
IEEE Power Electronics Society
FIVE-YEAR STRATEGIC PLAN
2021-2025

Approved: TBD

Rev: 2020-6



IEEE PELS Strategic Plan 2021 ~ 2025 Executive Summary

The Strategic Planning Committee has identified five strategic goals where increased activities will be developed. Not listed are the continued emphasis on the mainstays of publications and conferences and an agile organizational structure to meet the needs of an evolving technical field.



Vision Statement

To be THE global resource that all people turn to for education, knowledge sharing, technical events, and networking in the power electronics field.

Mission Statement

IEEE PELS's core purpose is to foster power electronics technological innovation and excellence for the benefit of humanity.

MOTTO

“Powering a Sustainable Future”

2021-2025 Goals

1. Membership Growth	2. Industry Content	3. Agile Technical Programs	4. Sustainability	5. Virtual Platforms
To effectively and efficiently administer membership intake, retention, demographic support, value creation and chapter operations.	To develop a comprehensive program driven by the needs of industry to accelerate innovation.	To capture growth and address opportunities in fast changing technical fields.	To enable power electronics as key technology to meet energy and environmental sustainability related to global climate change.	To develop online operating systems and products in support of all activities.

Key Strategies

1.1 Enhance career support programs, 1.2 Engage in programs and services in targeted countries with vibrant power electronics activities, 1.3 Generate recognition and promotion opportunities, 1.4 Grow student membership and chapters, 1.5 Grow affiliate membership for non-power-electronic specialists. 1.6 Grow diversity and inclusion of the membership base.	2.1 Bring all the industry related programs under one VP, 2.2 Evolve the Distinguished Lecturer program to address industry needs, 2.3 Provide more content driven by industry needs, 2.4 Create cooperation and products between Technical Committees, Standards, and Roadmaps groups.	3.1 Develop measures to identify and track fast moving power electronics technologies in FEPPCON, 3.2 Provide a review system for Technical Committees to address changes in relevance and vitality as part of the FEPPCON program, 3.3 Ensure a provision for each Technical Committee to hold a primary event.	4.1 Establish a presence in IEEE and other bodies by offering expertise in applications of power electronics technologies, 4.2 Develop programming targeted at Energy Access members, 4.3 Ensure sustainability awareness is integrated into all PELS activities.	5.1 Identify and implement tools and platform for hybrid conferences / events and governance activities, 5.2 Develop sustainable business model for conference / event recordings, 5.3 Create a repository of practical information – curate and make available PELS body of knowledge, 5.4 Lead efforts for sharing best practices for conferences / events.
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Introduction

The Power Electronics Society (PELS) remains one of the fastest growing societies of the Institute of Electrical and Electronics Engineers (IEEE). For over thirty years, PELS has facilitated and guided the development and innovation in power electronics technologies. This technology encompasses the effective use of electronic components, the application of circuit theory and design techniques, and the development of analytical tools toward efficient conversion, control, and condition of electric power. Our membership includes preeminent researchers, practitioners, and distinguished award winners. IEEE PELS publishes the IEEE Transactions on Power Electronics, a top referenced journal among all IEEE publications.

During the period of 2016 – 2020 the IEEE Power Electronics Society has thrived. PELS is a vibrant society with a growing membership and has achieved strong financial performance. Service to our membership has become broader, offering an ever-expanding variety of high-quality conferences, publications, and educational programs. The Society has proactively sought out new opportunities to engage our greater community and encouraged collaborative partnerships. Globally, power electronics is regarded as a key enabling technology to facilitate the structural changes needed to make energy systems carbon neutral. In view of this important role that PELS has to play, a mechanism to enable the impact of PELS as a global influencer was introduced, namely a strategic technology workshop: Future of Electronic Power Processing and Conversion (FEPPCON). FEPPCON is held in the alternate years to the PELS Long Range Planning (LRP) workshop. FEPPCON has become the vehicle to revitalize PELS technical programming by serving as a springboard for new initiatives, while the LRP workshop is mainly focusing on developing 5-year goals and strategies of PELS.

