

**OUTCOME**  
evaluation  
step-by-step

The webinar will begin at 1 p.m. Eastern time

## Introductions


		
Mike Lesiecki	Christina Titus	Lori Wingate
		

**CCTA** | CENTERS COLLABORATIVE FOR TECHNICAL ASSISTANCE



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**CCTA** | CENTERS COLLABORATIVE FOR TECHNICAL ASSISTANCE



**NATIONAL CONVERGENCE TECHNOLOGY CENTER**  
Collin College (lead)

**SOUTH CAROLINA ADVANCED TECHNOLOGICAL EDUCATION**  
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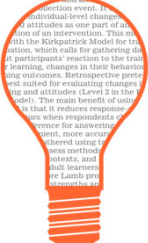
**EvaluateATE** Advancing excellence through evaluation




Webinars



Resource Library



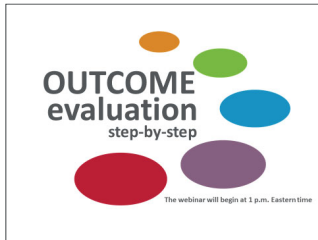
Blog



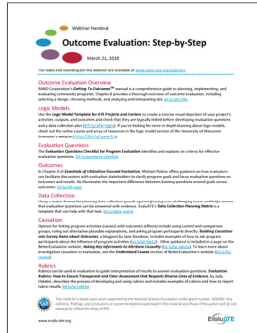
ATE Survey Data

[www.evaluate-ate.org](http://www.evaluate-ate.org)

# Materials



Slides



Handout




Recording

[www.evaluate.org/webinars/mar19](http://www.evaluate.org/webinars/mar19)




This material is based upon work supported by the National Science Foundation under grant number 1600992.

Any opinions, findings, and conclusions or recommendations expressed in this material are those of the presenters and do not necessarily reflect the views of NSF.




## Process v. Outcome Evaluation




Evaluation of the activities that a project carries out and the materials or products it creates or uses in service delivery

Determination and evaluation of the changes a project brings about



## Process v. Outcome Evaluation



- Quality of program content
- Quality of program materials or facilities
- Extent of reach to intended and other audiences
- Adequacy and logic of program design
- Level of participant satisfaction

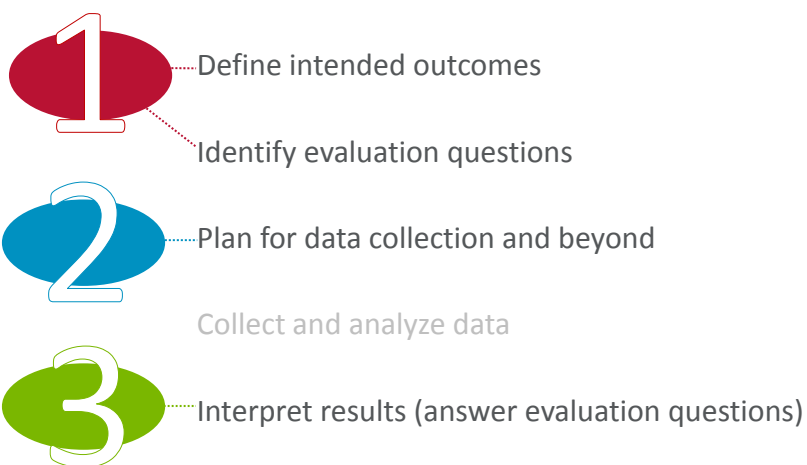
CHANGES in

- Attitudes ●
- Knowledge ●
- Skill ●
- Competence ●
- Behavior ●
- Social or economic conditions ●

## Outcome Evaluation Steps

1. Define intended outcomes
2. Identify evaluation questions
3. Plan for data collection and beyond
4. Collect and analyze data
5. Interpret results (answer evaluation questions)

## Webinar Sections

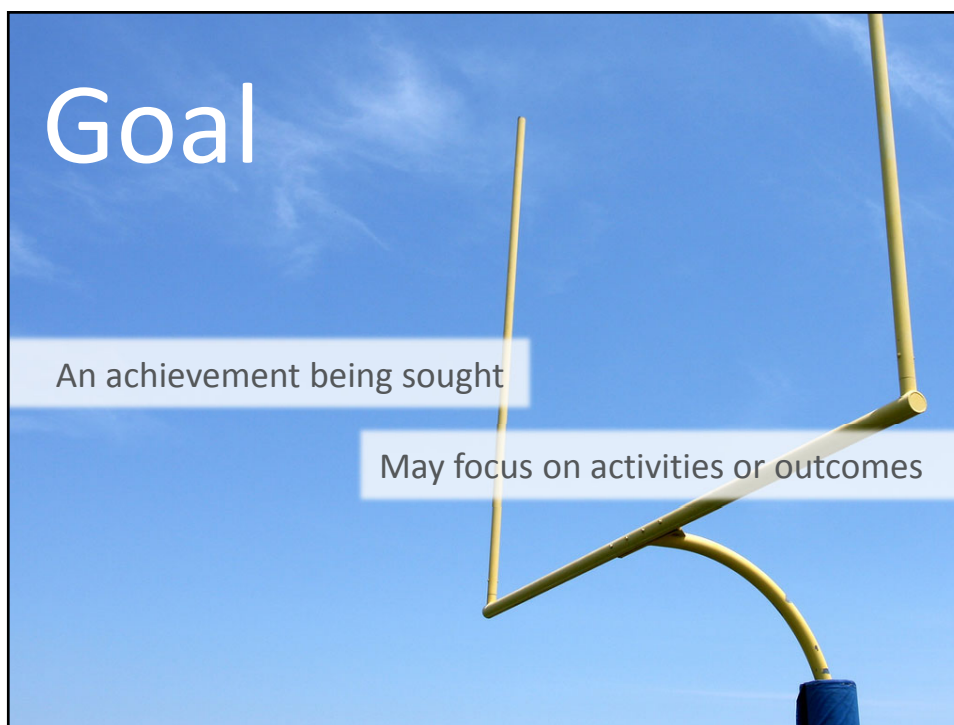




## Define Intended Outcomes and Identify Evaluation Questions



Any *change* resulting from project activities and outputs







**Activity goal**  
(what a project will do)

The project will deliver four webinars per year, serving 1,000 people.

