NANOTECHNOLOGY IN SOCIETY: STAKEHOLDER ANALYSIS AND NANOTECHNOLOGY STAKEHOLDERS

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Nanotechnology is an emerging technology that is expected to have broad implications for society as a whole. As such, it is important to measure the playing field to obtain a grasp on what actors are involved, their potential influence on the societal debate, and their positions on and expectations of nanotechnology. This paper proposes a method of stakeholder analysis suited for measuring these characteristics, with the specific aim of providing information on consensus conference invitees for six nanotechnology consensus conferences to be held across the United States. In addition, this method should help researchers in performing stakeholder analyses on nanotechnology stakeholders in general. The results of the stakeholder analysis will indicate which groups the conference organizers should invite to the conference to achieve their desired engagement and educational goals. This paper promises to be the first such example of a stakeholder analysis method to be used on nanotechnology stakeholders.

Keywords: Policy analysis, technology assessment, societal debate, nanotechnology, stakeholder analysis, consensus conference, USA

Introduction

Due to the nature of nanotechnology as an emerging field, little work has been done to accurately measure the actors that could impact the shaping of the debate or the framing of the issue. Although the need to include stakeholders in the debate over emerging technologies is an almost universal feature of modern technology assessment (Merkerk and Smits 2007; Genus 2005; Schot and Rip 1997; Guston and Sarewitz 2001), an actual method for assessing nanotechnology stakeholders has yet to be demonstrated.

An accurate analysis of stakeholder positions, influence, and affiliated organizations following from such a method would render a better picture for practical policy pursuits.

A subset of policy analysis, the technique known as stakeholder analysis is well suited to such a task. Stakeholder analysis has been used in a variety of contexts, including health policy (Evans 1996; Gonzalez-Block 2004), national alcohol policy (Varvasovszky and McKee 1998), and environmental policy (Kontogianni et al. 2000; Gregory and Keeney 1994), among others. In fact, the sheer adaptability of stakeholder analysis to a multitude of situations (ranging from the personal to the international) demonstrates the inherent strength in its flexibility. Essentially, any situation that includes multiple actors with varying goals vying over a common issue is suitable for a stakeholder analysis.

That description applies perfectly to nanotechnology. The large number of industries that nanotechnological processes are expected to impact yields many stakeholders with very different philosophies and levels of influence. Areas as diverse as law, the environment, manufacturing, the military, information technology, cosmetics, textiles, and many others will be impacted, and it is not difficult to imagine that constituent members in these areas have different views and expectations of the technology. Thus subjecting these actors to a stakeholder analysis will produce valuable insights into the current composition, and expected future direction, of the field.

The purpose of this paper is to address the lack of concrete stakeholder analyses performed for nanotechnology. Specifically, these analyses will be performed against the backdrop of the National Citizens Technology Forum (NCTF) conferences, a series of consensus conferences addressing nanotechnology, to be held in six cities across the

United States: Santa Barbara, California; Boulder, Colorado; Tempe, Arizona; Madison, Wisconsin; Atlanta, Georgia; and Durham, New Hampshire. The objective is to provide the NCTF organizers with a technique useful in determining which organizations should be invited to participate as observers in these conferences. Only a select few of the organizations subjected to the stakeholder analysis will be invited, but an analysis will provide useful information on a wide variety of potential nanotechnology stakeholders located near each of the six host cities.

The paper is divided into three parts. The first reviews the literature associated with consensus conferences and stakeholder analysis, touching on their previous applications to the field of nanotechnology. The second outlines a recommended stakeholder analysis methodology intended for use with the NCTF preparations. The paper ends with a brief discussion and recommendations for conducting the actual stakeholder analysis, as well as suggestions for future stakeholder analyses.

Stakeholder Analysis

According to Brugha and Varvasovszky, stakeholder analysis "is an approach, a tool or set of tools for generating knowledge about actors – individuals and organizations – so as to understand their behavior, intentions, interrelations and interests, and for assessing the influence and resources they bring to bear on decision-making or implementation processes" (Brugha and Varvasovszky 2000a). Stakeholder analysis, more practically, "helps policymakers conceptualize the dynamics of a policy subsystem" (Weible 2006). A stakeholder, in this context, is any organization, individual, or entity

that is involved with or can stand to gain or lose in a certain venture. Although it can technically be used in almost any area that involves multiple stakeholders, in the context of this article it refers to applications specifically in the policy realm.