Vision Statement

To be THE global resource that all people turn to for education, knowledge sharing, technical events, and networking in the power electronics field.

Mission Statement

IEEE PELS's core purpose is to foster power electronics technological innovation and excellence for the benefit of humanity.

The objectives of the Power Electronics Society shall be scientific, literary, and educational in character. The society shall advance the theory and practice of electrical and electronics engineering and of the allied arts and sciences and it shall promote a high level of technical excellence among its members. PELS shall aid in promoting close cooperation and exchange of technical information among its members and affiliates, and to this end shall hold meetings for the presentation of papers and their discussion, shall sponsor periodicals and special publications, and through its committees shall study and provide the needs of its members and affiliates.

Field of Interest

The field of interest of the Society shall be the development and application of power electronic systems and technologies, which encompass the effective use of electronic components, the application of circuit theory and design techniques and the development of analytical methods and tools toward efficient electronic conversion, control, and conditioning of electric power to enable the sustainable use of energy.

Purpose and Values

The PELS Strategic Plan was developed to be directly in line with the IEEE Strategic Plan, including the core purpose, values, and overarching goals. Each of these constructs have been enhanced to be more reflective and specific to PELS. The strategic goals are unique to this plan.

PELS core purpose is to foster the development and facilitate the exchange of scientific and technological knowledge in our field of interest that benefits members, the profession, and humanity.

PELS' core values are:

- Diversity and Inclusiveness – PELS embraces the imperative to encourage and assure the diversity and inclusion in our membership, volunteers, local and AdCom leadership. We shall respect s each other's needs and values with honesty and transparency.
- Industry/Academic balance.
- Networking - Creating and sustaining an engaged, interactive international community of power electronics professionals.
- Professionalism – Maintaining the highest level of professional and ethical standards.
- Excellence – Disseminating high quality power electronics information in a timely, equitable and objective manner.
- Volunteerism – The driving force of the organization. Providing volunteer opportunities that are rewarding to members and their employers.
- Advocacy – Promoting power electronics to engineers, government, and society.

The PELS overarching goal: to be the most recognized, respected, and visionary global organization in the Society's stated field of interest. This is accomplished by being:

- Essential to the global power electronics community, and serve as the home for power electronics professionals,
- The place where innovators and practitioners meet,
- Recognized globally, as the leading organization for forming new knowledge communities, delivering quality information and supporting power electronics professionals,
- The preferred place to go for timely, relevant power electronics information, and
- The place to go to seek innovation and new ideas for energy advances.
- In addition, it is the objective of PELS to have every power electronics professional and stakeholder to be a member. PELS wants students to join and become active volunteers throughout their careers.

PELS' purpose of creating and maintaining a diverse and inclusive global community of professionals to exchange technical information for the betterment of humanity and the profession includes promoting the creation, dissemination and validation of high-quality power electronics information. This strategic plan envisions the establishment and maintenance of a holistic environment to serve the needs of practicing engineers while providing lifelong learning, and career development and leadership opportunities.

This also includes promoting the identification, creation, development, standardization and application of power electronics technologies and disseminating the knowledge to the membership, the profession, and the public.

Numerous different communities have interest in the products and services provided by PELS. According to their professional interests and needs, those constituencies include:

Researchers

- Educators and researchers in academia
- Graduate students
- Industrial researchers
- Researchers in government laboratories

Practitioners

- Technologists (developers of technologies, products and services)
- Practitioners in design, manufacturing, marketing, operation and application
- Consultants
- Managers

Others

- Undergraduate students
- Policy makers and government agencies (technocrats & politicians)
- Media (scientific/technical & general)
- General public

Within most of these communities there are subgroups which may have different professional interests and needs according to their professions, age and sex or geographic and cultural identities. Diversity and inclusion of constituencies is a cornerstone of our Society. Power electronics researchers and practitioners, irrespective of their other affiliations are our core constituency and members, and hence it is essential that PELS widely engage with these communities to continuously evaluate their needs and provide the best possible professional services inclusively to all of them. Furthermore, it is also a keen interest of the core constituency that PELS provides appropriate high quality and timely services to other communities with interest in or influence on our profession, whether within IEEE or outside.

