

The NRC: Observations on commissioner appointments

By Steven P. Nesbit and Paul T. Dickman

The Nuclear Regulatory Commission is an independent federal agency with nearly 4,000 full-time equivalent employees nationwide. It is responsible for regulating commercial nuclear power plants and other civilian applications of nuclear materials in the United States. The NRC is governed by a five-member panel of commissioners who are nominated by the president of the United States and confirmed by the U.S. Senate to serve five-year terms. On June 30 of each year, the term of one of the commissioners expires. The president appoints one of the commissioners to be the chairman and official spokesperson for the commission. No more than three commissioners can be from any one political party.

The commission formulates policies and regulations governing nuclear reactor and materials safety, issues orders to licensees, and adjudicates legal matters brought before it. The commissioners, and in particular the chairman, establish the vision and direction for the NRC and make or oversee all of the key decisions, including licensing actions and the selection of personnel (e.g., the NRC's executive director for operations, who manages the NRC's day-to-day operations). Moreover, the commissioners represent the agency to elected officials and the public. As a result, the NRC is hugely consequential to the present and future health of nuclear power in the United States. If the NRC regulates too stringently, innovation will be stifled and costs will rise, potentially to the point that nuclear power becomes uneconomical as a domestic source of elec-

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Based on biographical data gathered from the NRC's website, certain trends in commissioners' (and chairmen's) characteristics have been identified.

tricity. If it regulates too loosely or ineffectively, public confidence in nuclear power will erode, and public health and safety may be put at undue risk. Accordingly, having a competent and qualified commission is extremely important, not only to the commercial nuclear power industry, which is regulated directly by the NRC, but also to the larger nuclear community, including the Department of Energy, the national laboratories, and universities. Absent competent, qualified commissioners, the NRC will not fulfill its mission in the long run, and all who practice in the field of nuclear technology will suffer.

Historically, the NRC has been a well-respected institution. It has been referred to as the "gold standard" for nuclear safety regulation worldwide. Year in and year out, the NRC comes in at or near the top of the list of the best government agencies for which to work, based on polls of government employees. As an independent federal agency with an oversight role, the NRC has for most of its existence been viewed as largely nonpolitical in carrying out its mission of protecting public health and safety. That view has changed somewhat in recent years, however, primarily due to the controversy over actions related to the proposed spent nuclear fuel repository at Yucca Mountain in Nevada, but also due to concerns expressed by antinuclear groups about a perceived lack of timeliness and stringency in the NRC's regulatory actions. The NRC has also been criticized by the nuclear power industry for imposing an ever-increasing regulatory burden and for large increases in NRC budget and staffing while the number of reactors being regulated has been stable or decreasing.

The NRC was established as an independent agency by federal legislation in 1974,

and the first commission was seated on January 19, 1975. As of July 1, 2015, 35 people had served or are serving as commissioners, and 16 of the 35 have served as chairman. Most commissioners have garnered little notice outside of the nuclear field. Recently, however, several factors have focused increased attention on the NRC's governing body. Those factors include the controversy leading to the resignation of former chairman Gregory Jaczko, unusually high turnover among other commissioners, persistent criticism of the NRC by several members of the Senate Environment and Public Works Committee, and acute political overtones in the commissioner nomination and confirmation process.

The NRC maintains on its website the official biographies of all commissioners, past and present. Those biographies were reviewed to establish the background and qualifications of all 35 people who have served as a commissioner, as of his or her time of service. Those data are aggregated in this article to catalog the background and qualifications of commissioners on a collective basis. Trends related to the selection of commissioners are identified, and insights are provided that may be pertinent to future commissioner nominations and chairman appointments.

Commissioners

The five members of the first commission were William Anders (chairman), Marcus Rowden, Edward Mason, Victor Gilinsky, and Richard Kennedy. Three of the five (Anders, Mason, and Gilinsky) had technical backgrounds. Rowden was a lawyer and former head of the NRC's predecessor agency's Office of General Counsel, and he went on to chair the commission for a year following Anders's resignation. Kennedy had a career

in the Army, largely in policy and strategy roles, and served on the National Security Council staff prior to his selection as a commissioner. Republican President Gerald Ford nominated the first members of the first commission, which consisted of two Republicans, two independents, and one Democrat.