**Outcome goal**  
(what difference it will make)

Webinar participants will improve their evaluation knowledge and practices.



**Real goal statements from  
real NSF-funded projects**



The goal of the project is to **increase the supply** of qualified cybersecurity professionals for industry and government.

.....  
**Outcome: More qualified workforce**



The goal of this project is to **develop an associate's degree** in mechatronics, incorporating pathways from local high schools into the degree offering at three partner colleges.

.....  
**Activity: Create degree program**

“

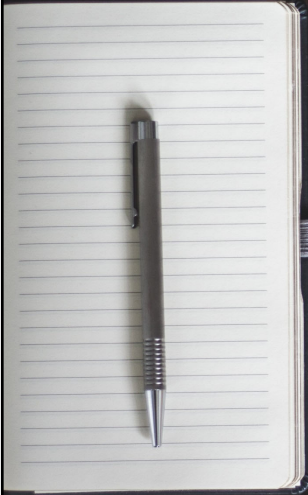
This project has the overarching goal of **increasing awareness** of opportunities in science, technology, engineering, and mathematics (STEM) disciplines for women and underrepresented minorities.

.....  
**Outcome: Change what people know about STEM disciplines**

“

The project's goal is to **build** a sustainable program to enhance process technology education by **introducing** new hands-on opportunities through use of light-weight extremely low-cost miniature industrial equipment with a small footprint that fits on a standard desktop or which can be taken home for use in homework assignments.

.....  
**Activity: Create program, use new equipment**



## INTENDED OUTCOMES

**specific, realistic** statements about what is expected to **change** for individuals or groups **relevant** to the need that the project is designed to address

Current wind energy workforce:




**CASE** Growing a New Generation of Energy Technicians and Professionals

Projected retirement within 10 years:



**CASE** Growing a New Generation of Energy Technicians and Professionals



1) Increase academic rigor

2) Design and activate career pathways

3) Enhance recruitment, retention, and placement efforts

**CASE** Growing a New Generation of Energy Technicians and Professionals

## Project Goals

1. **Improve** and **expand academic rigor and relevance** across core technology curriculum and wind energy technology-specific curriculum.
2. **Design and put into action** wind/renewable energy career pathways.
3. **Enhance and expand** recruitment, retention, and placement **efforts** across technology programs.

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**Project actions = Activities**

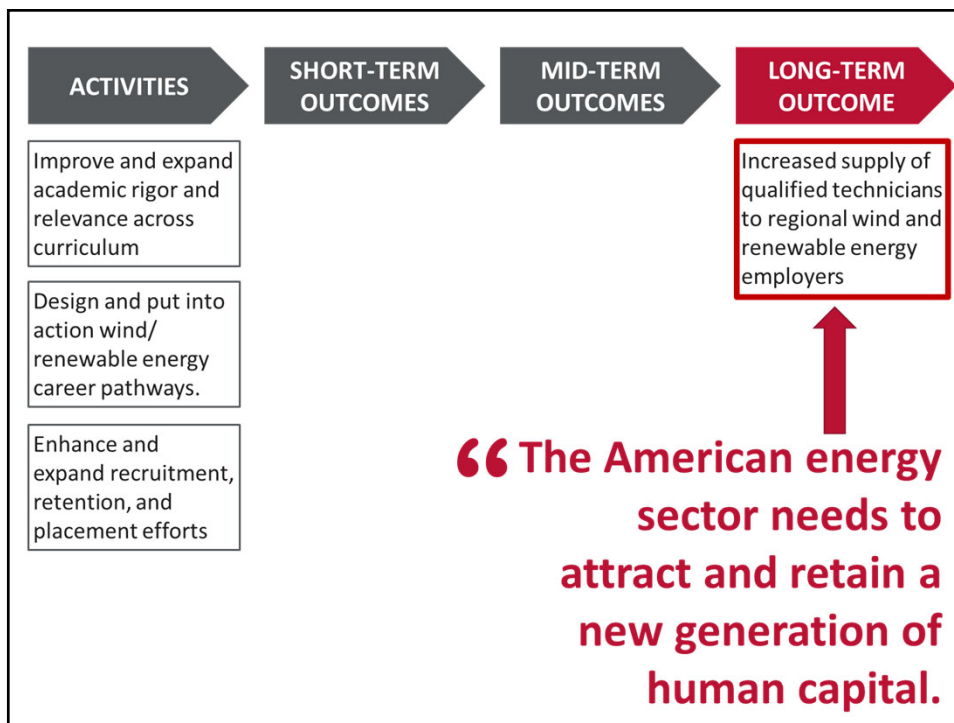
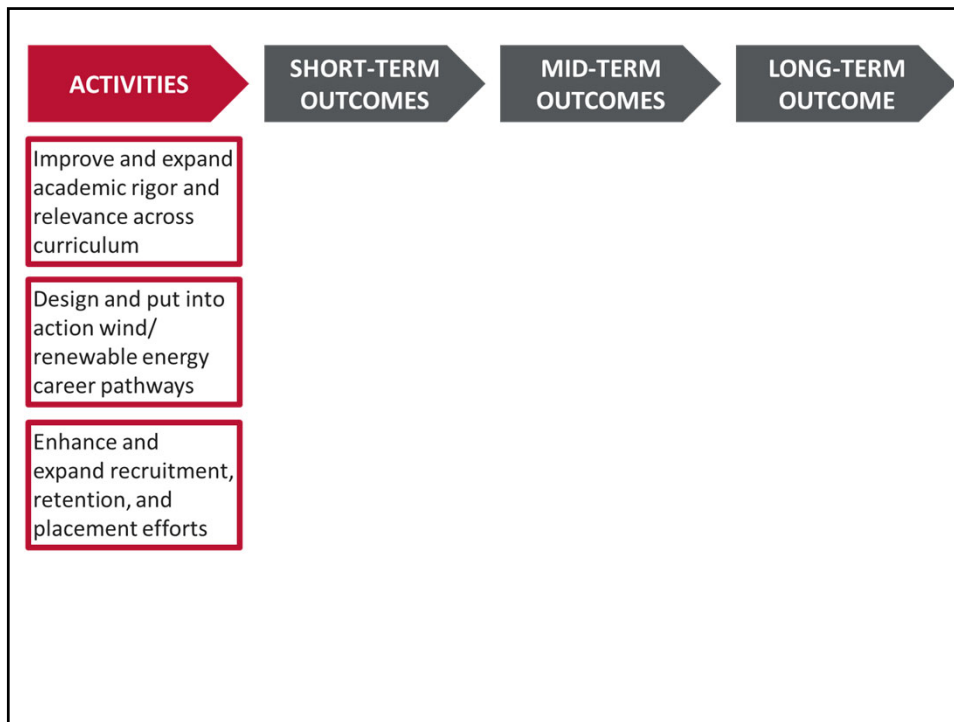
ACTIVITIES

