Advanced Technological Education Network for Utilities and Energy Technical Education (Utilities and Energy Coordination Network)

Year 1 Evaluation Report

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Purpose and Design of the Evaluation

The Rucks Group, LLC (see Appendix A for author biographies) was contracted to provide external evaluation services for the Network and has worked collaboratively with project leadership to distill the evaluation methods. The project's theory of change hypothesizes that bringing industry, academia, and other stakeholders together with a shared purpose will lead to resource sharing and collaborations focused on addressing current and anticipated industry workforce and training needs through new programs and curriculum development. Guided by the logic model (see Appendix B), the evaluation design includes formative evaluation for project improvement as well as summative evaluation to gather evidence of impact continually.

Evaluation Questions

Driving the evaluation are four evaluation questions:

1. How effectively is the project team bringing together key organizations in the Network?
2. To what degree does the Network include members with the needed diverse skills to meet the goals of the Network?
3. What information, best practices, and/or resources are flowing through the Network? How does this information bring value to the Network?
4. How and to what extent is the cross-sector Network ready to set and execute strategies, including implementing workforce issues solutions?

Data Gathering Approaches

The evaluation uses a mixed-methodological approach, collecting both qualitative and quantitative evidence of the completion of deliverables (e.g., outputs) and short-term project outcomes. Data collection in the first year relied on reviews of project-level documents (e.g., meeting notes), regular meetings with the project team to understand project progress and planning, and a 612 792 ret.i Ne47t.00000912 0 612 792 reW*nBT/F1 9.48 Tf1 0 0 1 393.55 286.f1 0 0 1 54 272.33 Tm4.1

term

between actors in a network.[1] In this project, the actors are industry organizations and educational institutions. The types of relational ties being evaluated include: advisory board service, providing instruction or instructional support, employing graduates, providing educational resources, providing internship and apprenticeship opportunities, and faculty/professional development.

Evaluation Findings

Evaluation Question #1: How effectively is the project team bringing together key organizations in the Network?

The project team currently serves as the Network's leadership, consisting of the Principal Investigator (PI), program faculty, and a project coordinator. The faculty represent the areas of interest for the Network: Utilities Engineering Technology, Gas Utility Construction and Service, Solar Energy Technology, Energy Management Technology, and Electrical Power Dhnage 792 reW*nBTl Th.00000912 0 612 792 reW*nBT/F1 9.48 Tf1 0 0 1 112.34 548.38 Tm0 g750 G[Ele)5(c)-5(tr)-8(ic)

few or no reported connections as shown around the outer edge. Social network data will continue to be useful in identifying those organizations that appear to be less connected to their industry or educational counterparts.

Current Network Membership

Figure 4. Percentage of organization types in baseline Network survey dataset.

The survey findings suggest that connections between industry and educational organizations vary, ranging from zero connections up to 30 (see Appendices G and H for complete table of number of connections per organization). As shown in Table 1, the five most highly connected educational institutions have over ten connections with 329BT/F1 9.48 Tf1 0 0 1 420.

Two-thirds (66%) of the organizations included in the data are not survey respondents, meaning that they were named by another organization as a connection. These less-connected organizations represent the potential of the Network and are opportunities for outreach, engagement, and recruiting. For organizations that were identified as partners by few respondents, these data will be useful for identifying where connections can be strengthened.

Educational programs.JETQq0.00000912 0 612 792 reW*nBT/F1 9.48 Tf1 0 0 1 256.37912 0 612 792 reW*nBT/F1 9.48 Tf1 0 0 1 465.55

by arstre612 792 re W* n BT /F1 9.48 Tf 1 0 0 1 147.14 680.74 Tm 0 g 0 G [(f)8.15 9.48 Tf 1 0 0 1 147.[B

Network Operations and Marketing

The project team has ensured that key information is available on the Network website in order to inform and recruit potential members. The Network website serves both as an introduction and invitation to the Network with content about its goals, project team members, and NWTC's programs and facilities. It also provides an opportunity to share information; while the web site is still under development, at the time of this report there was information about a webinar series on maximizing facilities assessments for air and hydronic systems being offered by Slipstream, an organization that has communicated its interest in joining the Network. This announcement offers valuable information about a professional development opportunity on a topic of interest to organizations involved in the Network.

