The analysis and simulation of very large power systems (100,000+ state variables) is becoming increasingly important in light of planned large scale, continent wide, interconnections to facilitate efficient electricity market operation and security of electricity supply. Currently available commercial software is not efficient enough to simulate a continent-wide transmission system within a reasonable time and with adequate accuracy. Improving existing and developing new computational algorithms is highly needed as well as inclusion of models for new types of generation, storage, transmission and control devices. This special section in IEEE Transactions on Power Systems will address these new challenges. We seek original papers in the following topics addressing very large power system applications:

- Efficient computational algorithms including parallel and massive computing
- Modelling and simulation of mixed continuous – discrete variable systems
- Simulation of mixed AC – HVDC systems
- State estimation techniques
- Load flow tools and static security analysis techniques
- Small disturbance analysis tools and techniques
- Large disturbance (transient) analysis tools and techniques
- Integration and use of Wide Area Monitoring, Protection and Control for (close to) real time control

Prospective authors should send summaries (around 250-300 words) in pdf format to the regional guest editors of this special section:

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Based on these summaries, the editors will invite selected authors to submit full papers that will be reviewed following the standard IEEE Transactions on Power Systems procedure through ScholarOne Manuscripts:  
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**Important Dates:**

- **October 31, 2011:** Deadline for summary submission
- **December 15, 2011:** Invitations sent to selected authors for submitting full papers
- **June 15, 2012:** Deadline for full paper submission

Any comments or questions can be directed to the regional guest editors of this special section.

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