

HISTORY OF THE U.S. NATIONAL COMMITTEE OF CIGRE

(1921 – 2017)

U.S. National Committee of CIGRE

The National Committee of CIGRE in the United States of America is known as the U.S. National Committee (USNC). It was formed to provide a mechanism for U.S. experts to participate in CIGRE's international cooperative efforts. Through the USNC, U.S. technical knowledge has been made available to other nations, technical knowledge from other nations has been provided to the United States, and the overall knowledge among the various national participants has been advanced.

The following historical information provides insight as to how CIGRE grew, the role of the USNC in this growth, the specific areas in which the USNC has made important contributions, and some of the members of the USNC who played important roles.

| Time Period | Event |
|---------------|---|
| November 1921 | <ul style="list-style-type: none">• CIGRE formed to be a non-governmental international organization. Proposed and funded by Jean Tribot-Laspière of France in association with Frederic Attwood of the United States.• A.E. Kemelly of the United States was one of three Vice Presidents appointed.• Frederic Attwood became the first Chairman of the U.S. National Committee. |
| November 1923 | <ul style="list-style-type: none">• Second CIGRE Session• 11 U.S. delegates attended.• First Study Committee appointed to study "rational use of fuel."• Decision made to hold conference biennially (every two years) in Paris, France.• Formation of national committees recommended. |
| 1925 - 1931 | <ul style="list-style-type: none">• CIGRE formed a number of additional study committees. |
| 1933 - 1939 | <ul style="list-style-type: none">• CIGRE Sessions continued with total number of delegates attending each biennial conference increasing. |
| 1939 - 1945 | <ul style="list-style-type: none">• World War II - CIGRE activities ceased. |
| June 1946 | <ul style="list-style-type: none">• First post-war CIGRE Session.• 17 U.S. delegates attended.• Agreed to resume biennial (every two years) meetings. |
| July 1951 | <ul style="list-style-type: none">• CIGRE Administrative Council of 35 members met.• Philip Sporn was one of the Vice Presidents and represented the U.S. |
| 1951 | <ul style="list-style-type: none">• Relay Protection Research Group organized with 39 persons from 11 countries, including the U.S. |
| 1956 | <ul style="list-style-type: none">• S.B. Crary of GE chaired the Study Committee on Stability and provided information on the research underway in the U.S. |
| 1958 | <ul style="list-style-type: none">• CIGRE Session, 39 U.S. delegates attended. |
| 1960 | <ul style="list-style-type: none">• CIGRE Session. |
| 1962 | <ul style="list-style-type: none">• CIGRE Session, 52 U.S. delegates attended. |
| 1964 | <ul style="list-style-type: none">• CIGRE Administrative Council created a special six-person Working Committee on the preparation of new statutes for CIGRE. Philip Sporn represented the U.S. |

| Time Period | Event |
|--------------------|---|
| June 1964 | <ul style="list-style-type: none"> • 20th CIGRE Session held. A key meeting was that of the EHV AC Transmission Study Committee, chaired by Philip Sporn. Sporn also presented arguments to the Administrative Council to increase the number of papers allocated to the United States. |
| June 1966 | <ul style="list-style-type: none"> • 21st CIGRE Session, 86 U.S. delegates attended. |
| August 1968 | <ul style="list-style-type: none"> • 22nd CIGRE Session, 81 U.S. delegates attended. |
| May 1969 | <ul style="list-style-type: none"> • CIGRE Executive Committee and Administrative Committee met in Italy where Pope Paul VI welcomed them and noted the important role of CIGRE in international cooperation and peace-keeping. • CIGRE Study Committee on Overhead Lines met in Richmond, Virginia with emphasis on the VEPCO 500 kV experience. |
| August 1970 | <ul style="list-style-type: none"> • 23rd CIGRE Session, 79 U.S. delegates attended. • Paper “Initial Experience on the 765 kV System of AEP” was an important contribution. |
| 1971 | <ul style="list-style-type: none"> • Study Committee 32, System Planning and Operation, chaired by Charles Concordia, met in Philadelphia, PA (United States). |
| August 1972 | <ul style="list-style-type: none"> • 24th CIGRE Session. • Focus increased greatly on development of power grids. |
| August 1974 | <ul style="list-style-type: none"> • 25th CIGRE Session, 87 U.S. delegates attended. |
| August 1976 | <ul style="list-style-type: none"> • 26th CIGRE Session (UNESCO Building). • 89 U.S. delegates attended. |
| August 1978 | <ul style="list-style-type: none"> • 27th CIGRE Session (UNESCO Building). • 99 U.S. delegates attended. • Round table on “The Transmission Boundaries of the XXI Century” was a key factor in which Lionel O. Barthold represented the United States. |
| August 1980 | <ul style="list-style-type: none"> • 28th CIGRE Session (U. of Paris – Assas Law School). • 88 U.S. delegates attended. • Major reports on voltages above 1000 kV included Bonneville Power Administration’s presentation on results of tests on a 1200 kV transmission line. |
| September 1982 | <ul style="list-style-type: none"> • 29th CIGRE Session (U. of Paris – Assas Law School). • 95 U.S. delegates attended. • Significant reorganization of CIGRE Study Committees. |
| September 1984 | <ul style="list-style-type: none"> • 30th CIGRE Session (U. of Paris – Assas Law School). • 100 U.S. delegates attended. • Structure of Administrative Council revised. • Willis S. White, Jr. (USNC) elected President of CIGRE. |
| November 1985 | <ul style="list-style-type: none"> • Africon Conference held in Dakar, Senegal, with several presentations from the United States on development of power systems in Africa, including one by Joseph Swidler, former Chairman of the U.S. Federal Power Commission. |
| September 1986 | <ul style="list-style-type: none"> • 31st CIGRE Session (U. of Paris – Assas Law School). • 85 U.S. delegates attended. |
| August 1988 | <ul style="list-style-type: none"> • 32nd CIGRE Session (Palais des Congrès). • 127 U.S. delegates attended. |
| 1989 | <ul style="list-style-type: none"> • “CIGRE 2000” Committee approved with Lionel O. Barthold representing the United States. |
| August 1990 | <ul style="list-style-type: none"> • 33rd CIGRE Session (Palais des Congrès). • 154 U.S. delegates attended. |
| September 1991 | <ul style="list-style-type: none"> • CIGRE Study Committee on Overhead Lines met in Fort Worth, Texas. |

