

**Effective Citizen Advocacy of Beneficial Nuclear Technologies:
Being the Nuclear Voice**

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ABSTRACT

The nuclear community urgently needs to educate all stakeholders on the real risks and benefits of nuclear technologies. Addressing this need is complicated by the anti-nuclear misinformation that often dominates the public news industry. In 1991, a small group of citizens from communities near the Savannah River Site (SRS) formed a pro-nuclear education and advocacy group, Citizens for Nuclear Technology Awareness (CNTA). This citizen and volunteer-based organization has grown since its inception and expanded its sphere of influence and areas of focus. While the membership continues to be predominantly comprised of technical people we are now focusing on students and labor unions as well as reaching further into the business community. CNTA leadership recognizes the importance of growing a younger generation of nuclear advocates using education as the major tool. Furthermore, the key to both a successful nuclear renaissance and resolution of several waste disposition issues resides in policy decisions at the state and national levels. Thus, interacting with, educating and influencing policy makers are essential aspects of the pro-nuclear voice. The modalities of effective communication have evolved considerably since CNTA's inception. This paper briefly describes the structure and operation of the organization then concentrates on its activities over the past few years. We believe that we are the citizens' nuclear voice and that our organizational model can be duplicated by other communities with similar needs.

INTRODUCTION

When formed in 1991, CNTA's original purpose was to: (1) counter nuclear misinformation that dominated the nation's news outlets, (2) provide education on nuclear subjects to area citizens, students, elected officials, and (3) provide informed citizen support for potential new missions for SRS when needed. To effectively accomplish these objectives it is also essential to establish and maintain good relations with community leaders and reporters that cover energy and nuclear subjects. These objectives remain at the core of CNTA's work but several social and technical factors have necessitated their refinement and enhancement. For example, from a social perspective, the regional population is growing and changing character. While the SRS is still a major employer, its workforce has been reduced dramatically over the past decade. The new residents of the Central Savannah River Region (CSRA) are often not involved in or cognizant of nuclear technologies and their benefits. Education is a key to enhancing their understanding and promoting support.

Another social factor concerns the need for more electricity generating capacity—a common national issue. South Carolina currently produces ~51% of its power from nuclear, has bipartisan political support and a populace which is also supportive. Because of the economics and these factors, the local utilities are moving to expand their baseload nuclear capacity both in S.C. and Georgia. The need for pro-nuclear testimonials is intimately linked to their business objectives, together with public education regarding the benefits of nuclear energy compared to baseload alternatives. The current nuclear workforce age profile is causing concerns about adequate replenishment of the pipeline to fill both new jobs and openings created by retirements. These opportunities provide a direct need to educate students about all types of nuclear careers.

Other technology advancements, particularly in the medical arena, have made nuclear science applications important to our quality of life. However, the continuing decline in the supply of certain medical isotopes and inability to produce others potentially endangers the contributions these techniques can provide. CNTA has become directly involved in teaming with the medical community to educate the public and politicians regarding isotope needs and possibilities for production.

Thus, a pro-nuclear voice provided by experts with factual information is essential to enhancing knowledge on:

- Nuclear production of electricity
- Nuclear waste management
- Nuclear medicine
- Food irradiation
- Health Effects of low levels of radiation

There are several stakeholder groups which require different communication techniques with information tailored to meet their needs. As delineated in the following sections, CNTA concentrates on its membership, the local public, school and university students, policy makers and the media.

Table I. Communication Methods for Stakeholders

| Stakeholder Group | Communication Vehicles |
|-------------------|---|
| CNTA Membership | CNTA web-site, Up & Atom meetings, Edward Teller Lecture, Newsletters, Golf Tournament |
| Local Public | Speakers' Bureau, letters to the editor, Op-eds, web-site, SRS Heritage Center ¹ |
| Policy Makers | White papers, meetings, input to policy (verbal and written), task force participation |
| Students | Educational curriculum, Fort Discovery Booth ² , Up & Atom meetings, Edward Teller Lecture, web-site |
| Media | Editorial Board meetings, Op-eds, input to articles |

