

**Network of
Professional Activities Committees for Engineers
IEEE-USA**

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**PACE LEADERS'
HANDBOOK**

FOREWORD

This Handbook provides the minimum amount of information necessary for you to undertake your work as a PACE leader. The first part of the Handbook provides background information concerning the origins and purposes of IEEE-USA. The second part explains the organization of professional activities within IEEE. The third and fourth parts of the Handbook provide explanations of the PACE Network at the Section/Chapter and Society level and describe the broad range of publications that report on IEEE-USA's work. Finally, the fifth and sixth parts of the Handbook describe successful PACE projects and explain their administration and financing.

TABLE OF CONTENTS

Part I	Professional Activities within IEEE: IEEE United States of America	Page 1
Part II	Professional Activities within IEEE: The PACE Network and the Professional Activities Committees for Engineers	Page 10
Part III	To Be an Effective PACE Chairperson, Understand the Function of the PACE Network and Your Role within It	Page 13
Part IV	Sources of Information about PACE Activities	Page 22
Part V	Planning and Executing PACE Projects	Page 33
Part VI	Financing Your PACE Project	Page 41

Part I

PROFESSIONAL ACTIVITIES WITHIN IEEE: IEEE United States of America

When the IEEE was formed in 1963 by a merger of the American Institute of Electrical Engineers (AIEE) and the Institute of Radio Engineers (IRE), the members approved its Constitution by a large majority. Following the traditions of AIEE and IRE, the Constitution stated that the Institute's purposes were scientific and educational. Moreover, by omitting any reference to non-technical purposes, the Constitution required that IEEE severely limit any activities outside the technical sphere.

Throughout the history of IEEE's predecessor organizations, voices had been raised to urge that the programs of the AIEE and IRE be broadened to enhance the standing of their members beyond the acknowledged reputation conferred by technical activities. In the late 1960's, heavy unemployment among members of the Institute working in space and defense programs in the United States focused attention on the need for IEEE to assume a broader role in helping its members regain and retain employment.

Simultaneously, new social pressures resulting from technological advances were raising concerns about the quality of life for all Americans. Coming into sharper focus were the purposes of learned societies, which were held to be the cornerstone of technological progress in the United States. Consequently, many IEEE members felt that the Institute's learned functions, often inward looking, had to be expanded to reflect its responsibility toward the society in which it practiced.

IEEE took steps as early as 1969 to provide assistance to the membership within the limits imposed by its Constitution. By 1972 it had established continuing education and career development programs, published salary surveys and unemployment data, and participated in Government-supported programs to assist the unemployed engineer. It established an office in Washington, D.C., to maintain liaison with Congress and federal agencies and to make IEEE resources available for the solution of complex technical problems. While these activities were significant and useful, they were circumscribed by the existing IEEE Constitution. More substantial contributions required an amendment of the Constitution.

In the spring of 1971, the IEEE Board of Directors received a petition to amend the Constitution, supported by the required number of signatures of voting members to place it on the 1971 ballot. This petition proposed that "the primary purpose of the IEEE is to promote and improve the economic well-being of the membership..." and "secondary purposes of the IEEE are scientific, literary, and educational..." The petition also proposed that voting and holding office be confined to members in the United States. The proposed Amendments failed to secure the necessary two-thirds majority of those voting; 50.4 percent of the vote was against the Amendments.

Box A

Text of 1972 Constitutional Amendments (new content indicated in bold letters)

ARTICLE 1-

NAME, PURPOSE AND TERRITORY

Sec. 1. The name of this society is The Institute of Electrical and Electronics Engineers, hereinafter called the IEEE.

Sec.2. Its purposes are: (a) Scientific and educational, directed toward the advancement of the theory and practice of electrical engineering, electronics, radio and the allied branches of engineering and the related arts and sciences; means to these ends include, but are not limited to, the holding of meetings for the reading and discussion of professional papers, and the publication and circulation of works of literature, science and art pertaining thereto; (b) **professional, directed toward the advancement of the standing of the members of the professions it serves; means to this end include, but are not limited to, the conduct and publication of surveys and reports on matters of pro- professional concern to the members of such professions, collaboration with public bodies and with other societies for the benefit of the engineering professions as a whole, and the establishment of standards of qualification and ethical conduct. The IEEE shall not engage in collective bargaining on such matters as salaries, wages, benefits, and working conditions, customarily dealt with by labor unions. The IEEE shall strive to enhance the quality of life for all people throughout the world through the constructive application of technology in its fields of competence. It shall endeavor to promote understanding of the influence of such technology on the public welfare.**

Sec.3. The charter of its scope is transnational and the territory in which its operations are to be conducted is the entire world. **In addition to its world-wide operations, the IEEE may engage in activities directed to the interests and needs of members residing in a particular country or area of the world. The procedure for under-taking such activities shall be specified in the Bylaws.** The IEEE shall have its principal offices in the State of New York from which it shall carry out its general administrative functions in accordance with the New York Not-for-Profit Corporation Law. Its publication activities are to be principally in the United States, as well as its largest membership meetings.

The Board then attempted to find a more definitive consensus by examining the issues in detail. A questionnaire was submitted to the more than 145,000 voting and nonvoting members in the United States, asking for expressions of opinion (yes or no) in eight specific program areas. The questionnaire was intentionally restricted to members in the United States, because action on the major issues at stake would be limited in other countries by their respective laws and customs. In many countries, in fact, the questions at issue were to be dealt with by their national societies. Further, the costs of services restricted to members in a particular country (e.g., the United States) should not be levied on members resident in other countries. Subsequently, a Bylaw specifically permitting dues and fees of different amounts in different Regions was passed.

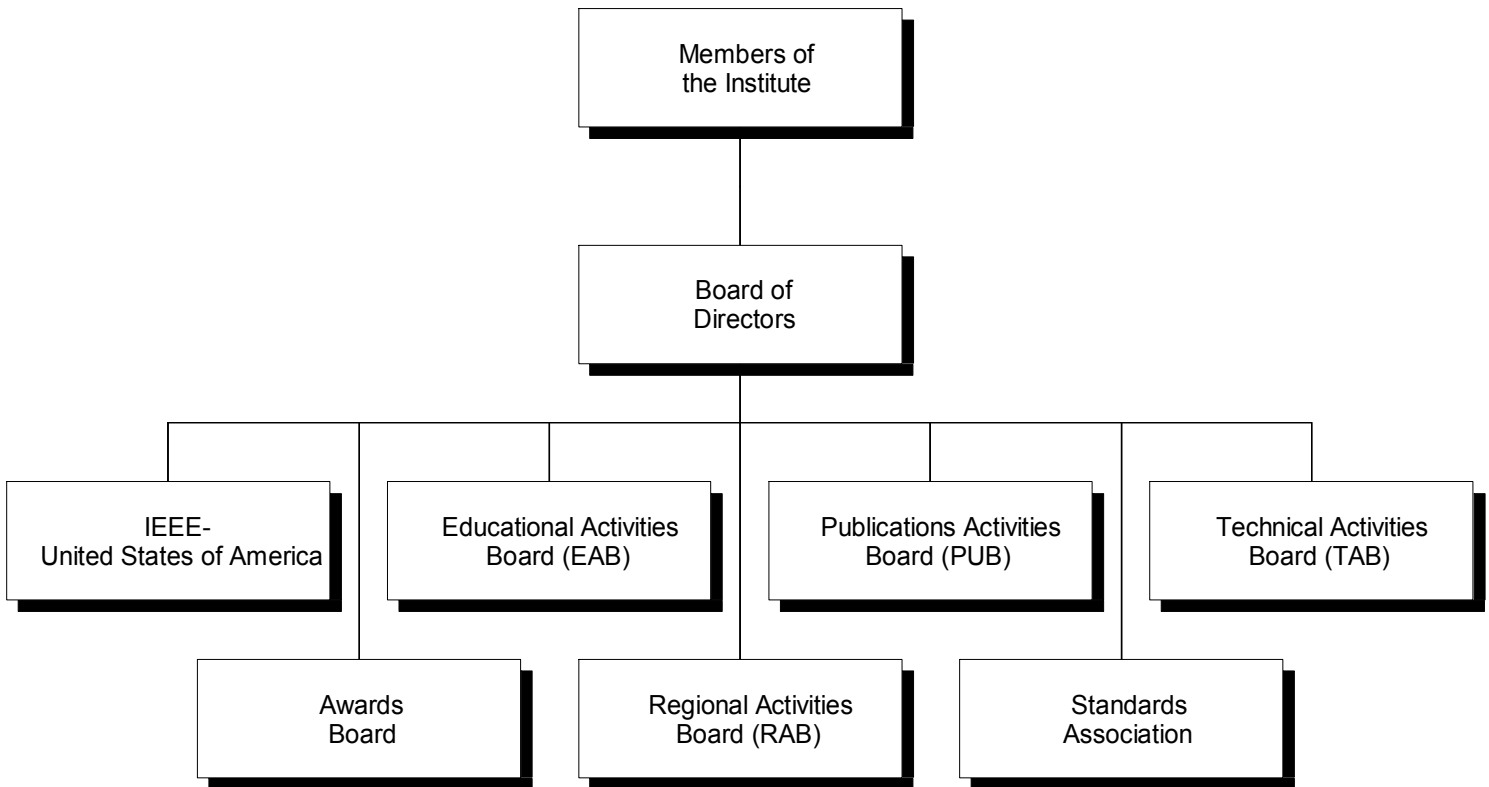
The response to the questionnaire was large, with some 40 percent of the U.S. members who received questionnaires returning them. The returns were consistently in favor of embarking on new objectives. On the basic question of IEEE's becoming more active in economic and political matters, the vote was favorable by 2.2 to one.

