Regulatory Independence and Regulatory Networks in the U.S. Experience
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Abstract

While much has been written about the politics of competing interests in regulation, including the interests of regulators themselves, less attention has been paid to regulatory networks and their role in regulatory politics and independence. In theory and in practice, regulatory networks support the collective interests of members by a variety of means. Regulation of public utilities in the United States benefits from a long-standing professional network. The history and culture of U.S. regulation is inextricably tied to the history and culture of the National Association of Regulatory Utility Commissioners (NARUC) and its ancillary organizations. Clearly, regulatory networks can serve the goal of regulatory independence. The value of network may lie in their role in addressing information asymmetry, a prominent form of market failure and a strategic advantage for regulated utilities. Although regulatory networks have many positive effects, they may have unintended and deleterious effects that serve to undermine regulatory institutions and weaken independence. In regulatory politics and culture, some of the hallmarks of regulatory network exchange (inclusiveness, collaboration, harmonization, consent, and diffusion) can have a dark side (influence, cooptation, hegemony, conciliation, and didacticism). While the regulatory network plays a positive role in the diffusion of practice, the diffusion of policy may at times be at odds with the independent regulatory model. Regulatory networks should be vigilant about unintended consequences in order to protect the members of their collective. This paper presents a descriptive analysis and brief conceptual framework.

About the Author

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Acknowledgement

The author is very grateful to Dr. Charles Matzke, Mr. Paul Holland, and Mr. Jason Kalmbach for invaluable assistance in this research.
Introduction

On the U.S. political landscape, specialized issue networks are common (Heclo, 1978), and economic regulation is no exception (Gormley, 1986). While much has been written about the politics of competing interests in regulation, including the interests of regulators themselves, somewhat less attention has been paid to regulatory networks and their role in regulatory politics and independence.

In theory and in practice, regulatory networks support the collective interests of members by a variety of means. While meeting and networking opportunities may be the obvious function of networks, they also facilitate data sharing, benchmarking, formulation of best practices, capacity building, research and education, professional development for regulators and staff members, and outreach toward various stakeholders (Berg and Horrall, 2007).

Regulation of public utilities in the United States benefits from a long-standing professional network. The history and culture of U.S. regulation is inextricably tied to the history and culture of the National Association of Regulatory Utility Commissioners (NARUC) and its ancillary organizations. NARUC provides the primary means by which members are socialized toward their profession. Only a few regulators eschew participation. Most relish the professional and social networking opportunities that NARUC provides through three major and numerous conferences every year. Many have observed that the regulatory network provides opportunities that cannot be found at the state level.

NARUC as Network

Mission

Virtually simultaneous with the advent of economic regulation in the United States was the emergence of a regulatory network for appointed and elected commissioners. The National Association of Railroad Commissioners was established in 1889, only two years after the creation of the now-defunct federal Interstate Commerce Commission (ICC) and the brainchild of Judge Thomas Cooley, its first chair (Childs, 2002). Cooley envisioned an association “that could address the jurisdictional issues and act as a clearing-house for new ideas on regulation” (Childs, 2002). The group originally held meetings and eventually enjoyed office space in the ICC’s majestic office building on Constitution Avenue in Washington, DC. As state authority was expanded to include a growing but monopolistic public utility sector, the association evolved into the National Association of Railway and Utilities Commissioners (1917).

Through their new association, state officials shared regulatory tactics and advanced a cooperative and “pragmatic” federalism (Childs, 2002). From the beginning, the association’s guiding paradigm centered on promoting and protecting states’ rights. As Childs reports, “when matters of jurisdiction between the states and the national government surfaced, the state regulators subsumed the business interests within the strategies of protecting the viability of states' rights and their own jobs (Childs, 2002; McCraw, 1986).
Nodding to its legacy, while clinging to its familiar acronym, the association morphed into its present form as the National Association of Regulatory Utility Commissioners (NARUC) in 1949. NARUC describes itself as "a non-profit organization dedicated to representing the State public service commissions who regulate the utilities that provide essential services such as energy, telecommunications, water, & transportation" with the following charge:

Our mission is to serve the public interest by improving the quality and effectiveness of public utility regulation. Under State law, NARUC’s members have an obligation to ensure the establishment and maintenance of utility services as may be required by law and to ensure that such services are provided at rates and conditions that are fair, reasonable and nondiscriminatory for all consumers (available at www.naruc.org).