¹ Under development by the SRS Heritage Foundation

² Co-sponsored by the American Nuclear Society-Savannah River (ANS-SR) and Southeastern Chapter of the American Association of Physicists in Medicine (SEAAPM)

MEMBERSHIP AND STRUCTURE

From the beginning, it was expected that CNTA would be local in membership, but national in influence. Operating revenue is derived from membership fees, business sponsorships and fund-raising events. At present, the organization has about 450 individual members, most of whom live in S.C. or Georgia, and 30 corporate and business sponsors. This latter category ranges from local businesses to national and international companies. We are by far the largest such group in the U.S.

To be effective, such an organization must have broad community support. Our membership and Board of Directors include educators, students, homemakers, lawyers, physicians, merchants, congressmen and local elected officials. We also have many active and retired nuclear professionals among our members. This broad membership profile gives us credibility with the citizenry and the media, founded upon the nuclear expertise available to address technical issues. We have designed our activities to fulfill our missions.

Table II CNTA Activities and Committee Structure

| | |
|---|------------------------------------|
| Executive Committee | Board of Directors |
| Finance | Membership: Corporate & Individual |
| CNTA web-site | Board Nominations |
| Strategic Planning | Speakers' Bureau |
| Golf Tournament | Robert Maher Memorial Scholarship |
| Fred C. Davison Distinguished Scientist Award | CNTA High School Essay Scholarship |
| Edward Teller Lecture/Banquet | Up & Atom Breakfasts/Dinners |
| Outreach (letters, op-eds, press releases, newsletters) | Education Committee |

The organization has only two salaried staff, namely an Executive Director and an office manager. It is governed by the Board of Directors. The executive committee is comprised of a subset of the board members and guides the direction of CNTA in addition to providing oversight of the budget, policy and publication matters. Board members are actively involved in gaining sponsorship and visibility for the organization. Specific activities are developed and executed by committees that are delineated in Table II. Much of what we do is achieved by members volunteering their time, influence and expertise.

PROVIDING VALUE TO MEMBERS

As described in the previous section, CNTA members provide the core organizational resource. Furthermore, since they have made a personal commitment to support nuclear technologies, each one can become an informed individual advocate with their own sphere of influence. CNTA's primary goals for this stakeholder group are to (1) provide current information across the spectrum of nuclear issues, (2) provide networking and social opportunities and (3) communicate accomplishments of which they can be proud. These goals are achieved through several techniques. The CNTA web-site serves as a general resource but more focused information is

provided via the Up-and-Atom Breakfast/Dinner meetings, seventeen of which were held during 2008-9. A sampling of speakers and topics is shown in Table III.

Table III. Selected Up-and-Atom Speakers, 2008-9

| | |
|---|--|
| James Little, President Washington Safety Management Solutions | “The Nuclear Renaissance” |
| George Fletcher, Executive Director of the South Carolina Council on Competitiveness | “Clusters & the SC Council on Competitiveness” |
| James Corley, Professor, Medical College of Georgia, Department of Radiology | “Medical Isotopes” |
| Chuck Munns, President & CEO of Savannah River Nuclear Solutions, LLC | “Spoke on his new role at SRNS” |
| Stephen Byrne, Sr. VP Generation, Nuclear & Fossil Hydro SCE&G | “What’s Ahead for SCE&G” |
| Dr. Donald Bridges, Retired DOE Program Manager for SRS Nuclear Reactor Production Program | “Nuclear Technology in China for the New Century” |
| Dr. Tom Sanders, President Elect American Nuclear Society | “The Global Nuclear Future Realities and Opportunities” |
| Dr. Dorothy Davidson, VP for Nuclear Energy, Renewable and Science Programs for parent company AREVA | “Closing the Fuel Cycle – Options for Used Fuel Management in the US” |
| Jack Tuohy, Executive Director, American Nuclear Society | “ANS – Our Unique Mission and Challenges” |
| Dr. Susan Winsor, President of Aiken Technical College and Dr. Thomas Hallman, Chancellor & Chief Operating Officer of the University of South Carolina Aiken | “Bringing Nuclear Career Opportunities Home – The Nuclear Renaissance in the CSRA” |

In addition, six talks were given by the U.S. Department of Energy and their contractors related to the SRS missions and status. Up-and-Atom meeting attendance is typically 100-150 members and their guests, including community leaders.