The current commission consists of one independent, Chairman Stephen Burns; one Democrat, Jeff Baran; and two Republicans, Kristine Svinicki and William Ostendorff. Following the resignation of Chairman Allison Macfarlane on December 31, 2014, Baran was confirmed to the remainder of Macfarlane's term, leaving Baran's former slot vacant for the entire first half of 2015. As of this writing, the president had not nominated anyone to fill out the remainder of the open term, which expires on June 30, 2015. Burns and Baran are lawyers by education, and neither has a technical background. Burns spent decades at the NRC, including serving as the general counsel for the agency. After retiring from the NRC, he was the head of legal affairs for the OECD Nuclear Energy Agency in Paris, France. Baran worked as a congressional staffer and a law clerk.

Both Republican commissioners have technical and political backgrounds. Svinicki, a nuclear engineer by education, worked for the DOE on waste management and for the state of Michigan in a nuclear oversight role, and she was a professional staff member for the U.S. Senate. Ostendorff retired from a career in the nuclear Navy, subsequently working in a congressional staff role and as a political appointee at the DOE. In addition to an engineering education at the Naval Academy, Ostendorff has a law degree and is a member of the State Bar of Texas.

The 35 people who have served or are serving as commissioners are a distinguished group with a variety of backgrounds, qualifications, and experiences. The average length of service among former commissioners is 5.3 years, and the median tenure is 4.6 years. Edward McGaffigan was the longest-serving commissioner and the only person to be appointed to three separate terms. He was appointed twice by President Clinton and once by President George W. Bush, and he served a total of nearly 11 years before his death in 2007.

Two of the first three commissioners (William Anders and Edward Mason) resigned before the end of their terms, but between Mason's resignation in 1977 and Dale Klein's resignation in 2010, only three commissioners resigned prior to completing their terms: Peter Bradford, Ivan Selin, and Richard Meserve. During that period, it was normal for commissioners to serve a full term, and eight commissioners served longer. Beginning with Klein's resignation in 2010, however, five commissioners departed the body, and four of the five (Klein,

TABLE 1. COMMISSIONER CHARACTERISTICS

Characteristic	Percent
Education in a technical field	77%
Political experience on congressional staff, White House staff, or as a political appointee in an agency involved in nuclear matters	43%
Experience as a college professor or instructor	34%
Worked for the NRC or its predecessor agency	23%
Law degree	20%
Service in the Department of Energy or predecessor agency	17%
Worked for a state regulatory body overseeing nuclear matters	17%
Member, Advisory Committee on Reactor Safeguards	14%
National laboratory experience	14%
Experience in the nuclear industry	14%
Experience in a nongovernmental organization or trade association	14%
U.S. Navy nuclear propulsion experience	11%
Member, National Academy of Sciences or Engineering	9%

Jaczko, William Magwood, and Macfarlane) resigned before the end of the terms they were serving. The recent increase in resignations has led to greater turnover and less experience on the commission. Currently, only two commissioners have more than a year of experience serving on the body.

The NRC's official biographies were used to determine certain characteristics of individual commissioners prior to their service on the commission. It is important to note that there are no specific required qualifications for an individual to serve as a commissioner. With that being said, 13 characteristics and types of experience that are considered pertinent to the job are listed in Table 1, along with the percentages of the 35 past and sitting commissioners who possessed that particular attribute prior to beginning service on the commission.

Both the mean and median number of the attributes possessed by individual commissioners was three. No commissioner was characterized by more than seven of the characteristics; all had at least one. There is no objective measure of performance of individuals as commissioners, so there is no correlation between any of these attributes (or the number of these attributes) of individual commissioners and the performance of a commissioner in office. Nevertheless, to the extent that experience and achievements may be pertinent to the ability to carry out the job of commissioner, it is instructive to see the extent to which certain characteristics have been shared among past and present commissioners.

A number of interesting points fall out of a detailed examination of historical commissioner characteristics and experiences.

The historical percentage of commissioners with a formal education in science, engineering, or health physics is nearly 80 percent. That percentage has always been high and has actually increased since the 1970s and early 1980s. The two most recently confirmed commissioners, however, were not educated in engineering or science, which means that only 50 percent of the current commissioners have a formal technical education.

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A substantial number (43 percent) of commissioners are characterized by service in the White House, on a congressional staff, or as a political appointee in an executive agency prior to their becoming commissioners. Interestingly, that number was generally much lower—in the 20 percent range—until the late 1990s, when it increased fairly dramatically. Beginning with Commissioner McGaffigan in 1996, 10 out of 13, or 77 percent of individuals acceding to the office of commissioner have had a political background.

Continued

The political affiliations of commissioners have sharpened. Of the 35 who have served, 15 are identified as Republicans, 13 as Democrats, and seven as independents. Six of the seven independent commissioners began service on the commission in 1986 or earlier. With the exception of the current chairman, Burns, current and recent commissioners all are linked to one of the two major political parties.