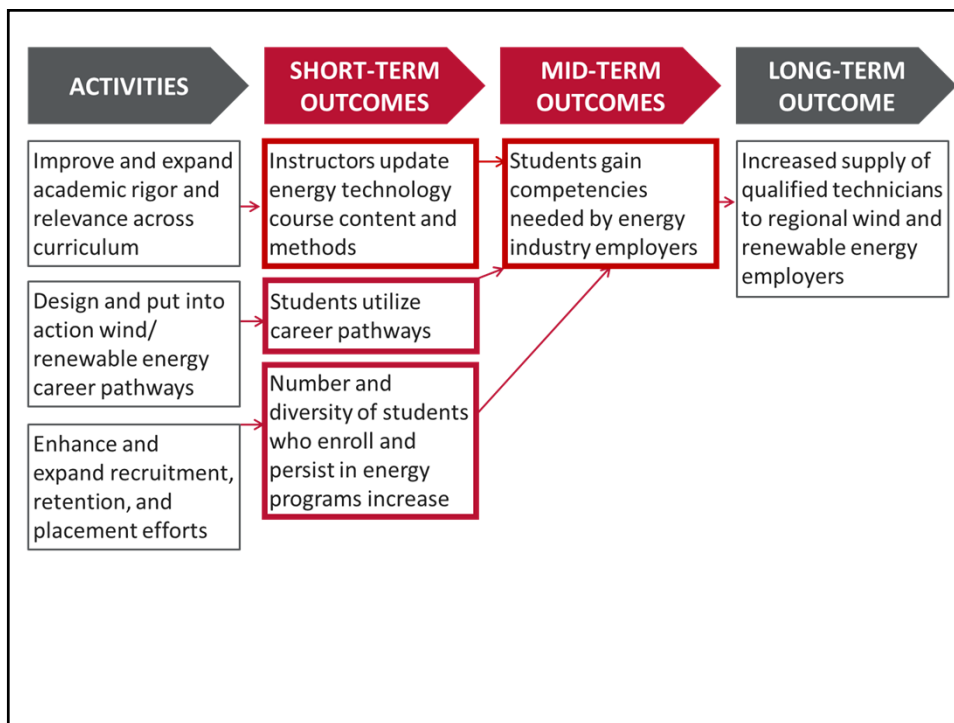
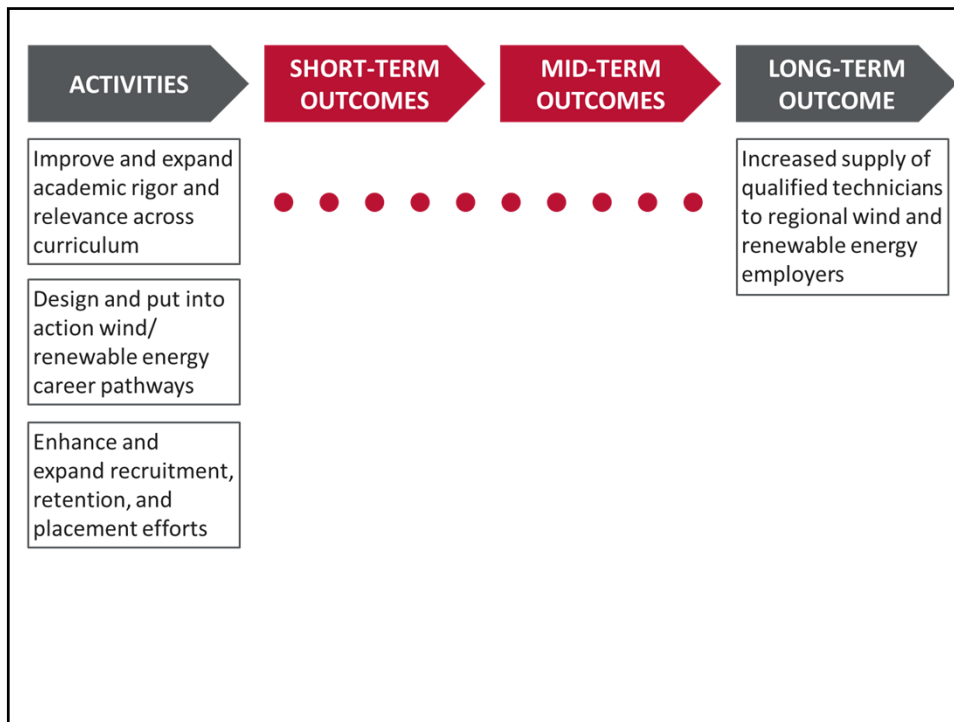
SHORT-TERM  
OUTCOMES