Following analysis of the results of the survey, the IEEE Board drafted new Amendments to the Constitution and submitted them to a vote of the membership in November 1972. They were approved by 86.8 percent of the members voting. The new directions established by the Amendments are reflected in Box A (page 2).

To deal with the new area of professional activities, the IEEE leadership created a United States Activities Committee (USAC) and levied a special assessment on members in Regions 1 through 6 to pay the costs. Because of the wealth of programs that USAC was engaged in by 1974, and its need for a broader structure, the IEEE leadership afforded it Board status within the Institute. IEEE Bylaw 311 opens with the statement that, "The United States Activities Board (USAB) shall recommend policies and implement programs specifically intended to serve the members in the United States in appropriate non-technical professional areas of economic, ethical, legislative, and social concern, supported by funds provided by the Regional assessment paid by such members." This mission also extends to technology policy areas related to the fields of interest that provide a livelihood to IEEE U.S. members. The mission is pursued through publications, conferences, workshops, Congressional testimony, and the volunteer network; by working for favorable legislative action; by interacting with academia, industry, government, and the public; and by promoting concerned professionalism. The mission is accomplished through the efforts of more than 900 U.S. member volunteers serving on USAB councils, committees, and task forces; the IEEE U.S. membership; and the USAB staff.

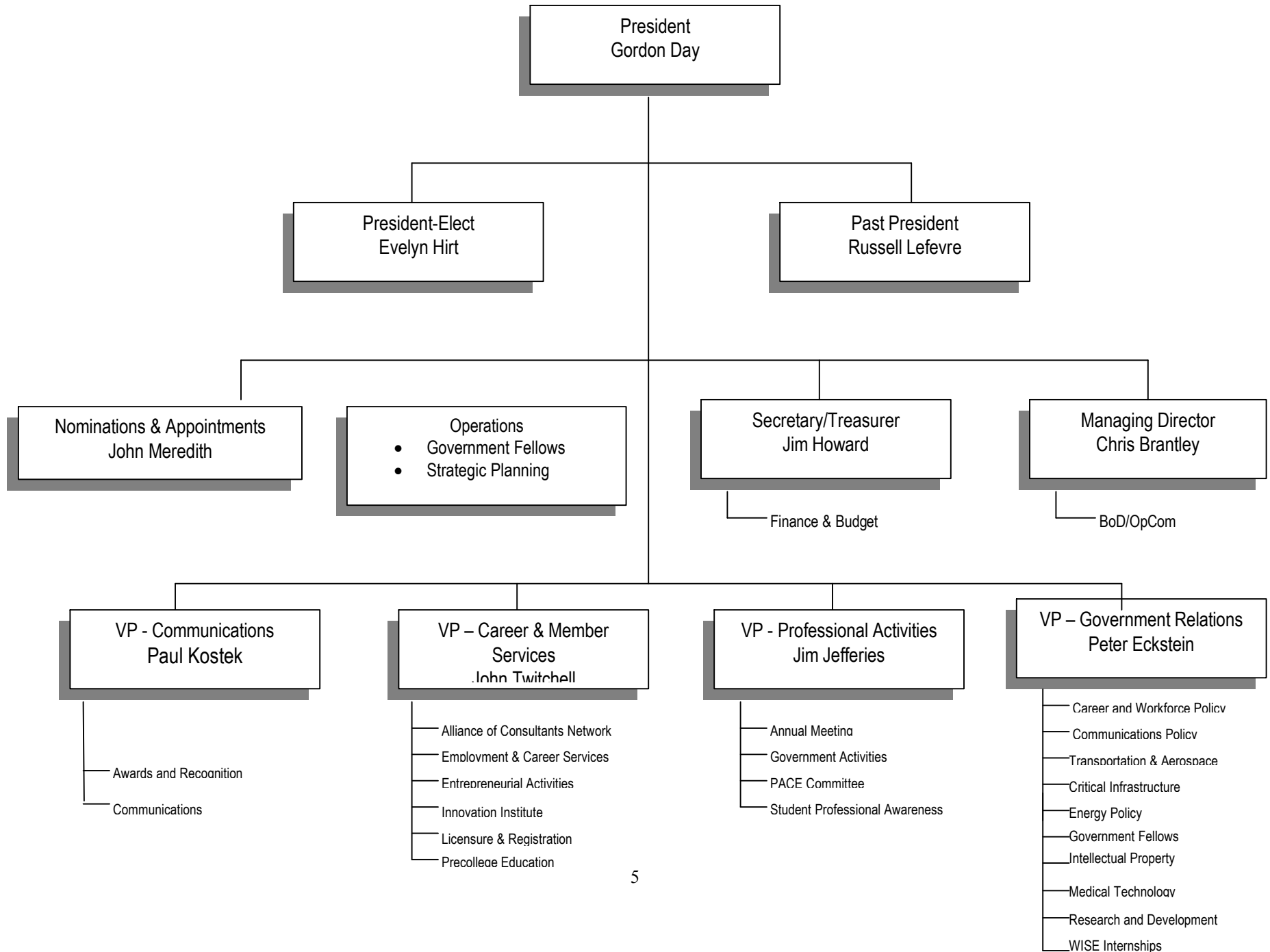
In 1993, the United States experienced an increasing number of unemployed engineers, and in the same period the IEEE experienced a decline in its U.S. membership. USAB decided to face these challenges by seeking means to make the delivery of its services more effective. It established an ad hoc committee with a directive to simplify the organization, reducing the number of councils and committees in the expectation that the reductions in the structure would make it more responsive. The committee recommended reducing the number of councils from five to three, reducing the number of committees by shifting responsibilities within the councils, and changing the status of PACE from a council to a national network with a Chairman and three committees. These recommendations were accepted by USAB and approved by the IEEE Board of Directors in June 1994. The reorganization went into effect on January 1, 1995.

Figure 1. IEEE Boards



In 1997 the IEEE Board of Directors approved changes in the IEEE By-laws making USAB autonomous, changing its name to IEEE-United States of America (IEEE-USA), and permitting U.S. members to elect their own president, president-elect, and the members at large of an IEEE-USA Board of Directors. These changes became effective on January 1, 1998. The new structure affords IEEE-USA the ability to pursue issues of interest specifically to U.S. members. (See Figures 1 and 2.)

Figure 2: Structure of IEEE-USA



The new IEEE-USA Board of Directors is responsible for setting the organization's direction and establishing the policies that will govern it. The Board is composed of 11 members elected by the U.S. membership: president, president-elect, past president, two members at large, and the directors of Regions 1-6. Also on the board are six appointed members: five vice presidents (for career activities, member activities, professional activities, technology policy, and operations) and a secretary/treasurer.

The IEEE-USA Strategic and Operational Plan for 2001-2005 stipulates that IEEE-USA work to meet the following challenges:

- Promoting and nurturing communities of interest among our members;
- Continuing to build our influence as a sought-after resource for technical advice to U.S. policy-makers for the benefit of the public, the profession, and the members;
- Continuing to build our influence as an effective voice for the career and technology policy interests of IEEE's members in the U.S.;
- Improving our ability to communicate with our members and with the public-at-large by refining and focusing our message and by taking advantage of new communications technologies;
- Developing a new generation of products and services that not only help enhance the career vitality of IEEE's U.S. members but also generate revenues that reduce IEEE-USA's reliance on membership dues; and
- Improving the organizational effectiveness of IEEE-USA by focusing our resources on high priority activities where we can make a clear impact, by making more effective use of our volunteers, and by strengthening our interaction with other components of the IEEE.

The PACE Network will be a key player in the implementation of these objectives

Under the new structure, each of the three IEEE-USA vice presidents presides over a council and the fourth vice president presides over Professional Activities (PACE), and PACE and the other 3 councils, with its committees and task forces, is responsible for a specific sector of IEEE-USA activities:

Career Activities Council (IEEE-USA Vice President – Career Activities)

The Career Activities Council is concerned with public policy issues that affect the professional careers of electrical, electronics, and computer engineers. These issues include discrimination in the workplace (career equality), career maintenance and development, intellectual property, licensure and registration, pensions and other engineering employment benefits, and work-force trends for practicing engineers. The roles of the committees that make up the Career Activities Council include the following:

- Informing and educating IEEE's U.S. members about trends, issues, and actions affecting their professional careers;
- Preparing consensus positions and recommending appropriate action on matters of special concern;
- Communicating IEEE-USA's views on matters of special concern to public and private-sector decision makers;
- Informing other organizations and the public about IEEE-USA's views on such matters; and
- Responding to requests from individual members for information and assistance on career issues.

Technology Policy Council (IEEE-USA Vice President – Technology Policy)

Technology Policy Council committees present information and IEEE-USA's views on technology issues to the public, Congress, and the Executive branch. Committee activities include writing position statements, briefing papers, white papers, and Congressional testimony; sponsoring symposia, workshops, and conferences; coordinating with other IEEE boards and societies; and coordinating with other industry and professional associations on issues of common concern. The council also serves as a forum for issues that cut across committee interests. Each year it sponsors a symposium on a topical subject such as dual-use technology or federal R&D policy. Congress and the administration often seek the opinions and advice of electrical engineers through IEEE-USA. The Technology Policy Council is an important source of unbiased information on 21st century technologies.

Volunteers and staff have represented IEEE-USA at many conferences and symposia, some sponsored by federal agencies such as the National Institute of Standards and Technology (NIST) and the Office of Science and Technology Policy (OSTP), where they have provided IEEE-USA's viewpoints and opinions and shown its interest in these important areas. The Technology Policy Council also serves as a focal point for coordination with the technology activities of other associations, such as the American Electronics Association (AEA) and the Electronic Industries Association (EIA). Since 1991 the council has worked with AEA as part of the Advanced Technology Coalition, which calls on members of the administration, presidential candidates, and members of Congress to support a technology policy for the United States.