NARUC’s membership creed was also memorialized in verse with “The Quest of the NARUC,” by one its consummate executive directors (Exhibit 1).

Additional elaboration of NARUC’s priority functions can be found in the association’s Constitution, where the concepts of enhancement, uniformity, and coordination well illustrate the central role of many network organizations in facilitating the diffusion of ideas and innovation:

The objectives of the Association shall be the advancement of commission regulation through the study and discussion of subjects concerning the operation and supervision of public utilities and carriers, the promotion of uniformity of regulation of public utilities and carriers by the several commissions, the promotion of coordinated action by the commissions of the several States to protect the common interests of the people with respect to the regulation of public utilities and carriers, and the promotion of cooperation of the commissions of the several States with each other and with the Federal commissions represented in the Association (As amended November 16, 2009, available at www.naruc.org).

The NARUC network includes interstate regional associations that focus attention on regional policy and planning issues, but operate in concert with NARUC (Exhibit 2), particular in terms of providing a process for leadership selection. Recent years have seen a deliberate expansion of international members in NARUC (Exhibit 3), as well as NARUC’s distinction in a growing international network of networks it facilitated.

Over the years, NARUC extended membership to commissioners and administrators of various federal agencies and the association continues to promote cooperative federalism and harmonization of regulatory policy. However, while federal agencies are represented in the association, they are not represented by the association and states’ rights remain the sufficiently binding common denominator for NARUC. NARUC continues to intervene and testify on behalf of the states before federal administrative and judicial processes for both education and advocacy, though the task can be politically challenging when the states divide over jurisdictional boundaries and substantive policies.

NARUC’s network dominance in U.S. regulation has been infrequently tested. A recent threat came in the 2004 formation of the splinter Federation for Economically Rational Utility Policy (FERUP) by near-renegade commissioners from a number of states who retained their NARUC membership but made waves
nonetheless. Its Co-Chairs by design were a Democrat from California and a Republican Florida. Long on purpose, but short on longevity, FERUP described its network as “a coalition of regulators from across the country who are focused on the formulation of economically rational and sustainable utility policies (March 31, 2004 press release).

More ideological than partisan, and emboldened by close-knit communications companies, interest groups, and think tanks, FERUP sought to counteract what was perceived as NARUC obstinacy toward federal preemption of state regulatory authority, particularly in the telecommunications sector. The schism was reflective of divisions among policymakers over the promises of restructuring and deregulation. FERUP’s defiance was unsettling because it struck at NARUC’s core paradigm and the foundation of its endurance. The message to NARUC’s leadership and administration was not entirely lost at the time, but NARUC stayed true to its mission. Lacking momentum, particularly along the bumpy road of restructuring generally, FERUP seemed to fade from the regulatory scene as quickly as it had arrived, leaving little more trace than a few archived blog entries. No doubt, FERUP could not offer regulators a networking experience comparable to the organization it challenged. FERUPs highly political posture also stood in stark contrast to the politically neutral sensibilities that have served NARUC and its administrators so well for so long.