| Time Period | Event |
|--------------------|---|
| August 1992 | <ul style="list-style-type: none"> • 34th CIGRE Session (Palais des Congrès). • 144 U.S. delegates attended. |
| August 1994 | <ul style="list-style-type: none"> • 35th CIGRE Session (Palais des Congrès). • 119 U.S. delegates attended. • Attention increasingly placed on systems of developing nations. • Session combined with CIGRE-EXPO '94 for first time for presentations of equipment and source by more than 50 companies. This was the first time CIGRE deviated from its past strong history of no commercial activities in presentations. |
| May 1995 | <ul style="list-style-type: none"> • Major colloquium held in Tokyo, Japan on “Organizational and Legal Actions for the Development of Power Systems.” • Major reports were made by John A. Casazza of the United States. |
| August 1996 | <ul style="list-style-type: none"> • 36th CIGRE Session (Palais des Congrès). • 100 U.S. delegates attended. |
| August 1998 | <ul style="list-style-type: none"> • 37th CIGRE Session (Palais des Congrès). • 105 U.S. delegates attended. |
| 1999 | <ul style="list-style-type: none"> • CIGRE Study Committees on Switching Equipment and on Rotating Machines met in the United States. |
| August 2000 | <ul style="list-style-type: none"> • 38th CIGRE Session (Palais des Congrès). • 97 U.S. delegates attended. |
| June 2001 | <ul style="list-style-type: none"> • CIGRE Study Committee on Power System Planning & Development met in the United States (Washington, D.C.) |
| August 2002 | <ul style="list-style-type: none"> • 39th CIGRE Session (Palais des Congrès). • 100 U.S. delegates attended. |
| October 2003 | <ul style="list-style-type: none"> • The Electric Power Research Institute, on behalf of the USNC, hosted the meetings of the CIGRE Executive Committee and the CIGRE Administrative Council in the United States (Palo Alto, CA). |
| August 2004 | <ul style="list-style-type: none"> • 40th CIGRE Session (Palais des Congrès). • 100 U.S. delegates attended. |
| August 2006 | <ul style="list-style-type: none"> • 41st CIGRE Session (Palais des Congrès). • 118 U.S. delegates attended. |
| August 2008 | <ul style="list-style-type: none"> • 42nd CIGRE Session (Palais des Congrès). • 110 U.S. delegates attended. |
| August 2010 | <ul style="list-style-type: none"> • 43rd CIGRE Session (Palais des Congrès). • 154 U.S. delegates attended. |
| May 2011 | <ul style="list-style-type: none"> • The 2011 IEEE PES Substations Committee Annual Meeting was a Joint Meeting with CIGRE SC B3 (Substations) in Chicago on May 15-19. Activities included the 1st Joint IEEE-CIGRE Round Table on On-Line Condition Monitoring, and a dinner hosted by the CIGRE USNC |
| March 2012 | <ul style="list-style-type: none"> • CIGRE Colloquium on HVDC and Power Electronic Systems (San Francisco, CA, United States). |
| August 2012 | <ul style="list-style-type: none"> • 44th CIGRE Session (Palais des Congrès). • 199 U.S. delegates attended. |
| October 2012 | <ul style="list-style-type: none"> • 1st GOTF (Kansas City, MO, United States). |
| October 2013 | <ul style="list-style-type: none"> • 2nd GOTF (Boston, MA, United States). |
| May 2014 | <ul style="list-style-type: none"> • CIGRE Steering Committee hosted by EPRI on behalf of the U.S. National Committee. • A USA Day was hosted at the same event in Charlotte, NC |

| Time Period | Event |
|--------------------|--|
| August 2014 | <ul style="list-style-type: none"> • 45th CIGRE Session (Palais des Congrès). • 174 U.S. delegates attended. |
| October 2014 | <ul style="list-style-type: none"> • 3rd GOTF (Houston, TX, United States). |
| 2016 | <ul style="list-style-type: none"> • USNC Individual Members reached a milestone of 608 members. • Collective Membership reached a milestone of 57 members. |
| October 2015 | <ul style="list-style-type: none"> • 4th GOTF (Chicago, IL, United States). |
| August 2016 | <ul style="list-style-type: none"> • 46th CIGRE Session (Palais des Congrès). • 237 U.S. delegates attended. |
| October 2016 | <ul style="list-style-type: none"> • 5th GOTF (Philadelphia, PA, United States). |
| November 2016 | <ul style="list-style-type: none"> • 1st CIGRE International Colloquium on the Evolution of Power System Planning to Support Connection of Generation, Distributed Resources and Alternative Technologies |
| October 2017 | <ul style="list-style-type: none"> • 6th GOTF (Cleveland, OH, United States). |