ATE Centers and Related Organizations

Additional information flowing through the network is related to respondents' engagement with Advanced Technical Education (ATE) centers and professional organizations. These organizations are a source of information and resources related to partnerships between academic institutions and industry that can inform Network goals.

The Midwest Energy Association (n= 43) is the most recognized of this group of organizations among survey respondents; fewer respondents were aware of Building Efficiency for a Sustainable Tomorrow (BEST) (n=15), an organization that has already indicated its intent to join the Network (Figure 8).

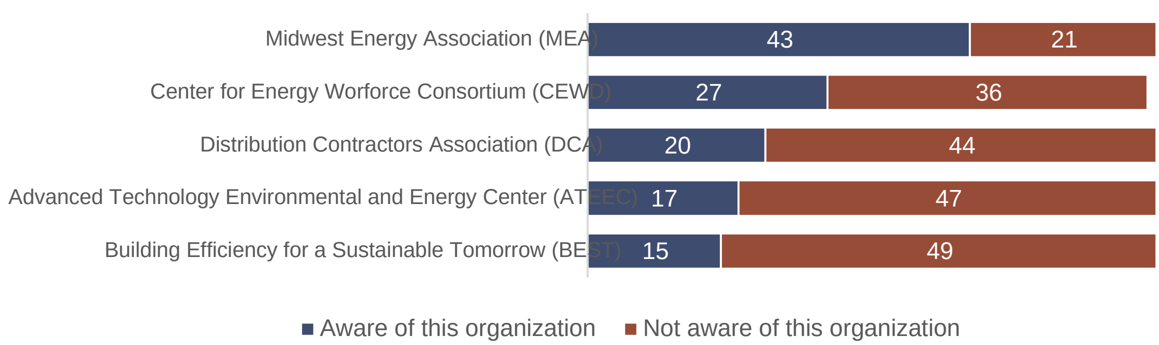

Figure 8. Awareness of energy and utilities-related professional organizations.

To better understand the nature of the relationship industry and educational institutions have with these energy and utilities-related organizations, respondents were also asked to indicate how they have interacted with each entity. Types of interactions with these organizations are equally distributed among newsletter subscriptions, event attendance, and membership (Figure 9), showing that at least some potential Network members are receiving information about the work of these related organizations.

Figure 10. Frequencies of partnership types between industry organizations and educational institutions.

Fewer survey respondents reported that their organization has a relationship with industry or education based on providing internship and apprenticeship opportunities, instruction/instructional support, or faculty/professional development, indicating that these may be areas for development in the pursuit of training opportunities to address workforce shortages.

The survey data also show that the distribution of the partnership activities differs by employer. Figure 11 provides an example of the varying emphases of those employers with the highest number of reported partnerships with educational institutions.

Figure 11. Example profiles of employers' partnership activities with educational institutions

For example, both Slipstream and Wisconsin Public Service have partnerships with the same number of educational institutions (n=13) and engage in each type of activity, but with different emphases on providing educational resources and employing graduates. In contrast,

More broadly, leverage common interests and existing interactions among Network members and potential participants by creating subgroups around topics of interest.

Appendix B - Logic Model

INPUTS	ACTIVITIES	OUTPUTS	SHORT-TERM OUTCOMES	MID-TERM OUTCOMES	LONG-TERM OUTCOMES
NWTC faculty subject-matter experts Relationships from two previous NSF-funded projects Past institutional history helping launch utility/energy programming around state and U.S. Industry involvement via established NWTC Program Advisory Committees	x Hire Project Coordinator to organize meetings, provide administrative support, for				

Display Q3.9 if Q3.7 = Yes

Q3.9 Could we follow up with you at a later time to walk through this survey with the additional institutions? We would provide you with a list of the institutions you already mentioned.

- o Yes
- o No

Q4.1 Which of the following educational programs does your educational institution currently offer to

Q4.4 Please list EVERY employer in the Energy and Utilities Industry with whom your educational institution has some type of connection.