Four key steps are utilized in all traditional stakeholder analyses: (1) Identify the stakeholders involved in the issue under analysis; (2) Identify the stakeholders' views on, and stake in, the issue in question; (3) Assess stakeholder interest in or influence over the issue; and (4) Create strategies to deal with the problems a multitude of stakeholders with different stakes in an issue can generate. The fourth general step, for the sake of this paper's analysis, can be left out entirely, since the strategy created to deal with the stakeholders' views are the NCTF conferences themselves. As well, this fourth step traditionally involves an agenda that is attempting to be enacted on the part of the analyzer; in this case, the agenda is deliberation and engagement.

Although many examples of stakeholder analysis with a policy orientation exist, due to its relative newness, nanotechnology has yet to face a general stakeholder analysis. Many publications mention the need for including nanotechnology stakeholders in the societal debate (as a consequence of how the debate over genetically modified organisms played out), but none actually demonstrate a concrete methodology for performing a stakeholder analysis on nanotechnology stakeholders. Einsiedel's and McMullen's *Stakeholders and Technology: Challenges for Nanotechnology* probably comes the closest; they list around five stakeholder organizations, but only indicate actions and statements by these groups, not the full values of a stakeholder analysis. In addition, the organizations they mention are mostly international, perhaps indicating an unstated assumption that much of the debate over nanotechnology will take on a global dimension.

Much of the scarcity of literature is due to the relative newness of the field; as will be mentioned with consensus conferences on nanotechnology, this is guaranteed to change as the field matures. As more commercial products utilizing nanotechnology appear, and as the concept continues to penetrate the popular zeitgeist, public engagement and discussion about the possibilities and dangers of nanoscale science and engineering will rise, leading to a corresponding rise in the academic literature.

Consensus Conferences

The consensus conference model is considered to have begun in 1977 under the U.S. National Institutes of Health (NIH) with its consensus development conferences, put into practice by its Consensus Development Program (CDP) (National Institutes of Health). According to the CDP, "the purpose of a CDP conference is to evaluate the available scientific information on a biomedical issue and develop a statement that advances understanding of the issue under consideration and will be useful to health professionals and the public," (National Institutes of Health). Recognizing a potentially useful concept, a number of European nations imported the model, with Denmark modifying it slightly (by including common citizens as well as experts) to create what is now known as the consensus conference model (Jorgensen 1995). This model, in various forms, has since been applied by organizations in nations across the world.

The essential consensus conference model consists of: a steering committee that supervises the choosing of citizens and experts and defines the breadth of the topic addressed; a panel of experts that provide information for the citizens' panel; a citizens'

panel with roughly 15 participants ; and a facilitator that supports the citizens' panel's activities. Citizens use several meetings to learn about the topic from the selected experts, and, with the help of the facilitator, generate their list of recommendations (Grundahl 1995). This format has been widely used since the 1990's to address science and technology topics: the United Kingdom, Norway, Japan, the Netherlands, France, Canada, Switzerland, the United States, Australia, and others have experimented with it in one form or another (Einsiedel and Eastlick 2000).

This general format will be used for the National Citizens' Technology Forum conducted by the Center for Nanotechnology in Society at ASU (CNS-ASU). Consensus conferences on nanotechnology are a relatively new phenomenon; as of March 2007, the most widely discussed and available material on nanotechnology consensus conferences appears to be the Madison-area experiment (one of the regions in which a NCTF conference will also be held) and the NanoJury UK conference (Kleinman and Powell 2005; Hayden and Pidgeon 2006). The reception such conferences have received appears to be mostly positive; indeed, a general Internet search yields virtually no negative opinions (exceptions include persons displeased with the notion of mass deliberative policy analysis – see Nisbet's work). So far, however, there is a dearth of formal academic analysis on consensus conferences on nanotechnology in general. This situation is almost assured to change, since the 21st Century Nanotechnology Research and Development Act requires "public discussions, through mechanisms such as citizens' panels, consensus conferences, and educational events…" (21st Century Nanotechnology Research and Development Act). As more public events are held to fulfill this requirement, more academic material will no doubt be made available.