A general meeting of the membership of the USNC is held once a year, usually coincident with and at the location of the annual meeting of the IEEE Power and Energy Society. At this meeting, reports are given on the administrative status and activities of the USNC to the membership and elections of officers take place. This general meeting is followed by a meeting of the USNC Executive Committee, which is comprised of the officers of the USNC. The annual USNC general meetings were initiated in the 1960s and began performing some of the functions (such as the election of USNC officers) previously performed by the earlier Executive Committees, which had previously directed all activities of the USNC.

In association with the biennial CIGRE Sessions, formal receptions are held in the evenings by several CIGRE national committees often at historic locations. Typically, the National Committee of France and various other national committees each hold receptions on different nights of the conference week that provide opportunities to meet delegates from various countries. The USNC has sponsored a reception at each CIGRE biennial conference, with one of the most memorable occurring in 1976, the U.S.'s bicentennial year, at the U.S. Embassy and its gardens. Unfortunately, the reception size and security issues now prevent holding the USNC reception at this location. In the last several conference years, the USNC reception has been held at the Pavillon Gabriel on 5, avenue Gabriel, Paris. The USNC also holds an information meeting for its participating members in Paris, France, at the Palais des Congrès conference facility just prior to the opening of the CIGRE Session.

Grid of the Future Symposium

The US National Committee joined with the Electric Power Research Institute (EPRI) to begin in 2012 an annual Symposium called the Grid of the Future (GOTF). The GOTF was uniquely framed to capture the best of a technical conference with papers and presentations, and the best of the usual programs of keynotes and panel sessions. The goal of these conferences was to connect executives with those innovative persons young in their career to bring forward ideas, applications and practice on technology and policy drivers for the Grid of the Future. Above is a listing of each of the GOTF Symposia that typically attracted 200-300 people.

Presidents of U.S. National Committee

The leadership of the USNC is provided by its Chairs or presidents, its Executive Committee, and its Technical Committee. Key among its officers was Frederic Attwood who served for 33 years as President and Philip Sporn who served for 18 years. The USNC presidents often were industry leaders and chief executives in their companies. Their positions enabled them to enlist both the necessary financial support from industry and dues paying individual members. They also had sufficient stature to represent the USNC in the international committee activities of CIGRE. The importance of the roles of Frederic Attwood and Philip Sporn, and the high regard with which they were held, cannot be over emphasized.

Presidents of U.S. National Committee of CIGRE (1921 - 2017)

| | |
|----------------|---|
| 1921 – 1954 | Frederic Attwood (Retired as Vice President & Director, Ohio Brass Company) |
| 1954 – 1972 | Philip Sporn (President – American Electric Power) |
| 1973 – 1978 | William R. Gould (President – Southern California Edison) |
| 1979 – 1981 | W. Donham Crawford (President – Gulf States Utilities) |
| 1982 – 1984 | Willis S. White, Jr. (President – American Electric Power) |
| 1985 – 1986 | Harold W. Sonn (President – Public Service Electric & Gas) |
| 1987 – 1992 | George A. Maneatis (President – Pacific Gas and Electric/Consultant) |
| 1993 – 1998 | Harold N. Scherer, Jr. (President – Commonwealth Electric Company/Consultant) |
| 1999 – 2004 | Hans E. Weinrich (Vice President – ABB Power T&D/Consultant) |
| 2005 – 2010 | Clark W. Gellings (Vice President – EPRI/EPRI Fellow) |
| 2011 – 2016 | Michael Heyeck (Senior Vice President, Transmission – American Electric Power) |
| 2017 – Present | David Roop (Director – Electric Transmission Field Ops, Dominion Energy) |

The President of the USNC also serves as the Chairman of the Executive Committee of the USNC, the governing body of the USNC. The members of the Executive Committee are elected by the USNC's general membership and currently include a President, Secretary, Treasurer, the immediate Past President and 16 Vice Presidents. Each Executive Committee member serves a two-year term and may be re-elected for successive two-year terms. However, no person who has served as President for three successive two-year terms is eligible to be elected until at least two years have elapsed.

USNC Technical Committee, Secretary, and Treasurer

Much of the technical operation of the USNC is the responsibility of its Technical Committee. One of the USNC Vice Presidents is appointed by the USNC President with the approval of the Executive Committee to serve as Chairman of the USNC Technical Committee. The Technical Committee membership is comprised of those USNC members that serve as USNC representatives to the CIGRE Study Committees. Membership in the Technical Committee covers a broad range of industry and university technical experts. The major duties of the Technical Committee include selecting and recommending the U.S. papers to be put forth for the CIGRE Sessions, and recommending to the USNC Executive Committee for its approval U.S. appointments to CIGRE Study Committees.