MID-TERM  
OUTCOMES

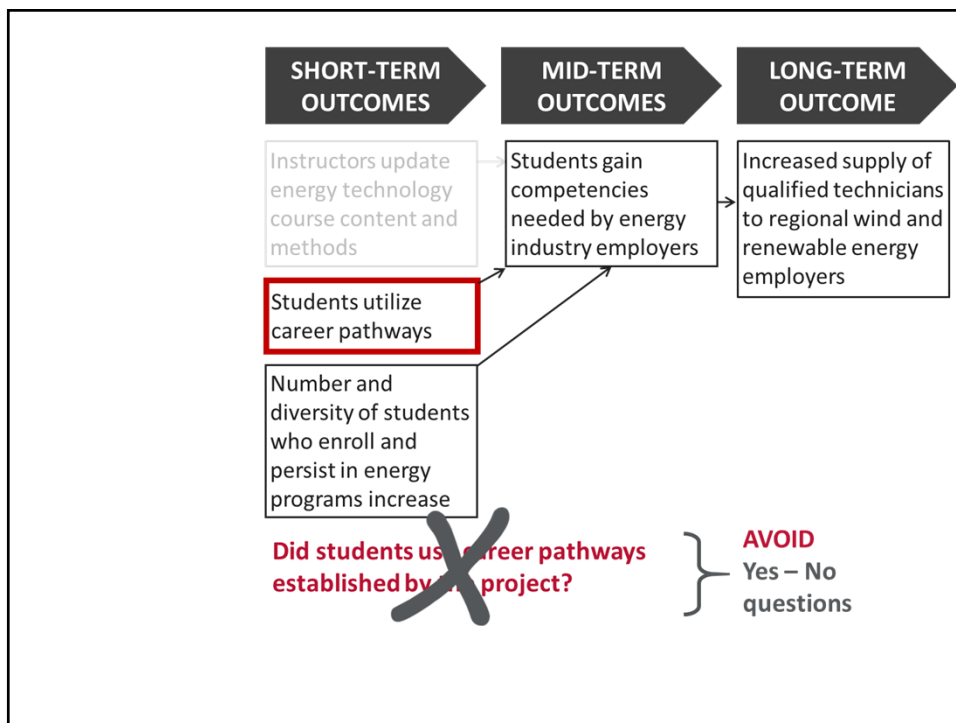
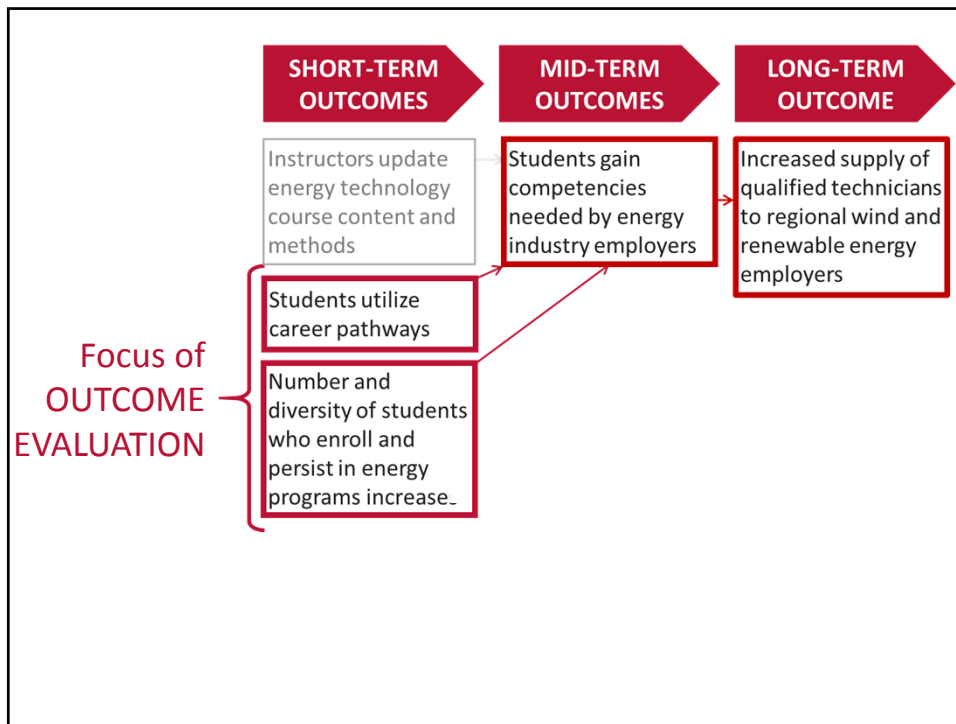
LONG-TERM  
OUTCOME

