

AMMTO 2023 Peer Review

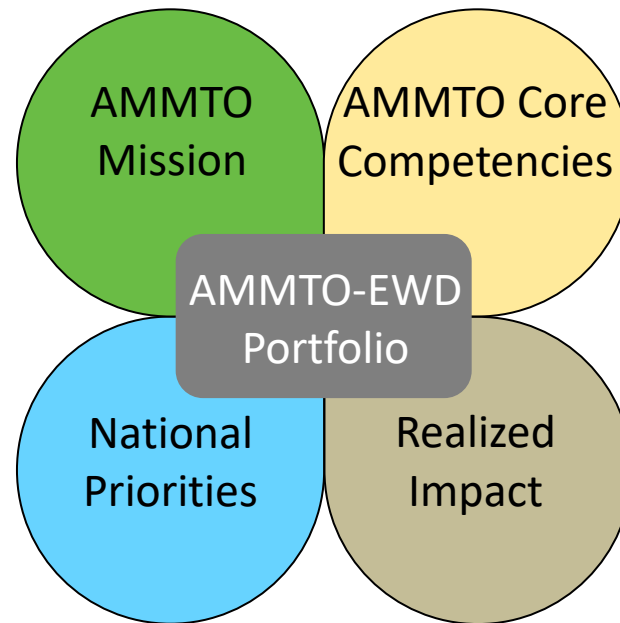
Education and Workforce Development and Entrepreneurship

May 18, 2023 | *Steve Shooter, Nebiat Solomon, Diana Bauer*



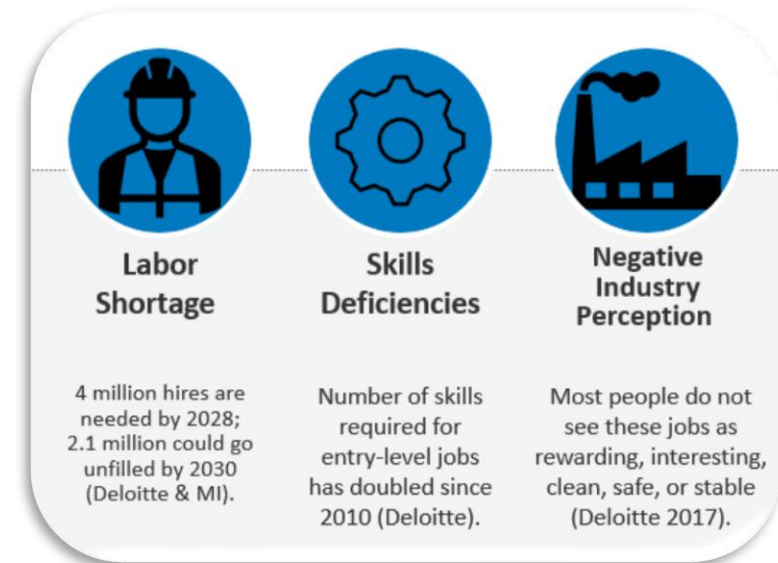
Why AMMTO Education and Workforce Development (EWD)?

A robust advanced manufacturing ecosystem depends on an educated, innovative, diverse, and nimble workforce. Education and workforce development is a core element in AMMTO's mission to foster that robust future of advanced manufacturing in the energy economy.



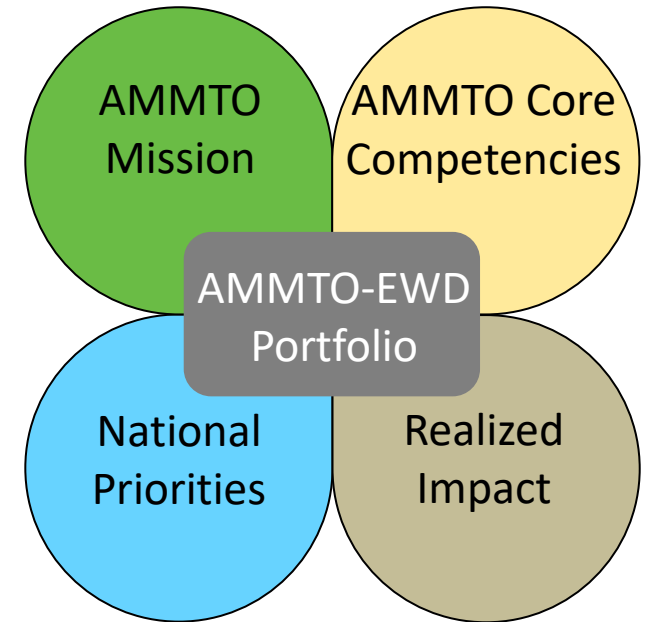
The Transition from AMO to AMMTO

- Prior to the transition from AMO to AMMTO, there were sustained efforts in 2021-22 to gather information and better engage with stakeholders in the advanced manufacturing education and workforce development ecosystem.
- The information gathered was relevant to AMO (now IEDO and AMMTO), with some specific findings now relevant to AMMTO.