At present, PELS is providing outstanding services to researchers, is striving to improve services to practitioners, and continuously seeks to adopt new programming and services to engage and benefit the global community. Such efforts directly tie back to and focus efforts to our Mission: *IEEE PELS's core purpose is to foster power electronics technological innovation and excellence for the benefit of humanity.*

Strategic Goals

1. Membership Growth – 15K members by 2025 (targeting 8.5% annually)

Effectively and efficiently administer membership intake, retention, demographic support, value creation and chapter operations.

1.1 Enhance career support programs

1.2 Engage in programs and services in targeted countries with vibrant power electronics activities

1.3 Generate recognition and promotion opportunities

- How many we have now vs. how many new programs by 2025

1.4 Grow student membership and chapters

- By 2025 grow student membership to 20% of total membership

1.5 Grow affiliate membership for non-power-electronic specialists

- By 2025 grow affiliate membership to 10% of total membership

1.6 Grow diversity and inclusion of the membership base

- Establish in 2020 the baseline and by 2025 grow no less than 8% in targeted demographics.

2. Industry Content – Meet the needs of industry

To develop a comprehensive program driven by the needs of industry to accelerate innovation.

2.1 Bring all the industry related programs under one VP – by 2021

2.2 Evolve the Distinguished Lecturer program to address industry needs

- 50% of DL subject matter will target Industry and system applications

2.3 Provide more content driven by industry needs

- 25% of Conference Technical Programming/Tracks will be targeted to Industry members
- Grow the influence and integration of the Society's Power Electronics Magazine with other programs, services, and products to enhance the Industry member's experience.

2.4 Create cooperation and products between Technical Committees, Standards, and Roadmaps groups

- Cross-representation of Committee members – statistic to demonstrate engagement/inclusion
- Ensure that Standards and Roadmap activities will be integral part of TC's work

3. Agile Technical Programs – Remain relevant and proactive

Capture growth and address opportunities in fast changing technical fields.

- 3.1 Develop measures to identify and track fast moving power electronics technologies in FEPPCON
- 3.2 Provide a review system for Technical Committees to address changes in relevance and vitality as part of the FEPPCON program
- 3.3 Ensure a provision for each Technical Committee to hold a primary event

4. Sustainability – Support the transformation of society towards low-carbon energy

To enable power electronics as key technology to meet energy and environmental sustainability related to global climate change.

- 4.1 Establish a presence in IEEE and other bodies by offering expertise in applications of power electronics technologies
- 4.2 Develop programs targeted at Energy Access members (build on the Empower a Billion Lives competition)
- 4.3 Ensure sustainability awareness is integrated into all PELS activities (For example, keynotes, Green Conference Execution and sustainability flavored student programs)

5. Virtual Platforms – Meet the evolving needs and delivery of programming and services

Develop online operating platforms, products, and services to support of all activities.

- 5.1 Identify and implement tools and platform for hybrid conferences / events and governance activities
- 5.2 Develop sustainable business model for conference / event recordings
- 5.3 Create a repository of practical information – curate and make available PELS body of knowledge
- 5.4 Lead efforts for sharing best practices for conferences / events

(Note: here is where we mark the end of the formal strategic plan – what follows is addendum or ancillary)

