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IEEE SMART GRID
Working Strategic and Implementation Plan

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Introduction

This document describes the proposed Strategic Plan for the years 2018 through 2020 and the implementation of the IEEE Smart Grid (SG). The overall goal for IEEE SG is twofold: (1) serve as a credible and authoritative voice by promoting IEEE organizational units (OUs) and their work in the area of smart grid, and (2) increase value through collaborative partnerships with IEEE (OUs), their members and the public at large.

Smart grid deployment is imperative, not just in the United States but around the globe. However, the smart grid is a revolutionary undertaking—entailing new communications-and-control capabilities, energy sources, generation models and adherence to cross-jurisdictional regulatory structures. Success of the smart grid demands objective collaboration, integration, and interoperability among a phenomenal array of disciplines, including computational and communications control systems for generation, transmission, distribution, customer, operations, markets and service providers.

IEEE is the obvious entity to assume the critical unifying role in the smart grid movement for a variety of reasons. It is the world's largest and most comprehensive professional association. It has an unmatched diversity of global expertise across both established and emerging technologies, rich programs, proven standards and a lifecycle of related processes that promote technology adoption and open and build global markets. Finally, IEEE is a non-profit organization that brings objective coordination among the huge cast of public and private organizations that will contribute to the smart grid's development.

IEEE Smart Grid Initiative was conceptualized and led under the direction of Wanda Reder, former President of the IEEE Power & Energy Society, as a New Initiative in IEEE Future Directions Committee (FDC) in 2011.

The IEEE FDC, in association with Societies, Councils, and Organizational Units (OUs), anticipates and determines the direction of existing, new, and emerging technologies and related issues, and spearheads their investigation and development by IEEE. Taking a holistic view, the FDC emphasizes new, emerging technical areas and drives them to maturity within the IEEE infrastructure. Additionally, the FDC serves as a liaison to and fosters cooperative efforts among Societies, Councils, and industry to develop new products and services in emerging topics.

In November 2013, after two years as an incubation project of FDC, IEEE voted to graduate IEEE Smart Grid from the IEEE FDC to a fully functioning program of IEEE. It was agreed that the IEEE Power & Energy Society (PES) would become the new administrator program and continue and grow upon its momentum, beginning in January 2014.

Executive Summary

Since moving from and FDC Initiative to administration under IEEE PES, IEEE Smart Grid has:

- Grown from 8 to 14 partner IEEE organizational units, including the IEEE Standards Association.
- Developed an organizational structure of 6 functional area committees, each appointed with their own respective chair, members and meeting calendars
- Developed an aggressive marketing and promotional calendar
- Established 6 Social Media marketing channels
- Monitored consumption (unique webinars & tutorial registrants, Technical Community and eNewsletter subscribers)
- Developed IEEE Smart Grid Domains & Sub-Domains that drive the strategic direction in the area of webinars, newsletters, white papers, interviews, videos and other areas of development
- Built out its Webinar Series to 2 live webinars per month and 5 tutorials per year
- Continued with its monthly IEEE Smart Grid eNewsletter, now focused on monthly thematic special issues, with a total over 260 articles published to date and over 20,000+ subscribers globally
- Launched a portal incorporating an interactive IEEE Smart Grid Domains & Sub-Domains framework with more advanced and user-friendly search features
- Launched an eCommerce site (IEEE Smart Grid Resource Center) to provide access to content-on-demand and educational credits
    - Continuing Education Units (CEUs) and Professional Development Hours (PDHs) available for purchase
    - Accumulated over 100 hours of webinars and tutorials on technical, educational and other current topics
    - Organized over 100 interviews, offered by over 70 experts
    - Published 2 Compendia of the most notable eNewsletter articles and journal publications
- Organized the first ever International Forum on Smart Grids for Smart Cities (the second in November 2018 is also underway with an extended line-up of experts, special sessions and more)

Working 2018-2020 Strategic Plan

This section of the document describes the 2018-2020 Strategic Plan of the IEEE Smart Grid. IEEE Smart Grid has the resources and organization that enables it to execute its strategy to meet the needs of its stakeholders and to fulfill its mission and vision.

