



**MINUTES OF MEETING
UNIVERSITY-INDUSTRY RELATIONS ROUNDTABLE
10 OCTOBER 2022
PITTSBURGH, PA, USA**

AGENDA

Kelly Dallas (Chair), Cleveland-Cliffs Inc.
Ron Ashburn, AIST
Shannon Clark, ArcelorMittal Dofasco
Angel Cyr, Nucor Corp.
Mark Didiano, AIST
Jim Dudek, U. S. Steel Corp.
Amy Fisher, Nucor Corp.
Chuck Greene, AM/NS Calvert
Jeremy Heisserer, Missouri S&T
Mengying Liu, Washington and Lee University
Karin Lund, G-Power Global
Mike Madar

Cole Manfred, Virginia Tech
Jennifer McCloud, Cleveland-Cliffs Inc.
Robert Merritt, Missouri S&T
Mark Olson, Pacific Steel Group
Ron O'Malley, Missouri S&T
Glenn Pushis, Steel Dynamics Inc.
Mauricio Rodriguez Lopez, Inst. Tecnológico de Morelia
Barbara Sacha, Cleveland-Cliffs Inc.
Danielle Schleiden-Remley, AIST
Stacy Varmecky, AIST
Lori Wharrey, AIST
Chenn Zhou, Purdue University Northwest CIVS

1.0 CALL TO ORDER AND INTRODUCTIONS

Ms. Dallas called the meeting to order. She welcomed and thanked those in attendance.

2.0 ANTI-TRUST GUIDELINE REVIEW

Ms. Dallas reviewed the anti-trust guidelines and stated the meeting would be held in compliance with those guidelines.

3.0 COMMITTEE PURPOSE AND OBJECTIVE

Ms. Dallas reported the AIST Foundation University–Industry Relations Roundtable exists to foster communication between our university network and the steel industry. The committee objectives are to increase the number of professors teaching a steel-related curriculum, and to increase the number of students interested in a career in the steel industry.

4.0 DOE RESEARCH OPPORTUNITIES

Mr. Ashburn and Dr. O'Malley provided the information and current status of new programs related to government funded research opportunities. Mr. Ashburn began by stating how important it is for the steel industry to be involved in the programs.

DOC/NIST Technology Roadmap – The National Institute of Standards and Technology (NIST), housed within the U.S. Department of Commerce (DOC), has offered multiple grant opportunities for all U.S. industries to enhance their competitive position through roadmapping. Their Call for Proposals is entitled: [Manufacturing USA Technology Roadmap Grant Program](#). Each grant is for \$300,000 to be spent over an 18-month period. AIST submitted a detailed [proposal](#) to the CFP on 17 August 2021.

In May 2022, we were notified of the DOC's intent to award AIST with a \$300,000 grant to compile a *Technology Roadmap for Iron and Steel Manufacturing: Revolutionizing U.S. Global Leadership for a Sustainable Industrial Supply Chain*. The formal program launch was delayed until September 2022 due to obstacles within the DOC database operations for issuing awards.

The AIST grant is now slated to run through May 2024. The objective is to develop a roadmap that will identify and prioritize research projects to address the technologies, infrastructure and workforce needs that will advance steel manufacturing competitiveness across the steel industry value chain. We are utilizing a variety of AIST workshops intertwined with our Technology Committee meetings and related programs including the AIST Leadership Conference to facilitate the roadmap development.

DOE Decarbonization Institute – In May 2022, we learned the U.S. Department of Energy (DOE) will pursue the creation of a Clean Energy Manufacturing Institute (CEMI) for Industrial Decarbonization *Through Electrification of Process Heating* and not via Metals Manufacturing. As a result of this decision, AIST will not act in a lead role to pursue this institute as it no longer aligns directly with our mission of service.

While AIST will not have a lead role for the CEMI, we have been invited to participate on at least three teams that are pursuing the grant. *We will plan to join each of these efforts in a non-exclusive capacity* with [letters of support](#) sent to each team. Through these efforts, we will have opportunities to engage the iron and steel community, including producers, technology suppliers, research institutions and national labs, in technology advancement efforts to promote the electrification of process heating.