Strategic Planning Committee - 2020

Strategic Planning core committee

Braham Ferreira, Senior Past-President

Alan Mantooh, Immediate Past-President

Harish Krishnamoorthy, Students and Young Professional Committee Chair

Appointed committee members

Prasad Enjeti

Mark Dehong Xu

Pradeep Shenoy

Noriko Kawakami

Rik de Doncker

Deepak Divan

Executive Team

Frede Blaabjerg, President

Jian Sun, Treasurer

Liuchen Chang, President-Elect and VP Conferences

Yan-Fei Liu, VP Technical Operations

Brad Lehman, VP Products

Jinjun Liu, VP Membership

Johan Enslin, VP Standards

Mario Pacas, VP Global Relations

Staff

Mike Kelly, Executive Director

Becky Boresen, Senior Society Administrator

Strategic Plan History

- Prior to 2012 IEEE Power Electronics Society did not have a written Strategic Plan document
- Retreat of PELS Long Range Planning Committee to prepare the first Strategic Plan, September 14-15, 2012
- Initial Release (Rev 0) Revision 2013-2014 approved by AdCom, March 22, 2013
- Revision 1: Biannual retreat of PELS Long Range Planning Committee, September 23-25, 2014; Revision 2015-2016 Approved by AdCom, September 24, 2015.
- Revision 2: Biannual retreat of PELS Long Range Planning Committee, May 27-30, 2016; Revision 2017-2018 approved by AdCom, September 22, 2016
- Revision 3: Biannual Offsite retreat of PELS Long Range Committee, June 6-9, 2018
- Mid-Cycle Review Version, July 23, 2018: Revision 2018-2019 approved by AdCom, September 28, 2018

Use of Addendums: TACTICAL IMPLEMENTATION PLANNING

Note: Annually PELS Leadership proposes to generate a Tactical Implementation Plan (TIP). Those annual TIPs would become addendums to this Strategic Plan document. The components of that TIP are the action items, motions, staff directives, and any strategic or altruistic activities resulting from our Exec Retreat and AdCom meetings.

These annual TIPs will ensure a direct connection between our strategic planning and in-year activities and therefore form the basis our budgeted programming and services.

In nonprofits, strategic planning at the operational level equates to the programs, services, and near-term activities undertaken to focus Board-level or Administrative Office operational goals to ensure relevance in member services and operations.

Every program or service we run should be able to be tied back to our Mission and one or more of our Strategic Goals. As well, the TIP should document the strategies undertaken and define the mechanism or metric to gauge progress towards the Goals and Key Strategies included in the five-year plan. Doing so will focus our programming, provide for and allocate resources, and align our efforts to meet our Mission and Vision.

IMPLEMENTATION PLAN 2021

By program area *key: meets Society level Goal#(s) (e.g. G3.3, G5.2) + budgeted Project# (e.g. P-2020-8) or program/service listing – cross-referenced to annual tactical documents*

Membership

Pick the relevant strategies from Goals 1 and 2 and discuss possible tactics.

- **G1.1, G1.4, G1.5 / P2020-6 - Society Growth, Branding, and Recognition**
 - Continue and expand a grassroots engagement exercise and celebration such as PELS Day
 - Run membership and chapter engagement events, contests, and use the event as a springboard for membership Loyalty, Retention, and growth programming efforts.
 - Develop a loyalty program for volunteer services by members in society products and conferences.
 - Embark a Senior Membership drive.
 - Grow affiliated membership.
 - Develop a conference registration fee structure to attract new members, particularly industry members (may start with primary TC conferences with 100% ownership).
 - Leverage IEEE/TAB initiatives and products to further boost PELS membership growth potential
- **G1.2 , G1.3 / P2020-12 - Diversity & Inclusion - Membership/Leadership/Board level engagement and representation**
 - PELS has made a commitment to fostering diversity and inclusion philosophy and practice throughout our organization and its programming. From Grassroots development including Membership Recruitment and services, Chapter and Board leadership cultivation, to ensuring that PELS is culturally aware and sensitive to the many facets of D&I practice. Not stopping only at YP and WIE continued support, it is a key Strategy under our Strategic Plans Membership goal.
 - The Society will identify tactics and track specific metrics for improving our D&I statistics. To that purpose, the Society should more formally identify key under-served and potential growth membership demographics. One suggestion is to challenge each AdCom member to demonstrate during their term, engagement or activities fostering advocacy and sponsorship towards improving our D&I.
- **G1.1, G1.4 / P2020-7 - Mentorship and Career Development**
 - Programming and support activities to support our now establish Mentorship program within PELS. This is in tandem with the Society-level fund established just in June 2017 at TAB of a PELS Education and Future Workforce Fund.