Chairs of the USNC's Technical Committee (1964 – 2017)

| | |
|--------------|---|
| 1964-1972 | Daniel T. Braymer (Editor - Electrical World) |
| 1972-1980 | John A. Casazza (Vice President – Public Service Electric & Gas) |
| 1980-1984 | Andrew F. Corey (Vice President - Boston Edison) |
| 1985-1990 | Harold N. Scherer, Jr. (Sr. Vice President – American Electric Power) |
| 1991-1998 | Thomas E. Sharp (Principal Engineer – Public Service Electric & Gas) |
| 1999-2003 | Arun D. Phadke (Distinguished Professor - Virginia Polytechnic Institute) |
| 2003-2008 | B. Don Russell (Regents Professor, Electrical Engineering – Texas A&M University) |
| 2009-Present | John D. McDonald (Smart Grid Business Development Leader – GE Grid Solutions) |

The USNC Secretary and Treasurer functions were provided for many years by Ebasco at no charge to the USNC with Larry Mulligan serving for most years in this role, followed at Ebasco for a short time by Herbert Limmer. In 1984, Andrew F. Corry was hired as a paid general manager and held the USNC Secretary-Treasurer position until 1994. He was succeeded in 1995 by the staff at Virginia Polytechnic Institute (contract agreement) under Professor Arun G. Phadke, USNC Secretary-Treasurer and a member of the USNC Executive Committee. The USNC Secretary-Treasurer

functions were next performed over the 2000-2004 period under contract by the North American Electric Reliability Council (NERC) under Virginia C. Sulzberger, NERC's Director-Engineering and USNC Secretary-Treasurer. Virginia C. Sulzberger, as an independent contractor, also performed the USNC Secretary-Treasurer functions from 2005 through 2008.

Beginning in 2009, the Secretary-Treasurer functions were divided into elected, volunteer, and separate Secretary (Charles (Ted) Witham, Telemetric Corporation) and Treasurer (Thomas W. Cease, Consultant) positions and a contracted Secretariat (Texas A&M University) function. USNC Vice President-Administration Dr. B. Don Russell, Regents Professor-Electrical Engineering, oversees the USNC's Secretariat function at Texas A&M University.

CIGRE Steering Committee and Administrative Council US Representation.

Typically Presidents of the USNC or past presidents have fulfilled this joint role. The Administrative Council is the broad body (typically national committees and CIGRE officers) that approves CIGRE international initiatives and budgets. The Steering Committee is a smaller body that acts on strategic initiatives approved by the Administrative Council.

For 13 years culminating in 2016, Clark Gellings sat on these bodies as US representative. Clark's major initiative as the Steering Committee's Marketing Chair was to initiate university involvement and free student membership, which took place in the 2014 timeframe.

In 2016, Michael Heyeck was appointed by the US National Committee to replace Clark Gellings on these bodies. Mike assumed Clark's role as Marketing Chair and initiated the hiring of a marketing professional to carry CIGRE success into the foreseeable future as it expands broadly as expert on large electric systems to include distribution in its purview.

Under the leadership of Rob Stephen, CIGRE President, the strategic planning and marketing push in 2016-2018 at the international level will brand CIGRE as the foremost collaborative and unbiased community of technical professionals across the globe with diversity of thought, geography, age, and gender. CIGRE is branded as enabling sustainable electricity for all.

US Representative to the CIGRE Steering Committee and the CIGRE Administrative Council

| | |
|----------------|---|
| 2006 – 2016 | Clark W. Gellings (Vice President – EPRI/EPRI Fellow) |
| 2016 – Present | Michael Heyeck (Senior Vice President, Transmission – American Electric Power) |

U.S. National Committee Membership

The two general categories of CIGRE membership include:

- **Individual Member (IM)** – individuals such as engineers, managers, researchers, and professors, etc. are Type I individual members. CIGRE honorary members are also individual members. Students and young engineers (under 35) are Type II individual members and pay 50% of the annual individual Type I membership fee. The USNC's individual membership continues to grow exceeding 500 members in 2014.
- **Collective Member (CM)** – public or private enterprises of an industrial and/or commercial nature, administrative bodies, scientific and technical organizations, and research institutes are Type I collective members. Educational bodies such as universities, colleges, and libraries are Type II collective members and pay 50% of the annual collective Type I membership fee. The USNC's collective membership (mainly Type I) has increased to over 45 members. The U.S. National Committee recognizes three levels of Collective Members based on their financial support. The three levels in order of their contributions to the organization are: Principal, Sustaining and Patron.

The USNC for many years has been one of the top five national committees of CIGRE from a membership perspective. As CIGRE activities increased in value and importance, growth in equivalent (IMs plus CMs, where a CM = 5 IMs) CIGRE membership in the USNC grew from 79 members in 1970 to a high of 577 members in 1999 with USNC membership averaging about 465 members over the last five years.

Many executives and top managers from utilities and equipment manufacturers were individual USNC members through the last decades. In addition to individual membership, many companies, including some utilities, equipment manufacturers, and consultants, were “collective” members, which covered a number of individuals in their respective organizations.

CIGRE Study Committee Chairs from the U.S. National Committee

From its beginning, CIGRE’s technical activities have been organized into Study Committees. The direction of these activities and their success depended in large measure on the leadership of the Study Committee Chairman in selecting “preferential subjects” for discussion and the Chairman’s skill in developing international cooperation in the ongoing activities. The USNC played an important role, having provided the following Study Committee Chairman through the years.