Members

NARUC is primarily structured to serve, support, and socialize the commissioners, who by tradition are addressed as “the honorable” in recognition of their stature. Commissioners are accorded much deference by their own staffs, as well as the NARUC staff. Although NARUC agencies total about 85, the association’s domestic contingent consists of 241 regulators from 60 federal, state, and territorial offices. NARUC’s domestic agencies consist of the Federal Communications Commission, the Federal Energy Regulatory Commission, the agencies in the District of Columbia, Guam, Puerto Rico, and the Virgin Islands, and two agencies each for the states Massachusetts, Nebraska, and Texas (Exhibit 4).1 Most of the commissions seat 3-5 members (median = 3, average = 4). One agency has one commissioner and four have seven. Eight commissioners seats were vacant. Of the 233 commissioners seated in early 2010, a total of 184 commissioners served on 46 appointed panels and 57 served on elected panels. About 27 percent had served previously in a state or local political office. Nearly half are attorneys, 10 have Ph.D. or E.D. degrees and 39 have Masters degrees. Three-quarters of the commissioners are male, although women have occupied prominent leadership positions in the association.

The commissions typically must have a balance of members by party. Executives will normally select a commission chair of their own political party, but are not allowed to appoint more than a majority of members from their party. For the sitting commissioners, 70 reported Republican party affiliation, 94 reported Democratic party affiliation, 5 identified themselves as Independents and 64 undeclared or unknown. The long-term findings show that fewer Republicans occupy the office, suggesting that some of the undeclared or independent commissioners were likely selected by Republican executives (Exhibit 5).

Commissioner tenure tells a story of its own. Commissioners take office for staggered terms that average 5 years in lengthy. Although some commissioners enjoy very long careers of public service in regulation, the average time served by the commissioners serving as of February 2010 was 4.7 years; the median was

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1 These data are compiled annually by IPU from the NARUC membership directory.
3.3 years. Thirty-one commissioners (13%) had left office since the prior year and thirty-three commissioners (14%) were new in 2010. About two-thirds of the commissioners have less than five years of experience (Exhibit 6). Long-term trends indicate that commissioner turnover is greater in odd years (following even-year elections) and that commissioner tenure climbed steadily until the middle 1970s, where it leveled off at about 6 years (Exhibit 7). In the technically complex endeavor of economic regulation, the high rate of turnover among regulatory commissioners has significant implications.

Aside from standard rules of order, NARUC’s deference extends for the most part to the conduct of individual members. From time to time, however, members tackle the thorny issue of ethics. Deliberating on the subject, the association detailed four canons for members: a commissioner should avoid impropriety and the appearance of impropriety in all activities; a commissioner should perform the duties of office impartially and diligently; a commissioner may engage in activities to improve regulation and administration; and a commissioner should regulate his or her outside activities to minimize the risk of conflict (NARUC 1977).

NARUC remains a powerful networking force and source of recognitions and validation for commissioners even after, sometimes especially after, they are no longer commissioners. Upon taking the difficult step down from the pedestal, regulators enter a purgatorial state in which they are precluded from accepting employment with a company they regulated for at least one year. The policy rests on the desire to reduce conflicts of interest and associated temptations. Many (but not all) regulators eventually rationally want to exploit their expertise and influence in the more lucrative private sector. Opportunities in the public sector are also more limited. The “revolving door” of regulation might be better described as a set of double doors through which many commissioners traverse. The first passage takes commissioners to an unregulated third-party or ancillary interest (such as a law or consulting practice) that engages with regulated utilities, where many will remain by choice. After an appropriate period of time, many former commissioners find their way to employment with utility companies. Some join the commissioners emeritus group formed in 1979, and many stake their post-commissioner careers on the connections made and maintained through NARUC (Exhibit 8).

**Administration**

In its humble beginnings, NARUC was funded with “irregular dues” that supported “organizational and lobbying efforts” (Childs, 2001). NARUC’s dues are more regular but its funding is more diverse. NARUC’s expanding scope is reflected in its organizational structure, as well as its budget. NARUC’s affairs are managed through its Washington, DC headquarters, which house an executive director and twenty-four staff members who tend to members through six departments: media and public affairs (1), meetings (3), finance and administration (5), domestic programs (3), policy (6), and international (6).