Vision
IEEE Smart Grid brings together IEEE's broad array of technical societies and organizations through collaboration to encourage the successful rollout of technologically advanced, environment-friendly and secure Smart Grid networks around the world.

Mission
IEEE Smart Grid is the professional community and leading provider of globally recognized smart grid information. IEEE Smart Grid is intended to organize, coordinate, leverage and build upon the strength of various entities within IEEE with Smart grid expertise and interest.

Goals
1. Serve as a Credible and Authoritative Voice by:
   - Promoting IEEE organizational units and their members as the credible voice for smart grid knowledge
   - Building its brand as the recognized authority for smart Grid knowledge globally through focus on organizing, coordinating and leveraging the strength of various entities within IEEE with smart grid expertise and interest
2. Increase Value through:
   - Collaborative partnerships with IEEE organizational units, their members and the public at large through tools that effectively meet, anticipate and exceed their needs.

Strategies
- Engage

Via Knowledge - Create, promote and disseminate interdisciplinary smart grid knowledge ensuring IEEE's organizational units and members are leaders in the profession, the industry and their communities.

- Enable

Via Collaboration - Align resources and empower IEEE OUs, members and allied professionals to build teamwork.

- Empower

Via Communication - Elevate the voice of IEEE organizational units and members to promote the value of their work in the smart grid field and to enhance the public's understanding of the importance of the smart grid.

Via Advocacy - Advance smart grid policies through outreach, education and engagement that are responsive to the public and the profession.

Objectives
1. Set the global standard via collaboration
   - Bring together all stakeholders under one umbrella, serving as the leader in the smart grid movement and number one resource for enabling smart Grid technologies. Be "the" place

to go for information and collaboration. This concept reflects the leadership position of IEEE and its authority as an unbiased source.

- Ensure that our volunteers gain experience and visibility that benefit IEEE organizational units, its members and the public.
- Attract IEEE organizational units, their members and smart grid technical experts who deliver rich content and bring diverse knowledge and perspectives regarding smart grid.
- Serve as the trusted "voice" for the engineering, computing and technology communities around the world.
- Leverage cross-organizational stakeholder efforts and engage all stakeholders through collaboration, education and innovation to facilitate the delivery of more efficient, renewable and secure forms of energy throughout the world.
- Provide a non-biased and balanced understanding of the smart grid.

2. Provide Education, Research and Innovation
- Provide globally accessible and state of the art educational opportunities that will foster career-long learning focused on technical excellence.
- Cultivate innovative and practical ideas that expand the boundaries of the smart grid.
- Be the leading technical and information resource for the smart grid profession.
- Develop intellectual capital that serves the public interest.

3. Expand Global Reach via Marketing
- Further the reputation and influence of the smart grid profession among the public.
- Serve as a stage for smart grid professionals to relay their work in the field.

Stakeholders
1. IEEE Members
2. IEEE Technical Societies
3. Policy Makers
4. Public

Both IEEE members and non-members in the global power, energy, communications and IT/computing industries, as well as government and academia, are encouraged to participate in IEEE Smart Grid.

Implementation Plan

Administration

IEEE Smart Grid is administered within the IEEE Power & Energy Society, with a Program Manager dedicated to daily and strategic coordination. The functional areas are coordinated by volunteers. The organization may be modified to provide the necessary administrative support.