AMMTO's EWD Guiding Principles

- AMMTO Mission: Aligns with AMMTO Mission and actively pursues AMMTO objectives/goals.
- National Priorities: Focuses on areas of national need and/or strategic importance.
- AMMTO Core Competencies and Value Chain: Builds from current technology programs and stakeholder engagement capabilities.
- Impact: Engages in efforts for which the successful completion will result in a realized impact to our stakeholders.



AMMTO's EWD Objectives

AMMTO will work across the U.S. manufacturing sector to help create a manufacturing workforce of the future ready to bring about the clean energy transition.

SCALE UP

The deployment of successful hands-on/experiential training programs in technology areas relevant to AMMTO

COLLABORATE

With industry, labor, and academia to accelerate increases in the pipeline of well-trained, diverse workers and desirable career paths for the advanced manufacturing sector

DIVERSIFY

Deliberately designed programs to be inclusive of underrepresented identities and address environmental, energy and economic justice challenges faced by specific communities.

EXPAND

Place-based advanced manufacturing education and workforce development efforts at the local, regional and national levels.

Intentionally Engage with Innovation Ecosystems for EWD Impact

- Public-private partnerships via the Manufacturing USA initiative and DOE Consortia
- Teaming to implement the Federal Strategy on Advanced Manufacturing (SAM) [*specifically Goal 2: Grow the Advanced Manufacturing Workforce*]
- Interagency partnerships (DoD, NIST, NSF, Dept. of Education, Dept. of Labor, Economic Development Administration, etc.) to boost complementary programming and reduce duplicative efforts
- Collaborations with industry-specific communities of practice: examples within the lithium battery space include the Federal Consortium on Advanced Batteries (FCAB), Li-Bridge, and NAATBatt

AMMTO EWD Program Execution

EWD Offering Types

- Hands on experiential education programs
- Internships, traineeships and other educational exposure opportunities
- Upskilling of incumbent workers
- Advanced Manufacturing educational curriculum development and implementation
- Exposure training for STEM educators
- Virtual advanced manufacturing educational training program development and implementation

EWD Delivery Mechanisms

- *Manufacturing USA Institutes education and workforce development offerings*
- Consortia supported education and workforce development programs
- *Minority Serving Institution capstone program in partnership with DOE MUSA Institute*
- *ORISE Summer Internship Programs: energy storage, robotics, high performance computing*
- *Battery Workforce Initiative (BWI) for the lithium battery supply chain*

Forward Looking: Future EWD Priorities for AMMTO

- Identify and implement advanced manufacturing EWD efforts that are ripe for scale-up in communities seeking participation in innovation ecosystems, and build and strengthen the DOE relationship with those communities – including underserved and underrepresented populations
- Respond to stakeholder needs for advanced manufacturing educational and workforce development programming that address current skills shortfalls as well as growing skills needed as the green energy transition accelerates
- Build awareness of advanced manufacturing careers and inspire students with a focus on areas related to the AMMTO mission (*as indicated in goal 2 of National Strategy for Advanced Manufacturing*)
- Assess and share best practices among current implementers to seek possible expansion of EWD implementation

Representatives from AMMTO EWD Programs

- AMMTO and IEDO Support Six Manufacturing USA Institutes each with EWD Initiatives
 - Clean Energy Smart Manufacturing Innovation Institute (CESMII)
 - **Conrad Leiva**
- Oak Ridge Institute for Science Education (ORISE) manages AMMTO Internship Programs – **Rachel Hill**
- Battery Workforce Initiative – **Piper O’Keefe**
- Engaging Historically Black Colleges & Universities (HBCUs) – **Bota Kofi**
- Power Electronics Traineeship – **Rolando Burgos**
- Laboratory Embedded Entrepreneurship Program – **Deena Wright**