

# **PROJECT PROMETHEUS STAKEHOLDER INTERVIEWS FINDINGS AND RECOMMENDATIONS**

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## **Comments or Questions**

If you have comments or questions regarding this Final Report, please call Janesse Brewer at (970) 513-5847 or Peter Adler at (970) 513-5841.



## **Introduction**

This document is our final report on the assessment interviews conducted regarding Project Prometheus. To date we have interviewed forty-one potential stakeholders regarding Project Prometheus. Our report outlines the findings based on those interviews; options for addressing anticipated interaction with stakeholders; and The Keystone Center's recommendations for stakeholder involvement based on both questions and concerns raised during the interviews and Keystone's broad experience designing stakeholder involvement strategies for science-intensive issues.

It is worth noting the timing of these interviews. All of them took place in the wake of the Columbia accident, some prior to the Columbia Accident Investigation Board (CAIB) Report being released, and some after its release. All but a few also occurred prior to President Bush's speech announcing a new direction for space exploration.

## **Background on The Keystone Center**

For the past 29 years, The Keystone Center for Science & Public Policy has served as a trusted broker between public, private, and civic sector interests with a reputation for both integrity and constructive results. Keystone's efforts focus on complex issues where social, political, technical, and economic challenges intersect. In essence, Keystone seeks to marry high quality technical information to high quality social and political process so that smart, durable, and effective solutions emerge and unnecessary conflict is avoided. Keystone's specialty is "dialogue by design." This means formulating the specific conditions that allow stakeholders and participants to engage with one another and the subject matter in ways that are disciplined and productive. Past Keystone projects have led to important results and include, among others: the Prescription Labeling Dialogue (Department of Health and Human Services and Food and Drug Administration); the Assembled Chemical Weapons Assessment Dialogue (Department of Defense (DOD)); the Regional Initiative to Eliminate Micronutrient Malnutrition through Public-Private Partnership in Asia (Asian Development Bank and the Governments of the People's Republic of China, India, Indonesia, Pakistan, Thailand, and Vietnam); and the Keystone Dialogue on Regional Transmission Organizations.

Please see Appendix A for more information on The Keystone Center, a list of Keystone's Board of Trustees, and Keystone's Statement of Neutrality and Independence. You may also visit our Web site at [www.keystone.org](http://www.keystone.org) for more information.

## **Keystone Task and Methodology**

In January 2001 Keystone was asked to draft a concept paper regarding an approach to stakeholder involvement for Project Prometheus, formerly called the Nuclear Systems Initiative Program. The approach Keystone suggested included an assessment of the potential stakeholders and their interests and a strategy for working productively with those stakeholders throughout the life of the Program.

At the request of the National Aeronautics and Space Administration (NASA), Keystone explicitly added an additional step to include internal discussions with a number of NASA and Jet Propulsion Laboratory (JPL) personnel. In these interviews NASA and JPL staff discussed, among other things, their thoughts on potential questions, topics of concern, and potential areas of controversy.

Keystone reviewed available Project Prometheus materials and participated in several sessions with senior NASA staff in order to understand NASA's interests, questions, and potential challenges regarding the Program. Keystone then developed an invitational letter that accompanied NASA fact sheets and distributed these to the interviewees. Please see Appendix B for a copy of this letter. While the interviews were designed to be elicitive and open-ended, the following questions served as the backbone of the conversation:

- ◆ What is your understanding of Project Prometheus, its mission, its component programs, and its timetable?
- ◆ How important is deep space research and science? Is this a topic in which the scientists in your organization take an interest?
- ◆ Has your organization had any previous dealing with NASA? What's your experience with NASA on previous projects and missions? Please describe.
- ◆ What about Project Prometheus gives you comfort? What worries you?
- ◆ What information in the background papers is most useful?
- ◆ What's missing? What kind of information do you need more of?
- ◆ If NASA's senior administrators were in the room, what would you ask them? What also would you want them to know?
- ◆ Beyond National Environmental Policy Act (NEPA) compliance, how would you and your colleagues most like to interact with NASA on this project?
- ◆ How can NASA best scope potential NEPA issues?
- ◆ If you believe your organization would be interested in Project Prometheus, would you rather that NASA come back to you closer to launch, or would you foresee having on-going, long-term interactions?
- ◆ What interests do you have while this program is in its research phase?
- ◆ What interests do you have around launch issues?
- ◆ Is this an issue that your organization is likely to track and/or on which your organization is likely to take a position? Why?
- ◆ If this is not an issue at the moment, what would make it an issue?
- ◆ Who else should we contact?

At the beginning of each interview, Keystone reviewed the purpose of the interviews and provided two assurances to all interviewees. First, it was noted that The Keystone Center is not a public relations firm, has not been hired to deflect or obfuscate concerns, and is solely

focused on constructing new and effective avenues of public engagement if and when they are appropriate. Second, Keystone assured all respondents that no individual or group would be quoted and that any report provided back to NASA would focus on aggregated themes, issues, ideas, and recommendations.

## **Stakeholders Interviewed**

A list of interviewees was developed by The Keystone Center and approved by NASA.<sup>1</sup> These interviewees are from non-governmental organizations (NGOs), state regulators at the potential testing sites, and space policy experts. Interviewees expressed their personal opinion for the purposes of this interview and not necessarily the official views of their organization, agency, academic institution, or community. In some cases the respondent was familiar with NASA and its programming, in other cases they were not. Thus far, we have talked to the following individuals:

- Mr. Steven Aftergood, Senior Research Analyst, Federation of American Scientists
- Mr. Steve Allred, Director, Idaho Department of Environmental Quality
- Ms. Kathie Bailey Mathae, Federal Relations Officer, Director of Space Science Working Group, Association of American Universities
- Mr. Gregory Benford, Professor, Plasma Physics and Astrophysics, University of California, Irvine
- Ms. Carol Berrigan, Director, Industry Initiatives, Nuclear Energy Institute
- Mr. Allen Biaggi, Administrator, Nevada Department of Conservation & Natural Resources, Division of Environmental Protection
- Dr. Martin Butcher, Director of Security Programs, Physicians for Social Responsibility
- Dr. Chris Chyba, Carl Sagan Chair for the Study of Life in the Universe; Co-Director, Center for International Security and Cooperation, Stanford Institute for International Studies
- Mr. Tom Cochran, National Resources Defense Council
- Mr. Thomas Connelly, Senior Vice President and Chief Science and Technology Officer, DuPont
- Admiral Bruce DeMars, U.S. Navy (Retired)
- Mr. Peter Folger, Public Affairs Manager, American Geophysical Union
- Dr. Erica Frank, M.D., M.P.H., Board Member, Physicians for Social Responsibility; Associate Professor, Vice Chair, and Director of Preventive Medicine Residency Program, Department of Family and Preventive Medicine, Emory University
- Dr. Lou Friedman, Executive Director, Planetary Society

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<sup>1</sup> Please see Appendix C for a complete list of interviewees. While this list by no means captures the full entirety of stakeholders, it is hoped that it represents an important cross section of perspectives on this issue. It should be noted that in some cases Keystone was declined an interview. Declinations fell into several categories. Some did not feel they had a stake or interest in the issue. In one other case, Keystone was declined an interview because the interviewee expressed concern that Keystone was doing the work of a “public relations firm” and would be supplying NASA with strategies that would undermine stakeholder concerns. In a few other cases we were unable to schedule interviews.