The association’s leadership, however, belongs to the commissioners. A president and officers are ceremoniously elected by rotation through a network of the affiliated regional associations to ensure that no one region and its policy issues or preferences reign. An executive committee includes the officers of the association, plus two appointed members, and a board of directors consists of officers, several appointed members, and chairs of the standing committees.

Substantive committees have always been embedded in NARUC culture and function. Committees do the association’s work by providing discussion forums and deliberating resolutions for consideration by the
whole, including recommended best practices. By 1910, NARUC had established at least sixteen committees, including: Legislation; Shippers’ Claims on Common Carriers; Railway Service and Railway Accommodations; Railroad Statistics; Rates and Ratemaking; Uniform Classification; Car Service and Demurrage; Safety Appliances; Amendment of Act to Regulate Commerce; and Delays Attendant Upon Enforcing Orders of State Railway Commissions (Chiles, 2002).

Through the mid-1900s, many NARUC committees and subcommittees were distinctly technical in character, centering on disciplinary perspectives, such as engineering, accounting, and finance, as well as safety, reliability, depreciation, and technology (Appendix). Although committees on law and accounting have survived, many of the more technical committees have given way to more policy-oriented and often sector-specific committees.

Today, NARUC’s standing committee consistent of the following:

- Committee on Consumer Affairs
- Committee on Critical Infrastructure
- Committee on Electricity
- Committee on Energy Resources and the Environment
- Committee on Gas
- Committee on International Relations
- Committee on Telecommunications
- Committee on Water

In addition, the association will rely on ad hoc and other committees anointed for special purposes or functions. Most NARUC committees are shadowed by staff subcommittees, by which the association also accommodates active participation by professional staff of the regulatory agencies; thus NARUC has become a salient professional network for them as well. Of course, staff participation rates vary and ultimately depend on the acquiescence of the commissioners. To varying degrees, the staff committees provide an additional professional forum, as well as opportunities to vet proposals under consideration by the commissioners. As many professional staff have tenure that far exceeds the typical commissioner, the expertise offered by staff can be invaluable.

The work of NARUC and its committees takes place primarily at three annual meetings: an annual convention each fall is complemented by summer and winter committee committees, the latter taking place in Washington, DC. NARUC may have experienced its own attendance bubble as it enjoyed climbing participation rates for the annual meeting through the 1980s, followed by declines in the more recent decades (Exhibit 9). Deregulation of much of the telecommunications sector is considered a culprit.

Participants at NARUC meetings are color coded with badges to reflect standing: commissioners (blue), commission and agency staff (red), industry (green), and nonprofit organizations (tan). Registration fees also vary, with private sector paying much higher rates. While the number of regulators is fixed at any given time, the same is not the case for interested parties. It is not surprising, of course, to observe a sea of green at NARUC meetings representing an ever-expanding range of utility and ancillary business.

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2 NARUC staff indicate that inconsistent recording of spousal registrations may account for the surge and retreat in registrations during the 1980s. Spouses are not included in the most recent decade.
interests. A comparison of 2000 and 2010 contrasts a reduction in staff participation and a rise in industry participation (Exhibit 10).

More revealing is a detailed analysis of registrants for the 2010 winter meeting based on their organizational affiliation. Private utilities lead the pack with energy companies dominating and total registrations that exceed the combined registration of commissioners and staff members. Another large number of green badges are sported by representatives of nonutility ancillary, special-interest organizations, law firms, and regulatory consulting firms. Nonprofit organizations, including consumer advocates, universities and laboratories, and media organizations are dwarfed in the distribution (Exhibit 11). As a matter of policy, NARUC will not accept program sponsorship by regulated utility companies, but funding by other special interests, continues to proliferate (Exhibit 12). Sponsorship funds can help defray costs and sponsor events can add to the meeting experience, though not unequivocally. Many of these commercial interests today purport to be “green” in the more favorable sense of the term, but are no less rationale in motive.