Program Manager

The Program Manager will undertake projects with the direction of the PES Executive Director. The Program Manager will manage the life-cycle of projects that advance IEEE Smart Grid strategies, including serving as the project lead and key liaison/interface for external partners and constituencies and IEEE staff and volunteers. The role's responsibilities include, but are not limited to the following:

Project and Logistics Management (70%)
- Define the scope of the project in collaboration with senior management (Executive Director)
- Create a detailed work plan which identifies and sequences the activities needed to successfully complete the project
- Determine the resources (time, money, equipment, etc.) required to complete the project
- Develop a schedule for project completion that effectively allocates the resources to the activities
- Review the project schedule with senior management and all other staff that will be affected by the project activities; revise the schedule as required
- Provide reports on progress for management and stakeholders
- Communicate with Partners as outlined in Partner agreements
- Work with volunteers to ensure that material is generated in support of IEEE Smart Grid, outreach to potential partners, research of new opportunities and potential program partners, development and execution of events and program development / management
- Manage day to day logistics and activities of the IEEE Smart Grid in accordance with IEEE policies and procedures
- Monitor the progress of the project and make adjustments as necessary to ensure the successful completion of the project
- Review the quality of the work completed with the project team on a regular basis to ensure that it meets the project standards
- Execute the project according to the project plan

Financial Tracking and Reporting (15%)
- Perform analysis and forecasting of revenue and expenses and report results to volunteer leadership
- Monitor and approve all budgeted project expenditures, cash flow projections and report actual cash flow and variance to senior management on a regular basis (monthly/ bimonthly)
- Manage all project funds according to established accounting policies and procedures
- Ensure that all financial records for the project are up to date
- Prepare financial reports and supporting documentation for funders as outlined in funding agreements
- Determine the objectives and measures upon which the project will be evaluated at its completion

Communication and Marketing (15%)
- Develop and implement a marketing and communications strategy for IEEE Smart Grid

- Provide direction and support as well as contribute to written materials positively positioning the organization and its programs, including the website and social media outlets
- Develop and monitor performance metrics for various marketing strategies and communications vehicles
- Develop forms and records to document project activities
- Set up files to ensure that all project information is appropriately documented and secured
- Establish a communication schedule to update stakeholders including appropriate staff in the organization on the progress of the project

IEEE Smart Grid Steering Committee

The Steering Committee decides on the priorities and manages the general course of its operations.

The Steering Committee's responsibilities include:
- Work with the Program Manager to provide leadership and keep the effort moving forward on schedule
- Provide strategic directions and development of goals and guidance for product development
- Participate in quarterly meetings via conference call with one being an annual face-to-face meeting. The Annual Meeting location is proposed by the Program Manager and Chair, and voted upon by the Committee
- Recruit new volunteers to participate in various committees

The IEEE Smart Grid Steering Committee will be comprised of a chair and at least one (1) member from each partner organizational unit.

A partner organizational unit is any IEEE society or organizational unit that agrees to encourage the exchange and dissemination of technical information and promote understanding and cooperation among the individual participants in the IEEE Smart Grid with IEEE Smart Grid organizational unit members.

The Steering Committee shall nominate a Chair for approval by the IEEE PES President for a one (1) year term which can be renewed up to three (3) times.

Currently, there are 14 IEEE Partner OUs with representation on the IEEE Smart Grid Steering Committee:
1. IEEE Communications Society
2. IEEE Computer Society
3. IEEE Control Systems Society
4. IEEE Dielectrics and Electrical Insulation Society
5. IEEE Industry Applications Society
6. IEEE Industrial Electronics Society
7. IEEE Instrumentation & Measurement Society
8. IEEE Power & Energy Society
9. IEEE Power Electronics Society
10. IEEE Reliability Society
11. IEEE Signal Processing Society
12. IEEE Standards Association
13. IEEE Systems, Man, and Cybernetics Society

14. IEEE Vehicular Technology Society

The cross-discipline coordination across IEEE uniquely positions IEEE Smart Grid to accelerate successful implementation of a smart grid throughout the world. Each partner organizational unit member will represent their respective organizational unit and leverage their relationship with IEEE Smart Grid by attracting as many interested members as possible to help achieve the goals.