- ♦ Mr. Tom Grumbly, former Undersecretary of Energy and Assistant Secretary for Environmental Management, Department of Energy
- ♦ Mr. Carl Johnson, Deputy Commissioner, Air & Waste Management, New York Department of Environmental Conservation
- ♦ Mr. Greg Kalmbach, Chair, Florida Chapter, Sierra Club
- ♦ Mr. Steve Kerekes, Director, Media Relations, Nuclear Energy Institute
- ♦ Mr. Harry Lambright, Director, Center for Environment Policy and Administration and Professor of Political Science and Public Administration, The Maxwell School of Citizenship and Public Affairs, Syracuse University
- ♦ Mr. John Logsdon, Director, Space Policy Institute; Professor of Political Science and International Affairs, Elliot School of International Affairs, George Washington University
- ♦ Mr. Scott Lynch, Communications Director, Peace-Action Organization
- ♦ Mr. Kevin Lynn, Energy Co-Chair, Turtle Coast Group, Sierra Club
- ♦ Dr. Kevin Marvel, Deputy Executive Officer, American Astronomical Society
- ♦ Mr. Howard McCurdy, Professor, School of Public Affairs, Department of Public Administration, American University
- ♦ Mr. John Owsley, Division Director, Tennessee Department of Environment and Conservation, Department of Energy
- ♦ Mr. Bob Park, American Physical Society
- ♦ Mr. Bud Ris, Retired President, Union of Concerned Scientists
- ♦ Mr. Alex Roland, Professor, Department of History, Duke University
- ♦ Mr. Stephen I. Schwartz, Publisher, Bulletin of the Atomic Scientists
- ♦ Ms. Denise Sheehan, Executive Deputy Commissioner, New York Department of Environmental Conservation
- ♦ Mr. Gerry Sikorski, Chairman, Board of Directors for Holland and Knight; Former Congressman for Minnesota
- ♦ Mr. Richard Smith, Director, Policy Analysis, Nuclear Energy Institute
- ♦ Ms. Cathy Stanton, Member, Turtle Coast Group, Sierra Club
- ♦ Mr. Merv Tano, President, International Institute for Indigenous Resource Management
- ♦ Mr. James S. Tulenko, Vice President and President-elect, American Nuclear Society
- ♦ Mr. Ross Vincent, Senior Policy Advisor, Sierra Club
- ♦ Mr. Greg Wetstone, Director of Advocacy Programs, Natural Resources Defense Council
- ♦ Mr. Paul Wolpe, Assistant Professor of Sociology, Center for Bioethics, University of Pennsylvania
- ♦ Mr. Jim Woodfin, Chair, Turtle Coast Group, Sierra Club
- ♦ Ms. Barb Youngberg, Division of Solid & Hazardous Materials, New York Department of Environmental Conservation
- ♦ Mr. Durwood Zaelke, President, Center for International Environmental Law

## **Findings**

Interviewees raised a wide and intriguing variety of questions, which are summarized in Appendix D. Taken together, the interviews conducted by Keystone suggest the following findings:

- ♦ **Some individuals and organizations know a great deal about Project Prometheus, while others know very little.** Project Prometheus and its objectives are not widely known or clearly understood outside of those individuals and organizations that specifically track NASA activities. In some cases, those who had heard of Project Prometheus before we approached them were aware of the Program due to the monies associated with the effort. Individuals were much more aware of current Mars exploration efforts and President Bush's future strategy for space exploration.
- ♦ **Nuclear power is a hard sell and raises questions of alternative technologies.** After reviewing the materials provided, most interviewees better understood the case NASA is making for the proposed use of nuclear technologies given the exploration goals. All respondents indicated that no matter how noble the goal, nuclear technology is a difficult sell and will raise questions about space nuclear applications for most Americans. Several asked what other technology options have been considered and how thoroughly the options have been vetted. They suggested that NASA should be ready to engage in discussions about various alternative technologies (solar, fuel cells, nanotechnology, etc.), should openly and directly address the alternatives question in written materials, and should show side-by-side comparisons of costs, efficiencies, and risks.
- ♦ **Potential international implications for nuclear non-proliferation positions held by the United States.** Several knowledgeable respondents raised questions about the type of nuclear materials that will be used in space applications. Foremost, would the reactor use plutonium or uranium and of what grade? Concern was expressed that using highly enriched uranium (HEU) would fly in the face of international nuclear non-proliferation efforts being urged on other countries by the U.S. diplomatically. Second, some raised the international implications that any potential accident or fly-by would have, should there be an accident. It was suggested that NASA maintain an international consciousness by staying actively aware of and coordinated with international interests and concerns regarding technologies developed in Project Prometheus and used on any future missions.
- ♦ **A select few will continue to track NASA activities closely, but for many national-level NGOs, priorities lie elsewhere.** For many of the NGOs, their chapters and boards are much more concerned about losing ground on hard-fought issues like clean air and clean water. Some respondents indicated that while their organization might not track NASA programs or nuclear issues closely, they know there are organizations that do and this gives them increased comfort. However, there are some NGOs who expressed interest in early and on-going discussions on Project Prometheus. Some anticipated that they would have staff dedicated to tracking this issue, particularly as NASA approached launch.

- ♦ **Competing national spending priorities puts space exploration in a tenuous place.** When asked how important space exploration is in general, several interviewees expressed concerns that space exploration represents the very essence of human nature. NASA's mission to "explore the universe and search for life," and the subsequent questions of "How did the universe begin and evolve?", "How did we get here?", "Where are we going?", and "Are we alone?" are compelling questions to many. That being said, as a number of interviewees thought about the funds being allocated to Project Prometheus (or other NASA activities) versus other social, environmental, and defense initiatives, many felt more conflicted about the Program and where it falls relative to other national priorities. Some expressed that future technological advances may allow such explorations to occur without risks to the residents of launch areas, production and testing areas, shipping routes, landing areas, and all the potential accident impact locations. Concern about whether funding for Prometheus was sufficient to conduct the project with complete safety was also expressed. With President Bush's recent unveiling of the new NASA direction, there continue to be questions around the programmatic costs given the country's other financial priorities. While this is not an issue that Project Prometheus has the full authority and burden to address, it is an important factor in the backdrop of this Program.
- ♦ **Levels of concern regarding Project Prometheus and NASA can change.** When asked what might change their level of concern related to Project Prometheus, several indicated that if they started to hear negative feedback or receive inquiries from their constituencies or chapters, then this would automatically increase their level of scrutiny. Others indicated that if credible watchdog groups became concerned regarding NASA's technical approach or how the Agency was working to address reasonable concerns, then this would raise a red flag for them. Many of those respondents stated that their level of concern would change if NASA was less than transparent or if the Agency sought to short cut NEPA or seek environmental and regulatory exemptions of any kind.
- ♦ **Some skepticism regarding "true" motivation for Project Prometheus.** Some believe that Project Prometheus is a potential link in an effort to weaponize space and it could impact NASA's credibility, impartiality, and international prestige. Others wondered that this might be part of an effort to revitalize the nuclear industry as a whole. Among some, these concerns create confusions and suspicions of hidden or collateral motives.
- ♦ **Environmental questions and health concerns persist.** Nearly everyone expressed concerns about environmental and human health issues related to testing and launch. Most concerns were related to Earth and not to other planets. Questions and concerns focused specifically on material life cycles, i.e., where the nuclear materials were coming from, what type of nuclear material would be used, their transportation, waste streams, the duration of testing and operations, and the disposal of end-cycle byproducts. Some raised concerns about past and present attitudes and practices regarding what constitutes "safe" disposal of nuclear materials. Human safety issues focused on the use of nuclear technologies and the potential for radiation exposure, and some interviewees indicated that more information on the long-term effects of low level radiation would be important. It was also recognized that, with the recent Columbia accident, NASA would have to be

all the more diligent in order to assure the public that the nuclear technologies are safe enough to launch over populated areas.