The council has hosted briefings for members of Congress and their staff on a variety of important technology policy topics such as U.S. competitiveness, technological commercialization processes, and the space station. Its advice is often solicited regarding potential candidates for federal appointments.

The change from the Industrial Age to the Information Age requires the expertise of electrical engineers. Technology Policy Council activities have supported the existence of a vibrant U.S. electronics industry, which has made a significant contribution to the employment of large numbers of engineers in the United States. These efforts have not only demonstrated tangibly the multitude of abilities of electrical engineers but have made significant contributions to the policy deliberations necessary for the United States to lead the world in new-age technologies.

Member Activities Council (IEEE-USA Vice President – Member Activities)

The Member Activities Council's committees provide a wide range of services to IEEE's U.S. members. Their mission includes the following goals:

- To optimize the communication of IEEE-USA activities, projects, public positions, and goals to the membership, the government, and the public by utilizing in-place publications such as *IEEE-USA News and Views* and considering new communications initiatives;
- To increase member awareness of collective member programs such as the IEEE-USA awards and recognition program and its salary and member opinion surveys, and to improve the effectiveness of these programs;
- To find ways to provide the employment assistance needed by IEEE members and others in the profession;
- To provide professional assistance to self-employed members;
- To promote and coordinate IEEE interests and member participation in the process of state and local government, addressing issues such as state licensure and continuing education requirements;
- To encourage grass-roots member support of IEEE-USA's national government activities, especially in areas that raise important implications at the state and local level, such as the problem of unfunded federal mandates, federal environmental regulations, federal funding of state technology programs, and strengthening the role of state and local science and technology efforts; and
- To encourage IEEE members to support efforts in their communities to improve the technological literacy of K-12 students.

Professional Activities (PACE) (IEEE-USA Vice President – Professional Activities)

PACE includes the committees that constitute the components of the PACE Network; the PACE Committee, as well the expansion of the Professional Development Seminar (PDS)

formerly called the Member Professional Awareness Conference (M-PAC) program. Also, under PACE is a committee that promotes professional activities in IEEE Student Branches through Student Professional Awareness Conferences (S-PACs) and Student Professional Awareness Ventures (S-PAVes) as well as one that promotes legislative activity at the state and federal levels.

The PACE Network, with its national, regional, local-level, and society-based structure, provides a mechanism for the dissemination of information to sections, chapters, societies, and individual members on the work done and services provided by the committees in IEEE-USA's councils and committees. At the same time the network provides a line of communication so that IEEE members in sections, chapters, and societies can articulate their needs and priorities to IEEE-USA volunteer leaders. Under the new IEEE-USA structure, the importance of the PACE Network continues. The IEEE-USA Board and the councils will continue to look to the Network for input and support of their activities.

Parts II through VI of this handbook explain the functioning of the PACE Network.

Part II
PROFESSIONAL ACTIVITIES WITHIN IEEE:
The PACE Network
and
Professional Activities Committee for Engineers

What is the PACE Network?

The PACE Network comprises all the IEEE members who have volunteered to promote professional activities within their IEEE entity. The Network's purpose is to promote professional activities at the member level. This is done by running programs and providing information to members at the section, chapter, and society level.

PACE conducts its activities in two distinct ways. First, programs are conducted at the section and chapter level, with assistance and coordination from the regional and national levels. Second, IEEE's technical societies conduct PACE programs, either at their annual meetings and conferences or through public policy committees.

Nearly every IEEE section in the United States and most of the IEEE technical societies have an active Professional Activities Committee for Engineers (PACE). These committees conduct PACE programs by and for the IEEE membership. Local chapters are encouraged to appoint PACE chairs to serve on the section PACE Committee and to organize chapter-based professional activities. Nationally, these committees form a network that permits IEEE-USA professional activities to have an impact on national policy.

Regional PACE Coordinators coordinate the PACE activities undertaken by areas, councils, sections, and chapters and provide financial assistance when needed. Divisional PACE Coordinators fulfill a similar role in the conduct of PACE activities within the societies.

Each Regional PACE Coordinator is assisted by a PACE Committee made up of specialists who coordinate professional activities in the areas of career enhancement, technical policy issues, employment assistance, government action, professional education, precollege education, and student professional awareness. Divisional PACE Coordinators may be assisted by the Regional PACE Coordinators and their committee specialists.

Leadership is provided at the national level by the IEEE-USA Vice President – Professional Activities, who chairs the national PACE Network, aided by the standing committee: the PACE Committee.

What are the Objectives of the PACE Network?

The work of the PACE Network is directed toward achieving objectives that include:

- 1) Encouraging the provision of member services, mainly in the form of increased economic benefits, professional stature, and employment security for engineers;
- 2) Enhancing public awareness of the socio-technical issues affecting American society and promoting public recognition of engineers as professionals;
- 3) Engaging in government action at the local, state, and national level by making the technological background and problem solving experience of engineers available to the legislative process and by influencing legislation that affects the professional careers of engineers.

To achieve these objectives, the PACE Network engages in the following activities:

- Dissemination of information:
 - Sending printed and electronic materials directly to members, through the section, society, and chapter PACE chairs;
 - Conducting professional activities sessions at section, chapter, and regional meetings;
 - Presenting information on professional activities at meetings sponsored by technical societies; and
 - Sending speakers to IEEE Student Branches to make presentations on professional topics;
- Orientation and training of region, division, section, society, and chapter PACE representatives, primarily at the regional level but also at the annual IEEE-USA Leadership Workshop;
- Influencing state and federal legislative action through State Inter-society Legislative Advisory (SILA) groups and programs such as Congressional Advocacy Recruitment Effort (CARE);
- Promoting improvements in precollege math, science, and technology education through section- and society-based collaboration with local schools and teachers, support of the National Engineers Week Discover "E" program, provision of mentors and judges for student competitions, and other activities; and
- Promoting other projects that satisfy one or more of the objectives of PACE at the section, chapter, council, area, region, or society level.

To better understand the structure of the PACE Network, see Figures 4.

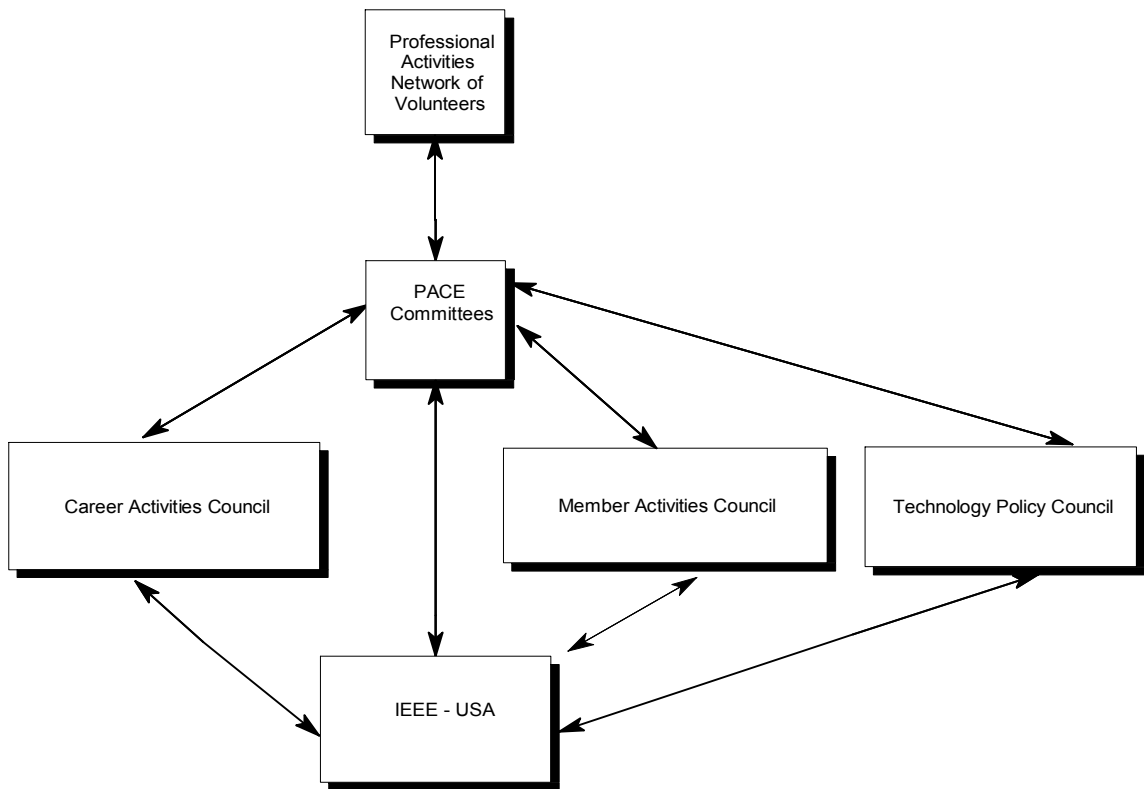


Figure 4. Information Flow to and from PACE

Part III

TO BE AN EFFECTIVE PACE CHAIR: Understand the Function of the PACE Network and Your Role within It

Three of IEEE-USA's councils are responsible for activities in specific professional areas (career activities, member activities, technology policy). Each has a management structure with supporting committees made up of IEEE members. Each is responsible for dissemination of its output. With certain national issues, this is quite adequate. However, grass-roots support from IEEE members frequently is needed. It is the function of the national PACE Committee and the network of PACE leaders across the country to provide such support through local PACE activities.