CIGRE Study Committee Chairs from the USNC

| Study Committee | Subject | Years | Chairman |
|------------------------|--------------------------------------|--------------|---------------------|
| 1, 15, and D1 | Material for Electrotechnology | 1992-1998 | Clive W. Reed |
| 2, 21 and B1 | H.V. Cables | 1970-1974 | A. Sidney Brookes |
| 3, 13 and A3 | Switching Equipment | 1996-2002 | John H. Brunke |
| 4, 34, and B5 | Relaying | 1980-1986 | Stanley H. Horowitz |
| 9 | A.C. Very High Voltages | 1945-1960 | Philip Sporn |
| 9, 31 | A.C. Very High Voltages | 1960-1968 | Howard C. Barnes |
| 10, 14, and B4 | Direct Current | 1988-1996 | Narain G. Hingorani |
| Former 13, 32 | Power System Stability | 1947-1960 | S.B. Crary |
| Former 13 and 32 | Power System Stability | 1960-1970 | Charles Concordia |
| 31, 32 | System Planning and Operation | 1964-1982 | Charles Concordia |
| 37 | System Planning and Development | 1982-1983 | Ted J. Nagel |
| 38 and C4 | Power System Analysis and Techniques | 1986-1992 | Ralph S. Gens |
| 41 | Future of Electric Power Systems | 1976-1982 | Lionel O. Barthold |
| C5 | Electricity Markets and Regulation | 2002-2008 | Kenneth W. Laughlin |
| C5 | Electricity Markets and Regulation | 2014-Present | Andrew Ott |

CIGRE and USNC Awards to U.S. National Committee Members

For their role in international CIGRE activities and U.S. National Committee activities , a number of USNC members have received special awards from CIGRE and the U.S. National Committee.

- CIGRE Honorary Member - The title “Honorary Member” was initiated by CIGRE in 1992. It is the most prestigious designation to be granted by CIGRE. It is awarded to members who have made significant contributions through their service on international committees (CIGRE Steering Committee (formerly Executive Committee), Administrative Council, and/or Study Committees.) These USNC’s CIGRE Honorary Members are listed below:

CIGRE Honorary Members from the USNC

| | |
|------|---------------|
| 1992 | Ralph S. Gens |
|------|---------------|

| | |
|------|-------------------------|
| 1992 | Willis S. White, Jr. |
| 1996 | Dr. Narain G. Hingorani |
| 1998 | Dr. Clive W. Reed |
| 2000 | Harold N. Scherer, Jr. |
| 2002 | Dr. John H. Brunke |
| 2004 | Hans E. Weinrich |
| 2010 | Clark W. Gellings |
| 2014 | Lionel O. Barthold |
| 2014 | Mladen Kezunovic |
| 2016 | Pouyan Pourbeik |

• CIGRE Technical Committee Award - Others from the USNC that received awards from the CIGRE Technical Committee are listed below. The Technical Committee Award was initiated by CIGRE in 1993. It is given to recognize the outstanding contributions of a select number of CIGRE Study Committee members to the work of their respective Study Committees. Generally, only one or two candidates are nominated annually per CIGRE Study Committee.

CIGRE Technical Committee Awards to USNC Members

| Year | USNC Award Recipient | CIGRE Study Committee |
|------|--|--|
| 1993 | D. Jack Christofersen Allan Greenwood Charles L. Rudasill, Jr. William A. Mittelstadt | DC Links and Power Electronic Equipment Switching Equipment Power System Planning and Development Power System Analysis and Techniques |
| 1994 | Andrew R. Hileman John W. Chadwick, Jr. | Overvoltages and Insulation Coordination Protection |
| 1995 | Thomas L. Weaver Raymond M. Maliszewski Arun G. Phadke Leonard Sagan | DC Links and Power Electronic Equipment Power System Planning and Development Protection Power System Electromagnetic Compatibility |
| 1996 | John A. Casazza | Power System Planning and Development |
| 1997 | William N. Kennedy Mark A. Reynolds Ingo P. Thurein | Transformers HVDC Links and AC Power Electronic Equipment Power System Operation and Control |
| 1999 | Joe C. Pohlman | Overhead Lines |
| 2000 | Robert E. Fenton B. S. Bernstein Charles J. Mozina Erich W. Gunther | Rotating Machines Materials for Electro Technology Power System Protection and Local Control Power System Electromagnetic Compatibility |
| 2001 | William F. Reinke | Power System Planning and Development |
| 2002 | Ivars Vancers | HVDC Links and AC Power Electronic Equipment |
| 2003 | Keith E. Lindsey | Overhead Lines |
| 2004 | John W. Harley | Transformers |
| 2005 | John J. Vithayathil Roy W. Alexander Mietek T. Glinkowski | HVDC Links and Power Electronics High-Voltage Equipment Transformers |
| 2006 | Dennis K. Holstein Pouyan Pourbeik | Protections and Automations System Technical Performance |

| | | |
|------|--|---|
| 2007 | Alexander Apostolov Dale A. Douglass Walter Zenger | Protection and Automation Overhead Lines Insulated Cables |
| 2008 | Richard A. Wakefield | System Development and Economics |
| 2009 | Willis F. Long Albert M. DiCaprio | HVDC and Power Electronics Electricity Markets and Regulation |
| 2010 | Anjan Bose | |
| 2011 | Hanna Abdallah Shirish Mehta Jeff Palermo | Substations Transformers System Development and Economics |
| 2012 | Stig Nilsson Mladen Kezunovic Andrew Ott | HVDC and Power Electronics Protection and Automation Electricity Markets and Regulation |
| 2013 | David Lindsay Nenad Uzelac Vladimir A. Rakov | Insulated Cables High Voltage Equipment System Technical Performance |
| 2014 | William G. Moore | Rotating Electrical Machines |