- ♦ **There is a qualified confidence in NASA's ability to do a safe job.** When asked what gives them comfort about Project Prometheus, some respondents felt that in all likelihood the Program can be executed safely. Some were more skeptical, noting that space exploration and the necessary technologies are inherently risky. Some noted that the confidence in NASA's ability to do a safe job varied according to the enabling technologies proposed. The proposed reactor technology raised more concerns than the Radioisotope Thermoelectric Generators (RTGs). Others, particularly with the release of the Columbia Accident Investigation Board Report, were worried that NASA's culture would need to dramatically change in order to allow for the highest levels of safety. While the safety protocols are not explicit in the fact sheets, interviewees understand they will need to be comprehensive. They recommended that NASA provide more quantifiable, substantive information in their fact sheets and less information about review procedures, all of which were internal to the government.
- ♦ **There are positive and negative views regarding the collaboration between NASA, Department of Energy (DOE), and the DOE - Naval Reactor Program.** Some respondents are comforted by the potential collaboration between NASA and the DOE - Naval Reactor Program given the Navy's excellent safety record with nuclear submarines. Some raised concerns given the traditionally secretive nature of the Naval Reactor Program and others wondered if DOE - Naval Reactor Program's involvement was an indication that the development of these technologies might have military applications.
- ♦ **Strong desire for transparency and future interactions, but ambivalence about when.** Several respondents said that our interview gave them some assurance that NASA is recognizing, and may even engage stakeholders in dialogue about potentially controversial issues. Generally, there was a call for an increased level of transparency and outreach to interested groups through written materials as well as face-to-face interactions that would allow for detailed discussions on various elements of Project Prometheus. When asked how and when NASA could be most effective in reaching out to those interested stakeholders, the reaction was mixed. Some stated that while they may be unable to respond to every offer for engagement, it gave them confidence in the Agency to know that information is available and that NASA is exploring potential options for stakeholder input. Some wanted on-going access and updates. Others wanted NASA to communicate when there is potential for input. As a general rule, the closer the NGO is to the launch site community, the more interested they are in earlier and more intensive interaction. The Keystone Center received some specific feedback on the fact sheets and we will communicate this to the appropriate NASA/JPL staff.
- ♦ **Desire for credible independent review—particularly in the areas of safety to environment and health and the analysis of risk.** In addition to being transparent with as much information as possible, many respondents stressed the importance of credible, independent review of NASA data, particularly as it relates to the safety and risk

elements of the Program. Keystone recommends that NASA work with a broad range of stakeholders to identify those areas of the Program that could further benefit from independent review, then identify potential reviewers who would be best suited to conduct such a review.

## **Options for Public Engagement**

At a meeting focused on stakeholding and risk communication approaches for the Mars Exploration Program (MEP) held on September 5-6, 2001 at Wallops Island, NASA participants noted that there are three broad and continuing priorities and goals for engaging the public, as follows.



*Illustration I: NASA Hierarchy of Stakeholder Goals in the Face of Potential Controversy*

At the same meeting, MEP officials noted that NASA should continue to give the public multiple opportunities to join the great and far-reaching adventures of space exploration; continue earning and maintaining the public's confidence; and actively seek the opinion and input of diverse publics. In turn, these goals need to be guided by the on-going principles of transparency, inclusion of different perspectives and viewpoints, and open interaction with colleagues, critics, and supporters. These goals and objectives, developed for the Mars Program, have been endorsed by other programs within NASA and are goals that also appear appropriate for Project Prometheus.

In light of the interviews conducted by Keystone and the findings summarized above, NASA faces three possible strategic approaches to managing the questions and concerns that have been raised. Because there is never a perfect strategy, each approach has advantages and disadvantages, which NASA must weigh. The three strategies are also not mutually exclusive.

## **Option 1: The “Letter of the Law” Approach**

At a strategic level, NASA could choose to do only that which is legally required by law under the National Environmental Policy Act (NEPA) and other legal or regulatory requirements that the agency is subject to, and nothing more. The “letter of the law” approach will constrain public involvement to that which is strictly mandatory and compulsory. Complying only with the strict legal requirements of public participation must be done regardless of what else is done and compliance is critical to issues where there are potentially complex and controversial questions about science, technology, and social and environmental impacts. However, a “de minimus” approach has at least three major problems. First, it often is perceived to be (and usually is) based on a “Decide, Announce, Defend” approach, which breeds skepticism and anger. Second, it does not allow for NASA to engage in detailed discussions, interactions that foster insight and mutual learning, nor problem solving discussions around potential areas of concern. NASA may not learn much this way. Third, this approach is contrary to the Administrator’s stated policy of openness and transparency.

## **Option 2: Intensive Information Dissemination Approach**

Alternatively, NASA could, in addition to the above, seek to conduct the greater amount of its public engagement through information development and dissemination. This can take any of a number of forms, all of which NASA has experience with, including: the use of next-generation fact sheets and brochures on Project Prometheus; systematic media presentations on television, radio, and the Web; briefings and question and answer sessions with science journalists; frequently asked questions with direct responses to Web, letter, or telephonic questions; and speaking engagements to professional societies, space and science-related interest groups, and civic and community groups in the research and development or launch community areas where Project Prometheus will have its greatest public contact. Heavy emphasis on information dissemination has the benefit of giving the public a lot of information but it also runs the risk of being viewed as propaganda, spin, and attempts at obfuscation because of information selectivity bias. In other words, there is no guarantee that the information responds to the areas of greatest public concern and may engender expert wars in the media.

## **Option 3: Direct Engagement Approach**

A third strategy involves direct and open engagement with nuclear space friends, critics, skeptics, and fence-sitters. In addition to complying with the law and providing information, this approach often utilizes public meetings, public workshops, town meetings, and open houses as a way of meeting face-to-face with the public. This general strategy is useful if it is organized and executed correctly. It gives an agency like NASA multiple opportunities to show its own human face and to take its efforts to different thematic or geographic communities. However, public events have two potential drawbacks. First, they tend to primarily attract people who are critical, angry, and who are rarely in support of an idea or project. Second, such meetings require very careful planning and implementation to avoid being captured and dominated by a single stakeholder or interest group who is dead set against a project, in this case Project Prometheus, and who would simply use the event for their own purposes.

We want to reiterate that no one strategy is without problems and that the three in combination may offer a productive and useful approach, if the strategy is implemented with care.

## **Keystone Recommendations for Future Engagement with Stakeholders**

Based on the specific interviews conducted, and on Keystone's experience in working through controversial, science-intensive policy issues, we offer NASA the following six recommendations. We also offer the following caveat: There is no magic process or strategy that can guarantee enthusiasm and support for Project Prometheus. Space nuclear power is a controversial topic and is likely to remain so. Nonetheless, Keystone's experience shows that the combination of recommendations described here will (a) allow NASA to provide desired information to those interested in space exploration and Project Prometheus; (b) provide maximum positive interaction with those stakeholders best able to identify questions and potential concerns; and (c) help both NASA and some portions of the public learn things they didn't know before. We believe that early, carefully detailed, and well implemented interactions will create a "public learning" mechanism that elevates questions and concerns in a way that NASA can address or potentially mitigate while in the research and development stages of the Project.

**I. Strengthen written materials as the Program evolves.** Keystone recommends that NASA further enhance and improve the Project Prometheus information found in fact sheets and on the Web site. Generally, interviewees want more information on 1) the rationale and benefit for the development and proposed use of these technologies; 2) worker and environmental safety; and 3) the risks associated with the proposed technologies and NASA's approach to addressing and minimizing those risks. Respondents recommended that NASA have a tiered approach to information, as various parties want different levels of detail. Information needs to be accessible in Spanish as well as English. Under a separate memorandum, Keystone will outline specific feedback and suggestions on the fact sheets.

**II. Increase interaction with professional societies and groups.** Keystone recommends that Project Prometheus continue to interact with professional societies as well as private, public, and civic sector organizations that take interest in the space sciences. All of the professional societies we talked with had various newsletters, meetings, and symposiums that Project Prometheus could attend or be featured in. This represents a good opportunity to interact with the scientific communities interested in space exploration. Please see Appendix E for a chart outlining various types of public involvement structures depending on the informational needs of the parties involved.

