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**Sent:** Thursday, October 20, 2011 1:49 PM
**To:** amtech
**Subject:** USCAR response to AMTech RFI

On behalf of the United States Council for Automotive Research I am pleased to submit the attached response to the NIST RFI on How to Structure the Proposed New Advanced Manufacturing Technology Consortia (AMTech) Program. We look forward to future discussions on this very important initiative.

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United States Council for Automotive Research LLC (USCAR)

# Response to the Request for Information on How to Structure the Proposed New Advanced Manufacturing Technology Consortia (AMTech) Program

Submitted by

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Oct. 20, 2011

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In response to the National Institute of Standards and Technology (NIST), Department of Commerce, request for information on how to best structure the new proposed Advanced Manufacturing Technology Consortia (AMTech), the United States Council for Automotive Research LLC (USCAR) submits the following comments.

The United States Council for Automotive Research (www.uscar.org) is the collaborative automotive technology company for Chrysler Group LLC, Ford Motor Company and General Motors. Founded in 1992, it has a long history of successful collaboration with public and private entities, including the federal government, national laboratories, universities, automotive suppliers, codes and standards organizations, energy companies, utilities and emerging industries.

USCAR's collaborative research with the U.S. government predates its formation, when in 1988, Chrysler Group, Ford and General Motors came together to form the Automotive Composites Consortium (ACC) to partner as a collective entity with the federal government. ACC was soon followed by creation of the U.S Advanced Battery Consortium LLC (USABC) and Vehicle Recycling Partnership LLC (VRP) in 1991. One year later, USCAR was formed to manage the multiple consortia and grow the collaborative research portfolio of its three member companies.

Today, USCAR has nine Technical Leadership Councils (TLCs) focused on nine broad research areas, including manufacturing. More than 40 R&D teams, working groups, consortia and task forces report to the TLCs and the USCAR Leadership Group.

Our Manufacturing TLC is focused on addressing manufacturing challenges and opportunities of common interest. As a reference roadmap document, USCAR and DOE's Industrial Technologies Program developed a roadmap for advances manufacturing in the Automotive Industry:
(http://www1.eere.energy.gov/industry/intensiveprocesses/pdfs/auto_industry_roadmap.pdf )
This roadmap, although framed around energy reduction, is an excellent starting point for an AMTech consortia roadmap for the automotive industry. It should be noted that NIST participated in a USCAR sponsored workshop that helped to create this document.

USCAR also is a partner with the U.S. Department of Energy (DOE), Tesla Motors, five energy companies and two utilities in U.S. DRIVE. This program is the third consecutive government-industry partnership of its type in which USCAR has participated. Prior to U.S. DRIVE, USCAR was a partner in the DOE's FreedomCAR and Fuel Partnership, which started in 2002, and before that was the industry side partner in the multi-agency government-industry Partnership for a New Generation of Vehicles (PNGV), which began in 1993.

It is from USCAR's experienced consortia perspective that these comments are submitted.

1. **Should AMTech consortia focus on developments within a single existing or prospective industry, or should its focus be on broader system developments that must be supplied by multiple industries?**

A. While USCAR recommends a single industry approach for an individual consortium, several industry-specific consortia could likely operate under the AMTech banner. USCAR, for example, would advocate an advanced automotive manufacturing technology consortium, which would require the involvement of automotive vehicle manufacturers and the automotive supply chain. Resulting AMTech R&D, regardless of industry focus, could have broad cross-over application within many other industries as well.

2. **Who should be eligible to participate as a member of an AMTech consortium? For example, U.S. companies. i.e., large, medium, and/or small; institutions of higher education; Federal agencies; state, local, and tribal governments; and non-profit organizations?**

A. USCAR suggests any and all of the above would be eligible members, depending on the research, technical development and commercialization objectives of the AMTech consortium or project. Within an automotive industry consortium, for example, USCAR would expect to play a major role, along with supplier-based organizations, like the 400-plus member Original Equipment Automotive Supplier Association (OESA).

3. **Should AMTech place restrictions on or limit consortium membership?**

A. No. For a consortium to be successful in its efforts, it must be small enough to manage efficiently, yet large enough to include key stakeholders, enable the effective leveraging of resources and create an impact from their efforts.

4. **Who should be eligible to receive research funding from an AMTech consortium? For example, U.S. companies i.e., large, medium, and/or small; institutions of higher education; Federal agencies; state, local, and tribal governments; and non-profit organizations?**

A. There should be minimal restrictions as to who would be eligible to receive funding from AMTech, other than "best qualified" and existing federal requirements for eligible contractors.

5. **What criteria should be used in evaluating proposals for AMTech funding?**

A. Appropriate scope and perceived capability to address and impact roadmap gaps should be the general criteria used to evaluate proposals for AMTech funding.

6. **What types of activities are suitable for consortia funding?**

   A. Activities that address gaps, barriers or enablers in roadmaps would be suitable for consortia funding. Examples include: technical advanced manufacturing R&D, benchmarking and assessments, problem statement and education, common industry specifications and standards development, material characterization, modeling and simulation and testing.