The results of both the Madison conference and the NanoJury UK conference include recommendations for the continued participation of lay citizens in national science policy. According to the Madison panel, "The public needs more in-depth information on nanotechnology research and product development," as well as "increased coverage in the media… and conferences on nanotechnologies for lay citizens" (Kleinman and Powell 2005). In the same vein, the NanoJury panel recommends that "At key stages of the development of any new technology, there should be public juries," and that "More consultation with the public using plain English [should be undertaken] – those developing the technology [should meet] the public to inform us" (NanoJury UK 2006). Such enthusiasm for public participation on the part of the participants is to be expected, but this at least confirms, in an indirect way, that the participants viewed their participation as valuable to some degree. This is an encouraging sign for sponsors of future consensus conferences on emerging technologies, but as Guston indicated, participants must still believe that they have an impact on actual policy proceedings; according to Guston, it would be a "cruel hoax on the participants" to "continue [the consensus conference] without emphasizing ways of having an impact" (Guston 1999). Participants in the conference Guston analyzed appeared frustrated by their lack of concrete policy impacts. Thus, the enthusiasm of participants for public participation exists and is a product of the consensus conference process, but without the perception of actual impacts, public support for consensus conferences, and deliberative technology policy in general, risks collapse. Participants are unlikely to take part in a process they view as not worthwhile and ultimately valuable.

Both panels appeared to be concerned with the health and safety aspects of nanotechnology, with the Madison panel stating that they "believe that products using nanoscale materials should be kept off the market until more is known about their human health, environmental, and social effects," while the UK panel agrees, saying "All manufactured nanoparticles should be labeled in plain English, classified and tested for safety" (Kleinman and Powell 2005; NanoJury UK 2006). All in all, both seem to parallel each other in the tone and direction of their recommendations, taking a predictably populist approach. We can probably expect the NCTF conference recommendations to follow closely with these as well.

Recommended Methodology

The Stakeholders

A preliminary list of potential stakeholders was made to use as an aid in constructing the stakeholder analysis survey. Demonstrative stakeholders were selected from the regional area in which each NCTF conference will be taking place. The organizations were selected if their primary orientation was one that could be affected by the emergence of nanotechnology, or if their stated mission was specifically nanotechnology-oriented. Areas expected or thought to be influenced or impacted by nanotechnology include: the environment; wealth distribution; economies, including local, national, and international; legal and political environments; medicine and health. The majority of organizations were typically selected based on these criteria. Additional

organizations dedicated to analyzing the nanotech landscape or emerging technologies in general were also included.

In the interest of being as inclusive as possible, any organization that was found to fulfill any of these criteria, and is located within approximately one hour drive time of the city in which the particular NCTF conference will be held, was included in the list of potential stakeholders to be analyzed. This approach is beneficial in two ways: one, it demonstrates to potential stakeholders that any organization with interests in nanotechnology, regardless of size, will be considered in an evaluation of the landscape; and two, it seeks to guarantee, due to the nature of the emerging field, that any potential future "power players" are incorporated soon into an analysis. Since the interest landscape of an emerging technology can experience rapid changes in its infancy, a thorough analysis necessitates a broad analysis.

Measures

Potential stakeholders will receive a questionnaire designed to be completed within 30 minutes. Attributes measured include (in accordance to the guidelines in Varvasovszky's and Brugha's *How to do (or not to do)… A stakeholder analysis*) the position of the stakeholder on nanotechnology, the intensity of interest in other positions on nanotechnology, the influence or power the organization can generate, and other groups or organizations the participating organization is affiliated with. Thus, a completed questionnaire will fulfill all the requirements of a traditional stakeholder analysis.

Stakeholder Position, Power, and Affiliates

Participants are asked to rank seven statements in an ordinal-level rank-order scale. The ranking order will be used to determine the positions the organizations take toward nanotechnology, with the statement that is ranked first presumed to be their primary orientation. Subsequent items ranked will be used to further refine the organization's position; for example, an environmentally-oriented action group would predictably rank the environmentally-oriented statement first, but secondary and tertiary rankings could be used to determine other areas of concern. If a statement is ranked highly by a number of participants, though no single organization ranks it first, the position should still be addressed.

In addition, the organization is asked to specify its level of interest in each statement using a standard Likert scale. This will indicate the level of interest the organization holds for nanotechnology, both in its selected statement and nanotechnology in general. A health- and medicine-centered respondent may rank the medical-oriented statement first, but actually hold no interest in the medical applications of nanotechnology. Knowing the level of interest that each organization has in each statement will better help determine what approaches need to be taken to address concerns (or if the participant should be considered a stakeholder at all).