The PACE leader is like a public relations manager, concerned with informing IEEE members of the policies and determinations of the IEEE and in particular those of the three IEEE-USA councils. This is indeed a job requiring creative advertising and soft sell. PACE leaders are also responsible for channeling the concerns of members in their local IEEE entities to their Regional or Divisional PACE Coordinators for referral to the appropriate USA council for consideration and action. A lot of this two-way communication takes place at the annual IEEE-USA Leadership Workshop.

The following information is intended to help you reach your communication goals.

PACE Committee

The PACE Committee is responsible for providing direct support to section, council, society, and chapter PACE Committees.

The PACE Committee is comprised of six Regional PACE Coordinators, appointed by their respective Regional Directors. Among their goals are: (1) to build a knowledgeable core group of PACE leaders in their regions through training programs at the area and region levels and at the annual IEEE-USA Leadership Workshop, (2) to foster, nurture, and coordinate member-level PACE activities in the sections and chapters in their regions, and (3) to communicate members' concerns to the national leaders on the IEEE-USA Board of Directors and in the IEEE-USA councils.

The PACE Committee also includes two Divisional/Technical PACE Representatives selected by the Vice-President – Professional Activities. Among their goals are: (1) to build a knowledgeable core group of PACE leaders in their societies and chapters through training at the annual IEEE-USA Leadership Workshop, (2) to integrate chapter PACE chairs into their respective section PACE Committees, (3) to foster, nurture, and coordinate PACE activities in the societies and chapters, and (4) to communicate members' concerns to the national leaders on the IEEE-USA Board of Directors and in the IEEE-USA councils.

The charter and annual plan of these committee are available on request from the PACE Committee Chair and the IEEE-USA Office in Washington DC.

Electronic Communications

All PACE Network leaders are asked to obtain an e-mail address through a service that has full Internet access. This may be done by purchasing access through a commercial service like MCIMail or Compuserve or by going through a university or corporation. If there is an expense involved, it must be covered by your entity's PACE budget. Another option would be to use your section's e-mail address.

Section, Society, and Chapter PACE Committees

There is much to learn and much more to do as a member of the PACE Network. No single person will be capable of handling all the tasks that are part of the PACE leader's job. So, GET HELP! FORM A COMMITTEE! Participating on a PACE Committee is an excellent way for IEEE members to learn about the volunteer organization and how IEEE functions while at the same time growing as professionals. Don't wait for your colleagues to volunteer. Recruit!

PACE Issues

No matter how large your PACE Committee is, it will be difficult to take on all the topics of interest to IEEE members. Look to the strengths and interests of your section or society and your committee members. Tackle the issues that they feel comfortable addressing. Look also to the committee structure of IEEE-USA and try to center your efforts on the current issues of one or more of those committees. Use ad hoc subcommittees for specific issues.

Section, Society, and Chapter Activities

The primary difference between section, society, and chapter activities lies in the diversity of members' interests. Section interests will be more heterogeneous, so general-interest issues will be more easily supported. The society and chapter, on the other hand, may be more effective in supporting issues in the areas of their recognized expertise.

Your Role as a PACE Network Leader

If you are the PACE chair for your local section or chapter, your "job description" includes the following responsibilities:

1. Have a working understanding of the IEEE-USA PACE organization:
 - a. The PACE Committee
 - b. Other persons to contact for information and assistance

2. Know the professional issues of concern to IEEE-USA and those of concern to your membership:
 - a. Conduct an annual survey of your membership.
 - 1) Use issues from the IEEE-USA Leadership Workshop.
 - 2) Use issues from IEEE Salary and Opinion Surveys.
 - 3) Use issues from the IEEE-USA Legislative Agenda.
 - b. Question colleagues to determine shifts in priorities.
 - c. Communicate this information to your Regional or Divisional PACE Coordinator.
3. Communicate items of professional interest to your membership:
 - a. At Executive Committee meetings
 - b. At section/chapter/branch meetings
 - c. Through articles in newsletters and magazines
4. Develop, coordinate, and present professional programs:
 - a. In support of your section or society's goals and objectives
 - b. Guided by the PACE Committee's goals and objectives
 - c. Directed toward meeting your membership's professional interests and concerns
5. Update your PACE skills annually at either your region/area training.

Regional PACE Committee and Regional PACE Program Coordinators

Each Regional PACE Coordinator is assisted by a team of five program specialists who keep abreast of IEEE programs in their areas and support sections, councils, societies, and chapters that wish to undertake local activities. These five program coordinators constitute the Regional PACE Coordinator's Regional PACE Committee.

The six PACE Program Coordinators are responsible for the following areas:

- Government Activities
- Career and Employment Enhancement Activities
- Precollege Education Activities
- Student Professional Awareness Activities
- Technical Policy Activities

The program coordinators are appointed by the Regional Director with recommendations from the Regional PACE Coordinator. They may serve in the same capacity on the Regional Director's Committee, when the position exists, and/or as the regional delegate to a corresponding IEEE-USA committee.

Following are the functions of each Regional PACE Program Coordinator:

Government Activities Coordinator

1. Works closely with the Regional Government Activities Coordinator or serves as same.
2. Works closely with the IEEE-USA Government Activities Committee as a member or corresponding member.
3. Fosters, nurtures, coordinates, and encourages the establishment of government activities and intersociety SILAs:
 - a. Spearheads efforts to set up IEEE Legislative Committees along government boundaries.
 - b. Assists in solving problems caused by differences in state boundaries and IEEE Regional boundaries.
 - c. Provides existing literature, guidelines, and examples to Legislative Committees.
 - d. Identifies leaders (champions) for state government activities.
 - e. Assists leaders in obtaining start-up funding from Regional Professional Development Activities Support Funds for government activities.

Career and Employment Enhancement Activities Coordinator

1. Works closely with the Regional Career and Employment Enhancement Activities Coordinator or serves as same.
2. Works closely with the IEEE-USA Career and Employment Maintenance and Development Committee as a member or corresponding member.
 - a. Provides the Employment Assistance Committee with information about local employment conditions and local IEEE efforts to respond to employment problems.
3. Fosters, nurtures, coordinates, and encourages career and employment enhancement activities in the region.
 - a. Encourages sections to devote at least one meeting each year to career issues.
 - b. Takes facilitator training to conduct workshops developed by the Career Maintenance and Development Committee and encourages sections to offer the workshops.

- c. Provides sections with existing guidelines, literature, and information about successful career-related and employment-related programs.
- d. Encourages sections to provide employment assistance to job-seeking members.
- e. Acts as a regional resource for members seeking employment assistance.

Precollege Education Activities Coordinator

1. Works closely with the Regional Precollege Education Activities Coordinator or serves as same.
2. Works closely with the IEEE-USA Precollege Education Committee as a member or corresponding member.
3. Fosters, nurtures, coordinates, and encourages precollege education activities in the region.
 - a. Encourages sections to establish a Precollege Education Committee or appoint a contact person for precollege education.
 - b. Provides existing guidelines, literature, and examples to sections.
 - c. Promotes National Engineers Week Discover"E" activities in the sections.
 - d. Encourages use of the slide presentation "What is an Engineer" by IEEE members who are asked to address students at career days and similar events.
 - e. Promotes a good image for engineers among the K – 12 school population.
4. Works with business, education, and other engineering/scientific societies to promote technical literacy.
 - a. Supports the formation of local alliances or improves partnerships between IEEE and other business, education, and engineering/scientific entities.
 - b. Supports appropriate legislation designed to promote technical literacy.
 - c. Represents IEEE on local and state committees whose missions support the IEEE position on improving technical literacy at the K - 12 level.
5. Encourages local IEEE volunteer involvement with teachers and school administrators through:
 - a. Serving as a technical resource person for a teacher;

- b. Being a guest lecturer;
- c. Serving as a club sponsor;
- d. Hosting field trips;
- e. Providing industry internships;
- f. Judging contests; and
- g. Establishing or supporting other local teacher or school-based programs.

Student Professional Awareness Activities Coordinator

1. Works closely with the IEEE-USA Student Professional Awareness Committee as a member or corresponding member.
2. Works closely with the Regional Student Activities Committee chair (R-SAC).
3. Serves as the Regional Student Professional Awareness Conference (S-PAC) Coordinator.
4. Promotes student professional awareness activities to the colleges and universities in the region by:
 - a. Establishing contact with IEEE student branches;
 - b. Encouraging schools to conduct S-PACs on a two-year cycle;
 - c. Encouraging schools to conduct Student Professional Awareness Ventures (S-PAVes); and
 - d. Coordinating efforts with section PACE and Student Activities Committee Chairs.
5. Promotes S-PACs by:
 - a. Attending regional student meetings and making presentations on S-PACs (15 minutes minimum);
 - b. Targeting large schools, medium-to-large schools that have never held an S-PAC, and schools that held an S-PAC two or more years earlier; calling student branch officers and student branch counselors directly;
 - c. Writing form letters to selected schools encouraging them to plan S-PACs (addressed to student branch counselors and student branch chairs);

- d. Maintaining contact with Regional PACE Coordinator and other sources of funding for S-PACs;
 - e. Maintaining contact with Regional S-PAC Support Coordinator; and
 - f. Contacting MGA/SAC/SPAA chair for branch-related or MGA funding issues.
6. Assists student organizers in S-PAC planning and preparation:
- a. S-PAC format.
 - b. Speaker selection (approves the roster of speakers, especially the national-level speakers whose travel is reimbursed by SPAC).
 - c. Selection of conference date, avoiding conflict with exams and major campus events.
 - d. IEEE interfaces, section, area, and region (requesting/ obtaining funds/support, local speakers, general participation, local engineering/industry support).
 - e. Publicity techniques.
 - f. Ticket sales.
 - g. Interface with department chair or engineering school dean.
 - h. Questions about:
 - 1. Size of committee and delegation of tasks;
 - 2. Faculty reception: participation, classes held at S-PAC or cancelled;
 - 3. Publicity efforts;
 - 4. Ticket sales: when started; number sold (check this three weeks prior to conference); and
 - 5. Funding: contacts, problems, expenses.
 - 6. Works with Regional PACE Coordinator and section PACE chair to ensure that high quality S-PAC speakers are available locally and within the region.
 - 7. In some regions, may direct Regional Professional Development Funds specifically allocated for S-PACs to schools holding S-PACs to support their operational costs.