The percentage of commissioners with an academic background has been fairly steady, in the 30 percent range. With the recent resignation of Macfarlane, however, none of the four current commissioners has been a university professor or lecturer.

It used to be much more common for commissioners to have experience in the NRC or a predecessor agency prior to joining the commission, but between Forrest Remick in 1989 and Stephen Burns in 2014, no former NRC employee has been confirmed to the commission.

Although historically it has been relatively rare for lawyers to serve on the commission, that trend may be reversing. With the confirmation of Burns and Baran in late 2014, three of the four sitting commissioners are lawyers. Prior to Ostendorff's accession in 2010, it had been more than 10 years since a lawyer was confirmed to the commission.

The NRC has been routinely criticized by antinuclear groups for being too close to the industry it regulates, but that concern is not reflected in the characteristics of the commissioners. Since the early days of the commission, less than 20 percent of commissioners have had any commercial nuclear power experience. With the resignation of Commissioner Magwood in 2014, no members of the current commission have any experience in commercial nuclear power, the primary focus of the NRC's regulatory activities.

Through the 1980s, it was not uncommon for commissioners to have served on the Advisory Committee on Reactor Safeguards (ACRS), the technical advisory body to the commission established by the Atomic Energy Act. The only former ACRS member acceding to the commission since 1989, however, was George Apostolakis, who completed his term as commissioner in 2014. Apostolakis was also one of the last of the three commissioners recognized for technical accomplishments by being named a member of the National Academy of Sciences or the National Academy of Engineering.

The 1980s and early 1990s saw the service of three commissioners associated with

the U.S. Navy nuclear propulsion program, either as a civilian (Nunzio Palladino) or as a naval officer (retired admirals Lando Zech and Kenneth Carr). All three served as chairman during some or all of their tenure on the commission. Since Carr's departure in 1991, only Ostendorff (a current commissioner and retired naval officer) has had appreciable experience in the U.S. Navy program.

Commission chairmen

The office of chairman affords its occupant certain administrative authorities, and the chairman is the primary spokesperson for the NRC. Republican President Gerald Ford selected a Republican, William Anders, as the first chairman. It is often assumed that the chairman must be from the same party as the president, but as shown in the accompanying figure, that has often not been the case. The chairman was not from the party of the president during substantial portions of the presidencies of Republicans Ronald Reagan, George H. W. Bush, and George W. Bush, as well as Democrats Jimmy Carter and Bill Clinton. Four of the first seven chairmen were independents, but the only independent chairman since 1991 is Stephen Burns.

Historically, it has usually been the case that a new president will allow an NRC chairman to continue to serve in that capacity, even if he or she is not of the party of the president. In 1977, Democratic President Jimmy Carter followed Republican Gerald Ford into the presidency, but allowed independent Marcus Rowden to serve out his term as chairman. In 1989, independent Lando Zech completed his term as chairman into the presidency of George H. W. Bush, who succeeded fellow Republican Ronald Reagan. Republican Ivan Selin served as chairman from 1991 to 1995, despite the presidential transition from Republican George H. W. Bush to Democrat Bill Clinton in 1993. Similarly, Democrat Richard Meserve served as chairman from 1999 through 2003, well past the 2001 presidential transition from Democrat Bill Clinton to Republican George W. Bush.

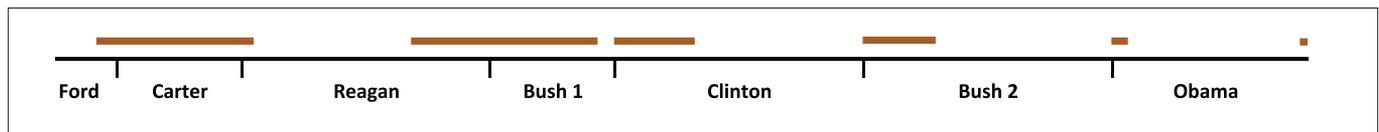
There have been two cases of a premature change in NRC chairmanship when a pres-

ident of a different party was elected. (In this case, a premature change refers to a situation in which the president appoints a new chairman, but the sitting chairman continues to serve on the commission—that is, the individual has not resigned, and his or her term has not expired.) The first occurred early in the term of Republican President Ronald Reagan, who appointed Republican Joseph Hendrie as chairman in March 1981, replacing independent John Ahearne. The move was seen as a reaction to the slow pace of reactor licensing under Ahearne following the Three Mile Island-2 accident in March 1979. Interestingly, Hen-

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drie had served as chairman from 1977 until Democratic President Carter replaced him with Ahearne in December 1979, in the aftermath of TMI. The second instance of a premature chairman transition following an election occurred when President Barack Obama replaced Republican Dale Klein with Democrat Gregory Jaczko in May 2009. The promotion of Jaczko, former aide to the then Senate Majority Leader Harry Reid and staunch opponent of the proposed repository for spent fuel at Yucca Mountain in Nevada, was seen by many as part of the Obama administration's initiative to end the Yucca Mountain Project.