Industry (Standards)

Pick the relevant strategies from Goals 2, 4 and 5 and discuss possible tactics.

- **G2.3 / P2020-9 - PELS Industry Engagement for Service and Growth Program**
 - Industry Engagement is at the heart of PELS - and we have formed an Industry Advisory Board. Plans include special workshops, targeted communications/collateral development, training material development, member benefits feature to both attract and engage Industry members to PELS.
 - Coordinate and lead industry engagement and participation in PELS standards, technical operations, products and conferences.
 - Provide regular updates in PELS e-Newsletters and website.
 - Encourage industrial leaderships in PELS standards.
- **G2.4, G3.2, G5.3 / P2020-11 - Standards - Training for Member/Volunteers**
 - PELS is increasingly asked to participate or lead standards activities. It is felt that our membership and leaders would benefit from such activity, and we propose to create systems and tools, provide meets and online training on what it means to engage in Standards work. To accomplish this Strategic Planning set goal, PELS will establish a more formal Standards Committee and create any needed divisions within, while providing training and opportunities for our leaders and members to engage with IEEE Standards group as well as PELS led initiatives for standards.
 - Ensure the representation of TCs on Standards committee and roadmap groups.
- **G2 + G4 / 1.4.4.3 P-2020-5 PELS International Technology Roadmap of Power Electronics for Distributed Energy Systems (ITRD)**
 - Distributed energy resources (distributed generation, energy storage, and loads) have been experiencing increased penetration in electrical grid. Initiation and preparation during 2019, and formal launch in 2020. Stakeholders include industry (manufacturers, technology providers, consultants and utilities), national labs and research institutions, academia/students and professional associations.
 - Encourage roadmap working groups to publish the contents of whitepapers and position papers in PELS journals (particularly OJPE, or special issues of JESTPE) or conferences (special sessions).

Operations

Pick the relevant strategies from Goals 3 and 4 and discuss possible tactics.

- **G2.4, G3.2 / P-2020-1 Technical Committees Growth and Support**
 - Enhance member engagement, provide additional volunteering opportunities for more members, fuel new products and services, maintain relevance for our FOI within IEEE. Possibly incubate new publications, OU partnerships, and conferences via TCs.
 - Establish a review process for TCs to address changes in relevance and vitality as well as scope and mission, every 2 years.
 - Provide regular updates in technical operations in form of e-newsletters.
 - Encourage joint events covering cross-cutting topics of multiple TCs, perhaps through virtual conferences.
- **G3.1, G3.2 – Identify fast moving technologies and review TCs’ scopes**
 - Track the recent developments in industry, identify new initiatives, and update TC’s areas, at FEPPCON.
- **G3.3 – Ensure that each TC has a primary event in its technical scope and held annually**
 - Include the provision of a primary event (annually held, with major financial share) in each TC’s Policies and Procedures.

Global Relations

Pick the relevant strategies from Goals 1 and 5 and discuss possible tactics.

- **G1.2 / 2020-3 - Global Presence - Membership Development, Diversification, and Support**
 - Organize promotional and outreach activities such as workshops and seminars in identified geographic regions and countries with vibrant power electronics activities and low presence of PELS. In these events PELS offers a platform for establishing local networks of knowledge and cooperation with the participation of academia, national professional societies and local industry.
 - Continue the development and expansion of partnerships (including joint chapters) with national and international power electronics organizations in identified countries and regions.
 - Expand our partnerships with industry associations, non-IEEE associations, NGO’s etc. through conferences speeches, DL activities and joint memberships etc.
- **G5.1 / Project TBD (NEW) Research, purchase/license VCP(s) (Virtual Conference Platforms) – such as Infovaya, ON24, Zoom), train up staff and volunteers**
- **Establish an organizational structure and formal memberships of the Global Relations Committee**
- **G1, G2, G4, G5 – Work on establishing Global Summit of Power Electronics with inviting speeches by leaders of national and international power electronics societies**

Products

Pick the relevant strategies from Goals 2, 4, & 5 and discuss possible tactics.