Stakeholder power and influence is determined by responses to questions asking (1) how many members are in each organization, (2) the organization's approximate annual budget, and (3) organization's affiliated or working closely with each respondent.

Additionally, research can be conducted to determine if the organization in question has any celebrity members or spokespersons, as this would add to the organization's public influence. Finally, the respondent is asked if they would be interested in receiving the results of their regional NCTF conference, and how likely they are to incorporate the findings into their views of nanotechnology.

Learning

Worth mentioning is the learning impact that different conference invitees and participants can elicit. Guston, in *Evaluating the First U.S. Consensus Conference: The Impact of the Citizens' Panel on Telecommunications and the Future of Democracy*, synthesized four broad categories of learning that can result from consensus conferences: (1) actual impact, or the substantial impact of the conference results on concrete policy products, such as legislation; (2) impact on general thinking, more specifically the general thinking of elites, who are instrumental in framing issues and setting vocabularies; (3) training of elite participants, or what elite participants have learned as a result of participating in the conference; and (4) interaction with lay knowledge, or what "mass participants and mass nonparticipants" have learned as a result of the conference (Guston 1999).

Although there is no definite way of knowing exactly what impacts on learning a conference will produce before the conference is complete, a rough categorization of participant organizations based on known factors can be accomplished. For instance, the only organizations likely to elicit an impact on concrete policy as a direct result of the

conference are likely to be government organizations due to their direct involvement in the legislative process. Increasing the chance of impacts on the general thinking of elites can be accomplished by including organizations whose composition is strongly elite in nature; government, academic, and health organizations would most typically fit this mold, as would other organizations with a high percentage of academically respected members. Impacts on the training of elite participants would be achieved in roughly the same way. Impacting lay knowledge could be realized by inviting more populist-oriented organizations, such as citizen action groups or consumer protection groups. Media may have the ability to impact all four; due to the nature of the media's impact on societal debate, it is vital to invite an adequate number of media organizations to observe the conferences.

To help the NCTF organizers determine what impacts certain organizations may have on learning, the stakeholder analysis questionnaire includes four items intended to measure this, corresponding to the four categories of learning above. The respondent is asked to rank from one (extremely high/well) to five (not high/well at all) their (1) effort and (2) effectiveness at carrying out the statements in each item. These statements (influencing policy or legislation, influencing terms of debate, educating or training elite persons, and influencing broad public understanding of an issue) seek to gauge a participant's future effort and effectiveness based on their past performance in these areas. Although this method relies on the respondents to accurately critique themselves in relation to the categories of learning (allowing them to misrepresent themselves rather easily), it was chosen because the alternative (manual research into each organization's impact on the four categories) would be extremely time-consuming, and such information

might prove impossible to obtain without the express aid of the organization in question anyway.

Discussion and Recommendations

This paper provided a method of stakeholder analysis for use in identifying potential nanotechnology stakeholders, their positions, influence, and their possible impact on four categories of learning important to the NCTF organizers. To the author's knowledge, this paper represents the first attempt at creating a concrete method for conducting nanotechnology stakeholder analysis in the academic literature.

The results of the stakeholder analysis questionnaire will provide the analyzing party with measurements of the values required for a traditional stakeholder analysis. In addition, the questionnaire will provide a measurement of the respondents' self-reported attempts and effectiveness at influencing a number of areas important to the public's understanding of an issue. Although created to serve the National Citizens Technology Forum's organizers, any researcher wishing to conduct an analysis on nanotechnology stakeholders will find this method useful.

The method outlined above is meant to be a "quick and dirty" method of analyzing stakeholders; thus, depth of analysis was sacrificed to allow for breadth of analysis. Due to the difficulty of identifying both current and future nanotechnology stakeholders, a broad analysis needs to be conducted to ensure that no potential stakeholder is left out. Such a broad, quick analysis is also useful in charting changing stakeholder positions and influence as public sentiment regarding nanotechnology

changes over the years (assuming nanotech mirrors the debates surrounding previous emerging technologies). As the industry matures and "nanotechnology stakeholder" acquires a more solid definition, refinements to the method and questionnaire, especially the questionnaire's scope and depth, can and should be made. It should be mentioned that, as of now, few organizations would classify themselves as nanotechnology stakeholders given the nebulous nature of its current development. Organizations most likely to do so would be those directly involved with nano research and development, nano fabrication, and social issue-centered groups. Government agencies might also consider themselves as nanotechnology stakeholders, although their orientation would primarily be economical right now. Most of those already perceiving themselves as stakeholders do so because of the projected path of nanotechnology, and not because of anything necessarily concrete. It would probably be accurate to state that *expectations* of nanotechnology fuel self-classification as a stakeholder, instead of the actual current state of the field. As such, this author expects the societal deliberative process to mirror that of GMO, in which the expected results of the implementation of the technology is the main subject of debate, although hopefully the debate will proceed more amicably and benevolently than before.

