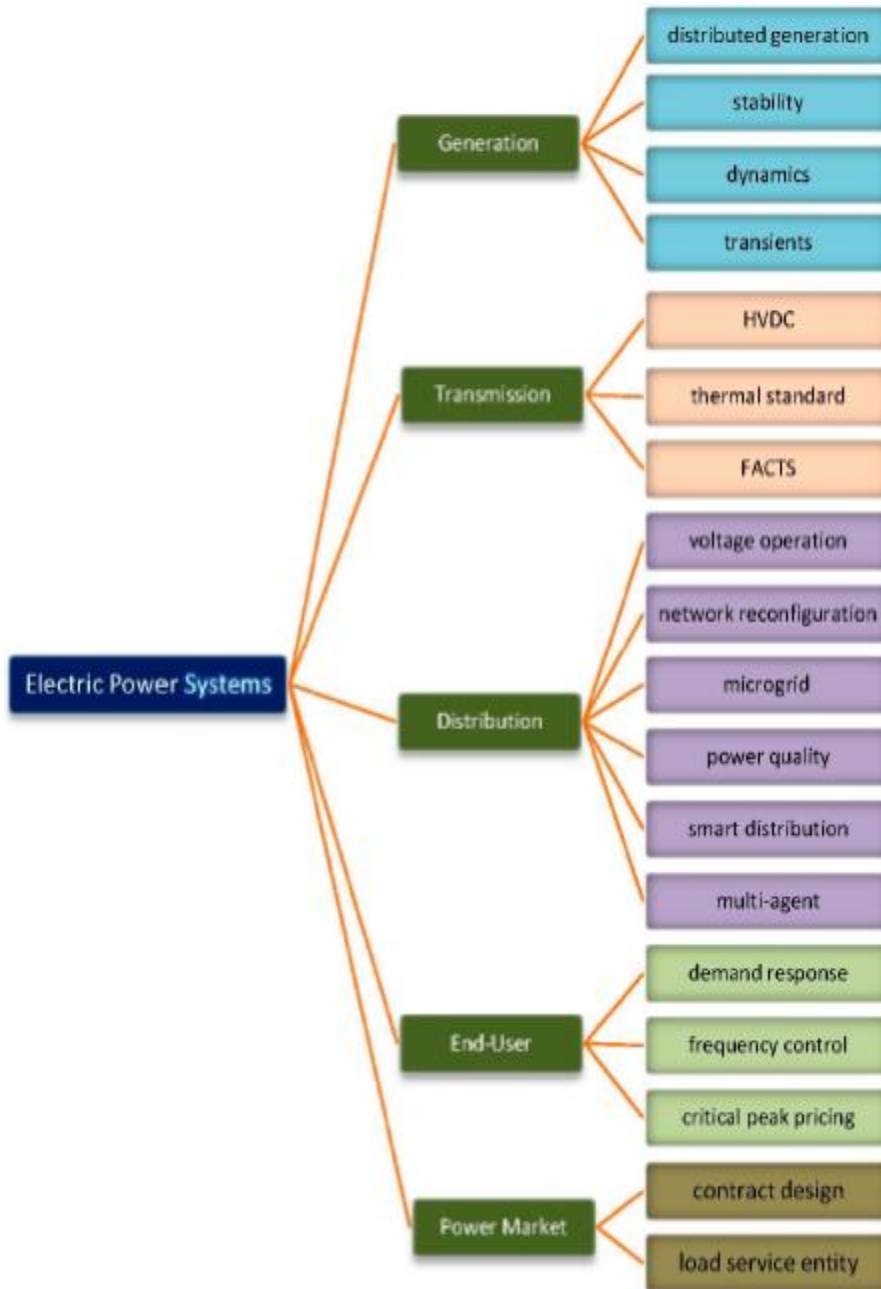


Figure 1. Five categories of subjects covered in special issue, “Electric Power Systems Research”. HVDC: high-voltage direct current; and FACTS: flexible alternating current transmission systems.

The generation category included the most papers while the power market category included the fewest. Not all topics on which submissions were invited were accepted for publication. For example, articles related to power system reliability, the architecture of smart grids, and virtual power plants were not published in this special issue, because of the rigorous review process, which resulted in the rejection of 50 submitted papers. The task of editing and reviewing papers for this collection was academically rewarding. The effort and input of the staff members and reviewers are greatly appreciated.

Conflicts of Interest: The authors declare no conflict of interest.

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