The regulatory policy community generally is also supported through university-based programs that operate with a large measure of independence from NARUC. For many years, the Institute of Public Utilities at Michigan State University (1965) and the National Regulatory Research Institute (NRRI) at the Ohio State University (1976) divided primary responsibility for education and research, respectively.¹ By design, the educational centers are relatively self-sustaining, while resources were pooled for research through a dues process. NRRI, described as “NARUC’s own” research center, surrendered a thirty-year academic affiliation in favor of nonprofit but interlocked status, while also redirecting its efforts toward technical assistance, education, and online networking. Despite varying degrees of independence, all of the centers are ever cognizant of NARUC’s needs, priorities, and influence on the market for their services, including a recently revised process for endorsement. NARUC’s recent forays into providing education directly, internationally and domestically, may affect market share while telling of a venturing mission.

Today, only about ten percent of NARUC revenues are from dues. Even meeting revenues are eclipsed by the more than sixty percent coming from “grants and cooperative agreements,” including federal support from the Agency for International Development, Homeland Security, the Department of Energy, the Environmental Protection Agency (Bisnow 2010). Funding through the American Reinvestment and Recovery Act has helped see the association through the recent recession. The association’s formidable grantsmanship has strengthened its position relative to its ancillary educational and research organizations that would otherwise seek the same dollars in support of their work. While the association has actively found grant dollars, a significant number of grant dollars have “found” NARUC and helped to grow its business (Bisnow 2010). The flow of funds correlates with the federal government’s ambitious plan to modernize the nation’s electricity grid, promote renewably energy, and aggressively managed demand through advanced technologies. NARUC dollars are used to fund a wide range of activities, including stipends that enable commissioner participation in NARUC events and international outreach and ambassadorship.

³ Although not NARUC sponsored, IPU’s Annual Regulatory Studies Program is popularly known as “Camp NARUC”. The program is designed exclusively for the public sector and was long perceived as a rite of passage for new regulatory commissioners and staff members.
Regulatory Networks and Independence

Clearly, regulatory networks can serve the goal of regulatory independence. The value of network may lie in their role in addressing information asymmetry, a prominent form of market failure and a strategic advantage for regulated utilities. Regulatory networks provide a peer-based platform for exchanging information and engaging in discourse not afforded by other means. Networks also play a critical role in developing regulatory capacity and competency by building the technical knowledge and skills of regulators and members of the professional staff. Finally, regulatory networks can strengthen regulation by providing a means of combining forces and pooling resources. Commonly supported research can generate new information for improving regulatory practice. By addressing the informational imbalance, networking empowers regulators and enhances both effectiveness and independence.

Although regulatory networks have many positive effects, they may have unintended and deleterious effects that serve to undermine regulatory institutions and weaken independence. The positive effects are well studied, but the unintended and undesirable consequences are worth considering too. Some of the potential problems with regulatory networks, and other networks too, may be the problem of “too much of a good thing.” In regulatory politics and culture, some of the hallmarks of regulatory network exchange (inclusiveness, collaboration, harmonization, consent, and diffusion) can have a dark side (influence, cooptation, hegemony, conciliation, and didacticism), as shown here:

<table>
<thead>
<tr>
<th>Positive form of network exchange</th>
<th>Negative form of network exchange</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inclusiveness</td>
<td>Influence</td>
</tr>
<tr>
<td>Collaboration</td>
<td>Cooptation</td>
</tr>
<tr>
<td>Harmonization</td>
<td>Hegemony</td>
</tr>
<tr>
<td>Consent</td>
<td>Conciliation</td>
</tr>
<tr>
<td>Diffusion</td>
<td>Didacticism</td>
</tr>
</tbody>
</table>

Inclusion v. Influence

Network organizations obviously strive for inclusiveness. Multiple perspectives from various stakeholders enrich the regulatory process. Regulatory meetings provide beneficial forums for exchange, but they also provide access and potential for influence outside of more fair and independent processes. As regulators gain experience and knowledge, they can become familiar, comfortable, and even sympathetic with utility viewpoints. Regulators want to appear knowledgeable and regulated entities heap praise on regulators who “understand.” With time, consciously or subconsciously, regulators begin to identify with industry and suffer from appearances of capture. In the worst case scenario, ethic boundaries are breached as utilities seek influence and regulators seek favors.