8. Promotes S-PAVes, especially during the year between S-PACs.
9. Reports on SPAC activities as required for the following:
 - a. Annual report to SPAC Chair (calendar year).
 - b. Regional PACE report (from one Professional Development Conference to the next).
 - c. Two SPAC meetings each year.
 - d. Newsletter support for student members.

Technical Policy Activities Coordinator

1. Maintains an awareness of the on-going activities of the Technology Policy Council (TPC) and its various committees and subcommittees by:
 - a. Interacting with the IEEE-USA staff manager of Technology Policy Council activities and the administrator of TPC professional programs to receive and maintain a file of TPC committee position papers, symposium/conference announcements, and information on other significant TPC activities;
 - b. Working closely with counterparts on the PACE Divisional Coordinators to coordinate awareness and advocacy of TPC activities; and
 - c. Working closely with appropriate Regional members of TPC committees or subcommittees and/or serving as a member of one or more TPC committees.
2. Works closely with Regional Chapter Relations Coordinators and Section Chapter Relations Coordinators, or serves as the same at the regional level, to coordinate awareness and advocacy of TPC activities including current position papers, testimonies, seminars/workshops/conferences, and other significant TPC action.
3. Fosters, nurtures, coordinates, and encourages technology policy activities in the region by:

- a. Making presentations at region and section meetings;
- b. Maintaining and distributing current TPC activity material such as position statements, testimonies, etc., and,
- c. Coordinating requests for further information by members through the IEEE-USA office.

Part IV

SOURCES OF INFORMATION ABOUT PROFESSIONAL ACTIVITIES

IEEE produces many valuable publications on professional activities. All of the world's engineering organizations are potential sources of news in the professional area. You will perform a useful service by keeping appropriate IEEE committees informed of any publications on current issues. Your primary sources of information will remain, however, within IEEE-USA.

The following IEEE-USA publications are a must for all PACE Network leaders. You will receive many of them automatically. Others are available on request from the IEEE-USA Office in Washington, D.C. Many of them welcome well-written articles on topical subjects.

IEEE-USA News and Views in The Institute

- Goal: To analyze career and technology policy issues and to report on IEEE-USA's services to all U.S. IEEE members.
- Published: Four times per year inserted into the polybag with *The Institute* and *Spectrum*, plus a two page pictorial spread in *Spectrum*.
- Accepts: Wide range of articles and reports with an emphasis on member impact, including the work of IEEE-USA committees and councils, work and projects of IEEE's U.S. Sections and IEEE-USA PACE Network.
- Submit to: IEEE-USA Office, c/o Managing Editor, Georgia Stelluto, Communications Department, IEEE-USA Office; g.stelluto@ieee.org.

IEEE-USA Today's Engineer

- Goal: *IEEE-USA Today's Engineer* is a first-of-its-kind magazine dedicated to helping all technical professionals transcend traditional boundaries, think strategically, and develop a business perspective. The monthly on-line publication focuses on learning issues related to enhancing and integrating competencies, career-related issues, visibility, and the image of the profession.
- Published: Monthly. Available on the web at <http://www.todaysengineer.org>
- Submit to: By e-mail to Abby Vogel, Managing Editor at todayseengineer@ieee.org or Georgia Stelluto, IEEE-USA Publishing Manager at g.stelluto@ieee.org.

IEEE-USA Government Relations Program

IEEE-USA supports an active government relations program whose three basic components include:

- 1) Direct and grassroots advocacy on technology and career/workforce policy issues of concern to U.S. IEEE members;
- 2) Technical advice and assistance to federal and state government decision-makers in response to requests or identified needs; and
- 3) Information and education for members on public policy issues and governmental processes (including programs for personal involvement such as Government Fellowships and the Washington Internships for Students of Engineering)

Advocacy efforts are focused on an agenda of priority issues determined each year, or for each Congress, by the IEEE-USA Board of Directors. PACE, through its government activities coordinators, can shape that priority agenda by providing feedback on issues of concern to U.S. IEEE members, as well as helping to identify volunteers to serve on IEEE-USA policy committees as regular or resource members. The Vice President of Professional Activities also serves as a direct representative of the PACE Network to the IEEE-USA Board of Directors on all government relations issues.

The government relations program encompasses an extensive volunteer effort, which spans the Technology Policy Council, the Career Activities Council, the PACE Network, as well as specialized committees that report to the IEEE-USA Board of Directors such as the Government Fellows Committee and the WISE Task Force.

The Government Relations Program is supported by the following professional IEEE-USA staffers, whose respective areas of responsibility are indicated in italics:

Chris Brantley, Acting Director, Government Relations & Operations

Tel: 202-785-0017 (x8347) E-mail: c.brantley@ieee.org

Government Relations, State and Local Issues, and Government Fellowships/Internships

Russell T. Harrison, Senior Legislative Representative, Grassroots Activities

Tel: 202-785-0017 (x8326). E-mail: r.harrison@ieee.org

CARE Network and Grassroots Advocacy Programs

Vin O'Neill, Senior Legislative Representative, Career Activities

Tel: 202-785-0017 (x8327) E-mail: v.oneill@ieee.org

Career & Workforce Issues, Retirement Security, Licensure and Education

Deborah Rudolph, Manager, Technology Policy Activities

Tel: 202-785-0017 (x8332) E-mail: d.rudolph@ieee.org
Computer, Information and Medical Technology Policy

Bill Williams, Legislative Representative, Technology Policy Activities

Tel: 202-785-0017 (x8331) E-mail: bill.williams@ieee.org
Aerospace, Transportation, Energy, R&D and Intellectual Property

Erica Wissolik, Legislative Representative, Technology Policy Activities

Tel: 202-785-0017 (x8331) E-mail: e.wissolik@ieee.org
Intellectual Property Committee, Government Fellows and WISE Program

The Internet provides the most effective means to obtain information about the IEEE-USA government relations program and to communicate opportunities for member participation and input in a timely and cost-effective fashion. The following are specific electronic resources of potential interest:

IEEE-USA Policy-Forum -- Home base for IEEE-USA government activities on the World Wide Web, the IEEE-USA Policy Forum links you to IEEE-USA's priority issues, position statements, testimonies and letters, Eye on Washington newsletter, policy committees, Government Fellowship and Internship information, grassroots advocacy and government appointment information. An interactive Member Forum is provided to facilitate member feedback. WWW: <http://www.ieeeusa.org/forum>

IEEE-USA Public Policy Priority Issues -- Each year, the IEEE-USA Board of Directors sets an agenda of public policy priority issues for the current Congressional session. Priorities may span several sessions or even several Congresses. The list of public policy priorities and background information on each is available on-line or in print from Chris Brantley in the IEEE-USA Office. WWW: <http://www.ieeeusa.org/forum/issues/>

IEEE-USA Legislative Action Center -- This on-line resource center allows you to respond to IEEE-USA Action Alerts by identifying and writing to your representatives in Congress on-line, follow the progress of bills, and monitor your legislator's key votes. WWW: <http://www.capwiz.com/ieeeusa/>

IEEE-USA Position Statements -- Advocacy documents approved by the IEEE-USA Board of Directors to provide policy perspectives, options and/or recommendations on important career, workforce and technology policy issues to aid government decision-makers. Statements are typically originated by IEEE-USA policy committees comprised of volunteers with expertise in the subject-matter field. Current position statements are published on-line or can be obtained in hard copy from Bessy Burch in the IEEE-USA Office. WWW: <http://www.ieeeusa.org/forum/positions/>

Policy Log -- Updated regularly, this file provides a chronological listing of testimonies and statements submitted by or on behalf of IEEE-USA for the record of congressional hearings,

formal comments provided in response to public or regulatory notices, and/or letters to Federal policy makers forwarding recommendations on public policy issues.

WWW: <http://www.ieeeusa.org/forum/policy/>

Congressional Advocacy Recruitment Effort (CARE) -- CARE is a network of active IEEE-USA grass roots advocates working in conjunction with PACE to ensure that the engineering profession has an effective voice in Washington and in the state capitals on issues of concern. From this web page, you can learn more about grassroots advocacy, join the CARE network, and/or learn more about IEEE-USA's public policy priority issues. WWW:

<http://www.ieeeusa.com/forum/care/>

IEEE-USA's Eye on Washington -- The bi-monthly IEEE-USA Eye on Washington e-mail newsletter highlights important federal legislative and regulatory developments that affect U.S. engineers and their careers and provides subscribers with bulletins and alerts on developments related to IEEE-USA's public policy priority issues. It is part of the IEEE "What's New" service.

WWW: <http://whatsnew.ieee.org/> (subscribe for email distribution). WWW:

<http://www.ieeeusa.org/forum/eyeonwashington/> (read current/past issues on-line).

Engineers' Guide to Influencing Public Policy -- A collection of "how-to" advice and suggestions on effective lobbying, which offers useful tips to help IEEE members advance the IEEE-USA Legislative Agenda and influence public policy on issues of concern. WWW:

<http://www.ieeeusa.org/forum/guide/>

Government Fellowships -- Information on IEEE-USA's Congressional Fellowship and Engineering and Diplomacy Fellow Programs, including announcements, qualifications, application deadlines and procedures, and a listing of past Fellows.