**III. Initiate early interaction with state and local regulators.** State regulators at the potential testing sites all expressed an interest in early and regular communication with NASA regarding Project Prometheus' potential on-the-ground impacts. They particularly stressed that the earlier they had a firm understanding of the technical nature of the studies, the better able they would be to respond to permit applications. Each in their own way emphasized the importance of working with the various constituencies in the surrounding area and some had suggestions on how to approach NEPA and stakeholder involvement in their states and communities.

**IV. Invite a diverse group of individuals to participate in a dialogue to help scope issues and problem-solve as appropriate.** While NASA is the final decision-maker on all issues related to Project Prometheus, Keystone recommends that NASA and its Agency partners work with a group of approximately 20 stakeholders from a diversity of perspectives to scope potential NEPA issues, identify and improve the definition of, and information surrounding, critical issues, and provide systematic advice on selected issues that are important to NASA. Not the least of which is NASA's continuing question of how to best reach and work with various constituencies, perspectives, and stakeholder groups.

This group would participate in an exchange of detailed information with NASA regarding the safety, environmental, and health-related questions in hopes of identifying questions and potential barriers as early in the NEPA process as possible so that they might be jointly addressed or, where they cannot be addressed, to jointly agree on how questions should properly be framed. The group would include perspectives from NASA, DOE, DOE - Naval Reactor Program, relevant state regulators, professional scientific societies, and advocacy groups from the national level and from the launch community area.<sup>2</sup> These meetings should be open to the public and held in relevant locations (i.e., Washington D.C., launch community, potential testing sites) with opportunities for public comment. Meeting summaries that outline the areas of discussion and actions would be drafted for review by the Dialogue group and, once finalized, made available to the public.

Attached in Appendix F is a "Logic Model" that The Keystone Center often uses to help formulate dialogues on important, science-intensive issues that pose challenging social, environmental, or economic problems. Appendix G contains a draft white paper outlining the start of a "Convening Document" that would capture the design for such a dialogue and provide additional detail. Keystone typically drafts such concept papers as a starting place to involve potential invitees to the dialogue. This paper is used as a way to solicit process design ideas from stakeholders. Typical questions Keystone might ask as it talks with potential stakeholders are:

- ♦ "What is missing from the recommended design?"
- ♦ "Are there other attributes you would need to see in such a dialogue in order to feel comfortable participating in the suggested dialogue?"
- ♦ "What other understandings, protocols, or ground rules might be necessary to maximize the possibilities of success?"

**V. Build in independent review that will be publicly available and responsive to stakeholder questions and concerns.** While NASA has a number of internal and external review structures in place, Keystone heard quite emphatically that the transparency of data and information, the thoroughness of questions and assumptions, and the independence of reviewers are of crucial importance. Many mentioned this was particularly true given NASA's recent failures in the space shuttle program. Keystone recommends that the issue of independent review be addressed with a diversity of stakeholders as suggested in Recommendation IV.

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<sup>2</sup> Keystone proposes talking to a number of individuals included in this set of interviews, others we were unable to reach, and additional individuals that were suggested to us by interviewees.

**VI. Coordinate closely with Congress.** Keystone recommends that NASA coordinate closely with Congress by keeping members and relevant staffers informed of programmatic and stakeholder activities. Furthermore, NASA should consider encouraging interactions between stakeholders and relevant members and/or staffers through the Dialogue group.

## **BACKGROUND ON KEYSTONE**

The Keystone Center ([www.keystone.org](http://www.keystone.org)) is a 29-year-old non-profit organization that brings good science, good people, and good thinking to the table in pursuit of smart decisions. We do this through three business units. Keystone Science School (KSS) provides hands-on, standard-driven science programs to thousands of intermediate school children at our facility in the Rocky Mountains. The Center for Professional Education and Leadership (PEL) offers a variety of executive and teacher training programs, primarily in the area of sustainable development. Our third unit is The Keystone Center for Science & Public Policy (CSPP). CSPP provides expert third-party facilitation and consensus-building on a wide variety of environmental, energy, and public health issues. Some of our high impact projects have included prescription labeling for FDA, the Assembled Chemical Weapons Dialogue, the Regional Initiative to Eliminate Micronutrient Malnutrition in Asia, the Keystone Dialogue on Regional Transmission Organizations, and the Global Climate Change Dialogues.

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**Roger McCarthy**  
Senior Vice President and COO  
Breckenridge and Keystone  
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**Diane Osgood**  
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Houston, TX

**Bruce Paton, M.D.**  
Clinical Professor of Surgery  
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**Joe Pierpont**  
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Baldwin Family Office, LLC  
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**Harold A. Pratt**  
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Attorney General  
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Van Ness Feldman  
Former Congressman  
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**Jerry Steiner**  
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**Durwood Zaelke**  
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# STATEMENT OF NEUTRALITY & INDEPENDENCE

## Background

The Center for Science and Public Policy (CSPP) specializes in helping community, government, and business leaders acquire the scientific, social, economic, and political information they need to make sound decisions. More specifically, CSPP helps the public, private, and civic sectors use scientific knowledge and state-of-the-art consensus-building in the areas of environmental, health, and energy policy. We accomplish this through independent facilitation and mediation services on a range of significant policy issues.

## How We Maintain Our Trustworthiness and Independence

We intentionally seek to sustain broad confidence by:

- ♦ Ensuring that a broad range of perspectives are brought to bear on the decision-making processes we facilitate, including the perspectives of those most affected by the decisions or policies at issue.
- ♦ Remaining impartial on the substance of issues being discussed while ensuring that participants decide the issues being discussed.
- ♦ Striving to maintain a balanced and diverse funding base institutionally, and wherever possible and appropriate, on a project basis.
- ♦ Considering the entire group as the "client," recognizing that any participant, not just the funder, can decide that the facilitator is not acting as a neutral party and should be excused from his or her duties.
- ♦ Fully disclosing the sources of our funding.
- ♦ Reserving the right to withdraw from a process if the facilitator has just reason to believe participants are not participating in good faith.
- ♦ Ensuring that decision-makers within the organization and our projects understand that they cannot use the facilitator to influence the outcome of any of our projects.
- ♦ Encouraging decision-makers in our projects to use consensus wherever possible and appropriate.
- ♦ Encouraging the fullest disclosure and exchange of information that may be vital to finding solutions while respecting that participants may choose to place constraints on what is made public and what remains proprietary.

## Commitment to Participants

1. **Disclosure.** Participants in CSPP activities have a right to know, in advance, any past and present relationships that could give rise to actual or perceived conflicts of interest.
2. **Goals, Purposes, and Objectives.** Participants in CSPP activities have a right to understand what they are about to be involved in before they get involved. As facilitators and technical experts, we have a duty to the individuals and groups we serve to help clarify the reasons for undertaking a project, initiative, or series of meetings, and what can be expected from us.
3. **Role of CSPP Facilitators.** Participants in CSPP activities have a right to understand who is responsible for Keystone's presence in a particular policy issue, how we got involved, and what we will and will not be responsible for doing. We are obligated to explain our role, the auspices under which we have been asked to facilitate or provide technical assistance, and what our processes will entail.
4. **Political Diversity.** While it is physically impossible to get everyone who is affected by a decision (including future unborn generations) in the same room at the same time, participants who are potentially impacted by decisions or actions that emerge from CSPP activities have a right to see someone representing their perspective or "voice" even if they themselves are not present. CSPP staff are obligated to assure that the fullest diversity and the widest representation of views and voices possible are present in our process. This must also be balanced with the practicality of finding participants who are open to seeking common ground with those who hold different views.
5. **Uses of Information.** Participants in CSPP activities have a right to know what will happen to the information and ideas that are discussed in a Keystone activity meeting or throughout a meeting process. Recognizing that convening or contracting entities may place constraints on what is made public and what is not, facilitators have a duty to clarify to the greatest extent possible how information generated by a group will be used, who owns it, how it will be represented, and by whom.
6. **Decision-making.** Participants in CSPP activities have a right to know how decisions will be made before they are made. CSPP Associates have a duty to explain, or help a group collectively decide, at the beginning of a process, how decisions in the group will be made.
7. **Personal Needs and Biases.** Participants in CSPP activities have a right to expect a high level of objectivity, self-control, and self-awareness from anyone calling themselves a CSPP employee. Associates and support staff are, first and foremost, servants of the good processes and good science we believe is necessary to shape smart policy. We therefore have a duty to subordinate our own personal needs which includes examining, to the greatest extent possible, our own likes, dislikes, predispositions, and cultural biases and, if necessary, disqualifying ourselves from work or respectfully declining it.