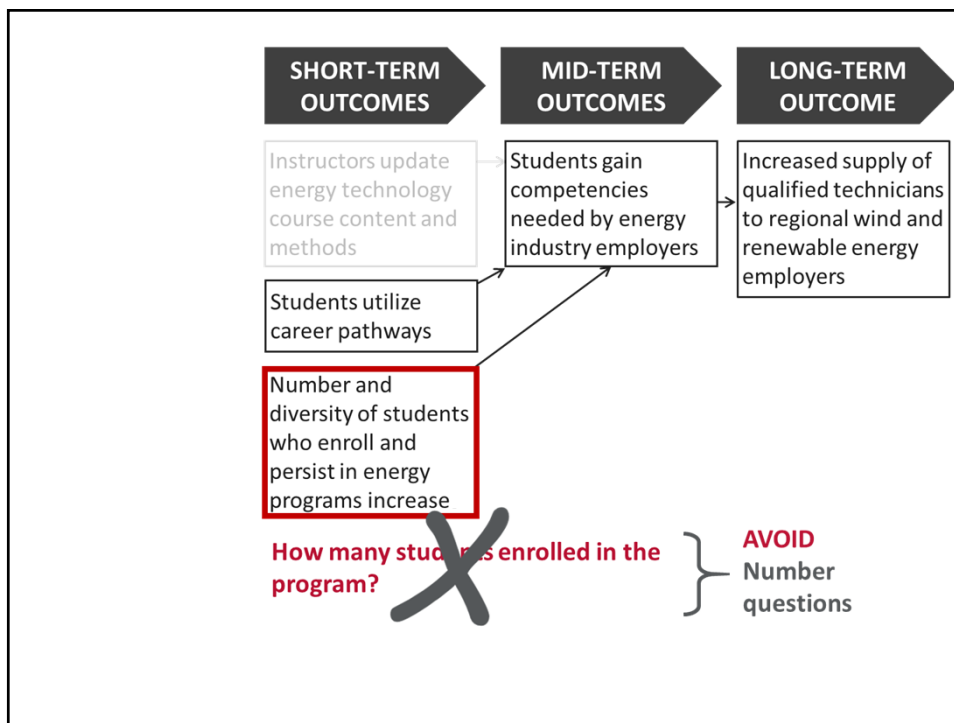
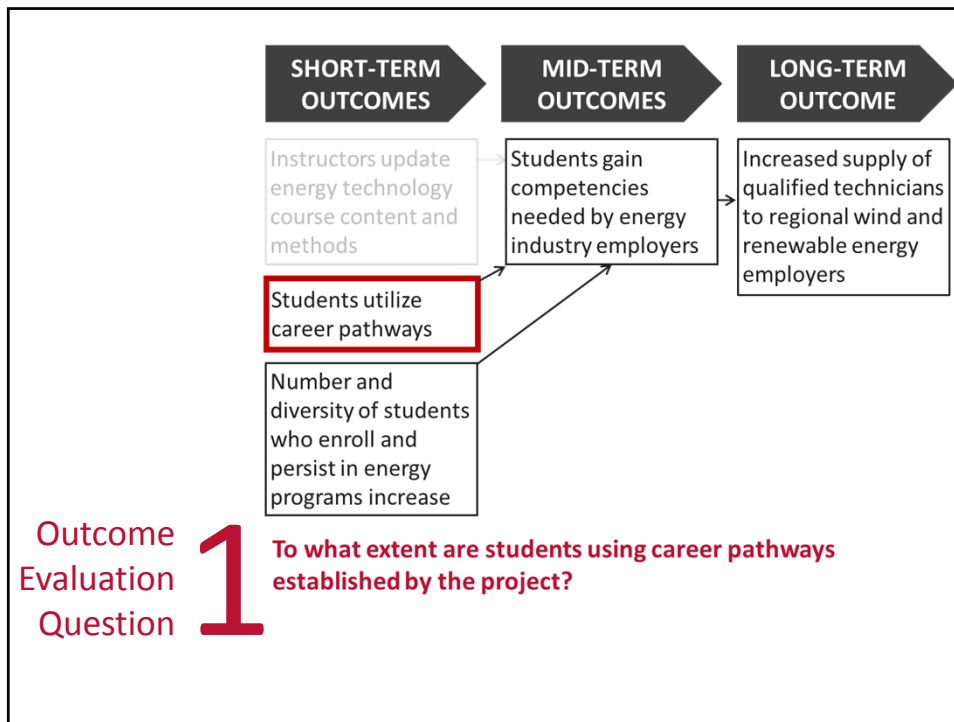
**Logic models are a great tool  
for evaluation planning!**