Volunteer Engagement

Because of the many relationships currently in place, it is assumed that most of the initial contacts regarding IEEE Smart Grid will be done directly involving a combination of email, phone, WebEx and face-to-face conversations. Approved volunteer projects will be supported by the Program Manager and it will be incumbent on all volunteers to communicate their activity to the Program Manager.

IEEE Smart Grid Operational Committees

The Operational Committees play a key role. Each committee will have a Chair. Each Operational Committee shall nominate a Committee Chair for approval by the IEEE Smart Grid Chair for a two (2) year term, renewable once. The Committee Chair will be responsible for appointing members to serve on the Committee and will work with the Program Manager to achieve this responsibility. The Committees will be comprised of a minimum of 8 members. To ensure proper representation, it is highly encouraged that each of the partner organizational units of the Steering Committee nominates members to serve on each committee. A member can only be Chair of one committee at a time.

Operational Committees will have the following primary responsibilities:
Meet on a regular monthly/bi-weekly basis in an effort to:
1. Identify Smart Grid related content
2. Promote existing Smart Grid related content
3. Encourage multi-OU participation
4. Make contact with lead person in each IEEE OU, establish communications with them
5. Connect expertise back to the IEEE Smart Grid community to facilitate advancements in smart grid transformation

Volunteers have the option to sit on any of the following Operational Committees:
1. Marketing
2. Education
3. Workshops & Conferences
4. Technical Activities
5. Research and Development
6. Publications

Each Committee is distinct in its own way, but also serves as a feeder to other committees for content and collaboration.

Committee Descriptions

Marketing Committee
Scope

- Promote smart grid activities of all IEEE OUs by encouraging content, contributions and participation
- Promote the output of all IEEE Smart Grid committees
- Ensure IEEE Smart Grid is at the top of the minds of the public and with editors through daily pitching and offering of our collective expertise for comment via social media, the IEEE Smart Grid portal, trade journals, news outlets, magazines, etc.
- Educate key audiences about IEEE Smart Grid through continual coverage
- Increase global visibility of IEEE Smart Grid with a marketing emphasis

Goals
- Make contact with Marketing lead in each IEEE OU, establish communications with them
- Educate key audiences about IEEE Smart Grid through continual coverage via portal development and usage, use of social media and ongoing portal refreshes
- Increase global smart grid community via its marketing channels including the Facebook, LinkedIn Group, Flip Board, Twitter, e-Newsletter, Technical Community and web portal
- Benchmark and monitor awareness and continue public outreach
- Ensure IEEE is at the top of the minds of editors through daily pitching and offering IEEE for comment

Education Committee
Scope
- Manage content presented to the smart grid community
- Educate smart grid community on relative, timely topics

Goals
- Find and create content, generate content to promote. Understand where gaps exist in education and help generate content to address the gaps
- Coordinate the generation and presentation of new IEEE Smart Grid educational content including webinars, Q&As, interviews, tutorials, etc.
- Be at the forefront of smart grid educational offerings and at special sessions at IEEE Smart Grid related conferences
- Education can include K-12, post graduate and professional development, ranging from the SMART Competition to professionals and executives that have a need for learning, training and education

Meetings & Conferences Committee
Scope
- Support and manage smart grid related conferences and workshops

Goals
- Organize meeting and conferences based on relevant smart grid topics
- Outreach to all IEEE Smart Grid collaborators to identify and promote their meetings
- Partner with other IEEE societies and Organizational Units to schedule joint smart grid conferences

Technical Activities Committee

Scope
- Track development of new technologies and programs that are under execution or close to adoption and deployment through interactions with various stakeholders world-wide in the power system
- Collaborate with the IEEE Smart Grid R&D Committee on tracking technologies that are becoming mature from a research perspective for further deployment in the industry
- Coordinate with IEEE-Standards Association (SA) to review existing Smart Grid related Standards as well as explore opportunities to develop new standards and/or modify existing Standards as per the need of the market / industry.