## **APPENDIX B**



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DATE

NAME

TITLE

ORGANIZATION

ADDRESS

Dear \_\_\_\_\_,

NASA's new program, Project Prometheus, has been recently initiated to support NASA's Mission to "explore the universe and search for life." NASA, through its Space Science Enterprise, is investing in the tools, insights, and abilities necessary to answer some of humanity's most profound questions: How did the universe begin and evolve? How did we get here? Where are we going? Are we alone? NASA believes that, in the field of space exploration, answering these questions translates to constantly striving to find more effective ways to safely power, propel, and maneuver spacecraft, while developing innovative scientific instruments to explore the worlds beyond our current reach.

Project Prometheus, formerly called the Nuclear Systems Initiative, will develop the near and long-term use of nuclear energy to power scientific missions. It is NASA's strong belief that it has pushed the limits of innovation with solar and chemical power and that nuclear technologies can improve the nation's capability for Solar System exploration and enable missions of greater longevity, flexibility, and, therefore, significantly improved scientific return. A planned robotic mission to Mars in 2009 would be a mission to potentially use a new radioisotope system under development, while a mission to orbit the three icy moons of Jupiter is planned to be the first mission to use a space nuclear-fission system. Beyond robotic exploration, NASA foresees that Project Prometheus could ultimately serve as humankind's pathway to the outer reaches of the Solar System. The Program will be a considerable effort over the next decade involving NASA and the Department of Energy (through both the Naval Reactors and Nuclear Energy divisions).

NASA has asked The Keystone Center to work with the Agency to develop a strategy for ensuring transparency and good communication throughout the lifetime of the Project Prometheus Program. To inform this process, Keystone recommended identifying possible issues related to the research, development, and use of these technologies, with those who might be interested in or affected by the Program. In order to do this, we will be calling your office shortly regarding the opportunity to sit down with you and/or others in your organization to discuss your views of the Agency's new initiative. The interview will last no more than one hour. With this letter we are including additional background information that will help orient you to the Program.

By way of background, The Keystone Center is a non-profit organization ([www.keystone.org](http://www.keystone.org)) that acts as a neutral convenor with a diversity of citizen and environmental groups, industry and government agencies on technically complex issues that intersect with social and political issues of concern or interest. The Keystone Center has been asked to assist with the development of public engagement strategies for Project Prometheus. The Keystone Center often works with agencies looking to avoid the “Decide, Announce, Defend” approach to decision-making and has assisted on matters ranging from chemical weapons disposal to the creation of new health policies. In this instance, NASA is investigating how to solicit external input during the formative stages of its new Program. Our goal is to compile key themes and recommendations that emerge from our conversations and to share them with NASA as they move into the developmental stages of their project.

During the interview we would like to explore some of the following questions:

- ◆ What is your understanding of Project Prometheus, its mission, its component programs, and its timetable?
- ◆ How important is deep space research and science? Is this a topic in which the scientists in your organization take an interest?
- ◆ Has your organization had any previous dealing with NASA? What’s your experience with NASA on previous projects and missions? Please describe.
- ◆ What about Project Prometheus gives you comfort? What worries you?
- ◆ What information in the background papers is most useful?
- ◆ What’s missing? What kind of information do you need more of?
- ◆ If NASA’s senior administrators were in the room, what would you ask them? What also would you want them to know?
- ◆ Beyond National Environmental Policy Act (NEPA) compliance, how would you and your colleagues most like to interact with NASA on this project?
- ◆ How can NASA best scope potential NEPA issues?
- ◆ If you believe your organization would be interested in Project Prometheus, would you rather that NASA come back to you closer to launch, or would you foresee having on-going, long-term interactions?
- ◆ What interests do you have while this Program is in its research phase?
- ◆ What interests do you have around launch issues?
- ◆ Is this an issue that your organization is likely to track and/or on which your organization is likely to take a position? Why?
- ◆ If this is not an issue at the moment, what would make it an issue?
- ◆ Who else should we contact?

In total we plan to talk to 15-20 individuals to scope major themes, questions, and any potential areas of concern. Responses will not be for attribution in our final report to NASA.

We look forward to talking with you further. Please feel free to contact Janesse Brewer at 970-513-5847, or [jbrewer@keystone.org](mailto:jbrewer@keystone.org) with further questions.

Sincerely,

PETER S. ADLER, Director  
Center for Science & Public Policy

JANESSE BREWER, Senior Associate  
Center for Science & Public Policy



**INTERVIEW LIST  
PROJECT PROMETHEUS PROGRAM  
PUBLIC INVOLVEMENT**

Mr. Steven Aftergood  
Senior Research Analyst  
Federation of American Scientists

Mr. Steve Allred  
Director  
Idaho Department of Environmental Quality

Ms. Kathie Bailey Mathae  
Federal Relations Officer  
Director of Space Science Working Group  
Association of American Universities

Ms. Terre Beasley  
Grandmothers for Peace International

Mr. Gregory Benford  
Professor  
Plasma Physics and Astrophysics  
University of California, Irvine

Ms. Carol Berrigan  
Director  
Industry Initiatives  
Nuclear Energy Institute

Mr. Allen Biaggi  
Administrator  
Nevada Department of Conservation & Natural  
Resources  
Division of Environmental Protection

Ms. Carol Browner  
Former head of the United States Environmental  
Protection Agency

Dr. Martin Butcher  
Director of Security Programs  
Physicians for Social Responsibility

Dr. Chris Chyba  
Carl Sagan Chair for the Study of Life in the  
Universe  
Co-Director, Center for International Security  
and Cooperation  
Stanford Institute for International Studies

Mr. Tom Cochran  
National Resources Defense Council

Mr. Thomas Connelly  
Senior Vice President and Chief Science and  
Technology Officer  
DuPont

The Honorable Charles Curtis  
President  
Chief Operating Officer  
Nuclear Threat Initiative  
(Former Deputy Secretary, U.S. Department of  
Energy)

Admiral Bruce DeMars  
U.S. Navy (Retired)

Ms. Anne Ehrlich  
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Department of Biological Sciences  
Center for Conservation Biology  
Stanford University

Mr. Peter Folger  
Public Affairs Manager  
American Geophysical Union

Dr. Erica Frank, M.D., M.P.H.  
Board Member  
Physicians for Social Responsibility  
Associate Professor, Vice Chair, and Director  
Preventive Medicine Residency Program  
Department of Family and Preventive Medicine  
Emory University

Dr. Lou Friedman  
Executive Director  
Planetary Society

Mr. Bruce Gagnon  
Secretary and Coordinator  
Global Network Against Weapons and Nuclear  
Power In Space

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U.S. Navy (Retired)  
Chair  
Columbia Accident Investigation Board

Senator John Glenn

Mr. Tom Grumbly  
Former Undersecretary of Energy  
Assistant Secretary  
Environmental Management  
Department of Energy

Mr. Carl Johnson  
Deputy Commissioner  
Air & Waste Management  
New York Department of Environmental  
Conservation

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Chair  
Florida Chapter  
Sierra Club

Mr. Steve Kerekes  
Director  
Media Relations  
Nuclear Energy Institute

Mr. Michael Krepon  
Founding President  
Stimson Center

Mr. Harry Lambright  
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Center for Environment Policy and  
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Professor of Political Science and Public  
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The Maxwell School of Citizenship and Public  
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Syracuse University