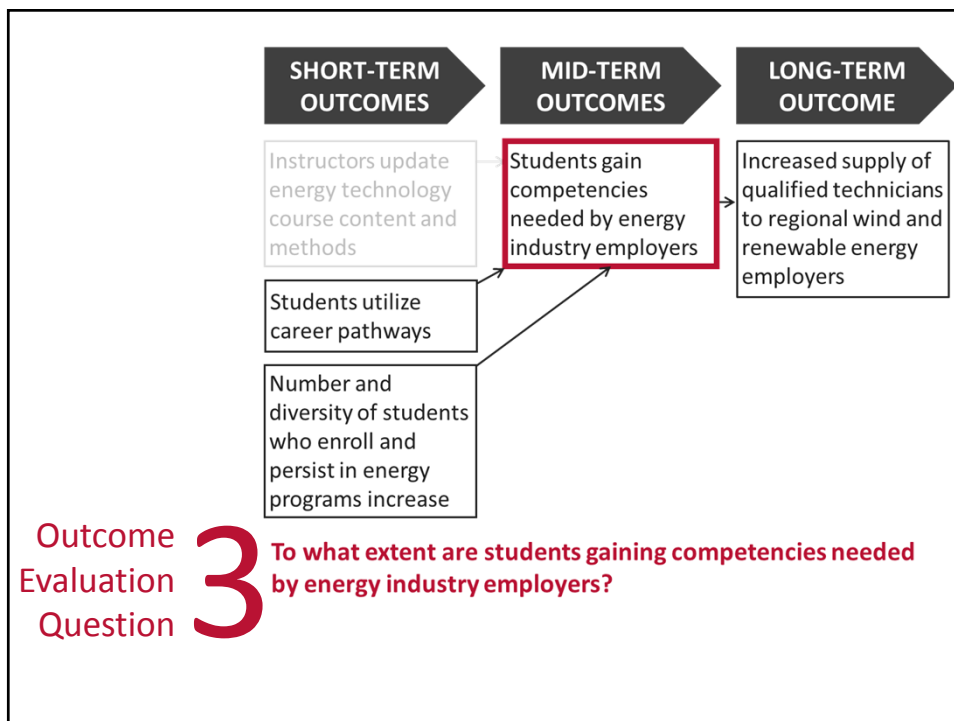
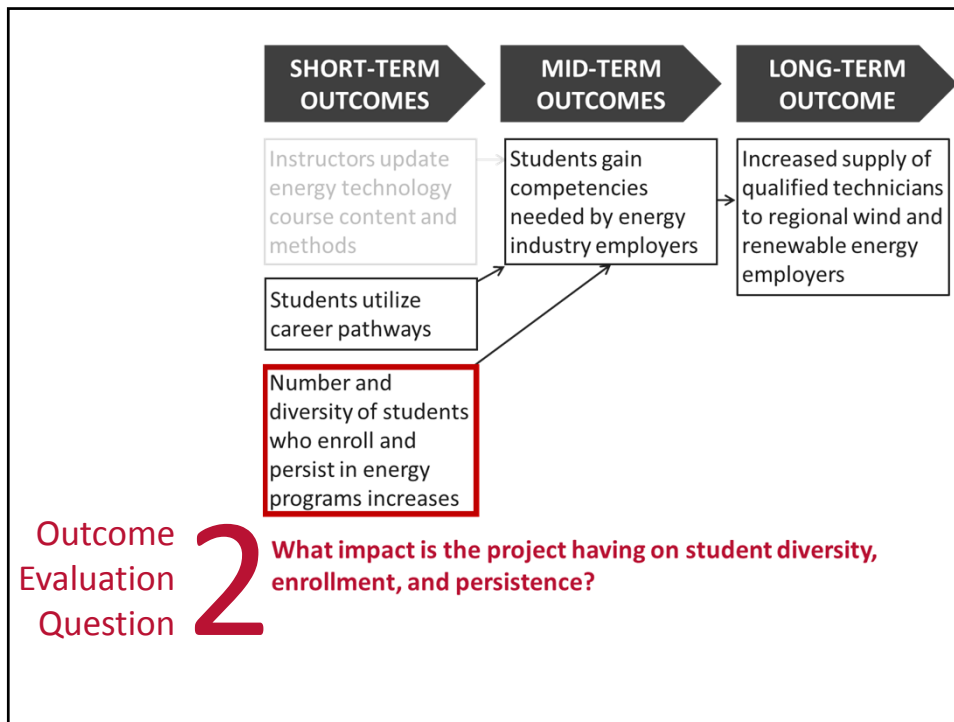


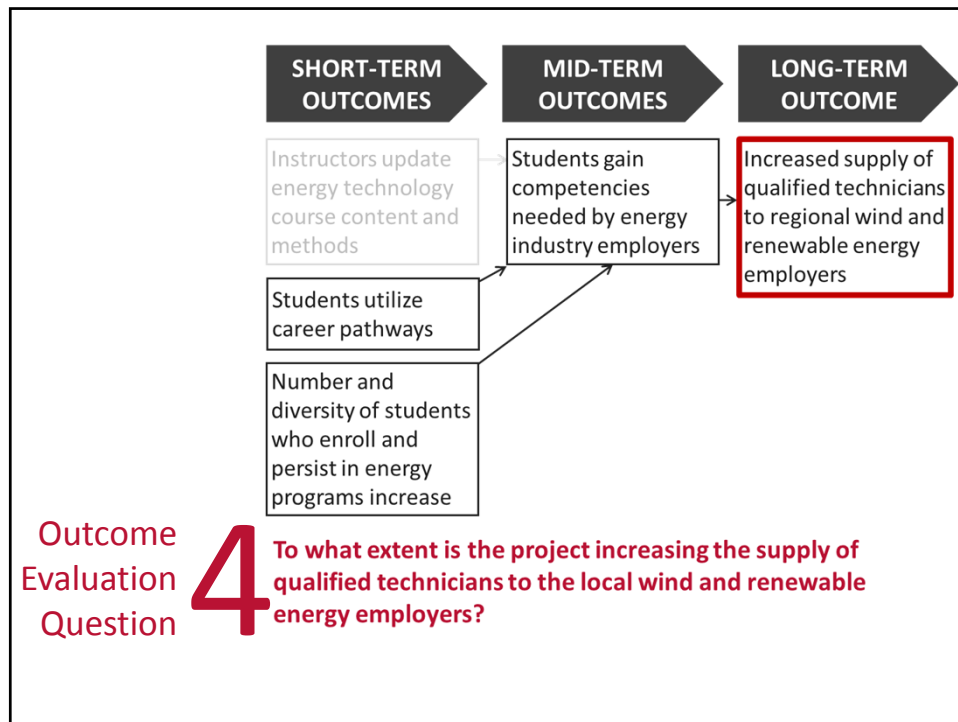












## Summary

- ✓ Clearly define intended outcomes.
- ✓ Identify multiple levels of outcomes.
- ✓ Frame evaluation questions around outcomes.
- ✓ Ask evaluation questions that allow for a range of conclusions.
- ✓ **Bonus:** Always include an evaluation question like this:  
*“What are the project’s unintended positive or negative side effects or outcomes, if any?”*

