

2020

**Entity: Renewable System Integration Coordination Committee**

**Chair: Andrew Leon**

**Vice-Chair: YC Zhang/Durgesh Manjure**

**Secretary/Webmaster: Aidan Tuohy**

**Technical Committee Program Chair: Miaolei Shao**

The role of RSICC is to serve as a focal point within the Power and Energy Society (PES) for the identification of challenges associated with the integration of renewable energy resources, related energy carriers (storage, fuels, heat) and related electrification applications (transportation, buildings, industry.)

**1. Significant Accomplishments:**

In 2020, a name and scope change was fully approved changing the Wind and Solar Power Coordinating Committee into the Renewable Systems Integration Coordinating Committee moving forward. The integration of renewable energy onto the grid at high levels requires close coordination to capture the interdependencies with energy storage as well as the transportation, building, and industrial sectors. The transmission system can no longer be analyzed independently from the distribution system. Many organizations inside and outside of IEEE are looking for guidance in coordinating these efforts, which now include many additional IEEE committees beyond the traditional PES technical committees most closely related to wind & solar power. This includes additional PES committees such as Energy Storage & Smart Buildings as well as non-PES IEEE societies such as Vehicular Technology, Transportation Electrification, Smart Cities, Smart Grid, etc. The RSICC's primary focus in early 2020 is growing our committee and establishing formal liaisons with relevant organizations inside and outside of IEEE. RSICC has grown its outreach beyond IEEE and served as the point of coordination for other organizations dealing with similar challenges (such as AWEA, CIGRE, DOE, ESIG, FERC, NERC, NREL, IEC, SEIA, UN SDSN).

At the 2020 IEEE PES virtual general meeting GM RSICC co-sponsored three super sessions to address the emerging challenges brought by integration of renewable resources and other relevant systems. Include a super session focusing on “Big data and machine learning application in power systems”, “Decarbonization through electrification”, and “facing the changing resource mix”.

All sessions are well attended even in the PES’s first ever virtual setup due to the pandemic. Panelists from industry, academia, government, and other entities shared their experience and vision technologies needed for operating systems with large scale renewable penetration that are coupled with electrification of other sectors. Challenges and future directions are also identified to pave path for years to come.

## 2. Benefits to Industry and PES Members from the Committee Work:

In its role as a coordinating committee, RSICC provides the following benefits to the industry and PES members:

At the 2020 committee meeting, members were briefed on the benefits of the IEEE PES Resource Center as well as other operational issues, and advised to distribute this information within their subcommittees and working groups.

Specifically, RSICC served as a focal point within the Power and Energy Society (PES) for the identification of challenges associated with the integration of renewable energy resources, related energy carriers (storage, fuels, heat) and related electrification applications (transportation, buildings, industry.)

RSICC seeks opportunities to conduct jointly sponsored activities to promote the sharing of knowledge and experience among diverse organizations working on similar issues through the conduct of studies, symposia, workshops, panel discussions, and tutorials. RSICC identifies the research and implementation gap among renewable integration and other electrification applications. RSICC also identifies the need for guides, recommended practices, and standards with respect to the planning and operation of renewable energy sources and related electrification applications. Implement any required actions through cooperation with an appropriate technical committee.

## 3. Benefits to Volunteer Participants from the Committee Work:

As a coordinating committee, RSICC does not write standards or conduct technical work. Rather, it coordinates wind and solar activities among PES Technical Committees. RSICC is a resource for members who want to get more involved with wind and solar. RSICC can help direct members who are seeking deeper involvement in specific technical areas.

## 4. Coordination with Other Entities (PES Committees, CIGRE, standards, etc.):

RSICC established and extended list of liaisons from other IEEE committees and external organizations who works on renewable systems integration.