Mr. Paul Leventhal  
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Senior Advisor  
Nuclear Control Institute

Mr. John Logsdon  
Director  
Space Policy Institute  
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Elliot School of International Affairs  
George Washington University

Mr. Scott Lynch  
Communications Director  
Peace-Action Organization

Mr. Kevin Lynn  
Energy Co-Chair  
Turtle Coast Group  
Sierra Club

Dr. Kevin Marvel  
Deputy Executive Officer  
American Astronomical Society

Mr. Howard McCurdy  
Professor  
School of Public Affairs  
Department of Public Administration  
American University

Mr. Dan Norton  
Director of NASA/JPL Services  
Lockheed Martin

The Honorable Hazel R. O'Leary  
Former Secretary of Energy

Mr. Levent Onural  
Director and Secretary  
The Institute of Electrical and Electronics  
Engineers International

Mr. John Owsley  
Division Director  
Tennessee Department of Environment and  
Conservation  
Department of Energy

Mr. Bob Park  
American Physical Society

Mr. John Pike  
Director  
Global Security Organization

Mr. Bud Ris  
Retired President  
Union of Concerned Scientists

Mr. Alex Roland  
Professor  
Department of History  
Duke University

Dr. Rodger Schlickeisen  
President and CEO  
Defenders of Wildlife

Mr. Stephen I. Schwartz  
Publisher  
Bulletin of the Atomic Scientists

Ms. Denise Sheehan  
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New York Department of Environmental  
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Chairman, Board of Directors  
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Mr. Richard Smith  
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Mr. Gus Speth  
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Yale University of Forestry and Environmental  
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Mr. Greg Wetstone  
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Center for Bioethics  
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Mr. Jim Woodfin  
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Division of Solid & Hazardous Materials  
New York Department of Environmental  
Conservation

Mr. Durwood Zaelke  
President  
Center for International Environmental Law



## **QUESTIONS THAT NEED TO BE ADDRESSED**

Interviewees raised a wide and intriguing variety of questions, which are summarized below. Keystone recommends that future interactions with stakeholders be designed to openly address these questions to the best of Project Prometheus' abilities, while taking into consideration that some of them are outside of the scope and authority of the Program.

### **Program Questions**

- ♦ Are alternative fuel and propulsion sources to nuclear being explored and to what extent?
- ♦ Why does NASA intend to use highly enriched uranium? Are there alternatives given the international nuclear non-proliferation implications?
- ♦ Is this a step toward the militarizing of space?
- ♦ How will responsibilities be divided between NASA, DOE, and DOE - Naval Reactor Program?
- ♦ What are the true costs of the Program?
- ♦ What is the duration of time for the research and development as well as the missions using Project Prometheus technologies?
- ♦ How has NASA's culture changed since the Columbia accident?
- ♦ What is the nature of the science missions these technologies will enable?

### **Safety, Risk, and Environmental Questions**

- ♦ How will safety be addressed during testing and launch?
- ♦ What type of nuclear material will be used?
- ♦ How will nuclear materials be transported during testing and launch?
- ♦ How will security ensure that materials are safe from terrorist threat?
- ♦ How will workers be protected?
- ♦ How will the public be protected at launch?
- ♦ How will the environment be protected?
- ♦ What are the contingency plans should something go wrong during testing or launch?
- ♦ How will the risk assessments be conducted?

- ♦ How will NASA ensure we won't contaminate other planets?
- ♦ What are the implications of disposing of nuclear materials and space hardware on other planets?
- ♦ What is the materials life cycle for these technologies?
- ♦ To what extent does NASA intend to use independent reviewers throughout this process?

### **Procedural Questions**

- ♦ What information will and won't be made available to the public?
- ♦ Who will manage the many subcontractors?
- ♦ How will testing sites be selected?

<b>PUBLIC PARTICIPATION MODEL</b>	<b>ADVANTAGES</b>	<b>DISADVANTAGE</b>	<b>COMMENTS</b>
<b>Public Hearing (Status Quo)</b> <ul style="list-style-type: none"> <li>Formal meetings with scheduled presentations offered by NASA staff</li> <li>Public provides comments at microphone</li> </ul>	<ul style="list-style-type: none"> <li>Provides opportunity for public to speak without rebuttal</li> <li>Meets legal requirements</li> <li>Puts comments on record</li> </ul>	<ul style="list-style-type: none"> <li>Does not foster dialogue</li> <li>Creates “us” vs. “them” feeling</li> <li>Many dislike public speaking</li> </ul>	<ul style="list-style-type: none"> <li>Avoid this format, if possible, otherwise try to use informal meetings immediately before public hearing</li> </ul>
<b>Workshop</b> <ul style="list-style-type: none"> <li>An invitational workshop for selected media representatives, environmental group leaders, educators, etc.</li> <li>Workshops could be at JPL, GSFC, and LMA project design centers. Participants would be engaged in doing mission trade studies for all aspects of mission, including science, mass, power.</li> </ul>	<ul style="list-style-type: none"> <li>Excellent for discussions on mission trades, analysis of alternatives</li> <li>Fosters small group or one-to-one communication and interaction</li> <li>Ability to draw on other team members to answer difficult questions and provide the public with information</li> <li>Builds credibility</li> <li>Maximizes feedback obtained from participants</li> <li>Fosters public ownership in helping to solve the problem</li> </ul>	<ul style="list-style-type: none"> <li>Hostile participants may resist what they perceive to be the “divide and conquer” strategy of breaking into small groups</li> <li>Extensive preparation would be required</li> </ul>	<ul style="list-style-type: none"> <li>Know how you plan to use the public input prior to the workshop and inform public at the workshop</li> <li>Work with staff stationed at exhibits about how small group discussions should take place</li> </ul>
<b>Informational Open House</b> <ul style="list-style-type: none"> <li>An open house allows the public to tour at a slower pace and accomplishes an educational objective in an informal manner</li> </ul>	<ul style="list-style-type: none"> <li>Fosters small group or one-on-one communications</li> <li>Ability to draw on other team members/technical experts to answer difficult questions</li> <li>Meets information and interaction needs of many members of the public who are not served by typical public meetings</li> <li>Builds credibility</li> </ul>	<ul style="list-style-type: none"> <li>Difficult to document public input</li> <li>Usually more staff intensive than a regular public hearing</li> <li>May not provide the opportunity to be heard that some public will expect</li> </ul>	<ul style="list-style-type: none"> <li>Staff should explain format of the open house at the door and guide the participants through the exhibits</li> <li>Ask participants to fill out a comment sheet</li> <li>Be prepared for a crowd all at once</li> <li>Set up several stations so that several people (6-10) can view at once</li> <li>The facility should be set up with several stations</li> </ul>
<b>Conference Workshop</b> <ul style="list-style-type: none"> <li>Format to educate public and respond to comments and questions</li> </ul>	<ul style="list-style-type: none"> <li>Results in the sharing of information that may help clarify misunderstandings</li> <li>Ability to draw on other team members/technical experts to answer difficult questions</li> </ul>	<ul style="list-style-type: none"> <li>Does not foster equal participation</li> <li>Usually more staff intensive than a regular public hearing</li> <li>May take more time to plan and organize</li> </ul>	<ul style="list-style-type: none"> <li>Does not have to be structured as passive listening to keynote speakers and panel discussions, waiting for a chance to ask a question</li> <li>Utilize as a way to promote dialogue between people who would not normally talk to each other and to generate structured discussion about proposed alternatives</li> </ul>
<b>Technical Conference</b> <ul style="list-style-type: none"> <li>Format for dissemination of technical and project information with scientific community</li> </ul>	<ul style="list-style-type: none"> <li>Opportunity to interact with professional societies and private, public, and civic sector organizations that are interested in space sciences</li> <li>Meetings are typically open to the public</li> <li>Results in sharing technical information with scientific communities, thereby increasing understanding</li> </ul>	<ul style="list-style-type: none"> <li>More focused towards scientific community than general public</li> </ul>	<ul style="list-style-type: none"> <li>Little input as to how the forum is structured, how public participation is facilitated</li> </ul>
<b>Invitation Only Meeting</b> <ul style="list-style-type: none"> <li>Format to solicit input directly from specific stakeholders</li> </ul>	<ul style="list-style-type: none"> <li>Provides quick identification of issues from specific group of stakeholders</li> </ul>	<ul style="list-style-type: none"> <li>Does not satisfy NEPA requirements</li> <li>Not representative of other interest groups/general public</li> <li>Lacks visibility</li> </ul>	<ul style="list-style-type: none"> <li>While this format would not meet NEPA requirements, it would assist NASA with scoping of issues</li> <li>Use this format in addition to other public participation options that meet NEPA requirements</li> </ul>