A serious threat to regulatory independence is the rise of third-party influence, especially because the rules of engagement and ethical conduct do not fully contemplate the problem. Companies that supply ancillary products and services to regulatory utilities may have just as much a stake in regulatory policies and decisions as regulated companies. Unless they become formally involved in a regulatory proceeding,
however, they are generally exempt from compliance or scrutiny. Regulators are well aware of the rules for utilities, but far less sensitized to the conflicts of interest attached to third parties. Not all regulators may fully appreciate that some seemingly benevolent interests are still special interests; such may be the case for many providers of alternative energy options. The electronic age has introduced new forms of exchange that also call for new rules.

**Collaboration v. Cooptation**

Collaboration is another core network principle and purpose. Collaboration can yield appreciable benefits to collaborators, but it can have distorting effects as well. Collaboration cannot exempt regulators from performing their own responsibilities with due diligence and due process. When parties have disparate interests and resources, collaboration raises the potential of cooptation. When funds flow, conflicts of interest inevitably arise. Funding always comes with strings and often comes with expectations. Substantial federal funding can be at odds with a mission that centers on states’ rights. Federal support has the potential to alter the balance of federal-state jurisdictional autonomy and have a subtle preemptive effect. Federal funding might also distort state regulatory consideration of the costs and impacts of federal policies. Over time, cooptation can also be associated with mission drift and drift from original mission.

**Harmonization v. Hegemony**

Harmonization of public policy can also be facilitated by networks. Regulated entities do not respond well to discordant policies that send conflicting signals about expected performance. Harmonization often focuses on the development and implementation of standards, where competing requirements can lead to loss of efficiency and effectiveness. Harmony, however, can come at the expense of one policy player over another. Issues of shared power are endemic to U.S. federalism. Harmonization becomes hegemony when its results in a permanent shift of power, authority, or jurisdiction. Market restructuring argued strongly for policy harmonization in standards for market design and operation; similarly arguments are being made for alternative energy development and electricity grid modernization.

**Consent v. Conciliation**

Networks function on the basis of consent of the members, from consent to paying dues to consent for policy positions. Consent and consensus are viewed positively in comparison to conflict. Consent, however, can also force conciliation and conciliation may be particularly problematic when policymakers compromise over matters of evidence and fact. Concern for consent can elevate form over substance and have chilling effects. Members of highly socialized networks are likely to stay within a comfort zone, choose battles wisely if at all. Conflict avoidance can have the effect of excluding issues from the agenda and quieting dissent in the debate. Conflict avoidance thus supports the status quo and translates to avoidance of change.
Diffusion v. Didactic

A functional mission for many governmental network organizations is to facilitate the diffusion of policy innovation, a topic visited with frequency for the American states (Walker, 1969). The states are the experimental laboratories of democracy and networks ensure that experimental results are disseminated regardless of spatial proximity or other commonalities. Networks can become didactic, however, when they endorse and reinforce some policies over others. Following the leaders and not wanting to be left out are instinctive tendencies for members of a collective. Some diffusion processes take on a life of their own, advancing policies for their own sake, rather than for their promise in a given set of circumstances.

All policymakers, regulators included, would be wise to be more critical and circumspect about using the term “best practices,” a term also commandeered by regulated interests. Any practice deemed “best” would certainly bear a heavy burden of evidence to prove its preeminent efficacy. What is best to someone may not be best to someone else. What is best today may not be best tomorrow. While the regulatory network can facilitate the diffusion of practice, the diffusion of policy is at odds with the ideals of independent regulation. Nor is diffusion always a good thing. In a second-best world, diffusion of suboptimal or “bad” policies is also a distinct possibility, particularly when policies developed through political processes. Uniformity may also tend toward mediocrity. Thus, paradoxically, excessive diffusion may undermine innovation.