WWW: <http://www.ieeeusa.org/forum/govfel/>

Washington Internships for Students of Engineering (WISE) -- Summer internships for third-fifth year U.S. engineering students interested in studying how technology policy is made. IEEE-USA, the IEEE Technical Activities Board, and the IEEE Life Member Committee co-sponsors IEEE participation in this multi-society program. IEEE-USA hosts the official WISE home page.

WWW: <http://www.wise-intern.org>

Government Appointments -- IEEE-USA's Government Appointments page provides information on how U.S. IEEE members seeking appointment to state and federal policy, regulatory, and advisory positions can obtain the endorsement and assistance of IEEE-USA.

WWW: <http://www.ieeeusa.org/forum/appoint/>

PACE Resources

In addition to the resources noted above, IEEE-USA's government relations staff can develop information packets, issue briefings, and presentations on public policy issues and government relations programs for use by PACE volunteers in section or region meetings or related events. Volunteer or staff representatives may be available to provide talks, deliver advocacy training, or

help organize local events. Contact Chris Brantley in the IEEE-USA with specific requests or for more information.

Other Publications

The *1997 IEEE-USA Salary and Fringe Benefit Survey* contains detailed information on the salaries and benefits of electrical, electronics, and computer engineers, along with employment data and demographic and occupational characteristics. The 1995 Survey is still available at a reduced price. Both may be obtained from the IEEE Publication Sales Department in New Jersey.

Salary Benchmarks: A Personal Workbook affords electrotechnology professionals an effective and inexpensive way to evaluate their current compensation and determine salary expectations for prospective positions using data collected in IEEE-USA's 1999 Salary Survey. Available for purchase from the IEEE Publication Sales Department in New Jersey.

Unemployed U.S. IEEE members (not Student Members) may obtain a free packet of information on IEEE-USA employment assistance services to assist them in their job search. The packet includes information on a variety of job-search services and a free copy of the *Engineer's Guide to Lifelong Employability*. Contact the IEEE-USA Office.

The IEEE-USA Licensure and Registration Committee has created a Speaker's Kit for use by section and society PACE chairs. The kit includes a Power Point presentation on engineering licensing issues.

The annual IEEE-USA *Directory of Electrotechnology and Information Technology Consultants* is distributed free. Contact the IEEE-USA Office.

The *Engineer's Guide to Lifelong Employability* is a practical resource book on locating and obtaining engineering jobs throughout your career. Available from the IEEE Publication Sales Department in New Jersey.

The *1996 Professional Development Conference and Workshop Proceedings*, the 1997 and 1998 *IEEE-USA Professional Activities Conference Proceedings* are available from the IEEE Publication Sales Department in Piscataway, New Jersey. *The 2000 Professional Development Conference Proceedings* are available from the IEEE-USA office in Washington, District of Columbia.

Speakers on Professional Topics

Speakers from IEEE-USA committees and the PDS Speaker List (<http://www.ieeeusa.org/volunteers/pace/mpacspeakers.html>) are available on a volunteer basis to speak at section, society, and chapter meetings. Sections and societies may apply for Regional Professional Development Funds to reimburse their travel costs. Your Regional or Divisional PACE Coordinator can direct you to an appropriate speaker.

Audio-Visuals on Topics of Current Importance

Some topics have been deemed important enough that special slide or video programs have been prepared. Examples are a packaged presentation on ethics, overheads and a narrative on pensions and retirement savings issues. These are available to sections and societies on loan. Generally, they are complete enough that a local person with appropriate public speaking skills can make the presentation. Information regarding available programs may be obtained from the IEEE-USA Office.

A series of six videotapes, The Engineering Entrepreneurial Skills Seminar, conveys the concepts, risks, and advantages of entrepreneurial endeavors. Emphasized throughout the seminar is the value added when engineers and scientists improve and maintain such skills as communications, report writing, marketing, understanding business finance, etc. The tapes do not teach the recommended entrepreneurial or professional skills to the engineer, but rather attempt to show the benefits of being competent in these skills. The tapes can be used individually or in combination to generate a short meeting or workshop, or the entire series can be used for a full-day seminar. Contact the IEEE Publication Sales Department in New Jersey.

IEEE-USA Electronic Information Services

IEEE-USA is aggressively using the Internet to keep its members informed and up-to-date on our programs and activities.

IEEE-USA's **WORLD WIDE WEB Site** (<http://www.ieeeusa.org>) provides comprehensive information on our programs, including employment services, business and consulting resources, career and education programs, a public policy forum, on-line news and publications, and much more. A topical index is also available at <http://www.ieeeusa.org/webinfo/topic.html>.

IEEE-USA's **EMAIL UPDATE SERVICES** (<http://www.ieeeusa.org/emailupdates>) include two unique information sources. **IEEE-USA Today** features the latest on IEEE-USA career building and strengthening products and services such as: employment assistance publications, resume referral and job listing services, career workshops/seminars, consultants networks, the Professional Development Conference, the Older Professionals' Initiative, employment data, mentoring discussion groups, precollege education volunteer opportunities, and more. **IEEE-USA's Eye On Washington** highlights important legislative developments that relate to career and technical interests. In addition to news, subscribers receive action alerts and are invited to join IEEE-USA grassroots networks on priority issues such as retirement security, employment benefits, research & development funding, immigration reform, and more.

In addition to these services, IEEE-USA makes use of e-mail auto-response files for several information resources and is expanding its use of **LISTSERVE ELECTRONIC MAILING LISTS**. Currently every IEEE-USA committee, council, or membership entity has an associated electronic mail list for its use to facilitate member communication.

Specific World Wide Web and E-mail Resources are highlighted by general topic below.

Where To Start

The **IEEE-USA home page** features what's *New and Notable* at IEEE-USA and includes links to resources and information that covers the full span of IEEE-USA programs and activities, including basic organizational information, publications, products, conferences and workshops, public policy, business and consulting, employment assistance, and the PACE Network.

WWW: <http://www.ieeeusa.org>

Introduction To IEEE-USA

Introduction to IEEE-USA -- This page covers the basics including what IEEE-USA is, it's history, it's chair, volunteer and staff contacts, Councils and committees, meeting summaries, strategic plans, by-laws, and other materials related to the operations of IEEE-USA. An abbreviated overview of IEEE-USA is available by Automated E-mail:

WWW: <http://www.ieeeusa.org/intro/>

Automated E-mail: info.ieeeusa.intro@ieee.org

IEEE-USA Staff - A roster of IEEE-USA's principal staff with e-mail addresses, staff function, and committee assignments for reference by IEEE members.

WWW: http://www.ieeeusa.org/volunteers/staff_contacts.html

Automated E-mail: ieeeusa@ieee.org

IEEE-USA News And Publications

Press Releases - An archived listing of all news releases issued by IEEE-USA for reference by external and internal media and interested members. This page includes links to other sources of S&T related news.

WWW: <http://www.ieee.usa.org/releases/>

Electronic Catalog - A complete listing of career and public policy-related publications, audio and videotapes, and/or speaker kits available from IEEE-USA, with links and/or information on how to order. An abbreviated list is available by Automated E-mail.

WWW: <http://www.ieeeusa.org/catalog/>

IEEE-USA Today's Engineer - A quarterly magazine that focuses on the non-technical aspects of a successful engineering career. Published by IEEE-USA and available by electronic subscription.

WWW: <http://www.todaysengineer.org>

Employment Services

Employment Services Page -- A one-stop shop for IEEE-USA employment assistance on the web including the IEEE-USA Job Listing Service, Entry Level Employment Assistance, Resume

Listing Services, Job Fair Calendar, publications like the IEEE-USA Salary Survey, and links to other employment resources on-line.

WWW: <http://jobs.ieeeusa.org/jobs/services/>

Job Listing Service - IEEE-USA is offering a new and improved, fully-searchable data-base of job listings in the U.S. and abroad, including entry-level positions.

WWW: <http://jobs.ieeeusa.org/jobs/>

Resume Referral Service - IEEE members are invited to make use of this free on-line resume referral service made available through a partnership with Resume-Link.

WWW: <http://jobs.ieeeusa.org/jobs/resume/>

Entry Level Employment Assistance - Specialized job listings, links to companies hiring entry level positions, and a host of on-line resources for career planning, job search, resumes and interview strategies, and internship opportunities.

WWW: <http://www.ieeeusa.org/employment/entry.html>

Help for Unemployed or At-Risk Members - A list of resources available to benefit U.S. IEEE members who are unemployed or anticipating an involuntary career transition, including a host of on-line resources for career planning and job search opportunities.

WWW: <http://www.ieeeusa.org/careers/help/>

Careers And Education

IEEE-USA Career Navigator - A one-stop shop for IEEE-USA career and employment assistance on the web including the IEEE-USA Job Listing Service, Entry Level Employment Assistance, Resume Listing Services, Job Fair Calendar, publications like the IEEE-USA Salary Survey, and links to other employment resources on-line.

WWW: <http://www.ieeeusa.org/careers/>

Awards and Recognition - IEEE-USA recognizes outstanding professional and public service through its awards and recognition program. An electronic award nomination form with background information on the IEEE-USA awards is available.

WWW: <http://www.ieeeusa.org/volunteers/awards/>

Student Professional Awareness Resources - In collaboration with IEEE's Regional Activities Board, IEEE-USA and its Student Professional Awareness Committee provides a variety of programs and services for student members, including Student Professional Awareness Conferences (S-PACs), Student Professional Awareness Ventures (S-PAVs), and the Student Professional Awareness Workshops (S-PAWs)

WWW: <http://www.ieeeusa.org/volunteers/committees/spac/>

Business And Consulting

Business and Consulting Page - The starting point for connections to IEEE-USA's Consulting Services and Entrepreneurs pages, and links to information on government research grants and awards, technology transfer opportunities, state technology programs, and trade associations.