- CIGRE Distinguished Member Award - In 1996, a “Distinguished Member” status was introduced in CIGRE. This award is a tribute to seniority (over 10 years membership) and to active participation in the work and development of the CIGRE association – within Study Committees and/or National Committees.

CIGRE Distinguished Member Awards to USNC Members

| | | | |
|------|--|--|--|
| 1996 | Lionel O. Barthold, John H. Brunke, John A. Casazza, Stanley H. Horowitz, George A. Maneatis, Clive W. Reed , Clive W. Reed , Harold N. Scherer, Jr., Thomas L. Weaver | | |
| 1998 | Allan Greenwood, James A. Oliver, Carson W. Taylor | | |
| 2000 | Thomas F. Garrity, Ian S. Grant, Thomas E. Sharp | | |
| 2002 | F. Paul DeMello, Frank A. Denbrock, Arun G. Phadke, Hans E. Weinrich | | |
| 2004 | Harold W. Adams, Jr., Alan H. Cookson, Hamid Elahi, Robert E. Fenton, Stanley R. Lindgren | | |
| 2006 | Thomas W. Cease, Clark W. Gellings, Stig L. Nilsson, William F. Reinke, Tapani O. Seppa, Virginia C. Sulzberger | | |
| 2008 | F. Paul DeMello, Frank A. Denbrock, Arun G. Phadke, Hans E. Weinrich | | |
| 2010 | Narain G. Hingorani, Willis F. Long, Ivars Vancers, Richard A. Wakefield | | |
| 2012 | Hanna Essa Abdallah, Dr. Anjan Bose, Dale A. Douglass, Shirish P. Mehta, John J. Paserba | | |
| 2014 | George Karady, P. Jeffrey Palermo, B. Don Russell, Roy Alexander, Alexander Apostolov, John Estey | | |
| 2016 | Michael Heyeck, Leon Kempner Jr., John McDonald, Mark McGranaghan | | |

- USNC Philip Sporn Award - In addition to the CIGRE international awards, the U.S. National Committee presents awards to its qualifying members. The Philip Sporn Award is given from time to time to a person who has had some affiliation with CIGRE and who is currently active. The citation reads “for cumulative career contributions to the advancement of the concept of system integration in the theory, design, and/or operation of large, high voltage electric systems in the United States.”

USNC Recipients of the USNC Philip Sporn Award

| | | | |
|------|--------------------|------|------------------------|
| 1989 | Charles Concordia | 2002 | Harold N. Scherer, Jr. |
| 1993 | Lionel O. Barthold | 2005 | Narain G. Hingorani |
| 1994 | John A. Casazza | 2006 | Arun G. Phadke |

| | | | |
|------|--------------------|------|---------------------|
| 1995 | Gregory S. Vassell | 2007 | Hans E. Weinrich |
| 1998 | A. Robert Hileman | 2008 | John J. Vithayathil |
| 2009 | John G. Anderson | 2014 | Robert E. Fenton |
| 2009 | Carson W. Taylor | 2015 | Ian Grant |
| 2010 | John H. Brunke | 2016 | Anjan Bose |
| 2011 | Dr. Clive W. Reed | 2016 | B. Don Russell |
| 2012 | Dr. Willis F. Long | 2017 | P. Jeffrey Palermo |
| 2012 | Stig L. Nilsson | | |
| 2013 | Clark W. Gellings | | |

- CIGRE Medal - In 2016, this award was introduced in CIGRE. The CIGRE Medal is awarded for proven outstanding technical or engineering contribution to CIGRE and the engineering field, and proven leadership for the benefit of the organization. 2016 is the first time a member of the USNC will receive this award.

USNC Recipients of the CIGRE Medal

2016 Dr. Narain G. Hingorani

- USNC Attwood Associate Award - The USNC's Attwood Associate Award is given to individuals who have made notable contributions to CIGRE over an extended period of time. This award is made to honor the contributions and memory of Frederic Attwood of the United States, who, with Jean Tribot-Laspière of France, foresaw the need for an international organization in the field of high-voltage power engineering and who became the first chairman of the U.S. National Committee upon the founding of CIGRE in the year 1921.