Goals
- Help the power industry with information and support on new technologies, products and solutions, industry standards and other tools to better develop and manage smart grid programs
- Develop a common platform for close interactions and participation among various market participants and stakeholders including academicians, utilities, industry experts and others to share knowledge and expertise related to smart grid technologies at global level
- Establish IEEE as a leader in the power and energy sector providing effective tools, resources and knowledge about latest technologies, trends, best practices and lessons learnt in smart grid
- Help and support overall engineering community by exploring opportunities for future growth by participation and knowledge sharing through regular meetings, Tutorials, Webinars, News articles, White Papers and others

Research & Development Committee
Scope
- Engage in identifying emerging pivotal R&D areas in the smart grid related domain and engage the broader IEEE societies in all pertinent areas for collaboration
- Support and collaborate with public/private enterprises to assess priority areas and disseminate smart grid and sustainable energy research and implementation strategies

Goals
- Evaluate smart grid and related technology road maps to relate technology developments in the IEEE OUs
- Look at technology roadmaps, identify needs and directions underway, and present a view of the technical landscape and direction
- Survey the participating IEEE OUs R&D activities and collaborate
  - Technical Activities/Emerging Technologies/Standards contact
  - Liaise and be active with volunteers from each OU
  - Monitor OU R&D activity and promote
- Initiate collaborations where there are gaps
  - Identify a research direction/need and identify opportunities to collaborate and fill gaps
- Make contact with R&D leads in each IEEE OU and establish communications

Publications Committee
  Scope
  - Promote and support IEEE Smart Grid eNewsletter by providing articles, special issues and content
  - Bring discipline to the understanding of IEEE Smart Grid domains and areas
  - Support smart grid related articles in existing publications and explore special issues in, for example, *IEEE Spectrum* and OU publications

  Goals
  - Socialize and promote IEEE Smart Grid domains and areas
  - Support all OUs participating in special issues of publications
  - Review and identify related smart grid publications being produced by existing IEEE OUs and give them visibility by selective publication in the IEEE Smart Grid Newsletter
  - Portal interface to IEEE Xplore® - find abstracts of IEEE Smart Grid related articles
  - Contact with Publications lead in each IEEE OU
  - Support other committees for development of new products

Metrics

1 Metrics will be updated on a quarterly basis and reported during the IEEE Smart Grid Steering Committee Meetings.

2 Goals will be achieved through collaboration with IEEE and global partners to increase:
  - The global IEEE Smart Grid Social Media Community, including:
    - LinkedIn Group Members
    - Twitter Followers
    - Facebook Members
    - Flip Board Viewers
    - Collabratec Group Members
    - Telegram Subscribers (new channel established in 2018)

  - Consumer Metrics
    - eNewsletter Subscribers
    - Unique Webinar & Tutorial Attendees
    - Technical Community Membership (members who opt-in for communication)
    - IEEE Smart Grid Resource Center downloads

  - IEEE Smart Grid brand recognition
    - Survey results
    - Outreach
      - News releases
      - External interviews
      - External articles published
  - Value delivery through new product development: number of products, participants, revenue (if any)
    - Publications
      - eNewsletter articles
    - Meetings and Conferences

- o Workshops
- ● Education
  - o Webinar & Tutorial Series
    - ▪ Live Events
    - ▪ Slides and recordings available On-Demand
    - ▪ Q&As/Interviews
- ● Financial Sustainability
  - ● Monitor revenue and expenses

IEEE Smart Grid will maintain an ongoing planning schedule so that plans are responsive to changes in the environment, organizational units, their members and the public's needs.

Global Community

To achieve its goals, IEEE Smart Grid reaches its community via the web portal, resource center, and its six social media marketing channels including:

1. **IEEE SG Web Portal**
   (smartgrid.ieee.org)
   The gateway for IEEE Smart Grid current content, with 16,000+ visits per month and 1.8 million+ page views since 2010. The portal has seen visitors from more than 217 countries and territories. It also serves as the landing point for visitors looking for smart grid related information, featuring the current eNewsletter, webinar & tutorial events, and Standards information. Promotions and announcements are also updated.