- o 1 ________________________________
- o 2 ________________________________
- o 3 ________________________________
- o 4 ________________________________
- o 5 ________________________________
- o 6 ________________________________
- o 7 ________________________________
- o 8 ________________________________
- o 9 ________________________________
- o 10 ________________________________
- o 11 ________________________________
- o 12 ________________________________
- o 13 ________________________________
- o 14 ________________________________
- o 15 ________________________________
- o 16 ________________________________
- o 17 ________________________________
- o 18 ________________________________
- o 19 ________________________________
- o 20 ________________________________

Display Q4.5 if line 20 of Q4.4 is not empty

Q4.5 You listed 20 institutions. Could you have listed more?

- o Yes
- o No

Display Q4.6 if = Yes

Q4.6 Please list those institutions here.

____

____

____

____

____

Display Q4.7 ifQ4.5 = Yes

Q4.7 Could we follow up with you at a later time to walk through this survey with the additional institutions? We would provide you with a list of the institutions you already mentioned.

- o Yes
- o No

Display Q4.10 if Q4.9 = Yes

Q4.10 Please list those institutions here.

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____

____

Display 4.11 if Q4.9 = Yes

Q4.11 Could we follow up with you at a later time to walk through this survey with the additional institutions? We would provide you with a list of the institutions you already mentioned.

- o Yes
- o No

Q5.1 For each of the Energy and Utilities-related professional organizations below, please indicate if your organization is aware of it.

	Yes, we are aware of this organization	No, we are not aware of this organization
Building Efficiency for a Sustainable Tomorrow (BEST)	o	o
Advanced Technology Environmental and Energy Center (ATEEC)	o	o
Distribution Contractors Association (DCA)	o	o
Midwest Energy Association (MEA)	o	o
Center for Energy Workforce Consortium (CEWD)	o	o

Carry forward selected choices from Q5.1

Q5.2 Please select each statement that is true with regards to your organization's relationship with each of the following Energy and Utilities-related professional organizations.

	We are subscribed to this organization's newsletter	We have attended at least one of this organization's events in the last two years	At least one member of our entity is a member of this organization	We are interested in becoming more active with this organization	None are true
Building Efficiency for a Sustainable Tomorrow (BEST)	o	o	o	o	o
Advanced Technology Environmental and Energy Center (ATEEC)	o	o	o	o	o
Distribution Contractors Association (DCA)	o	o	o	o	o
Midwest Energy Association (MEA)	o	o	o	o	o
Center for Energy Workforce Consortium (CEWD)	o	o	o	o	o

Q5.3 Please list and describe the nature of the connection between your organization and any other Energy and Utilities-related professional organization.