Conclusion

On net, regulatory networks like NARUC do much more good than harm in supporting members and their common missions. Networks must guard, however, against too much of a good thing to ensure against unintended consequences of networks. Indeed, the vigilance of network organizations is consistent with their ultimate obligation to protect member interests. These concerns are not exclusive to regulatory networks, but the special obligation of regulatory independence is intrinsically related.

4 Smart practices (Bardach, 2004), sound practices, promising, or just better practices are preferred terms of art.
References

Association and Nonprofit Bisnow (June 10, 2010).


Exhibit 1. The Quest of the NARUC

There are across this great land of ours,
   Tribunes who labor through the hours
Balanced scales show their equity,
   Colors of blue and gold their integrity
“Dedicated to Public Services” is their creed,
   Serving you and yours is their deed
To impose your will on mighty utilities,
   And far-flung transport facilities
By seeing that you have light to fill the darkness,
   And heat to ward off winter’s coldness
Coolness to temper summer’s heat,
   And pure water to sustain life so sweet
Transportation to carry you along paths unfurled,
   And communications to let you talk to the world

From the clash of ideas the truth does fly,
   To guide regulators along roads most high
They began long ago as a small band,
   With mission to harness railroads grand
To stamp out excessive rates,
   And end discrimination among people and States
They have fought your fight,
   To make things all right
Their trumpets will never sound retreat,
   As long as the public needs relief

By Paul Rodgers
NARUC Executive Director (1990)

Exhibit 2. Major Regulatory Networks in the United States

**National**

**Regional**
- Western Conference of Public Service Commissioners (1941).  [http://western.naruc.org](http://western.naruc.org)

**International**

**Professional**
- National Conference of State Transportation Specialists (1958)  [http://www.naruc.org/ncsts](http://www.naruc.org/ncsts)
- Commissioners Emeritus (1979).

**Consumer Advocates**

**University Regulatory Centers**
- Public Utility Research Center at University of Florida (1972).  [http://bear.cba.ufl.edu/centers/purc](http://bear.cba.ufl.edu/centers/purc)
- Center for Public Utilities at New Mexico State University (1978).  [http://cpu.nmsu.edu](http://cpu.nmsu.edu)

Source: Author's construct.
Exhibit 3. International members of NARUC.

Nova Scotia Utility and Review Board
New Brunswick Energy and Utilities Board
Manitoba Public Utilities Board
British Columbia Utilities Commission
Prince Edward Island Regulatory and Appeals Commission
Ontario Energy Board
National Energy Board of Canada
Anguilla Public Utilities Commission
Independent Pricing and Regulatory Tribunal of New South Wales
Alberta Energy Resources Conservation Board
Alberta Utilities Commission
Mexico Comision Reguladora de Energia
Nigerian Electricity Regulatory Commission
Romania Autoritatea Nationala de Reglementare in Domeniul Energiei ANRE
Spain Comision Nacional de Energia
Energy Regulatory Commission of Thailand
Autoridad Reguladora de los Servicios Publicos de Costa Rica
State of Israel Public Utilities Authority Electricity
Jamaica Office of Utilities Regulation
Zambia Energy Regulation Board
Republic of Turkey Enerji Piyasasi Duzenleme Kurumu
Bangladesh Energy Regulatory Commission

Source: Author’s construct based on NARUC 2010 Membership directory.

Exhibit 5. Commissioner party affiliation over time.

Exhibit 7. Long-term trend in commissioner tenure.
Exhibit 8. NARUC Commissioners Emeritus (2009)

Source: Author’s coding based on membership list.

[1] Primary business focuses on regulatory issues, strategy, or ratemaking.
[2] Includes holding companies, corporate affiliates, nonprofit utilities, and unregulated providers.
[4] Provide products, services, and software to utility service providers and customers.
Exhibit 9. NARUC meeting attendance over time.
Source: Data provided in NARUC published sources and communications.
Note: peak years may include spousal registrations not counted in later years.
Source: Author’s coding based on published registration list.
Exhibit 11. NARUC meeting attendees by organizational affiliation.