**PUBLIC PARTICIPATION MODELS FOR MARS EXPLORATION RISK COMMUNICATION**

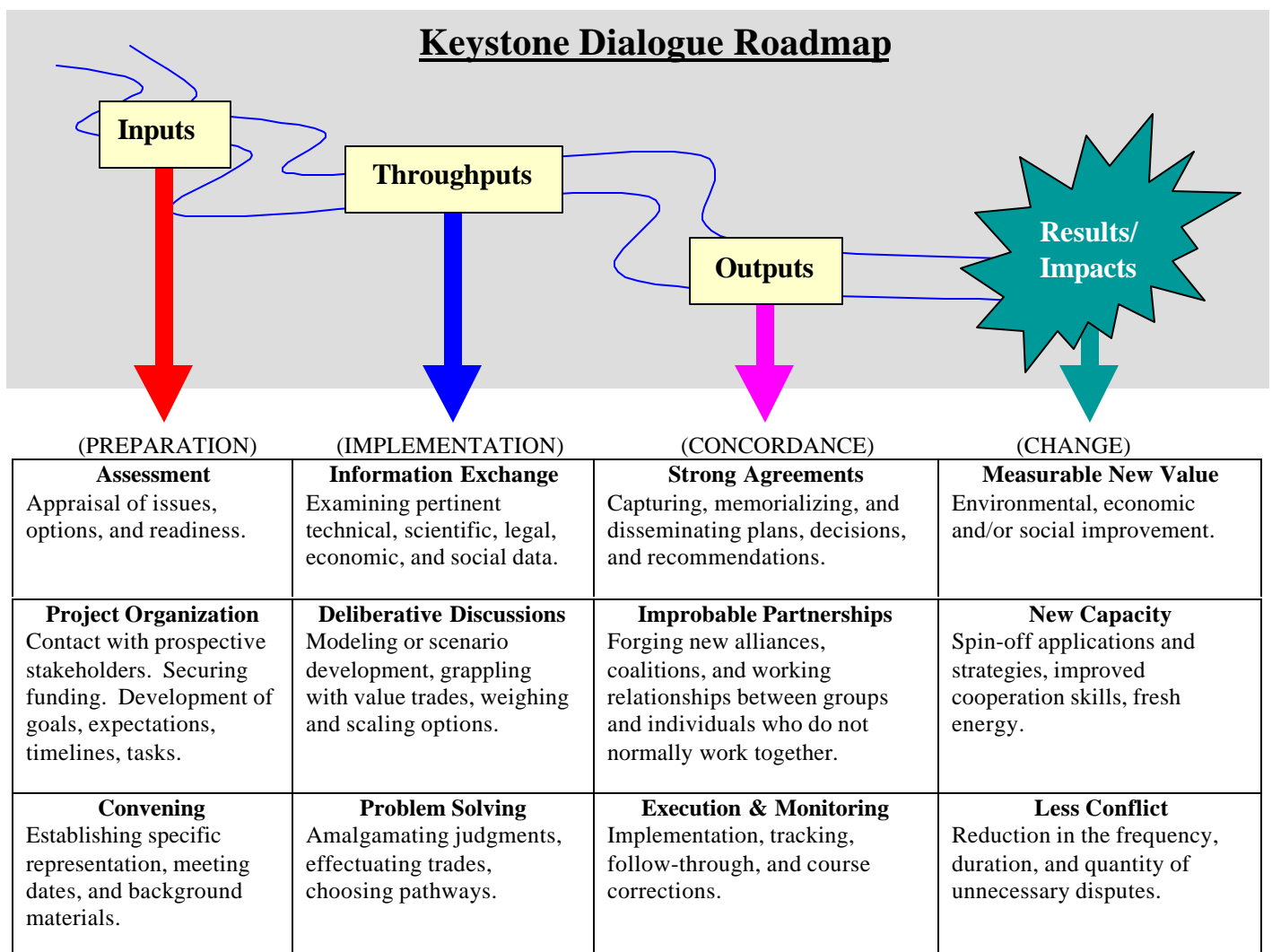


## APPENDIX F

# KEYSTONE LOGIC MODEL AND ROADMAP FOR EFFECTIVE DIALOGUES ON POTENTIALLY COMPLEX OR CONTROVERSIAL SUBJECTS

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Every Keystone Dialogue is a “project” with a distinct beginning, middle, and end. While goals, length, and tasks vary depending on the subject matter, the highest and best end result of a Keystone Dialogue is always a highly informed agreement, plan, or guidance forged by improbable partners who are willing to then work together on implementation.



**Momentum and Concerted Political Willpower**



## APPENDIX G

Note: The following is a draft white paper outlining the start of a “Convening Document” that would capture the design for such a Dialogue and provide additional detail. Keystone typically drafts such concept papers as a starting place to involve potential invitees to the Dialogue. This paper is used as a way to solicit process design ideas from stakeholders. Typical questions Keystone might ask as it talks with potential stakeholders are:

- “What is missing from the recommended design?”
  - “Are there other attributes you would need to see in such a dialogue in order to feel comfortable participating in the suggested dialogue?”
  - “What other understandings, protocols, or ground rules might be necessary to maximize the possibilities of success?”
- 



*Draft*

### **DIALOGUE ON SPACE NUCLEAR POWER AND PROJECT PROMETHEUS**

*Preliminary Concept Paper and Working Protocols*

#### **1 Background**

2 In support of the National Aeronautics and Space Administration’s (NASA) mission to  
3 “explore the universe and search for life,” NASA plans to develop space nuclear  
4 technologies that would enable space exploration missions and scientific returns never  
5 before achievable. Development of a new generation of radioisotope power systems and a  
6 nuclear reactor power system are planned.

7  
8 It is NASA's strong belief that these new nuclear technologies can improve the nation’s  
9 capability for solar system exploration and enable a new class of larger, more complex  
10 solar system exploration missions with significantly improved scientific return. A  
11 planned robotic mission to Mars in 2009 could use a new generation of radioisotope  
12 power system that is under development, while a mission to orbit three icy moons of  
13 Jupiter could use a space reactor-powered propulsion system. Beyond robotic  
14 exploration, NASA foresees that the reactor technologies can ultimately serve as  
15 humankind’s pathway to the outer reaches of the solar system. Development of the  
16 reactor technologies to support these would be a considerable effort over the next decade  
17 involving NASA and the Department of Energy (DOE), through both the Naval Reactors  
18 and Nuclear Energy divisions.

1 **The Keystone Center and Stakeholder Involvement**

2 NASA is seeking from the very beginning of the Project Prometheus Program, the best  
3 input it can get from communities, regulators, concerned citizen groups, and individuals.  
4 To do this, NASA has requested that The Keystone Center convene a Dialogue on Space  
5 Nuclear Power and Project Prometheus (“Dialogue”). The Keystone Center, a non-profit,  
6 neutral organization specializing in environmental and health policy disputes, will be  
7 facilitating meetings for the Dialogue. A diversity of prospective government and non-  
8 government participants has agreed that The Keystone Center can serve as the neutral  
9 facilitator for this process.