In ongoing discussion with DOE personnel, AIST continues to promote the need for a steel industry-wide decarbonization platform. The current DOE approach is fragmented, divisive and inefficient. AIST endeavors to have the DOE recognize steel's role in decarbonization by engaging the industry holistically. We further believe the DOE may need to alter its strategy to be truly effective at decarbonizing the steel industry as the current CEMI has divided the industry in a manner that could place AIST in a conflicted position. It is our hope that a new path will emerge to unite the steel industry in the important effort to form public-private partnerships for advancing decarbonization technologies.

Hydrogen Hubs – The simultaneous development of the DOE Hydrogen Hubs program will also present new avenues for the steel industry to engage with government to evolve related breakthrough technologies for decarbonization. The AIST Decarbonization Core Team (DCT) believes it is important to prepare a Position Statement for how the steel industry can support the various [Hydrogen Hub](#) (HH) activities that are now dominating the current DOE landscape.

For background, there are numerous teams competing for DOE funding relative to these HHs. Each team involves industry, academia and labs, etc., and each submitted RFI responses to the DOE in late March 2022. These efforts are very similar to our Manufacturing Institute for Steel Decarbonization, but on a *significantly* larger scale. The HHs will start at \$500 million in DOE funding and go up to \$2 billion each. The DOE may fund four HHs, or approx. \$8 billion in related expenditure. The four hubs would be strategically placed around the country.

The HH teams are led by major energy companies or consortiums, which is quite logical. Many of the teams have also attracted individual steel companies, which are now on competing teams. Several HH teams have approached AIST to join with them, which could prove problematic given the above situation. Rather than participate on a single team, we would prefer to coordinate an industry-wide coalition of support for all HH activity. The steel industry has the potential to be a significant consumer of Hydrogen energy and provides the material of choice for the fabrication of power plants, storage systems and pipelines. There is a remarkable interdependency between clean energy and clean steel... you can't have one without the other.

Environmental sustainability is ideally suited for industry-wide collaboration, and the DCT has suggested we share a united message on behalf of the steel industry to all constituents of the HH activity. Independent from individual corporate interests, the concept of the Position Statement would be to alert all that steel is ready, willing and able to advance the collective cause for a clean energy future. The effort underscores the importance of having a suitable platform to evolve breakthrough technologies to position our industry as an early adopter of clean energy.

On 20 July 2022, AIST issued the [Hydrogen Hub Statement of Support](#) for the creation of Hydrogen Hubs (H2Hubs) across the United States. The release was sent to over 125 companies that have interest in the Hubs, representatives within the DOE, and made available to AIST members. We also shared the statement for distribution by the Steel Manufacturers Association (SMA), and the American Iron & Steel Institute (AISI).

AIST, with its mission to advance steel manufacturing technology, is uniquely positioned to engage its membership including steel producers, technology suppliers and research institutions in collaboration with the DOE and energy providers for this important work. As AIST takes a more active role in technology grant programs, especially those funded by the U.S. Government, we anticipate more opportunities to create workforce development programs to help our member companies and to strengthen our industry's engagement with the academic and vocational communities.

AIST's Decarbonization Core Team will continue to meet regularly to discuss new developments regarding the establishment of hydrogen hubs, as well as funding opportunities that serve to advance the industry's interests regarding decarbonization. Decarbonization technology is the ultimate mission whereby we should leverage our collective strength for the greater good of our industry. If you have any comments about the effort, please let us know.

5.0 ROUNDTABLE OPEN DISCUSSION AND REPORTS

Those in attendance discussed the following items at their individual tables and reported to all attendees.