- **G1.1, G4.2, G5.3 / 2020-13 - PELS-A-Pedia: Society-level Educational Repository and Portal**
 - Create a program of purposeful curation and accessibility of both PELS and select educational resources (with permissions to use same) to benefit our membership and industry practitioners within the Power Electronics community globally. Targeted webinars, curate technical library, competition for inclusion, content contribution, web presence, social media, etc.

- **G1.1, G5.3 / P2020-10 Educational Products Development and Outreach**
 - PELS is working on new Tutorial level and MOOC-like educational products and services, and is investigating the creation of a certificate program. In part, this is to round out and increase our products on the IEEE Resource Center and to enhance member service, outreach, and support the value proposition of being a Society member.
 - Set up review metrics and certification mechanism for educational material. Include access to existing materials from websites, as well as from other PELS events for education and continuing education purposes.
 - Implement a virtual bi-monthly online panel or discussant format tutorial activity coordinated with the existing Distinguished Lecturer program in order to generate more opportunities for instances of debate and discussion in the power electronics area. There is the potential to extend this idea and invite the authors of the prior monthly's most cited paper in TPEL to be the discussant or panel leader, there by serving a dual purpose; to generate panel subject matter and provide for the author(s) to be recognized and distinguished as the selected speaker.

- **G1.2, G2.3, G5.3 / P2020-5 - PUBLICATIONS - IEEE Open Journal of Power Electronics (OJ-PEL)**
 - Part of PELS's mission is to provide the power electronics community with a high-quality, peer-reviewed Gold Open Access journal that fosters technological innovation and excellence for the benefit of humanity while meeting author needs to publish within their funding requirements.
 - PELS is regarded as a trusted and unbiased source of technical information for dialog and collaboration to advance technology within the power electronics community. PELS is led by researchers and technology professionals who are at the center of respected power electronics communities where readers and authors already come together.
 - Encourage more digital contents in all journals.
 - Introduce an online portal/system to curate summary briefs specifically targeted at Industry member's needs for our products such as review papers, tutorials, webinars, designs etc.
 - The specific needs and requirements of academia and industry in a country or in a geographical region should be identified and, if necessary, tailored offers should be made from our portfolio.

Conferences

Pick the relevant strategies from Goals 2, 3 and 5 and discuss possible tactics.

- **G2.3, G3.3, G5.1, G5.2 / P-2020-8 - Conference Development and Attendee Growth Program**
 - Increased member engagement and grow conference revenue and attendance/participation.
 - Evaluate, identify and support virtual platforms appropriate for PELS conferences and events including poster sessions and virtual exhibitions.
 - Investigate, develop and share conference business models and guidelines for approval process, revenues, delivery, and recorded materials etc.
 - Support implementation of primary conferences for each of all TCs.
 - Increase industry related tracks/sessions in TCs' primary conferences via invited, panel and paper sessions.
- **G5.3, G5.4 (NEW) Conference Website Curation Project – (example of a staff driven directive)**
 - Organize conference organizers forums and compile website resources for best practices and supporting materials.
 - Develop training materials for conference organizers.

Governance

- G5.1 / (NEW) Research, purchase/license VCP/VMP to ensure stable and efficient governance meetings can be conducted virtually including agenda tools, voting tools, and virtual meeting tools.
- G5.3 / (NEW) Enhance Website to curate past committee meetings, minutes, rosters, bios, who's who of PELS.