The largest community event each year is the Edward Teller Lecture & Banquet. Dr. Teller was the inaugural speaker in 1992 and gave permission for CNTA to name the lecture series for him. Table IV documents the impressive list of speakers hosted since 1999.

Table IV. Teller Lecture Speakers

| | | |
|------|---------------------------|--|
| 1999 | Senator Howard Baker | Tennessee |
| 2000 | Dr. Harold Agnew | Manager, Los Alamos National Lab |
| 2001 | Senator Pete Domenici | New Mexico |
| 2002 | Corbin McNeill | President & CEO, Entergy |
| 2003 | Dr. John Foster | Manager, Los Alamos National Lab |
| 2004 | Dr. Henry Wagner | Medical College, Johns Hopkins Hospital |
| 2005 | Dr. Frank “Skip” Bowman | President & CEO Nuclear Energy Institute |
| 2006 | Dr. Nils Diaz | Retired Chairman Nuclear Regulatory Commission |
| 2007 | Dale Klein | Chairman Nuclear Regulatory Commission |
| 2008 | Gwyneth Cravens | Author and Nuclear Advocate |
| 2009 | Congressman James Clyburn | South Carolina, Majority Whip |

This event draws 450-850 attendees including members of the regional media and elected officials and/or their representatives. In addition to the opportunity to learn from a speaker who is a leader, the event provides a forum for interactive discussion among community and business leaders. In 2009 we were pleased to include members of the International Brotherhood of Electrical Workers (IBEW) as sponsors and attendees.



Fig. 1. Guest Speaker Gwyneth Cravens

Our 2008 speaker, Gwyneth Cravens, who is an anti-nuke convert and author of “The Power to Save the World”, spoke eloquently on her personal nuclear learning journey. Ms. Cravens provided many pointers about influencing people and continues to be a sounding board for CNTA.

In 2009, the event was video-streamed to allow long distance participation and it was incorporated into the agenda for the SRS Community Re-Use Organization’s (SRSCRO)

strategic planning session. Similar opportunities are being explored for Up-and-Atom meetings to increase their audience.

While these highly interactive events provide major member benefits, the CNTA web-site also provides an ongoing resource. It posts many past presentations, editorial copy and other factual information. CNTA Aware Newsletters are published three a year in the Spring, Summer and Fall reviewing activities, updating organizational issues and publishing short articles. Finally, while the Golf Tournament is primarily a fun fund-raising event it is widely used for net-working purposes by members and their colleagues.

EDUCATING AND ENGAGING THE PUBLIC

The local public, i.e. individuals who reside within the CSRA communities, form the core of this stakeholder group but CNTA also communicates at the national level via letters to the editor and other media articles. The local public receives direct benefits from nuclear industries. Many families have members who are employees at SRS, a nuclear power plant or a company which supports the nuclear industry. All families benefit from a moderate electrical power cost due to the regional nuclear generating capacity and from the availability of nuclear medicine. Despite these advantages, most individuals who are not directly employed by a nuclear business have little knowledge of the importance of nuclear science or the opportunities its applications provide. Thus, education about beneficial nuclear technologies and their economic impact is much needed to gain greater acceptance and potentially create more positive pro-active support.

The primary CNTA communication vehicles include the Speakers' Bureau, letters to the editor and op-eds. The Speakers' Bureau has an active committee which targets local groups such as Rotaries, church groups and other community organizations. Table V lists the most popular talks which, together with appropriate contact information, are publicized in the brochure "Plain Talk on Nuclear Technology". All topics are covered by local experts.