USNC Recipients of the USNC Attwood Associate Award

| | |
|------|--|
| 1983 | Howard C. Barnes, Sterling Beckwith, Peter L. Bellallschi, Fred Chambers, Charles Concordia, Fremont Felix, Eric T. B. Gross, Herman Halperin, Richard J. Hopkins, Lloyd F. Hunt, Edgar L. Kanouse, John T. Lusignan, Melvin L. Manning, Howard L. Melvin, Stephen B. Morehouse, Lawrence M. Robertson, Eugene C. Starr, Herbert R. Stewart, Joseph Sticher, Roy L. Webb, Stanley W. Zimmerman |
| 1984 | Charles Almon, Jr., Eugene W. Boehne, Thomas J. Brosnan, William Z. Brownlee, Bradley Cozzens, Edward S. Halfmann, Charles T. Hatcher, Allen Kidder, Vernon M. Marquis, Theodore Nagel, George B. Scheer, Richard F. Stevens, Edwin R. Whitehead |
| 1985 | Joseph K. Dillard, Byron Evans, Charles H. Hoffman, Hollis K. Sels, Robert W. Werts, Eugene S. Zobel |
| 1986 | J. Lewis Blackburn, Daniel T. Braymer, John A. Casazza, Clifford C. Diamond, I. Birger Johnson |
| 1987 | Louis C. Aicher, John W. Batchelor, Vincent Caleca, Thomas W. Dakin, Lee A. Kilgore, Robert J. Ringlee, Frank Von Roeschlaub, Walter R. Wilson |
| 1988 | James A. Beehler, Allan Greenwood, Thomas H. Lee, Sampson Linke, J. R. Ruhlman, T. M. Swingle, Charles L. Wagner |
| 1989 | John G. Anderson |
| 1990 | John W. Chadwick, Jr., John J. Dougherty, Ralph S. Gens, Stephen A. Mallard, James C. Poffenberger, Louis H. Roddis, Jr. |
| 1991 | Wallace L. Chadwick, C. John Essel, S. Harold Gold, Herbert H. Woodson |
| 1992 | Lionel O. Barthold |
| 1993 | Andrew F. Corry, A. Robert Hileman, Joe Pohlman, Charles L. Rudasill, Jr., David Silver |
| 1994 | F. Paul De Mello, Thomas Dy Liacco |
| 1995 | Theodore A. Balaska |
| 1996 | Clarence Baldwin, William J. McNutt, Jan Panek, William Thue |
| 1997 | Stanley H. Horowitz |

| | |
|------|---|
| 1998 | Glenn D. Bauer, Lester H. Fink, Robert W. Flugum, Narain G. Hingorani, Harold N. Scherer, Jr. |
| 1999 | Vernon L. Chartier, Ian S. Grant, Robert H. Harner, Raymond M. Maliszewski, James A. Oliver, Arun G. Phadke, John M. Thorson, Jr., T. Robert Woodward |
| 2002 | S. A. Annestrand, Thomas F. Garrity, M. Shawky A.A. Hammam, Stephen A. Sebo, Frank S. Young, Luciano E. Zaffanella |
| 2003 | James S. Edmonds, John W. Estey, Clark W. Gellings, Stig L. Nilsson, William F. Reinke |
| 2004 | George G. Karady, Willis F. Long, Duane R. Torgerson, Hans E. Weinrich |
| 2005 | Alan H. Cookson, Frank A. Denbrock, Anthony M. Di Gioia, Jr., Philip R. Nannery, John J. Vithayathil |
| 2006 | Anjan Bose, Thomas W. Cease, Chen-Ching Liu, B. (Ben) R. Shperling, James S. Thorp, Thomas L. Weaver |
| 2007 | John H. Brunke, D. Jack Christofersen, Robert E. Fenton, Stanley R. Lindgren, Clive W. Reed, Herman M. Schneider, Tapani O. Seppa, Virginia C. Sulzberger |
| 2008 | John W. Chadwick, Jr., John J. Dougherty, Ralph S. Gens, Stephen A. Mallard, James C. Poffenberger, Louis H. Roddis, Jr. |
| 2009 | Wallace L. Chadwick, C. John Essel, S. Harold Gold, Herbert H. Woodson |
| 2010 | George Gela, George Gross, Dennis Holstein, Keith Lindsey, Richard Wakefield, Walter Zenger |
| 2011 | Pouyan Pourbeik, B. Don Russell |
| 2012 | Mietek T. Glinkowski, Dr. Leon Kempner, John J. Paserba , Charles B. Rawlins |
| 2013 | Hanna E. Abdallah, John C. Houston , Pouyan Pourbeik, B. Don Russell |
| 2015 | Steinar Dale, Tom Tobin |
| 2016 | Terry Boston, Michael Heyeck, John D. McDonald, Damir Novosel, Andrew L. Ott |
| 2017 | Mark Adamiak, Roger C. Dugan, Mark McGranaghan, William G. Moore, Andrew Phillips |

CIGRE Publications of U.S. National Committee Members

The contributions of the USNC members to CIGRE and worldwide technical knowledge are demonstrated by the many CIGRE papers and articles they authored, the many key discussions in which they participated, and the symposia they helped organize. The CIGRE papers presented at the biennial Paris meetings are available at the U.S. Library of Congress and CIGRE Paris headquarters.

Both CIGRE members and non-members have access to the new (2007) CIGRE online library (www.e-cigre.org) for obtaining CIGRE publications. Many of these publications are now available in electronic format for downloading by members, and hard copies of the non-digitized publications are also available through the CIGRE Paris headquarters. CIGRE members enjoy significant benefits in accessing CIGRE publications both in terms of speed of delivery and in reduced fees charged for hard copies.

