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DISSERTATION

A Vehicle for Change

PNGV, An Experiment in Government-Industry Cooperation

David S. Trinkle

This document was submitted as a dissertation in December 2009 in partial fulfillment of the requirements of the doctoral degree in public policy analysis at the Pardee RAND Graduate School. The faculty committee that supervised and approved the dissertation consisted of James Bonomo (Chair), Steven W. Popper, and Paul C. Light.



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SUMMARY

The Partnership for a New Generation of Vehicles (PNGV) was established in 1993 by the Clinton Administration to improve national competitiveness in manufacturing, advance automobile technologies to improve fuel efficiency dramatically, and implement innovations from ongoing research into conventional vehicles. To pursue these goals, PNGV was created as a research and development (R&D) partnership, joining the efforts of federal agencies with the Big Three domestic automobile manufacturers (Ford, GM, and Chrysler). Underlying the stated technical goals for the partnership was a more fundamental goal: to improve the relationship between the federal government and the U.S. auto industry.

This dissertation provides a detailed case study to assess: (a) the effect of PNGV on the relationship between government and the U.S. automotive industry, and (b) the effect of PNGV on cooperation and other characteristics within the automotive industry. The quality of the PNGV relationships is gauged in various ways, including the nature and frequency of communication, the level of understanding and trust between participants, and the ability to work through differences to achieve their shared goals.

In addition to the assessments noted above, in the course of conducting this research this dissertation highlights evidence of the Partnership's influence on the industry and market for vehicles with alternative technologies, as well as its potential as a model for cooperation in the automobile industry and elsewhere.

Data and Methods

This dissertation addresses these hypotheses by examining the Partnership as a multi-source case study, building upon a wide variety of documentation, interviews, and other sources compiled over 15 years. Documentation included program materials from government and industry, articles, studies, and Congressional testimony. Original interviews permitted the targeted collection of opinions and attitudes of participants and observers, including nine individuals from government who helped create or manage the partnership and 13 industry managers and engineers, including some from each of the Big Three firms.

Hypothesis 1: PNGV improved the relationship between government and the U.S. automotive industry

This dissertation finds that PNGV was a significant factor in improving the relationship between the government and the Big Three. There was abundant evidence of the antagonistic relationship between government and industry in the decades prior to PNGV. Many articles, reports, and original interviews noted that the government-industry relationship improved during the 1990s, and none suggested that PNGV had a negative influence on this relationship. Some of those articles and other sources, including most individuals interviewed for this dissertation, specifically attributed the positive changes in the relationship to PNGV.

The dissertation also documents some of the mechanisms used in this cooperative approach, showing that working relationships improved at both technical and managerial levels. Most participants pointed to improvements in technical interactions in particular, largely among engineers and scientists facing common challenges.

Hypothesis 2: PNGV improved the relationships among the Big Three.

The dissertation also finds specific ways in which the cooperation among the Big Three improved, but it is unable to conclusively attribute these improvements to PNGV. The improvements in the relationships among industry stakeholders seem particularly apparent in the context of technical interactions.

A Conceptual Model of How Institutional Relationships Build on Their Interactions

The dissertation explores how its specific components of these relationships functioned. The dissertation represents the partnership as a dynamic, iterative process of interactions in which each round of interactions would contribute to evolving attitudes toward partners and further interactions with them. In this way we see how improvements in understanding, attitudes, interactions, and processes that occur during cooperative efforts help enable the success of future interactions, even after the end of the partnership itself.

The Broader Impact and Influence of PNGV

Additionally, this case study indicates some support for two other effects of PNGV. First, PNGV may have had some positive side effects in its marketplace by sparking the interest of non-PNGV participants in developing and marketing alternative automotive technologies. This in turn may further have promoted domestic interest in these technologies. Some analysts go as far as to say that PNGV sparked a race among domestic and foreign OEMs to pursue these technologies.

Second, beyond the context of the automotive industry, the Partnership broke new ground in defining institutional arrangements that are possible between government and

industry. Various sources noted PNGV's possible role as a model for R&D cooperation in general, and indeed some subsequent government-industry efforts overtly borrowed from PNGV's organizational approach.

Final Observations on PNGV and Government-Industry R&D Partnerships

The following are four observations on PNGV's implementation and history that may provide lessons for future government-industry R&D partnerships. While these are drawn from the work of others, each is supported by the original research conducted for this dissertation.

- In defining partnership goals, policy makers balance clarity, accountability, and robustness.
- Other policy tools may be needed to complement the efforts of R&D partnerships despite any improvement in a government-industry relationship.
- Partnership developers and participants should keep in mind that each participating organization has distinct motivations that will guide its behavior.
- Each partnering organization should encourage and enable staff communication and coordination, especially when working with nontraditional allies.

Ultimately PNGV failed to achieve its technical goals. The Bush administration ended PNGV in 2002 and replaced it with the FreedomCAR initiative. It is clear that PNGV did not succeed in positioning the Big Three as industry leaders in developing alternative technologies, and recent economic crises have left the future of the Big Three unclear.

Overall, PNGV provides a cautionary tale for implementing federal technology policies and partnerships. The hope of this author is that this dissertation will provide encouragement for future efforts in pursuing collaborative approaches, as well as practical observations on specific aspects of a partnership to emulate or avoid.