Table V. CNTA Popular Talks

| | |
|---|--------------------------------------|
| ABC's of Radiation* | A Case for Nuclear Energy |
| Food Irradiation – Protecting our Food Supply | Nuclear Medicine-Diagnostics |
| Nuclear Medicine-Treatments & Cures | Security at Nuclear Power Facilities |
| Nuclear Energy | Nuclear Renaissance |
| Basics of Radiation* | SRS: Past, Present & Future |
| Economic Impact of SRS | CNTA Overview |
| The Need for Nuclear Energy | Global Warming |
| SRS Impact on Central Savannah River Area | MOX Program |

*Topics popular in local schools

Over the past three years, CNTA has reached more than 35 groups and 2200 people through the Speakers' Bureau and other speaking engagements. Some highly appreciative audiences are attendees of the Institute for Lifelong Learning which is offered across South Carolina. CNTA has made several presentations at venues in Hilton Head and at the University of South Carolina in Aiken. Many of the participants are retired and have moved to S.C. from other parts of the

U.S. and are thus a key focal group for our mission objectives. As indicated above, certain talks are also attractive to school children and from 2007-9 more than 800 school students heard either the “ABC’s of Radiation” or the “Basics of Radiation” in S.C./GA. This is just one element of student outreach which is discussed further in a later section. Figure 2 shows a group of students practicing the “dressout” used for certain radioactive materials work. These demonstration experiences are done in a classroom setting.



Fig. 2. Aiken Middle School 6th grade Science class students

In addition to this direct mode of communication, the CNTA Executive Director has the responsibility to write letters to the editor and op-eds on current nuclear issues. Sometimes these are in response to previously published misinformation or incomplete information and sometimes they are intended to direct the public’s awareness to an emerging concern. During the past three years we have had seventy-three such items published, mostly within S.C. in local or regional newspapers, but some have appeared in national publications. Often these pieces garner comments from members and other individuals showing that they have been read and noted. Furthermore, CNTA is recognized regionally as the “citizens’ nuclear voice” and receives requests for factual information and quotes which are then used by the media.

An emerging, very different type of educational tool is planned by the SRS Heritage Foundation which was conceived and initiated by CNTA but spun off as an independent entity in 2004. Its Executive Director continues to be a member of CNTA’s Board of Directors which maintains a continuing link between the organizations. The Heritage Foundation is in the process of creating a visitor center, the SRS Heritage Center, to be located at the edge of the SRS property and accessible to the general public. A major function of the center will be to preserve and interpret the heritage of SRS and its role in the Cold War. Not only will it house educational exhibits on technical inventions and achievements at SRS including the history of production, environmental management and waste management but it will also showcase more recent inventions by the Savannah River National Laboratory. The Center will work with area schools to stimulate interest in science and mathematics, engineering and nuclear science and technologies. The SRS Heritage Foundation has already produced a very successful video, “Displaced”, which tells the story of about 6,000 people who were displaced from their homes and communities when SRS was constructed. These endeavors are, and will continue to be, excellent educational tools which

raise the knowledge and awareness of the general public, local, national and international. They will also be an important resource for students at all levels.

IMPACTING POLICY

Obviously, the most direct way to contribute to policy development is to provide input to policy makers at both the state and federal levels. CNTA maintains close communication with these individuals and their staffers and also with the S.C. Governor's Nuclear Advisory Board. The organization acts as a direct information resource and also independently authors white papers on key topics. During the past two years two major papers were written. One, which was jointly authored with the medical college of Georgia, discusses the national need for medical radioisotopes and the CSRA as a potential production facility location. This paper was forwarded to economic development entities within S.C., to the Department of Energy (DOE) and to other parts of the medical community. The need remains and the initiative continues. The second paper comprises a comprehensive history of the basis for utilizing Yucca Mountain as a Federal repository for commercial nuclear and DOE high level waste (HLW). This latter document was intended to be an influential reference piece and it was forwarded to all the governors of states in which HLW is located and to all U.S. Senators and House of Representatives members.