WWW: <http://www.ieeeusa.org/BUSINESS/>

Consultants Services Page -- A reference for IEEE members in the consulting field, the Consultants Services page includes the searchable Consultants Directory, a directory of local consultants networks, notices of national and regional consultants workshops, and a library of consulting resources.

WWW: <http://www.ieeeusa.org/business/aicn.menu.html>

Consultants' Directory - The IEEE-USA sponsored Alliance of IEEE Consultants' Networks (AICN) has developed an on-line searchable database of electrotechnology consultants as a networking reference. This automated e-mail file provides information on how to obtain the directory and instructions on how you can be listed.

WWW: <http://www.ieeeusa.org/business/consultants/>

Entrepreneur's Page -- This resource for the aspiring entrepreneur provides contact information for local IEEE Entrepreneur's Networks, notices of useful IEEE publications, and links to on-line resources ranging from investment capital sources to intellectual property protection.

WWW: <http://www.ieeeusa.org/business/entre.menu.html>

The PACE Network

The PACE Network Page - PACE is a grassroots network of IEEE volunteers and committees organized at the section and chapter level in the United States to promote the professional interests of IEEE's U.S. members. The PACE Network page supports this network with a library of on-line resources such as the PACE Leaders' Handbook, notices of the annual Professional Development Conference, directories of PACE Network contacts, links to local PACE activities and related IEEE websites of interest.

WWW: <http://www.ieeeusa.org/pace/>

Other Special Pages

IEEE-USA Website Information Page - Everything you need to know about the IEEE-USA website, including its history, how to submit materials, HTML references and how-to links, a topical index, and volunteer credits.

WWW: <http://www.ieeeusa.org/WEBINFO/>

National Engineers Week - IEEE-USA is one of more than 50 organizations who sponsor National Engineers Week, an annual celebration of the engineering profession held each February.

Check here for the latest on National Engineers Week plans and opportunities for volunteer participation.

WWW: <http://www.eweek.org>

American Association of Engineering Societies - IEEE-USA coordinates IEEE's involvement in the American Association of Engineering Societies, a federation of over 20 engineering societies joined together to enhance the engineering profession and the strength of its collective voice in Washington, DC. AAES also collects and publishes engineering salary surveys and workforce data through its Engineering Workforce Commission.

WWW: <http://www.aaes.org>

Other Resources

Additional information on IEEE programs is available from the IEEE Operations Center, Regional Activities Department. A brochure, Program Resources Guide, lists many of these programs.

IEEE Regional Activities
IEEE Operations Center
P. O. Box 1331
Piscataway, NJ 08855-1331
Telephone: 908/562-5501
Fax: 908/463-3657
E-mail: reg.activities@ieee.org

Many IEEE committees have prepared brochures describing their activities. For information on a specific topic, contact the IEEE-USA committee staff person at the IEEE-USA Office.

IEEE-USA Office
2001 L Street NW, Suite 700
Washington, DC 20036
Telephone: 202/785-0017
Fax: 202/785-0835
Website: <http://www.ieeeusa.org/volunteers/pace/>

PART V

PLANNING AND EXECUTING PACE PROJECT(S)

Table I is a listing of some successful PACE activities carried out by sections throughout the United States. It is not meant to be all-inclusive. It should be used with other inputs, such as the Professional Development Conference and publications, to determine the appropriate method of addressing the issues that are particularly important to your constituency. The IEEE-USA Office can supply the names of experienced project leaders for any of the activities listed.

PACE Support of National Engineers Week

IEEE-USA strongly encourages section and chapter participation in National Engineers Week. The Communications Committee of the Member Activities Council coordinates National Engineers Week activities for IEEE-USA.

National Engineers Week is celebrated annually in February, during the week of George Washington's birthday. Its perennial theme is "Engineers: Turning Ideas into Reality." Cosponsored by 18 engineering and educational societies, including NSPE (the founding organization), IEEE, ASCE, ASME, SWE, AIAA, SME, ASHRAE, ACEC, SAE, AAES, NAE, NIST, and NSF, National Engineers Week provides an opportunity for engineers to let the public know about their profession and the contributions that engineers have made to society. Because it involves the entire engineering community, it is important for you to work with the local entities of other engineering organizations on National Engineers Week activities.

In 1998 for the ninth consecutive year the Discover"E" ("E" for "Engineering") program invited engineers to interface with elementary, middle, and secondary school students in their classrooms. Discover"E" offers engineers a unique opportunity to impress students with the importance of problem solving, the value of math and science education, and the satisfaction to be derived from a career as a professional engineer.

The National Engineers Week Future City Competition also gives engineers an opportunity to mentor students in their area. Teams of middle-school students design and model urban centers of the 21st Century, with winners of 12 regional contests meeting in Washington during National Engineers Week for the national finals. Engineers outside of the 12 regions can participate with their local schools in a noncompetitive version of the program by ordering a Future City Kit from National Engineers Week. WWW: <http://www.futurecity.org>

Your Regional and Divisional PACE Coordinators can assist you in planning National Engineers Week activities. In addition to Discover"E," events frequently sponsored include mall displays, billboards, photo contests for high school students, ceremonies honoring outstanding mathematics and science teachers and students, etc.

Remember to start your preparations as early as fall in order to have a successful event. The National Engineers Week Secretariat makes Planning Kits, including Discover"E" information, available to all IEEE sections in October. The following chart is a list of types of projects that can be done within your section and/or society.

Conferences

Student Professional Awareness
Conferences (S-PACs)
Professional Development Seminars (PDS),
formerly known as Member Professional
Awareness Conferences (M-PACs)

Publications

PACE publications library
PACE videotape library
Newsletter articles
Electronic data bank

Government Involvement

Expert testimony
Legislative visits (federal, state)
Dept of Labor assistance
Legislative dinner
SILA formation
Support of tort reform

Community Service

Industry lunches
Industry tours
Outstanding teacher recognition
Serve as resource on socio-technical issues

Public Awareness (image enhancement)

National Engineers Week mall display
National Engineers Week Discover"E"
school visits
Local newspaper articles

Engineering Society Interaction

Participation in state and local engineering
councils
SILA activities

Workshop/Seminars (professional growth)

Continuing Education
Career Conflicts
Careers Phase II
Career Transitions
Cybersearching for a Job
Networking
How to Enter Business for Yourself
Managing Your Career
Your Professional Identity
Effective Technical Presentations
Management Skills for Engineers
Stress Management
Managing People
Assertiveness
Presentation Anxiety
Body Speak
Ethics
Goal Setting
PE Exam Review
Technical Writing
Financial Planning
Investment Analysis
Tax Reform
Working Overseas
Legal Protection of Software
Precollege Education
Future City Competition
MathCounts competitions
Science Olympiad competitions
Gifted and Talented Education (GATE)
Science Fairs

PACE Support for Precollege Education Activities

IEEE members have many opportunities to support the drive for improved precollege math and science education leading to higher levels of technological literacy.

The PACE Network can support precollege education by making the opportunities for participation in rewarding activities known to IEEE members. These include mentoring, tutoring, serving as advisers or judges in contests and competitions, participating in career days, etc. The IEEE-USA Precollege Education Committee has produced a brochure entitled, *IEEE-USA*

Careers in Electrical, Electronics, and Computer Engineering. The first 200 copies of this brochure are complimentary and may be requested from the IEEE-USA Office.

PACE Support for Student Professional Awareness Conferences (S-PACs) and Student Professional Awareness Ventures (S-PAVes)

The Student Professional Awareness Committee is responsible for developing, implementing, and promoting activities designed to increase professional awareness among IEEE student members in the United States and secondarily among all U.S. electrical, electronics, and computer engineering students. The committee's activities focus primarily on promoting and supporting two student-planned and organized programs, S-PACs, which are conferences that feature speakers on professional topics not normally covered in the standard engineering curriculum, and S-PAVes, which are projects other than conferences that impart information on professional topics.

Each IEEE U.S. region has a PACE Program Coordinator for Student Professional Awareness Activities. The Student Professional Awareness Activities Subcommittee of the RAB Student Activities Committee works with the IEEE-USA Student Professional Awareness Committee to provide support for these student programs.

PACE programs in IEEE sections can support S-PACs and S-PAVes at the section's IEEE Student Branches in many different ways:

- Expect requests from student S-PAC and S-PAVe organizers for funding assistance from the section.
- Expect requests from student S-PAC and S-PAVe organizers for assistance in locating other funds. Funds may be sought from local industry, regional PACE, and other IEEE Region/area/council sources.
- Expect requests for local S-PAC speaker suggestions. Speakers should be able to relate to students on non-technical, professional issues. They may be found within the section membership and in local industry, government, and academia.
- Suggest free advertisement of the S-PAC or an article summarizing an S-PAC's success in the section newsletter (lead time permitting).
- Consider holding a section meeting in conjunction with an S-PAC.
- Make sure the section is represented at the S-PAC or S-PAVe. Section officers who may be contacted by student organizers to provide this type of support include the Student Activities Committee chair, the PACE chair, and the section chair.

In addition to assisting the students as outlined above, the Student Professional Awareness Committee requests that, on its behalf, the section chair present the student S-PAC chair and student branch counselor a framed plaque at either a major section meeting or a section ExCom meeting. This plaque is given in recognition of the accomplishment of a successful S-PAC or S-PAVe at the university and is intended for display in the EE Department office.