# Resources

Getting to Outcomes™

Logic model template, online course, and more

Evaluation Questions Checklist

Book chapter by Michael Quinn Patton on defining outcomes

Webinar Handout

## Outcome Evaluation: Step-by-Step

March 21, 2019

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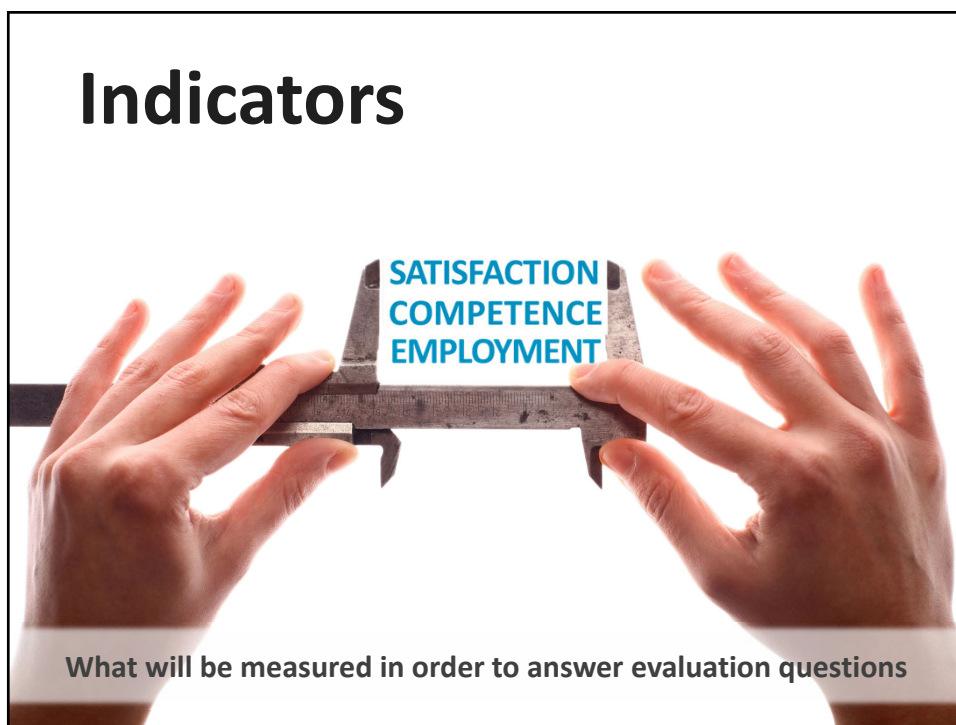
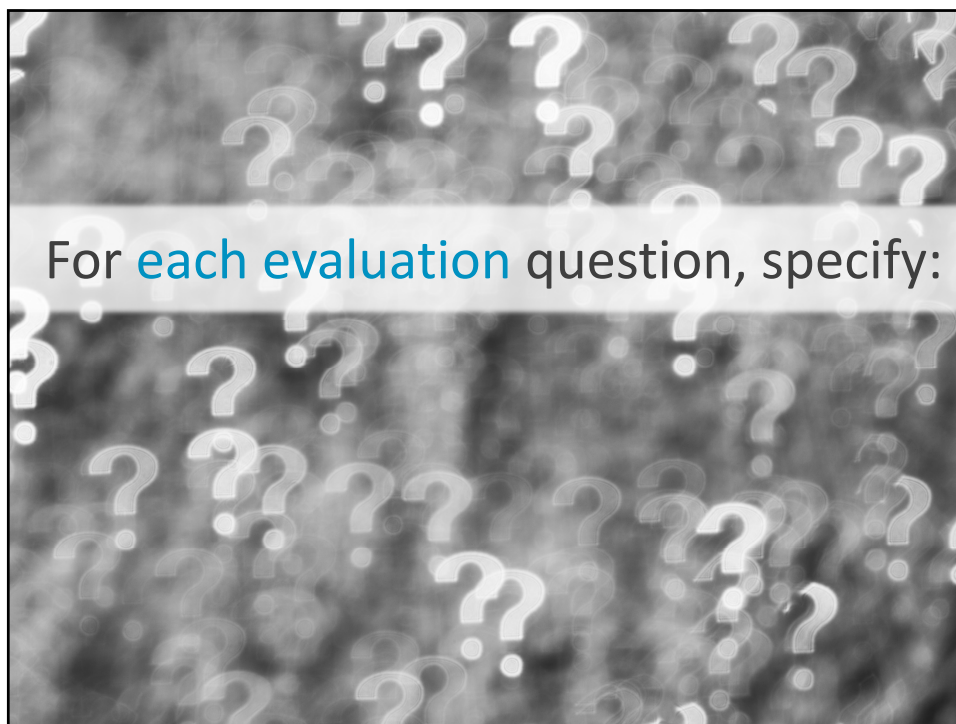
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## Planning for Data Collection and Beyond