But there are other ways of influencing policy and CNTA's 2009 strategic planning session identified several new directions. Clearly, one route is to expand the membership base and diversity by casting a wider net to be more inclusive of non-technical groups. New focus is being placed on students and non-professional nuclear workers as well as the general public. A second route is to team with other pro-nuclear organizations and even groups who have similar end-point objectives but are not overtly pro-nuclear. For example, CNTA is exploring alliances with conservation groups who are concerned about global warming and the impact expanded use of fossil fuels would bring. In short, we are driving to have nuclear power included on the list of "green" technologies in concert with other sustainable alternatives like wind and solar power. Our focus on nuclear as a sustainable energy source gained some attention which resulted in the Executive Director, Dr. Wolfe, being invited to testify before Congress. The testimony concerned the economic impact and job creation the nuclear renaissance will produce at a House Committee on Labor and Education subcommittee hearing. While we have many barriers to surmount before we realize our ultimate goal, we are encouraged by small steps of progress.

In a parallel effort to integrate our capabilities with key business leaders, Dr. Wolfe serves as the chair of the public policy task force of the Nuclear Cluster within the Carolinas. This cluster is one of several thrusts that comprise the New Carolinas economic development initiatives. The public policy task force of the Nuclear Cluster was formed to marshal public opinion in favor of expanding nuclear power projects and to provide information to garner legislative support for a level playing field for nuclear energy. This charter blends well with the mission of CNTA so it was a natural fit for our executive director to serve in this capacity. The synergy has allowed the Nuclear Cluster to take advantage of the ongoing work of CNTA and has allowed CNTA to have a wider field of influence in the Carolinas.

The close association with other task forces within the cluster broadens the CNTA horizons considerably as we collaborate with the "Workforce Development", "Research & Development" and "Economic Development" task forces. These collaborations provide more opportunities for

speaking engagements and topics for “letters to the editor” and opinion editorials. In addition to broadening our scope, the association with other task forces reinforces our messages and instills confidence among our constituency that virtually every aspect of the “Nuclear Renaissance” is a positive one for our region.

The “Nuclear Renaissance” is very real in the southeastern part of the U.S. Southern Company has embarked upon two additional nuclear units at Plant Vogtle and SCANA has plans for two more at Virgil Summer. Duke Energy has plans to add two new units at the William States Lee site in Cherokee County, SC. Another major project is the multi-billion dollar mixed oxide fuel plant under construction at the SRS. As mentioned earlier in this paper, the region is predominantly supportive of the nuclear option for increasing baseload capacity. Nevertheless, CNTA has provided valuable support to the utilities through factual testimony at NEPA and site permit hearings held by the regulatory bodies. Similar testimonies have been provided to support waste disposition activities and new mission opportunities at SRS. During the past three years, the Executive Director and Board Chair have testified at 9 hearings in S.C., NC and Georgia. Factual supportive testimonials from a citizen-based group are powerful counterpoints to certain materials produced by anti-nuclear factions.

ATTRACTING STUDENTS TO THE NUCLEAR SCIENCES

In a nation where commercial nuclear power growth was halted in the 1970’s causing many universities to eliminate their nuclear engineering curricula and there are few health physics programs, it is now necessary to attract students into nuclear science and technology fields. A recent study by the SRSCRO Nuclear Workforce Taskforce projects the need for 10,000 people to support nuclear projects in the CSRA over the next ten years. Job categories range from skilled crafts and trades to associate degrees and four year graduates. For technical degree opportunities career paths must be influenced in middle school to ensure adequate science and mathematics study. In S.C. the educational standards do not reference “nuclear” and thus the inclusion of “nuclear science” subject matter must satisfy the objectives of the standards dealing with science and energy.