Since the researcher will be analyzing a number of different types of organizations, certain times of the year (such as late December/early January, mid-late April, late November, etc) should be avoided. Although the questionnaire is designed to be completed quickly, the researcher will obtain a more satisfactory response rate if they conduct the survey during parts of the year traditionally considered less rushed.

Additionally, adequate time must be given to respondents to complete the questionnaire; in the author's experience, this should probably be anywhere from 2-4 weeks.

Mapping the relations between stakeholder organizations and identifying possible "stakeholders within stakeholders" should be a part of future nanotechnology stakeholder analyses. Various techniques have been created to address the former, and the latter can be addressed by analyzing the constituent parts of an individual organization for differences in their positions. Such an analysis would require more than a quick, concise questionnaire; interviews of personnel would have to be conducted, and more time and effort would have to be put into the process. As public awareness grows, there will no doubt be greater interest in conducting these types of more intense and thorough analyses.

As the uncertainty of the future transforms into the surety of the present, positions will become more defined and the more interested, influential stakeholders will begin to be known. Since stakeholder analysis "highlights the importance of actors and interest groups in the policy-making process," (Brugha and Varvasovszky 2000b), perhaps groups who are currently disinterested in nanotech might come to recognize this importance and capitalize on the infancy of the field. Invariably, greater inclusion leads to greater consensus, and an early, large pool of interested and knowledgeable stakeholders can only benefit a technology's development.

Figure 1. - The Nanotechnology Stakeholder Survey

Below are seven statements. Please rank them in importance or relevance, with 1 as the highest and 7 as the lowest, for the priorities of your organization. Please do not repeat any ranking.

For each statement, please also indicate your organization's level of interest, from 1 (extremely interested) to 5 (not interested at all).

The environmental impact and/or possibilities presented by nanotechnology needs to be explored more fully.
Relevance/Importance ___
Level of interest: 1 2 3 4 5

The impact of nanotechnology on wealth distribution and/or developing nations needs to be explored more fully.
Relevance/Importance ___
Level of interest: 1 2 3 4 5

The opportunities for economic growth and business development from the emergence of nanotechnology need to be explored more fully.
Relevance/Importance ___
Level of interest: 1 2 3 4 5

The impact of nanotechnology on trade and workers' rights needs to be explored more fully.
Relevance/Importance ___
Level of interest: 1 2 3 4 5

The future interactions among nanotechnology, human evolution, and human biological augmentation needs to be explored more fully.
Relevance/Importance ___
Level of interest: 1 2 3 4 5

The impacts of nanotechnology on policy, regulation, and law (e.g. privacy, intellectual property) need to be explored more fully.
Relevance/Importance ___

Level of interest: 1 2 3 4 5

The impact of nanotechnology on medicine, health, and medical ethics needs to be explored more fully.
Relevance/Importance ___
Level of interest: 1 2 3 4 5

Now, tell us a little about your organization. Please skip those questions that are not applicable to your organization.

1. What is the mission of your organization? (Shorter, paraphrased answers are acceptable.)

2. Approximately how many employees are there in your organization? If your organization is a membership or similar organization, how many members are there?

3. What is your organization's approximate annual operating budget?

4. Please provide the names (and web addresses if available) of any relevant organizations with which your organization is affiliated or has a close working relationship.

5. Would your organization be interested in receiving the results of a National Citizens' Technology Forum on Nanotechnology?

6. How likely is your organization to incorporate the findings and results of the National Citizens' Technology Forum on Nanotechnology into its views on, and expectations of, the emerging field of nanotechnology?

7. Prior to this survey, had your organization been at all interested in issues of nanotechnology?

From 1 (extremely high/well) to 5 (not high/well at all), please rate your organization's (1) effort and (2) effectiveness at influencing the items below. If never attempted or not applicable to your organization, please leave blank.