[1] Includes holding companies, corporate affiliates, nonprofit utilities, and unregulated providers.
[2] Provide products, services, and software to utility service providers and customers.
[4] Primary business focuses on regulatory issues, strategy, or ratemaking.

By organizational affiliation. Private utilities lead the pack with energy companies dominating and total registrations that exceed the combined registration of commissioners and staff members. Another large number of green badges are sported by representatives of nonutility ancillary, special-interest organizations, law firms, and regulatory consulting firms. Nonprofit organizations, including consumer advocates, universities and laboratories, and media organizations are dwarfed in the distribution.
### Exhibit 12. Sample of Contemporary Regulatory Meeting Sponsors

<table>
<thead>
<tr>
<th>Company</th>
<th>Interest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aclara</td>
<td>Intelligent Infrastructure technologies</td>
</tr>
<tr>
<td>America’s New Natural Gas</td>
<td>Industry association</td>
</tr>
<tr>
<td>AUS Consultants</td>
<td>Utility industry consultant</td>
</tr>
<tr>
<td>ClimateWire</td>
<td>Environment and energy publishing</td>
</tr>
<tr>
<td>Demand Response and Smart Grid Coalition</td>
<td>Trade association</td>
</tr>
<tr>
<td>Elster Group</td>
<td>Advanced metering</td>
</tr>
<tr>
<td>Governing</td>
<td>Government oriented publications</td>
</tr>
<tr>
<td>Greenwire</td>
<td>Environment and energy publishing</td>
</tr>
<tr>
<td>Grid Wise Alliance</td>
<td>Facilitates and advocates smart grid solutions</td>
</tr>
<tr>
<td>Harris Beach PLLC</td>
<td>Law firm</td>
</tr>
<tr>
<td>Ice Energy</td>
<td>Distributed energy solutions</td>
</tr>
<tr>
<td>Itron</td>
<td>Advanced metering</td>
</tr>
<tr>
<td>National Energy Marketers Association</td>
<td>Trade association</td>
</tr>
<tr>
<td>Nuclear Energy Institute</td>
<td>Nuclear industry advocate</td>
</tr>
<tr>
<td>Petra Solar</td>
<td>Clean energy technology firm</td>
</tr>
<tr>
<td>Power Survey Company</td>
<td>Data management systems</td>
</tr>
<tr>
<td>Public Utilities Fortnightly</td>
<td>Utility industry trade publications</td>
</tr>
<tr>
<td>Ryan, Russell, Ogden and Seltzer</td>
<td>Law firm</td>
</tr>
<tr>
<td>Tendril</td>
<td>Energy management technology firm</td>
</tr>
<tr>
<td>The Solar Alliance</td>
<td>Distributed energy and smart grid solutions</td>
</tr>
<tr>
<td>U.S. Department of Energy</td>
<td>Federal agency</td>
</tr>
<tr>
<td>Utilimetrics</td>
<td>Utility technology association and advocate</td>
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Source: NARUC 2010 Winter Meeting Program materials.
**Appendix. NARUC committees and subcommittees over time**

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Source: Annual reports and membership directories published by the National Association of Regulatory Utility Commissioners. Current information is available at http://naruc.org.

Key: Com. = Committee; AHC – Ad Hoc Committee; SSC = Staff Subcommittee (ital); TF = Task Force; standing committee = shaded; current standing committee = bold. * indicates change of status, name, or committee affiliation. Similarly constituted or tasked committees are shown on the same line, although some committee origins (e.g., Consumer Affairs & Electric Reliability) can be traced to committees other than their current standing committees. Elimination of some standing Committees left some Subcommittees to report directly to the Executive Committee. Some committees were formed and dissolved between periods.