7. **Should conditions be placed on research awards to ensure funded activities are directed toward assisting manufacturing in the U.S.?**

   A. General conditions should include 'first use' in the United States, with provisions that any awardee have major manufacturing and R&D activity in the U.S. and a commitment to apply results in U.S. facilities.

8. **What are ways to facilitate the involvement of small businesses in AMTech consortia?**

   A**.** USCAR is very familiar with including small suppliers in work streams and advocates an open and well-publicized bidding process as well as continuous networking by its members through professional and trade organizations.

9. **What are best practices for facilitating the widest dissemination and adoption of knowledge and technology through consortia?**

   A. There are multiple ways to disseminate and encourage the adoption of knowledge and technology through consortia, including: publishing and/or presenting results at high-visibility conferences or broad-based workshops; publishing SAE standards; engaging a broad base of suppliers; and specifying technologies into products.

10. **While it is expected that the research efforts of AMTech consortia (including participants from the Federal, academic, and private industry sectors) will take place largely at the pre-competitive stage in the development of technologies, the generation of intellectual property is possible, and even likely. What types of intellectual property arrangements would promote active engagement of industry in consortia that include the funding of university-based research and ensure that consortia efforts are realized by U.S. manufacturers?**

    A. USCAR deals with intellectual property issues successfully in a collaborative environment and would recommend any new consortium work with its members with guidance from NIST to develop appropriate guidelines and processes.

**11. Would planning grants provide sufficient incentive for industry to develop roadmaps and initiate the formation of consortia? If not, what other incentives should be considered?**

A. Yes, planning grants would provide initial incentive. Ongoing long-term funded cooperative agreements are useful.

**12. Should each member of an AMTech consortium be required to provide cost sharing? If so, what percentage of cost sharing should be provided?**

A. Yes, participants should be required to cost share as an indicator of commitment and to enable the effective leveraging of resources. The percentage of cost-sharing could be determined on a per project basis based on the development risk and staged development criteria.

**13. What criteria should be used in evaluating research proposals submitted to an AMTech consortium?**

A. Proposals should be evaluated on: the technical capability of the applicant; relevance to the barrier and gaps identified in the roadmap; alignment and approach; expected results and deliverables; and funding requirements.

**14. What management models are best suited for industry-led consortia?**

A. Industry-led consortia require strong strategic leadership, representing all key stakeholders, at the management or board level. In addition, the leaders need to be supported by highly qualified staff and technical experts at the company level. Operational /facility support mechanisms also must be in place.

USCAR has these mechanisms and experience using them, including meeting facilities, a purchase order system, financial controls and reporting, program management, proposal solicitation and evaluation, including an objective project evaluation and assessment process, roadmap development, networking and team communications, accomplishments reporting and legal review.

**15. Should the evaluation criteria include the assessment of leadership and managerial skills?**

A. Yes, absolutely. Strong leadership and management are critical. Both business and technical leadership are necessary.

**16. Should limitations be placed on the duration of consortia?**

A. No. Many of our consortia became better and more effective over time. However, all consortia should be subject to regular, periodic evaluation to ensure alignment and reasonable progress toward goals, including expectation for continuous improvement

**17. How should an AMTech consortium's performance and impact be evaluated? What are appropriate measures of success?**

A. Success measures could include the number of projects completed or underway; revenues; commercialization successes; job creation; noted contributions to manufacturing science and methods. An AMTech consortium also should be required to issue an annual accomplishments report.

**18. What are the problems of measuring real-time performance of individual research awards issued by an industry-led consortium? What are appropriate measures of success?**

A. R&D is a time-intensive process. Measures of incremental progress are important. Each project team should issue an annual progress report, which addresses clearly defined metrics including progress gates, spending, timing and staged deliverables.

**19. How should the NIST AMTech program be evaluated?**

A. Similar to other government programs, the NIST AMTech program should be evaluated through a peer review process every two years, as well as through an annual project progress review process.

**20. What are lessons learned from other successful and unsuccessful industry-led consortia?**

A. USCAR can offer lots of lessons learned. Key among them is that consortia members need to be deeply engaged at multiple levels. This means the consortium has strong leaders who are committed to the effort and who will bring their best people to the table. It means that everyone will expect value, and will be accountable for tangible results. It also means that there will be good representation at all levels. Successful industry-led consortia are right sized and focused and have roadmaps and goals.

**21. How can AMTech do the most with available resources? Are there approaches that will best leverage the Federal investment?**

A. AMTech can maximize its resources by tapping into successful, existing collaborations, like USCAR, which have appropriate infrastructure, processes and people already in place to help lead the effort. USCAR's U.S. Advanced Battery Consortium is a perfect example of existing organization leadership providing a best-practices leverage of federal investment, in this case, to accelerate the development of advanced energy storage systems and batteries for automotive transportation.

**22. How should AMTech interact with other Federal programs or agencies?**

A. USCAR would strongly recommend that AMTech interact with and attract other federal programs or agencies to become leveraged partners.

**23. What role can AMTech play in developing, leading, or leveraging consortia involving other Federal agencies?**

A. AMTech can be a strong leader in creating roadmaps, initiating dialogue and establishing inter-agency collaborations. If AMTech could facilitate voluntary inter-agency participation and collaboration, especially in these times of declining budgets, it would be important to long lasting results for U.S. manufacturing.