(1) Effort	(2) Effectiveness	
		Influencing policy or legislative action on an issue important to your organization.
		Influencing the agenda or the terms of debate (societal, academic, governmental, etc) on an issue important to your organization.
		Educating or training knowledgeable or elite persons on an issue important to your organization.
		Influencing broad public understanding of an issue important to your organization.

Please list any additional comments or suggestions below.

Figure 2. – The List of Organizations Chosen to Receive the Nanotechnology Stakeholder Survey

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Madison, Wisconsin

Media:

jgarrett@madisonmagazine.com – Jennifer Garrett at Madison Magazine
bnardi@madisonmagazine.com – Brennan Nardi at Madison Magazine
blang@journalsentinel.com – Becky Lang at the Madison Journal-Sentinel

Media Organizations:

Wisconsin Technology Network: http://wistechnology.com/
Joe Plas, Senior Editor: joe@wistechnology.com

Educational Institutions:

University of Wisconsin-Madison Center for Nanotechnology:
Franco Cerrino, Director - fcerrina@wisc.edu
Phone: (608) 263-4955

University of Wisconsin Nanoscale Science and Engineering Center:
Paul F. Nealey, Director - nealey@engr.wisc.edu

Center on Nanotechnology and Society at the Chicago-Kent College of Law:
312.906.5337
info@thehumanfuture.org

Institute for Nanotechnology at Northwestern University:
nanotechnology@northwestern.edu
Director: Chad A. Mirkin, Rathmann Professor of Chemistry
Tel 847-467-7302

Business/Industry:

nPoint, Inc.: http://www.npoint.com/
info@npoint.com

Platypus Technologies: http://www.platypustech.com/
1-866-296-4455
info@platypustech.com

Mad City Labs, Inc.: http://www.madcitylabs.com/
Tel (608) 298-0855
mclgen@madcitylabs.com

Imago Scientific Instruments: http://www.imago.com/imago/
Toll-free: +1 (877) GO-IMAGO
Information@imago.com

Bruker AXS: http://www.bruker-axs.de/
Tel. +1 (800) 234-XRAY
info@bruker-axs.com

ARCH Venture Partners: http://www.archventure.com
T 773 380 6600

NanoBusiness Alliance: http://www.nanobusiness.org/
alisa@nanobusiness.org

Nanodisc: http://www.nanodiscinc.com/
E-mail Address for academic collaborations: research@nanodiscinc.com

Arryx, Inc.: http://www.arryx.com/
Phone: 312-726-6675
info1@arryx.com

Legal/Politics/Policy:

Foley and Lardner LLP: http://www.foley.com
Site for contact: http://www.foley.com/admin/contact.aspx

Wisconsin Tech Lawyers:
http://lawyers.findlaw.com/lawyer/practicestate/Science-&-Technology-Law/Wisconsin

Wisconsin Bar: http://www.wisbar.org/
(800) 728-7788 (nationwide)
service@wisbar.org

Wisconsin Green Party: http://wisconsingreenparty.org
608-20-GREEN (608-204-7336)
mail@nsingreenparty.org

Democratic Party of Wisconsin: http://www.wisdems.org/
(608) 255-5172 (voice)
party@wisdems.org

Republican Party of Wisconsin: http://www.wisgop.org
Phone: (608) 257-4765

Libertarian Party of Wisconsin: http://www.lpwi.org/pws/
director@lpwi.org

Forward Wisconsin: http://www.forwardwisconsin.com/
Scott Reigstad, Director of Communications: sreigstad@commerce.state.wi.us

Wisconsin Department of Commerce: http://commerce.wi.gov/
Phone 608-266-1018
Communications Director: newsroom@commerce.state.wi.us

Brinks Hofer Gilson & Lione: http://www.usebrinks.com/
Site for Contact: http://www.usebrinks.com/contact.cfm

Wisconsin State Legislature Committees:
List of Wisconsin Committees: http://www.legis.state.wi.us/assembly_committees.htm

NGOs:

Accelerate Madison: http://www.acceleratemadison.org
info@acceleratemadison.org

Wisconsin Biotechnology and Medical Device Association:
http://www.wisconsinbiotech.org/
Site for Contact:
http://www.wisconsinbiotech.org/about/forms.php?id=86&category_id=1206

The Wisconsin Technology Council: http://www.wisconsintechnologycouncil.com/
Liz Stephens, Executive Assistant: lstephens@wisconsintechnologycouncil.com

Wisconsin Innovation Network: http://www.wisconsintechnologycouncil.com
info@wisconsintechnologycouncil.com