2. **IEEE SG Resource Center**
   (resourcecenter.smartgrid.ieee.org)
   The eCommerce resource for the IEEE Smart Grid content-on-demand. Includes webinars, tutorials, past eNewsletters, compendiums, etc. The IEEE SG Resource Center has, on an average month, has about 3500 page views, and 700 downloads.

3. **eNewsletter**
   (smartgrid.ieee.org/newsletter)
   Insightful articles published by leading smart grid experts from around the world, published on a monthly basis. This serves as a platform for IEEE Society exposure and currently features 200+ articles from thought leaders around the world. The Newsletter is released on the second Wednesday of each month.

4. **Technical Community**
   (www.ieee.org/membership-catalog/productdetail/showProductDetailPage.html?product=CMYSG735)
   An established IEEE Smart Grid Community within the IEEE Membership Catalog where people may join as members for free. IEEE Smart Grid Community members can be IEEE members or non-members. IEEE Smart Grid communicates with them on a continuous basis throughout the year providing information on conferences, webinars, etc. The Technical Community is updated once a week via email.

5. **LinkedIn Group**
   (www.linkedin.com/groups/3188262)
   Provides a place for professionals in the smart grid area to share content, find answers, post and view jobs, make business contacts, and establish themselves as industry experts. The LinkedIn Group is updated several times per week or on an as-needed schedule, as new items and hot topics emerge within and beyond.

6. **Twitter**
   (twitter.com/ieeesmartgrid)
   An online social networking service that enables users to send and read short 140-character messages called "tweets". Registered users can read and post tweets, but unregistered users can only read them. Users access Twitter through the website interface, SMS, or mobile device app. Twitter is updated several times per day or on an as-needed schedule, as new items and hot topics emerge within smart grid and beyond.

7. **Facebook**
   (www.facebook.com/IEEESmartGrid)
   A social networking service where members can create a user profile, add other users as "friends", exchange messages, post status updates and photos, share videos and receive notifications when

others update their profiles. Facebook is updated several times per day or on an as-needed schedule, as new items and hot topics emerge within IEEE Smart Grid and beyond.

8. **Flip Board**
   (www.flip.it/Tk5PH)
   A social network aggregation, magazine-format mobile app localized in more than 20 languages. The software collects content from social media and other websites, presents it in magazine format, and allows users to "flip" through their social-networking feeds and feeds from websites that have partnered with the company. Flip Board is updated several times per week or on a need-be schedule, as new items and hot topics emerge within IEEE Smart Grid and beyond.

9. **Telegram**
   (https://t.me/IEEESmartGrid)
   A social networking service information channel to which users can easily subscribe and receive all IEEE Smart Grid news, reports, announcements continuously. The user is only required to install Telegram app on a smart phone, and follow the provided link to join the channel. Users are also able to view the channel on other devices, and in any browser (web version). All active sessions can be controlled or terminated from a smart phone. Members can contact the channel admin(s) in channel profile page and give feedback suggestions or any constructive critiques regarding the channel. The channel is updated at least once per day or on an need-be schedule, as new items and hot topics emerge within IEEE Smart Grid and beyond.

Ownership of Marketing Channels
In accordance with IEEE Policies, IEEE Smart Grid incorporates the following guidelines for its marketing channels.

> *Ownership*
> IEEE Smart Grid Staff shall be the owner of record with the social media entity, including but not limited to its own web portal, LinkedIn Group, Twitter, eNewsletter, Technical Community, Facebook, FlipBoard, Webinar Series, Collabratec and Telegram. The marketing channels are overseen, managed by volunteers and the marketing company, and report to the IEEE Smart Grid Marketing Committee. Overall governance of the IEEE Smart Grid marketing channels belongs to the IEEE Smart Grid Steering Committee.