- Are you currently involved with steel-related DOE programming?
 - Carbon capture, digitalization, integrated virtual blast furnace.
 - DOE needs to better plan, many projects related to DOE.
 - Purdue University Northwest and Missouri S&T have large steel related DOE programming.
- What would help your involvement with DOE steel-related programming?
 - Push DOE to support these projects and disseminate information to companies.
 - Bring together AIST, industry and academia by providing more information on energy
 - Take away the competitiveness from the process, allow for collaborations.
 - Advocate for national outlook instead of regional focus at least for hydrogen projects.
 - DOE contracts – AIST Co-Pi for training.
 - Companies need help with the process. Hire people at AIST to administrate government opportunities.
 - Government opportunities are frustrating with paperwork, experience, timelines, competition.
 - AIST to develop internal expertise to save companies time / resources.
- What specific pre-competitive technology projects would you like to see developed via DOE funding?
 - HBI – Need decarbonization technology that is not safeguarded proprietary information
 - Create awareness for plants and companies to participate with grants and opportunities offered by DOE.
 - Power source – supporting nuclear power through DOE research into austenitic stainless steels, same as electrical steel.
 - Industry support for research, collaboration between industry and national labs.
 - Steel production efficiency and design of the steels supporting applications for decarbonization.
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 - Hydrogen, digitalization, electrification.
- What specific workforce development projects would you like to see developed via DOE funding?
 - Green engineering camps starting at middle school, AIST support in conjunction with DOE.
 - Support women through DOE funding, support Diversity, Equity and Inclusion.
 - Internship programs, virtual technical training, customized steel-focused trainings, simulators for steel.
 - VR/AR funding for training.
 - AIST training seminars focused on steel.
 - High school outreach, funding for skilled trades.
 - Focus on talent pipeline – start out at a young age with STEM programs up to high school, college readiness.
 - Summer programs – research experience for teachers.
 - Industry-wide trade schools
 - Teachers as mentors, steel fellows, teachers camps, odyssey of the mind.
 - Trade school funding program
 - Young faculty support
 - Funding junior achievement odyssey of the mind.
 - Better promotion for technology

- Learning platforms, online programming.
- Engage union and companies in a united effort to fund learning platforms.
- More outreach to chemical engineering majors.
- Need a collaborative effort by the industry leaders through AIST. Work to simplify strengths and opportunities

5.0 WOMEN IN STEEL

Ms. Lund began with a brief explanation about how the book, Women In Steel, Women Of Steel evolved. This is the first time that the steel industry has had a tool that they could give to young people, professors, and teachers in high school and middle school that identifies what kinds of job opportunities are available in the steel industry but also what a career path in the industry looks like. However, the book goes beyond this subject and includes discussions from leaders and emerging leaders in the industry on how to create non-linear careers, successes, the definition of failure, challenges, vulnerabilities, work/life issues, saying “YES” to new opportunities, career advice and life lessons. Diversity, inclusion, and retention are also discussed.

One of the interviewees featured in the book, Eva Dillon-ArcelorMittal, devised a five-year business plan at the age of twelve and how that identified the type of out of the box thinker she is and how that thinking process has singled her out as a leader in her company.

The steel industry of our grandparents has been replaced with global ownership and an industry that openly discusses sustainability, utilities and energy, learning platforms, cyber security, diversity, inclusion and retention.

6.0 STEEL INTERN SCHOLAR REPORT

M. Rodriguez

Mauricio Rodriguez, a 2022 AIST Foundation Steel Intern Scholar, spoke to the attendees about being a scholar and his experience during his internship at Ternium Mexico. He is a mechatronics engineering major at the Instituto Tecnológico de Morelia. Mauricio worked in the coatings area, specifically the galvanizing area in the maintenance department. He learned how the industry works and developed skills such as project developing, results presentation, and negotiations. He was able to share those experiences after his internship with his colleagues at school. Through his internship, Mauricio found himself truly in love with the steelmaking industry with incredible growth and improved networking. The internship experience made him more competitive both as a student and as a future professional. The financial support from the scholarship allowed him to take more opportunities to prepare himself for the professional stage and has never been more confident, and proud of wanting to be an engineer in the steel industry. He thanked the AIST Foundation.

In addition, 2022 recipient Cole Manfred provided an update on his second scholarship and internship at Cleveland-Cliffs. Cole stated he is very grateful for the funding and the opportunities provided by his scholarship. He also spoke to the students and the Steel-to-Student Recruiting Reception that followed this meeting.

7.0 NEXT MEETING

Ms. Dallas reported the next UIRR will be held on Monday, 8 May, 11:30 a.m. –2:00 p.m. (ET) at AISTech 2023, Detroit, Mich., USA

8.0 ADJOURNMENT

There being no further business, Ms. Dallas adjourned the meeting.