John Muir Chapter Sierra Club: http://wisconsin.sierraclub.org/
john.muir.chapter@sierraclub.org

Wisconsin Technology Education Association: http://www.wtea-wis.org/
joe.ciontea@wtea-wis.org

Biomedical Technology Alliance: http://www.biomedtechalliance.org/
info@biomedtechalliance.org

Wisconsin Environmental Initiative: http://www.wi-ei.org/
info@wi-ei.org

Citizen Action of Wisconsin: http://citizenactionwi.org/
Madison Recruiting (most relevant address found): andrew.lavelle@citizenactionwi.org

Wisconsin Public Interest Research Group: http://www.wispirg.org/
Dan Kohler, Director: dankohler@wispirg.org

Grassroots of Waukesha: http://www.grassrootswaukesha.org/
info@grassrootswaukesha.org

Wisconsin League of Conservation Voters: http://www.conservationvoters.org/Public/
info@conservationvoters.org

Clean Wisconsin: http://www.cleanwisconsin.org/
information@cleanwisconsin.org

Lutheran Office for Public Policy in Wisconsin: http://www.loppw.org/
Phone: (608) 255 7399

Progressive Dane: http://www.prodane.org/
Phone: (608)257-4985
office@prodane.org

River Alliance of Wisconsin: http://www.wisconsinrivers.org/
info@wisconsinrivers.org

Wisconsin Conference UCC: http://www.wcucc.org/
Phone: 608-846-7880

Wisconsin Community Action Program: http://www.wiscap.org/
Richard Schlimm, Executive Director: rschlimm@wiscap.org

Madison Social Justive Center: http://www.socialjusticecenter.org
sjc@choiceonemail.com

Wisconsin Community Fund: http://www.wisconsincommunityfund.org/
info@wcfund.org

Wisconsin Hospital Association: http://www.wha.org/
Sherry Rabuck, Executive Assistant: srabuck@wha.org

Wisconsin Women = Prosperity: http://www.wiwep.org/
info@wiwep.org

North American Lake Management Society: http://www.nalms.org/
info@nalms.org
Darcy Brown, Administrative Assistant: dbrown@nalms.org

Advanced Technology Alliance: http://www.iltechalliance.org/default.aspx
info@iltechalliance.org

The Nature Conservancy in Wisconsin:
http://www.nature.org/wherewework/northamerica/states/wisconsin/
wisconsin@tnc.org

The Wisconsin Forum for Healthcare Strategy: http://www.wfhs.org/
Amy Hoell, Communications: amy.hoell@noble.net

Wisconsin Manufacturers and Commerce: http://www.wmc.org/
Tele: (608) 258-3400
Site for Contact: http://www.wmc.org/AboutWMC/Contact%20Us/contactus.cfm

Wisconsin Network for Peace and Justice: http://www.wnpj.org/
info@wnpj.org

Tempe, Arizona

Educational Institutions:

The Center for Nanotechnology in Society at ASU: http://cns.asu.edu/
cns@asu.edu

Business/Industry:

Intel Arizona: http://www.intel.com/community/arizona/index.htm
David Olney, Site Development Manager - david.olney@intel.com
Tel: 480-554-8080

Motorola Arizona: http://www.motorola.com
Juli Burda, Manager of Media Relations - juli.burda@motorola.com
(Corporate Contact, not local.)

SDC Powders Manufacturing: https://www.sdcpowders.com/
Phone: 480-966-6106 x305
E-mail: alan.polish@sdcmaterials.com

Bourne Research: http://www.bourneresearch.com/
Tel: 1.480.695.0521
marlene@bourneresearch.com

Nano and Giga Solutions, Inc.: http://www.nanoandgiga.com/
info@nanoandgiga.com

Fullerene International Corporation: http://www.fullereneinternational.com/fic/
Phone: 520.574.6534
info@fullereneinternational.com

Nanoscience Instruments: http://www.nanoscience.com/
info@nanoscience.com

M.E.R. Corporation: http://www.mercorp.com/mercorp/
mercorp@mercorp.com

DuPont Air Products Nanomaterials L.L.C.: http://www.nanoslurry.com/
Site for Contact: http://www.nanoslurry.com/contact.htm

Nanolight Technology: http://www.nanolight.com/
info@prolume.com

Entrepix: http://www.entrepix.com/
info@entrepix.com

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