> *Membership Lists*
> Use and control of any marketing channel membership lists may only be accessed in connection with normal IEEE Smart Grid related activities. Communication to the membership lists is to be coordinated by IEEE Smart Grid staff. Lists may not be shared with any member, organization, or company for non-IEEE Smart Grid use.

> All email communications to these lists will come from staff or designated volunteer leads. Requests for emails to be sent will be checked for appropriateness, per this section of the Implementation Plan. Intent of the frequency of outgoing emails to the lists is to not overwhelm our members.

> *Branding*
> Each marketing channel shall be branded according to the IEEE Smart Grid Brand Identity Toolkit.

IEEE OU Representation
Each IEEE Smart Grid marketing channel shall have a minimum of two representatives (one staff member and one IEEE Smart Grid member).

Goals and Metrics
The goal of each participant and designated representative in IEEE Smart Grid marketing channel activities is to:

- Promote IEEE Smart Grid
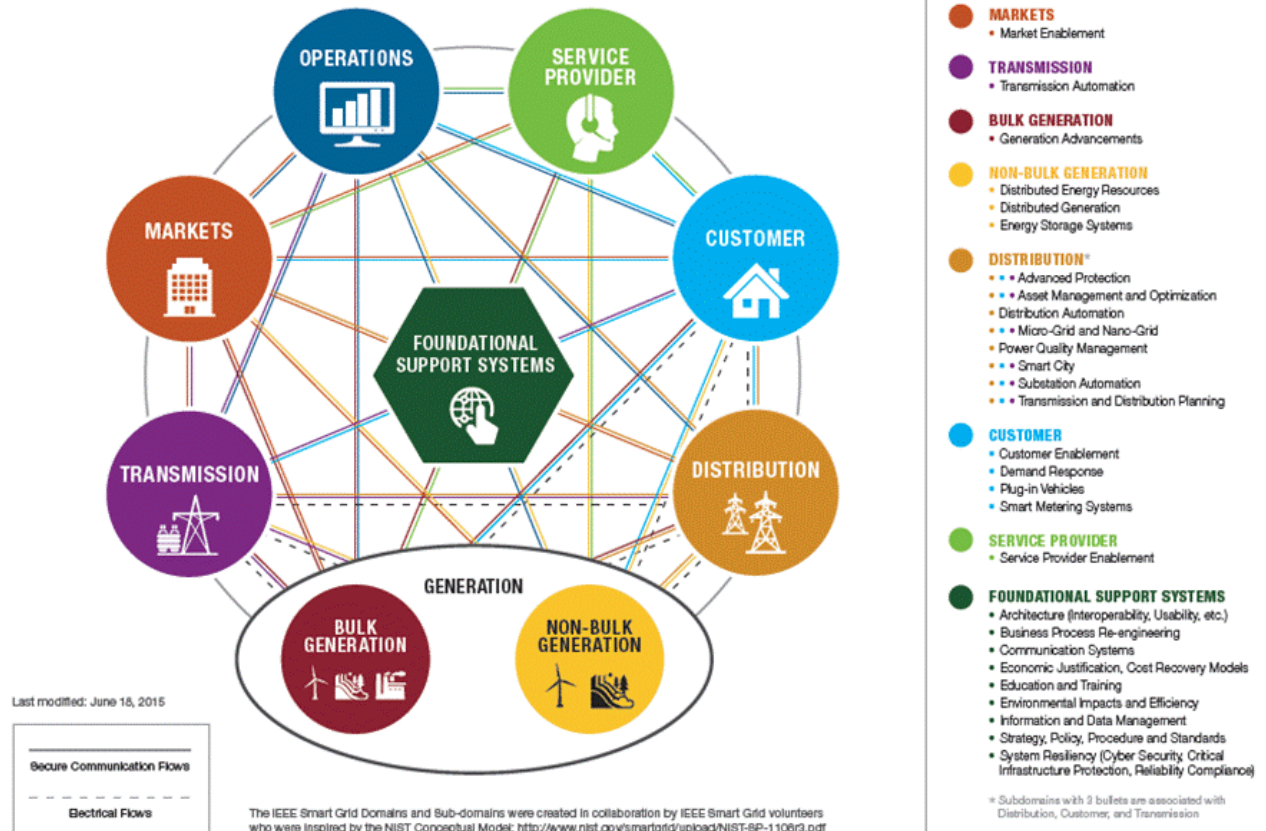- Provide actionable feedback
- Support thought leadership and execution of the Strategic Plan
- Represent respective member organizational units
- Grow membership for each activity and organizational unit