PACE Support of Professional Development Seminars (PDS) formerly called Member Professional Awareness Conferences (M-PACs)

A PDS is organized by IEEE sections, or they can be held in conjunction with technical society conventions. The program may fill a half day or as much as two days, usually during a weekend. Speakers may be invited on a variety of professional topics, and/or workshops may be held on career or employment issues. A fee may be charged to cover the costs of presenting the program. A national speaker list is maintained at the IEEE-USA Office in Washington, D.C. The PACE Committee can provide guidance on organizing a PDS.

Case Studies

Four case studies of actual section PACE activities follow:

Case Study #1 - Engineers Week for Local Area Schools, Montana Section

The objectives of this project were to:

1. Promote excitement about engineering by creating an informative and stimulating atmosphere for students;
2. Communicate pride in our profession by increasing public awareness of engineers' contributions to our quality of life;
3. Teach students about their greatest resource, themselves, and help them, through interaction, to realize that they are the solution to today's problems;
4. Generate a productive cooperative effort among engineering groups and community organizations; and
5. Celebrate National Engineers Week.

To achieve these objectives, the Montana Section donated time for the Butte CARES Week, assisted the planning committee, and made a monetary donation to bring speakers into the local schools. During National Engineers Week, members hung posters at all the local schools, the public library, a local college, and many businesses. For the Discover"E" program, the section organized volunteers to visit schools to talk about engineering. Section members also served on the organizing committee for the local MathCounts competition, helped design and build equipment, and worked as judges. The section developed criteria for an engineer of the year award, participated in the selection of a winner, and helped organize a National Engineers Week banquet.

All the project objectives were achieved. The project was completed on schedule, and the results were very positive. Proof of this was the high attendance of engineers at the banquet (84), the number of questions asked by the students during the Discover"E" presentations, and the community-wide excitement shown during Butte CARES Week. Problems encountered included a lack of communication with other engineering organizations in the community that affected the section's ability to participate in organizing the National Engineers Week banquet. It also was difficult to deal with local educators because they regarded organizing the Discover"E" program as a simple task when in reality it was a monumental organizational undertaking. The problem was

resolved at the last minute by reworking the speaker schedule and pleading with volunteers to give multiple presentations.

Investing in National Engineers Week videotapes and souvenirs is worthwhile because the tapes show many different types of engineering, not just the type practiced by the visiting speaker, and the souvenirs serve as a lasting reminder to students that engineering is all around them and very much a part of their lives. In organizing volunteer activities, always be sure that the volunteers have received and read the information they were sent.

Case Study #2 - Conference Workshop: "For Entrepreneurs Starting a New Company, Cedar Rapids, IA Section

IEEE volunteer Carol Mulenbach headed a committee of five that successfully sponsored a one-day workshop for potential entrepreneurs. This theme was selected because a one-hour talk on entrepreneurship at the previous year's conference had drawn an overflow attendance.

1. Workshop goals
 - Provide startup information to potential entrepreneurs with no experience.
 - Provide hands-on experience in developing a business plan.
2. Committee functions
 - Recruit workshop leaders and panel members.
 - Plan the advertising.
 - Coordinate the room and lunch accommodations.
 - Check audiovisual needs.
 - Handle registration.
 - Reimburse costs of leaders and panel.
3. Culmination
 - 23 professionals paid \$35 to attend the all-day workshop.
 - The morning session stressed what it takes to become an entrepreneur, including the formulation of a business plan and how to fund your idea.
 - The afternoon session had the attendees form teams and make a business plan for a hypothetical product.
 - The teams took turns presenting the plans before a panel consisting of a lawyer, an accountant, a venture capitalist, and an entrepreneurial educator.
 - The panel explained the strengths and weaknesses of each plan.
 - A question and answer period rounded out the day.
4. Evaluation Feedback from workshop leaders, panel members, and attendees was very positive. Registration fees covered half the costs.

Case Study #3 – A Professional Development Seminar (PDS), formerly called a Member Professional Awareness Conference (M-PAC), Santa Clara Valley, San Francisco, and Oakland/East Bay, CA Sections

This PDS, jointly sponsored by three San Francisco Bay area IEEE sections, was held in conjunction with the 1995 WESCON trade show at the Moscone Center in San Francisco. It started at 10:00 in the morning and ran through early afternoon, with four speakers scheduled at one-hour internals. It was anticipated that WESCON attendees would not stay for the entire program, but would drop in for talks that interested them. Topics were ethics, communications, consulting, and PE registration. The national PACE Committee reimbursed the cost of speaker travel; other costs totaled about \$225.00. No admission was charged.

In preparation for the PDS, the event was mentioned in all the WESCON literature, the IEEE Grid magazine, and the San Jose Mercury News. Several signs were posted in the Moscone lobby, and flyers were placed at the IEEE booth on the exhibit floor. Despite this, there should have been more advertising.

There were two sessions in the morning and two in the afternoon. Twelve people were at the first session, followed by a 20-minute break before the second talk. This was a tactical error, for only ten people attended the second presentation, which was unfortunate because the talk was extremely polished, entertaining, and full of useful nuts-and-bolts advice. In the afternoon, 16 people attended the first session and 18 the second session. Both talks addressed "pocketbook" issues and were well received.

Everyone who attended the PDS thought it was worthwhile, but total attendance was lower than anticipated. Why? Insufficient advertising, no inducements (e.g., door prizes or food), and possibly too lengthy a program—an afternoon program might have been more successful in this type of environment.

Case Study #4 - Teachers' Panel, Rochester NY Section

IEEE members can be a great resource in the current national effort to improve math, science, and technology education for students in the K-12 grades. However, engineers are often at a loss as to what they can do. Moreover, like everything else, the education system is very different today from the one that they remember from 20, 30, or 50 years ago when they were young.

Communication in the other direction, from teachers and school administrators to engineers, is also problematic because they do not quite understand what engineers do. Seldom do our engineering and scientific societies have committees that deal with public issues like precollege education or commit resources to them.

Finally, education and engineering are huge enterprises that are highly diverse and not amenable to central control. Yet both are most responsive to individual and localized effort.

One way of addressing these issues is to organize a meeting between teachers and engineers. The format chosen by the Rochester Section was a panel of teachers from the local schools and an audience of local engineers and scientists. The panel took place in December 1996.

The selection of the teachers to be on the panel was a crucial step. For the Rochester panel, teachers were selected who were active in collaborative programs between their schools and local industries or universities. They were volunteers themselves, and they were outspoken. We made sure that the panel was well-balanced regarding gender, race, and school district. Our panel consisted of teachers from a prep school, a rural school, an inner-city school, and several suburban schools.

Perhaps because of the recent publicity surrounding K-12 education, all the teachers we approached accepted our invitation enthusiastically, and they came to the panel discussion well prepared. However, we made it clear to them up front, and to the audience at the time of the event, that we anticipated a problem-identification and problem-solving session, not a blame session. The moderator also was instructed to promote problem solving and positive interactions and cut short any negative or disruptive comments. This allowed everyone to concentrate on identifying what the real problems were and how engineers and scientists could help solve them.

At the panel, each teacher was asked to make a five-to-ten-minute presentation answering the following two questions:

1. What is the state of math, science, and technology education in your school?
2. Is there a role for engineers and scientists in helping to improve math, science, and technology education?

As expected, the teachers gave narrower responses to these questions than high-level administrators or education officials would have given. However, their responses were more tangible and more easily translatable to action by a small local group of engineers and scientists.

For example, the panel suggested that the IEEE Rochester Section establish and manage a "local" Web site that would be a clearing house of all events in Rochester of interest to teachers and students, including science fairs and competitions, tutoring services, technical seminars, summer internships for students and teachers, a question-and-answer service, and any other relevant K-12 activities taking place. A small group of us in Rochester now are in the process of creating such a Web site.

Once the Web site is complete, we plan to have different engineers demonstrate it at the various schools in the area. This will give teachers and engineers another opportunity to meet and get to know each other, which could lead to further collaboration.

A second crucial factor in a successful panel discussion is the selection of a well known, articulate, and knowledgeable moderator. In our case we were lucky to have as moderator a local retired scientist who was on the New York State Board of Regents and whose interest was K-12 education.

Finally, a third crucial factor is a large, receptive audience. Because events like this are not "on the radar screen" of most engineers and scientists, the organizing committee had to work hard to make sure the panel was well attended and there were people present who would actively participate in the discussion. A general meeting notice was not deemed sufficient. Targeted mailings, personal contacts, and personal invitations to non-IEEE engineers and scientists known to be involved in K-12 programs were some of the additional methods we employed to guarantee a large and participative audience.

The Rochester teachers' panel was scheduled on a Thursday evening from 7:00 to 9:00 p.m. and was preceded by a one-hour dinner. The teachers and the moderator were invited to dinner, and each was asked to bring a guest. IEEE hosted the dinner. Most of the teachers chose to bring one of their colleagues.

It is useful to produce a record of all that is said for future review and reference. In our case, we had students from the local university where the event was held videotape the discussion. To borrow a copy of the videotape, contact Sandra Kim at the IEEE-USA Office in Washington, D.C.

The final cost to the section for advertising, dinner, and videotaping was approximately \$600.

Part VI

FINANCING YOUR PACE PROJECT

Many PACE projects can be financed from project income (such as the sale of tickets) and/or from a section or society's treasury. Local industry may volunteer to contribute. Some IEEE-USA committees make funds available for local action, as does the IEEE-USA Board itself for special projects. Other sources of funding for PACE projects are the Regional Professional Development Funds that the IEEE-USA Board allocates each year to Regions 1-6 for this purpose.

To apply for these funds, the section or society PACE chair must complete a PACE Project Plan and Funding Request form and have it approved by several IEEE officers. Blank forms, with instructions for completion and submission can be found on the Web at <http://www.ieeeusa.org/volunteers/pace/funding>. The funding request form itself may serve as a useful planning guide.