Through 2008, the U.S. National Committee membership contributed over 325 papers to CIGRE Sessions. If all papers involved with the CIGRE Sessions, CIGRE symposia, and special Study Committee reports are counted, including those papers in which U.S. authors participated but were not the main author, the USNC's contribution to total CIGRE publications approaches 550 papers or reports through 2008.

One can map the change of the times and what became important to U.S. Cigreans by reviewing the subject material of their papers as time progressed. In the 1920s and 1930s, overvoltage and insulation coordination dominated the U.S. reports made to CIGRE at 30% of the total U.S. reports produced. That was followed by transmission systems (22%) in the decade of the twenties, and insulators (16%) in the short decade of meetings in the thirties. Over the following four decades, the transmission system was the predominant topic growing to 40% of the reports produced in the 1950s and 1960s. Generation edged out direct current (DC) topics in the U.S. reports in the 1980s, but DC dominated in the 1990s and the early 2000s.

While listing the over 325 papers contributed by U.S. authors to CIGRE is not possible in this chapter, it is appropriate

to remember a sampling of those early USNC members who worked hard to produce their reports and contributed greatly to the benefit of the electric industry. Therefore, noting a few authors and their papers in the context of the times in which the papers were developed seems the highest recognition the USNC can give its entire group of authors.

The first five papers authored by USNC members were for the inaugural CIGRE meeting in 1921 and are listed below. The industry has come a long way since these 1921 papers were written, but without these authors and their international peer reviewers, it is unlikely that the USNC and CIGRE would have advanced.

| U.S. Authors | U.S. Paper Titles (1921) |
|---------------------|--|
| M.W.S. Murray | Creation of an Electric Interconnection System in the Areas between Boston and Washington |
| W.W. Lewis | High Voltage Electricity Transmission |
| C.A. Powell | Some Aspects of the Problem of Switchgear with a View to Its Adaptation to High Voltage Transmission |
| A.O. Austin | The Insulation of Transmission Systems Comprising Large High Voltage Lines |
| F.W. Peek | Factors on Which the Insulation of Transmission Lines Depend |

The next U.S. authors being recognized are those who were the last to write their USNC papers just prior to the cessation of CIGRE meetings due to World War II. Curiously, there also were five papers that year and “that year” was 1939.

| U.S. Authors | U.S. Paper Titles (1939) |
|-----------------------|--|
| P.L. Bellaschi | Coordination and Protection of Station Insulation against Lightning |
| P. Sporn, I.W. Gross | The Counterpoise, Its Theory, Application and Performance in Reducing High Voltage Transmission Line Outages |
| W.W. Lewis | Lightning Currents on Transmission Lines |
| J.J. Taylor | Duration of Load and Its Influence on the Strength of Suspension Insulators |
| P. Sporn, C.A. Muller | Experience with High-Speed Fault Clearing and Ultra High-Speed Reclosing of High Voltage Transmission Lines |

Many questions still remain today about some of these subjects even though the 1939 authors may have believed that the improvements the electric industry was to achieve would have solved most of these technical problems.

The third group of U.S. authors being recognized are those who were the first from the USNC to submit papers once CIGRE commenced its activity at the conclusion of the war. The U.S. had 17 delegates in attendance at the 1946 CIGRE Session, and the following seven U.S. papers were discussed. The rapid recovery of the collaborative process within CIGRE was amazing.

| U.S. Authors | U.S. Paper Titles (1946) |
|-------------------------|---|
| P.L. Bellaschi | Progress in Power Transformer Insulation and Protection |
| P. Sporn, J.H. Kinghorn | Ultra High Speed Reclosing Demonstrates Its Value |
| O.K. Marti | Status of Mercury Arc Power Rectifiers |
| R.E. Pierce | Interconnected Power System Automatic Load Frequency Control |
| P.M. Ross | Calculation of Power Station Insulators for Optimum Impulse Performance |
| C. Doble | Advances in Maintenance of High Voltage Insulation in the USA |
| W.W. Lewis | Lightning Investigation on Transmission Lines |

These 17 papers and their authors are perhaps not more worthy of note than those of their more recent or earlier colleagues, but they do reflect to some degree the interests of the electric industry at three points in time. In large measure, the ability for the electric industry to continue to progress as it has was made possible because of the dedicated efforts of these authors and their CIGRE colleagues to bring solutions and share experiences so that all of CIGRE membership might benefit, improve their systems, and operate a more reliable and environmentally friendly electric system within fiscal constraints imposed by regulators and customers and within a reasonable bound of nature's more dramatic forces. CIGRE, and indeed all large electric systems, owe much to these men and women who provided the intellectual capital, labored within diverse committees to understand and collaborate, and then produce the papers that were the very catalysts of improvement for the electric industry. It is clear that the electric industry would not have achieved what it has without them.

In Conclusion

The first document prepared on the "History of the U.S. National Committee of CIGRE" covered the 1921 - 2007 period. It was prepared at the request of USNC President Clark W. Gellings by John A. Casazza, a distinguished member of the U.S. National Committee and CIGRE since the 1960s. This detailed USNC History document is available on the USNC website (<http://cigre-usnc.tamu.edu>) and was the basis for this short chapter on the history of the USNC. The 2007 USNC History document also lists the publications of the U.S. authors from 1921 through 2007. The intent is to maintain the detailed USNC History document as a living document and to update it from time to time.