10  
11 **Dialogue on Space Nuclear Power and Project Prometheus Goal**

12 The general goal of this Dialogue is to incorporate high quality stakeholder input into  
13 NASA’s planning for the future uses of space nuclear-based power systems for space  
14 exploration. Through this process, stakeholders can play a significant role in providing  
15 input into (a) developing safe, environmentally sound, and cost-effective research and  
16 development technologies as mandated by Congress in NASA Programs and (b)  
17 identifying critical issues, raising important questions, and offering valuable advice on  
18 how NASA can both best meet the requirements of the National Environmental Policy  
19 Act (NEPA) and other environmental requirements, and meaningfully involve the general  
20 public before and after the development and launch of space nuclear missions. The  
21 Dialogue rests on the assumption that up-front and early exchanges on these issues will  
22 allow for NASA and its various public constituencies to jointly approach areas of  
23 concern. NASA is committed to making pertinent information regarding space nuclear  
24 power technologies, policies, and practices available to the Dialogue group in order to  
25 receive timely feedback, and to listening to suggestions from the Dialogue group on  
26 substantive and procedural issues. In no way does participation in this forum obligate  
27 any stakeholders in the Dialogue to support the applied use of these technologies. NASA  
28 instead asks that participants in this Dialogue each do their best to raise those issues of  
29 highest concern to them and that they offer advice within the scope of NASA’s  
30 responsibilities and authority as mandated by Congress.

31  
32 **Proposed Focus of the Dialogue**

33 Subject to further discussions when membership of the group has been formally  
34 constituted, the Dialogue will focus on the following issues:

- 35
- 36 ♦ The identification of worker, public, and environmental risk and safety issues at  
37 prospective test sites and launch sites and, if warranted, proposed mitigations.
  - 38 ♦ A review of potential alternative technologies and their comparative benefits,  
39 costs, and risks.
  - 40 ♦ Advise NASA on how best to conduct an independent examination of the need for  
41 and safety of space nuclear technologies to power space exploration missions.

1 **Proposed Dialogue Participants**

2 The Dialogue group will consist of: community and regional participants from the launch  
3 area communities in Florida; appropriate state regulators from potential development,  
4 testing, and launch sites; appropriate NASA and DOE, staff; and representatives from  
5 national groups that regularly work on space and/or energy issues. The group would be  
6 as inclusive as possible. That being said, the group should be kept at a manageable size  
7 of approximately 20 individuals that can give voice and perspective to the widest range of  
8 stakeholder views.

9  
10 **Roles and Authorities**

11 Although Congress has authorized NASA to develop new RPS and implement Project  
12 Prometheus by developing reactor technologies, and NASA is fully responsible for  
13 making decisions regarding Project Prometheus, NASA intends to solicit public and  
14 Federal, state, and local agency input regarding how to best identify the issues that are  
15 likely to be raised in the NEPA process, during technology development, and when  
16 launched.

17  
18 **Dialogue Decision-making**

19 The Dialogue group does not have the authority to make decisions for NASA. Rather,  
20 the Dialogue provides input, exchanges information and views, and undertakes efforts  
21 that will promote cooperative problem solving and the best possible working  
22 relationships among stakeholders who hold differing views.

23  
24 The Dialogue will strive for the highest possible levels of agreement among all members.  
25 Agreement is reached when, upon request from the facilitator, there is no dissent from  
26 any members regarding the proposal under discussion. Thus, no member can be  
27 outvoted. When agreement is not possible, differences will be noted and forwarded to  
28 NASA.

29  
30 **Public Input**

31 The Dialogue will welcome public input throughout the process and will seek to find  
32 additional mechanisms beyond this stakeholder process to do so.

33  
34 **Dialogue Meetings**

- 35 A. There will be approximately 2-3 meetings per year in order to best provide timely  
36 input to the NASA Administrator. Meetings will be scheduled so that leadership  
37 from NASA and DOE are available.
- 38 B. Any member of the Dialogue may request a caucus break at any time.
- 39 C. Meetings of the Dialogue are open to the public.
- 40 D. Opportunities for other participants and observers to address the Dialogue will be  
41 provided at designated times during meetings.

- 1 E. While Dialogue meeting discussions will generally be limited to Dialogue  
2 members, others with particular expertise may be invited by the Dialogue to  
3 participate in specific agenda topic discussions from time to time as requested by  
4 the group.
- 5 F. Individuals who address the Dialogue group will be required to follow specified  
6 ground rules:
  - 7 1. Introduce self.
  - 8 2. Address the agenda topic.
  - 9 3. Stay within the designated time limit.
  - 10 4. Refrain from personal attacks.
  - 11 5. Agree not to attribute statements to Dialogue members or attempt to speak  
12 for the full Dialogue group.

### 14 **Dialogue Workgroups**

- 15 A. The Dialogue may establish subcommittees or workgroups.
- 16 B. Subcommittees or workgroups will report to the Dialogue group.
- 17 C. Subcommittees or workgroups may be short-term or long-term in duration.
- 18 D. The Dialogue group may seek subcommittee or workgroup members outside of  
19 the Dialogue group's membership when their expertise is deemed useful and  
20 supports the Dialogue's mission.

### 22 **Dialogue Group Membership**

- 23 A. Members are selected by The Keystone Center.
- 24 B. While it is important to keep this group at a functional size, it may be useful to  
25 make changes to the membership of the group from time to time in order to best  
26 address the key objectives outlined in this document, or others identified by the  
27 Dialogue group.
- 28 C. Members may suggest additional perspectives that might be helpful to the  
29 members in providing input.
- 30 D. Members may resign upon written notice to The Keystone Center.
- 31 E. The Keystone Center may remove a person from the Dialogue if the member is no  
32 longer involved in issues related to Project Prometheus or if the member is unable  
33 to fulfill membership responsibilities.

### 35 **Dialogue Member Responsibilities**

- 36 A. Offer potential solutions and not just criticize.
- 37 B. Focus on the issues at hand and refrain from personal attacks.
- 38 C. Listen to and consider the views of others.
- 39 D. Don't interrupt.

- 1 E. Support the objectives of the Dialogue.
- 2 F. Stay focused on the agenda.
- 3 G. Although many members are affiliated with organizations (e.g. regulatory
- 4 agencies, citizen organizations, DOE programs) it is presumed that comments
- 5 during Dialogue meetings are not for attribution and should not be assumed to be
- 6 an official organizational position.
- 7 H. Keep constituents, colleagues, and managers informed about the work of the
- 8 Dialogue.

9

10 *Note: It is recognized that while Dialogue members are participating as individuals, they*  
11 *will work proactively within their respective communities and organizations to support*  
12 *the work of the Dialogue. Members have an obligation to inform and solicit input*  
13 *regarding the Dialogue from the people with whom they work. Further, they have an*  
14 *obligation to accurately convey this information back to the Dialogue.*

15

## 16 **Dialogue Meeting Summaries**

17 The facilitators will prepare draft summaries that capture key issues, conclusions, and  
18 agreed-upon next steps. Summaries will not attribute statements to individuals, except  
19 where specific commitments are made by individuals or for briefings and subsequent  
20 discussions. The Dialogue will have the opportunity to correct the draft meeting  
21 summary prior to finalization. Once final, the meeting summary will be available to the  
22 public.

23

## 24 **Interacting with the Media**

25 Dialogue members are free to speak about their own views and the views of their  
26 organizations. However, Dialogue members will not attribute statements to others or  
27 attempt to speak for the Dialogue group itself.

28

## 29 **Meeting Facilitation**

30 The Keystone Center is responsible for helping to ensure that the process runs smoothly  
31 by: facilitating meetings; ensuring the fullest meeting participation by those so wishing;  
32 encouraging adherence to the Protocols; developing meeting agendas; preparing and  
33 distributing draft and final summaries; and helping the parties resolve their differences  
34 and achieve closure on the issues. The Keystone Center will be available to consult  
35 confidentially with Dialogue members during and between meetings.