President Obama recently appointed Stephen Burns as chairman following the resignation of Macfarlane. Burns was sworn in as a commissioner in November 2014, so he had little experience on the commission before becoming chairman. While it might seem desirable to select a chairman with prior commission experience, that approach is actually as much the exception as the rule. Hendrie became chairman immediately upon his appointment in 1977, as did Palladino in 1981, Selin in 1991, Meserve in 1999, Klein in 2006, and Macfarlane in 2013. In addition, Shirley Jackson became chairman shortly after joining the commission in 1995.



Brown lines show the times when the commission chairman was not a member of the president's political party.

Including Burns, there have been 16 chairmen since the commission was initially constituted in 1975. Greta Dicus served as chairman for only four months; all others served for at least a year. Palladino was the longest-serving chairman, with a tenure of five years. Not including the current chairman, the average tenure as chairman is 2.6 years, and the median is 2.9 years.

Similar to Table 1, a compilation of characteristics of chairmen was developed based on the official NRC biographies and is provided in Table 2. In this instance, the percentage exhibiting a particular characteristic is based on all chairmen, not all commissioners. The far right column shows the difference between the value for all chairmen and the value for all commissioners (as provided in Table 1); a positive number means that the population of chairmen possessed this trait to a greater extent than the population of all commissioners. The compilation includes Chairman Burns and all 15 past chairmen, irrespective of length of service.

Most of the characteristics were present in the population of chairmen to a similar extent to which they were present in the population of all commissioners. The following, however, represent a few differences:

- An even higher percentage of chairmen (88 percent) had technical educations than the commissioner population at large. In fact, the only two chairmen without a technical education were the two lawyers and former general counsels, Rowden and Burns.

- A much smaller percentage of chairmen had a political background prior to service on the commission, with a significant drop from 43 percent to 25 percent. As with the population of all commissioners, the percentage of chairmen with political experience had been increasing, but the last two chairmen, Macfarlane and Burns, lacked a political employment background, bringing the numbers back down.

- Only one chairman (Selin) had nongovernmental organization/trade association experience, compared to four commissioners.

- The U.S. Navy nuclear propulsion program experience is significantly higher for chairmen, at 19 percent, than for commissioners at large. This statistic is somewhat misleading, however, relative to recent trends. The last chairman with nuclear Navy experience was Carr, whose term ended in 1991.

Observations and analysis

While it is instructive to examine the historical characteristics of commissioners, it is important to note that there has never been a correlation made between such characteristics and actual job performance. In fact, there is no objective ranking system for

TABLE 2. CHAIRMAN CHARACTERISTICS

Characteristic	Percent	Delta*
Education in a technical field	88%	10.4%
Political experience on congressional staff, White House staff, or as a political appointee in an agency involved in nuclear matters	25%	-17.9%
Experience as a college professor or instructor	44%	9.5%
Worked for the NRC or its predecessor agency	25%	2.1%
Law degree	19%	-1.3%
Service in the Department of Energy or predecessor agency	13%	-4.6%
Worked for a state regulatory body overseeing nuclear matters	13%	-4.6%
Member, Advisory Committee on Reactor Safeguards	13%	-1.8%
National laboratory experience	13%	-1.8%
Experience in the nuclear industry	13%	-1.8%
Experience in a nongovernmental organization or trade association	6%	-8.0%
U.S. Navy nuclear propulsion experience	19%	7.3%
Member, National Academy of Sciences or Engineering	6%	-2.3%

* Percentage for all chairmen minus the percentage for all commissioners (from Table 1)

commissioner job performance, so any such correlation, if developed, would necessarily be subjective and therefore somewhat suspect. It appears logical that certain types of experience—such as a technical education or prior experience with the NRC—would be beneficial for commissioners, but there is no way to establish how important such experience might be. As another example, membership in the National Academy of Sciences or National Academy of Engineering is a high honor indicating significant accomplishment and stature, but it is not clear that technical achievement at that level enables better oversight and governance of the country’s independent nuclear regulatory agency.