CNTA created an Education Committee in 2008 to evaluate curriculum needs and opportunities at the 7th, 8th and 9th grade levels. A first task is to develop awareness amongst science teachers and we have developed a draft “teach the teacher” program which largely uses web- available materials which we hope to test in 2010. This one day workshop for science teachers will be offered free of charge, initially within Aiken County, S.C. but with the longer term plan to extend state-wide and potentially to Georgia. This effort is being integrated with the larger CSRA and New Carolinas workforce development initiatives. A second major task is to develop an awareness of nuclear science opportunities amongst students at all levels. In Augusta, GA the local science museum, Fort Discovery, does not currently have a display which describes any aspect of nuclear technology. Teaming with the American Nuclear Society, we are fortunate to have the opportunity to sponsor an interactive booth which will allow students to build atomic nuclei and learn about their properties. Fort Discovery is a field trip destination for thousands of students and we hope the booth serves as a significant learning tool and “attention getter”.

We have also implemented two, more targeted, approaches to encouraging students to enter nuclear careers. CNTA’s Essay Scholarship competition targets high school seniors. Contestants can select from one of three topics:

- Safety of Nuclear Power Related to Other Common Risks
- Nuclear Technology Advances in Modern Medicine
- The Expanding Future of Nuclear Science and Technology Around the World

Entries are solicited from all high schools in Aiken, Evans and Columbia counties and are evaluated by the Essay Scholarship committee. The three 2009 winners were from Evans High School in Columbia county, GA and Aiken High School in Aiken county, S.C. They each received a \$1500 award, \$1000 of which went to the student and \$500 to the student's school. We hope to increase the number of awards significantly in 2010 by attracting additional individual and corporate sponsors.

CNTA is also proud to sponsor the Robert Maher Memorial Scholarship each year which is awarded at the Teller lecture/Banquet. This competition is open to junior and senior level college students who are already enrolled in a degree program aligned with a nuclear career at a university in GA or S.C. Their applications must not only reflect good grades but also demonstrate broader extra-curricular accomplishment and document their intended nuclear related career path. Here, the goal is to assist students who intend to pursue graduate work in nuclear science or engineering, nuclear medicine, health physics or other related research fields. We typically have an applicant pool of about ten very high achievers from the major technical schools. The CNTA web-site posts details of current and past winners

To further attract students to participate in CNTA activities we sponsor their attendance at the Teller lecture and Up-and-Atom meetings and have a student membership rate. Members are also encouraged to bring a student as a guest. This type of outreach now ensures student attendance at CNTA events and we have a small cadre who are members.

POSITIVELY ENGAGING THE MEDIA

Notifications of and invitations to attend CNTA events are sent to all local and regional reporters who deal with the relevant subject matter. Write-ups most often occur in the local newspapers but are sometimes picked up regionally. In addition, the more news-worthy activities get TV station coverage. As mentioned earlier, CNTA has become a recognized factual voice on nuclear issues and the Executive Director often responds to requests for information or quotes on current events. However, publication of op-eds, for example, is directly related to a newspapers' editorial policy and relationship building is important. This is achieved by periodically meeting with editorial boards and/or individual reporters to present them with an organizational update, our current objectives and the qualified resource pool available to them. We target the local newspapers such as the Augusta Chronicle and Aiken Standard but also focus regionally, including The State, Spartanburg Herald, Greenville News and others. These meetings are typically attended by the CNTA Executive Director accompanied by key members of the Executive Committee.

CONCLUSION

In conclusion, this paper describes the structure, operational activities and accomplishments of a unique citizen-based volunteer pro-nuclear advocacy group. We have grown and expanded our

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sphere of influence since the organization's beginning in 1991 but the need for a positive nuclear voice is growing, too. Historically, the nuclear industry has relied primarily on factual information in its public communications. Presumably the assumption was that, as analytical scientific and engineering types always believe, "facts are facts". To be more successful audience specific tailoring is needed which engages emotive issues and also captures the attention of the younger generations. CNTA continues to work toward those objectives and is investigating new tools such as FaceBook which is now widely used across generations. Before launching such a new endeavor we need to both assess efficacy relative to our purpose and, if we implement, develop a comprehensive maintenance strategy. We must recognize and keep pace with the need to change.

Nationally, more pro-nuclear voices are needed. With commitment and effort, CNTA's approach can be cloned to form new groups in other locations. We would be pleased to serve as advisor to communities and companies who have this objective.