Metrics for each marketing channel will be measured by the IEEE Smart Grid Marketing Committee and will be reported out as appropriate to the IEEE Smart Grid Operations and Steering Committees.

IEEE Smart Grid Domains & Sub-Domains

IEEE Smart Grid Domains and Sub-domains

OPERATIONS
- Distribution Operation
- Field Device Operation
- Transmission Operation
- Visibility and Control

MARKETS
- Market Enablement

TRANSMISSION
- Transmission Automation

BULK GENERATION
- Generation Advancements

NON-BULK GENERATION
- Distributed Energy Resources
- Distributed Generation
- Energy Storage Systems

DISTRIBUTION*
- • • • Advanced Protection
- • • • Asset Management and Optimization
- • Distribution Automation
- • • • Micro-Grid and Nano-Grid
- • Power Quality Management
- • • • Smart City
- • • • Substation Automation
- • • • Transmission and Distribution Planning

CUSTOMER
- Customer Enablement
- Demand Response
- Plug-in Vehicles
- Smart Metering Systems

SERVICE PROVIDER
- Service Provider Enablement

FOUNDATIONAL SUPPORT SYSTEMS
- Architecture (Interoperability, Usability, etc.)
- Business Process Re-engineering
- Communication Systems
- Economic Justification, Cost Recovery Models
- Education and Training
- Environmental Impacts and Efficiency
- Information and Data Management
- Strategy, Policy, Procedure and Standards
- System Resiliency (Cyber Security, Critical Infrastructure Protection, Reliability Compliance)

* Subdomains with 3 bullets are associated with Distribution, Customer, and Transmission

Last modified: June 18, 2015

Secure Communication Flows

Electrical Flows

The IEEE Smart Grid Domains and Sub-domains were created in collaboration by IEEE Smart Grid volunteers who were inspired by the NIST Conceptual Model: http://www.nist.gov/smartgrid/upload/NIST-SP-1108r3.pdf

The IEEE Smart Grid Domains & Sub-domains were created by IEEE Smart Grid members who were inspired by the National Institute of Standards and Technology (NIST) Conceptual Model. Each of the eight domains features its own sub-domains, for a total of 32 sub-domains.

The idea behind the development of the IEEE Smart Grid Domains & Sub-Domains was to establish a categorization that would allow smart grid contributions and activities to be combined into specific areas for better understanding of the activities and their correlations.

The NIST s Framework 3.0 is based on the major processes which get executed in conducting the day to day businesses within the energy industry. The IEEE Smart Grid Committees use this diagram as a reference document, but needed to expand to cover all the important areas of smart grid.

As such, the following enhancements were made:
1. The generation domain was divided into bulk generation (conventional generation resources) and non-bulk generation (distributed energy resources)

2. Added a domain called "Foundational Support Systems" to cover all other areas which support the main domains
3. Developed sub-domains for each domain

The above additions created a methodical approach for organizing the smart grid into 32 sub-domains as shown in the graphic above. Each of the 32 sub-domains have been further divided into focus areas covering most of the activities and projects within the smart grid arena.

While it is expected that the IEEE Smart Grid model will evolve in time, this model provides a good approach for organizing IEEE Smart Grid related activities.