Management experience may well be an important characteristic for commissioners to possess, but that characteristic is not included on the list. While managing the approximately 4,000 employees of the NRC is not a direct responsibility of the commissioners, they select the NRC staff’s senior management team and set in place policies and directives that influence how well and how efficiently the NRC carries out its mission. The primary reason for not including management experience is the difficulty in assessing that characteristic in an objective manner for all 35 past and present commissioners. Similarly, there is an international component to the job of a commissioner, whose duties include interacting with nuclear safety regulators from around the world. Accordingly, international experience may be a desirable attribute for commissioners, but because it is difficult to objectively assess what constitutes significant international experience, that characteristic is not included in this assessment.

The nature of governance by commission requires that the commissioners work effectively together to accomplish the agency’s mission. Based on internal investigations, Senate oversight hearings, and numerous trade press reports, it is apparent that the commission ceased to function in a colle-

gial manner during the latter stages of Jaczko’s 2009–2012 tenure as chairman. Ultimately, Jaczko resigned from the commission, and Macfarlane, his replacement as chairman, was generally praised for restoring a good working relationship among the commissioners. In fact, during the September 2014 confirmation hearing for Baran and Burns, much was made of the ability of both men, particularly Baran, to work well with others. It is generally accepted that a good commissioner and, in particular, a good chairman, will have the ability to work in a collegial manner with peers and subordinates and will treat others in a respectful manner. This attribute, however, is not included in our list of characteristics due to the difficulty of determining the presence of sufficient collegiality in past and present commissioners. Any such assessment would be subjective and of questionable value.

Also inherent in the nature of governance by commission is the fact that the characteristics of individual commissioners cannot be considered in isolation but must be evaluated in light of the attributes of fellow commissioners as well. In addressing the wide range of issues that may arise in the NRC’s regulatory work, it would seem to be advantageous to have commissioners with a variety of backgrounds and experiences. For example, it might be considered advantageous to nominate an individual who brings experience with the Navy nuclear program to the commission, but that advantage is minimal or even counterproductive if the commission already includes one or two members with Navy nuclear experience. Similarly, a commissioner with commercial nuclear experience could bring the useful perspective of a licensee to the commission’s work, but having too many commissioners with an industry background would likely detract from the NRC’s reputation as an independent and impartial regulator. A legal background is useful in carrying out the adjudicatory responsibilities of commissioners,

but a commission that is entirely or predominantly lawyers constrains opportunities for other important attributes. Given the highly technical nature of the NRC's mission and regulations, the high percentage of technically qualified commissioners is understandable. While it is not essential that all commissioners have a strong technical background, too many with no technical background would be an undesirable situation. The difficulty lies in determining how many is too many—another subjective evaluation.

Looking at the trends

The review of characteristics of past commissioners and past chairmen reveals a wide range of pertinent experience in the group. Trends, including the following, can be discerned for some characteristics:

■ A technical background is historically very prevalent among commissioners, but only 50 percent of the current commissioners have a technical education.

■ The percentage of commissioners with a political background has been increasing since the mid-1990s and is currently near its historical high of 44 percent. Of the current commissioners, 75 percent have a political background.

■ The influence of the nuclear Navy was quite evident in early commissions and chairmen but has waned since the early 1990s.

■ The historical percentage of lawyers among commissioners is relatively small at 20 percent, but that percentage has been increasing, and three of the four current commissioners are lawyers.

■ The historical insulation of the commission from partisan politics appears to have worn away. Six of the first 14 commissioners were unaffiliated with either major political party, but since 1986, there have been 21 confirmed commissioners, and only one, the current chairman, was an independent. Similarly, four of the first seven chairmen were independents, but of the nine chairmen since Carr, only the most recent (Burns) was an independent when confirmed.

During much of the NRC's history, the commission was a very stable body. Most commissioners served to the end of their terms, and many served for more than a single five-year term; the overall average commissioner length of service is greater than five years. That stability has decreased lately, however, due to increased turnover from

resignations. As of the beginning of 2015, the average term of service for the four sitting commissioners was less than three years.

History shows that the safe and beneficial use of nuclear technology requires a competent, diligent, and independent reg-

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ulator. In the United States, that regulator is the NRC, and it is governed by the commission. The commission is constantly evolving as members leave and new commissioners are nominated by the president and confirmed by the Senate. Commission turnover has increased recently, and the current trends are for commissioners with less background in technical areas but more attuned to political considerations and issues. **N**