<b>Related IEEE technical committees/sub-committees/communities/societies</b>		
<b><i>Name of Committee</i></b>	<b><i>Contact Person</i></b>	<b><i>Actions taken/Notes</i></b>
Energy development and power generation (EDPG) committee: <ul style="list-style-type: none"> <li>• Distributed Energy Resources Subcommittee</li> <li>• Renewable Technologies Subcommittee</li> <li>• Wind and Solar Power Plant Interconnection and Design Subcommittee</li> </ul>	Loren powers (Wind and Solar Plant Collector System design group)	active
Energy storage and stationary battery committee	Curtis Ashton	active



<p>Power system dynamic performance:</p> <ul style="list-style-type: none"> <li>• Power System Stability Subcommittee</li> <li>• Power System Stability Controls Subcommittee</li> </ul>	<p>Eduard Muljadi (Adjustable Speed Pumped-Storage Hydropower Modeling Task Force under PSS SubComm and PSDP Comm.)</p> <p>Juan J. Sanchez-Gasca (IEEE PSDP Task Force on Modeling and Simulation of Large Power Systems with High Penetration of IBRs)</p>	<p>Active</p> <p>active</p>
<p>Power System Operation, Planning &amp; Economics (PSOPE):</p> <ul style="list-style-type: none"> <li>• Bulk Power System Operation Subcommittee</li> <li>• Bulk Power System Planning Subcommittee</li> </ul>	<p>Xin Fang</p> <p>Pengwei Du</p>	<p>active</p>
<p>T&amp;D committee: Integration of Renewable Energy into the Transmission &amp; Distribution Grids Subcommittee</p>	<p>TBD</p>	<p>TBD</p>
<p><u>IEEE PES China</u></p>	<p><u>Liangzhong Yao</u></p>	
<p>Transformers committee</p>	<p>Bruce Forsyth</p>	<p>active</p>
<p>Electric machinery committee</p>	<p>John Yagielski</p>	<p>active</p>
<p>Power System Relaying and Control (PSRC) committee</p>	<p>Martin Best (Working Group C25: Protection of Wind Electric Plants)</p> <p>Evangelos Farantatos (Working Group C24)</p>	<p>Active</p>
<p><u>IEEE Smart buildings group (SBLC)</u></p>	<p><u>Yashen Lin</u></p> <p><u>Ron Melton</u></p>	<p>Active</p>
<p><u>P2800</u></p>	<p><u>Jens Boemer</u></p>	
<p>IEEE transportation electrification community</p>	<p>Kiruba Haran, Phil Krein?</p> <p>John Halliwell (EPRI)</p> <p><a href="mailto:jhalliwell@epri.com">jhalliwell@epri.com??</a></p>	<p>TBD</p>



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IEEE Power Electronics Society	TBD	Coordination required for grid-forming efforts
IEEE smart grid community	Pete Wung	Pete is the Chairman of IEEE Smart Grid since August 2018, reached out and he has affirmed to be liaison
<b>Non-IEEE organizations</b>		
<b><i>Name of Committee</i></b>	<b><i>Contact Person</i></b>	<b><i>Actions taken</i></b>
American Clean Power Association	TBD	
CIGRE	John MacDonald	
Department of Energy (DOE)	TBD	
Energy Systems Integration Group (ESIG)	Charlie Smith	Active
Federal Energy Regulatory Commission (FERC)	Nicole Segal	Very interested in helping, might need approval though
North American Electric Reliability Corporation (NERC)	TBD	
NREL	Ben Kroposki	Presented at PESGM2020 meeting
International Electrotechnical Commission (IEC)	TBD	
Solar Energy Industries Association (SEIA)	TBD	
Sustainable Development Solutions Network – A global initiative for the UN (UN SDSN)		

RSICC is continuing the identification and tracking of the activities of our liaison groups, both inside and outside of IEEE.

**5. New Technologies of Interest to the Committee:**

The RSICC is focusing on coordinating system level issues related to the grid of the future and technologies such as storage, buildings, and other systems that are coupled with renewable integration. We are focusing on coordinating activities related to all forms of renewable energy as we work towards a clean power grid. We’re also planning on staying very involved and helping to coordinate discussions related to storage and hybrid plants which could be considered “firmed” renewable resources. We’re interested in helping to broadly coordinate as much as we can to help all involved parties and technologies without encroaching on any technical committee’s scope.

**6. Significant Plans for the Next Period:**



We expect to establish enhanced liaison relationships with focused group of relevant organizations and we plan to issue first annual whitepaper or newsletter that summarizes and shares relevant activities within PES with our membership.

**7. Global Involvement**

WSPCC committee members include the following regions:

Total Number of committee members	USA	Canada	Europe	Asia-Pacific	Latin America
155	129	10	11	4	1

**8. Problems and Concerns:**

At this time, there are no problems or concerns to mention.

**Submitted by: Andrew Leon, Chair, WSPCC**

**Date: 2/8/21**