o 1 ________________________________

o 2 ________________________________

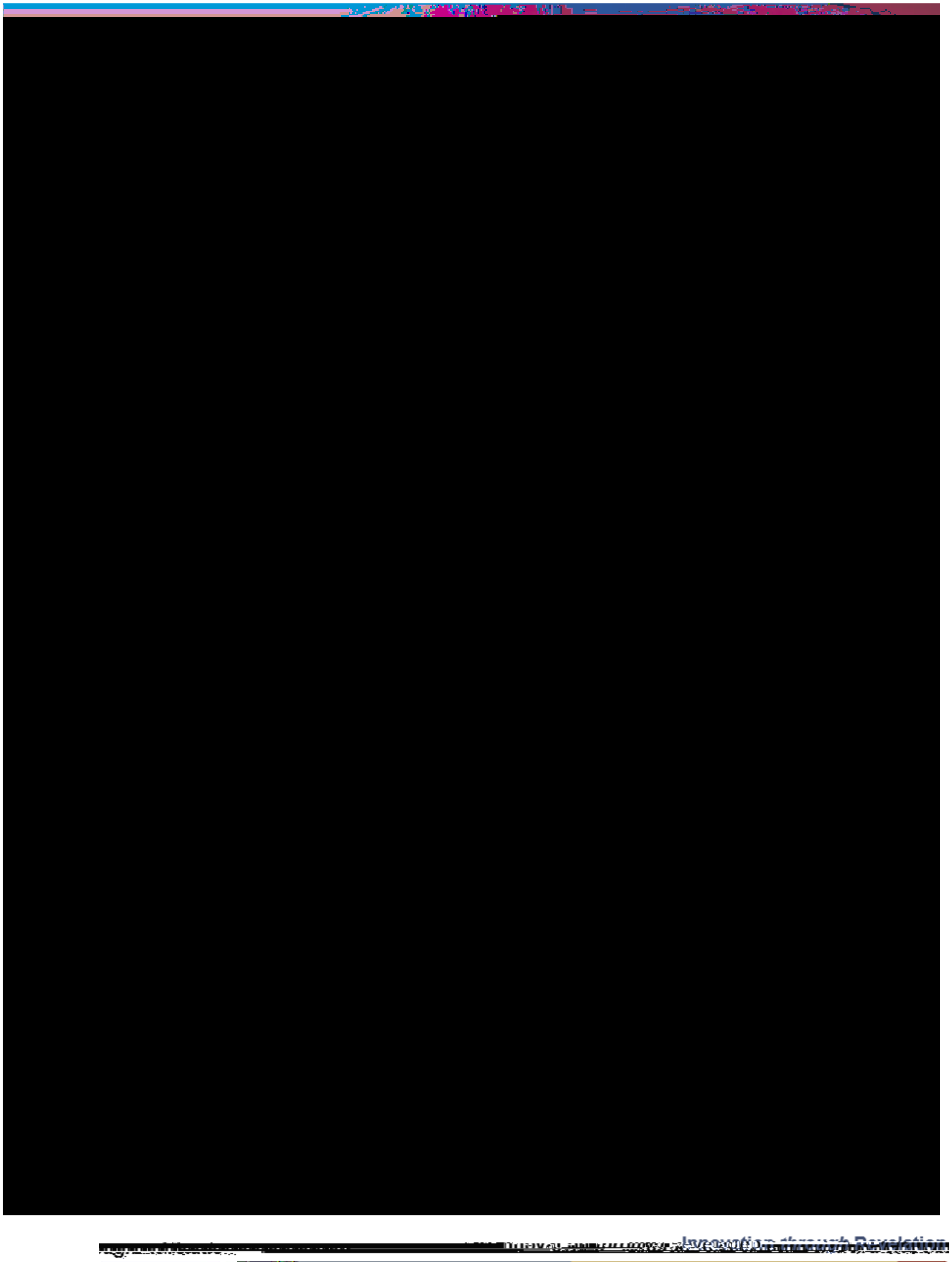
o 3 ________________________________

o 4 ________________________________

o 5 ________________________________

Q6.1 We might like to follow up with you if we have any questions or want to learn more regarding your responses to this survey. Would you be willing to have a brief 10-20 minute follow-

Appendix E - UECN Marketing Piece



Appendix F - 1:7&·V ([LVWLQJ Relationships

Sector	Stakeholders
Wisconsin Technical College System (WTCS) Educational Partners	x Blackhawk Technical College (Janesville, WI) x Chippewa Valley Technical College (Eau Claire, WI) x Gateway Technical College (Kenosha, WI) x Fox Valley Technical College (Appleton, WI) x Lakeshore Technical College (Cleveland, WI) x Madison College (Madison, WI) x Midstate Technical College (Wisconsin Rapids, WI)
Midwest Educational Partners	x

Doble Engineering	0	2	2
Dominion Energy	0	2	2
Duke Energy	0	2	2

Norris Public Power	0	1	1
ONEOK, Inc.	0	1	1
Pee Dee Electric	0	1	1
Pike Electric	0	1	1
Power Grid Engineering	0	1	1
Prime Morris	0	1	1
Public Service Company of Oklahoma	0	1	1
PWC	0	1	1
Qualus Power	0	1	1
Quanta	0	1	1
Reliant	0	1	1
Rock Energy Cooperative	1	0	1
Saber	0	1	1
SC EMC	0	1	1
Schweitzer Engineering Laboratories, Inc.	0	1	1
SEL	0	1	1
Shell	0	1	1
Siemens Energy	0	1	1
Southeast Power	0	1	1
SPX Transformers	0	1	1
Sumpter Utilities	0	1	1
Superior Cranes	0	1	1
Tellespen	0	1	1
UPA	0	1	1
Upper Peninsula Power Company	1	0	1
Volt Power	0	1	1
Weston Power Plant	0	1	1
Wheatbelt Public Power	0	1	1
Williams Co., Inc.	0	1	1

Artera	0	0	0
August Winter & Sons	0	0	0
Automated Energy Solutions, Inc.	0	0	0
Cathodic Protection Management, Inc.	0		