For **each evaluation** question, specify:

- ✓ Indicators
- ✓ Data sources and methods
- ✓ People
- ✓ Timing
- ✓ Analysis
- ✓ Interpretation

INDICATOR	DATA SOURCE & METHOD	PEOPLE	TIMING	ANALYSIS	INTERPRETATION
<p>A matrix is a great way to show relationships between data collection plan elements</p>					

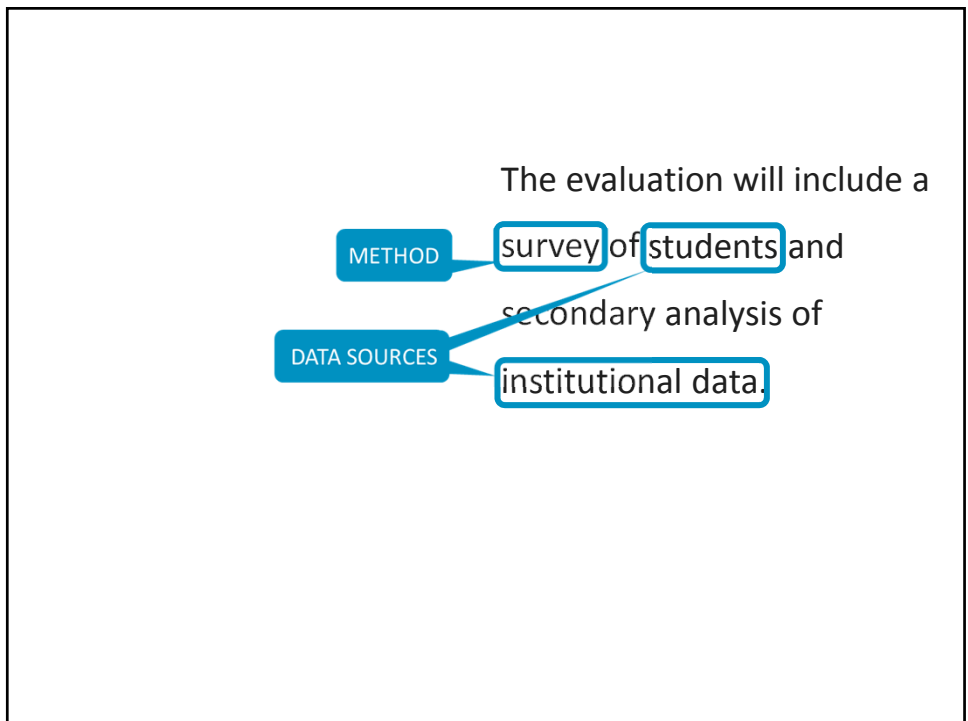
**Outcome Evaluation Question 1:**  
 To what extent are students using career pathways established by the project?

INDICATOR	DATA SOURCE & METHOD	PEOPLE	TIMING	ANALYSIS	INTERPRETATION
Number of high school students who are dual enrolled	Institutional data	Project director obtains from institutional research office	End of each semester	No analysis – use raw numbers	Comparison against performance target using rubric
Number and percentage of dual-enrolled students who intend to pursue degree and certificate programs	Survey of dual-enrolled students	External evaluator develops survey and conducts analyses; faculty administer survey	End of each semester	Descriptive statistics, disaggregated by demographic characteristics; inductive coding of qualitative data	Comparison against performance target using rubric

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**what will be measured**      **how data will be obtained**      **how results will be used to answer evaluation questions**



## But what will be measured?

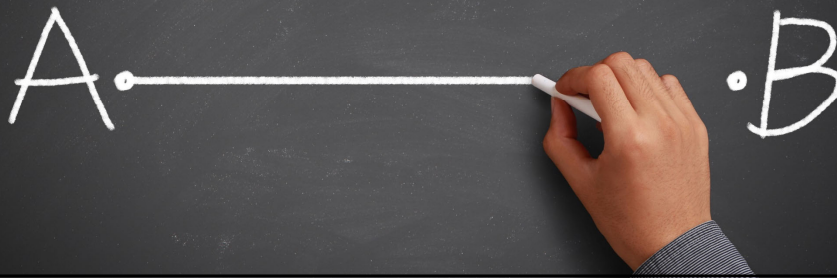
The evaluation will include a survey of students and secondary analysis of institutional data.

INDICATOR	DATA SOURCE & METHOD
Number of high school students in dual enrollment courses	Institutional data
Number and percentage of dual-enrolled students who intend to pursue degree and certificate programs	Survey of dual-enrolled students

The evaluation will include a survey of students and secondary analysis of institutional data.

If an “outcome” is not caused by the intervention, it is NOT an outcome. It’s merely a coincidence.

—Jane Davidson



## Outcome

change resulting from project activities

effect

cause or contributor

## Linking cause and effect

- ✓ Use control or comparison groups
- ✓ Scan environment for other influences
- ✓ Ask participants directly

How likely are you to seek a job in the renewable energy field?

- Not at all likely
- Somewhat likely
- Very likely
- Extremely likely

### Links cause and effect

How much **impact** has this **course** had on the likelihood that you will seek a job in the renewable energy field?

- Major negative impact
- Moderate negative impact
- Slight negative impact
- No impact
- Slight positive impact
- Moderate positive impact
- Major positive impact

Asks about both magnitude and direction of effect

## Summary


- ✓ Align data collection to **evaluation questions**.
- ✓ Develop concrete plans for analysis and interpretation.
- ✓ Build cause and effect into data collection when possible.

## Resources

Getting to Outcomes™

Data Collection Plan Matrix

Variety of resources on causation



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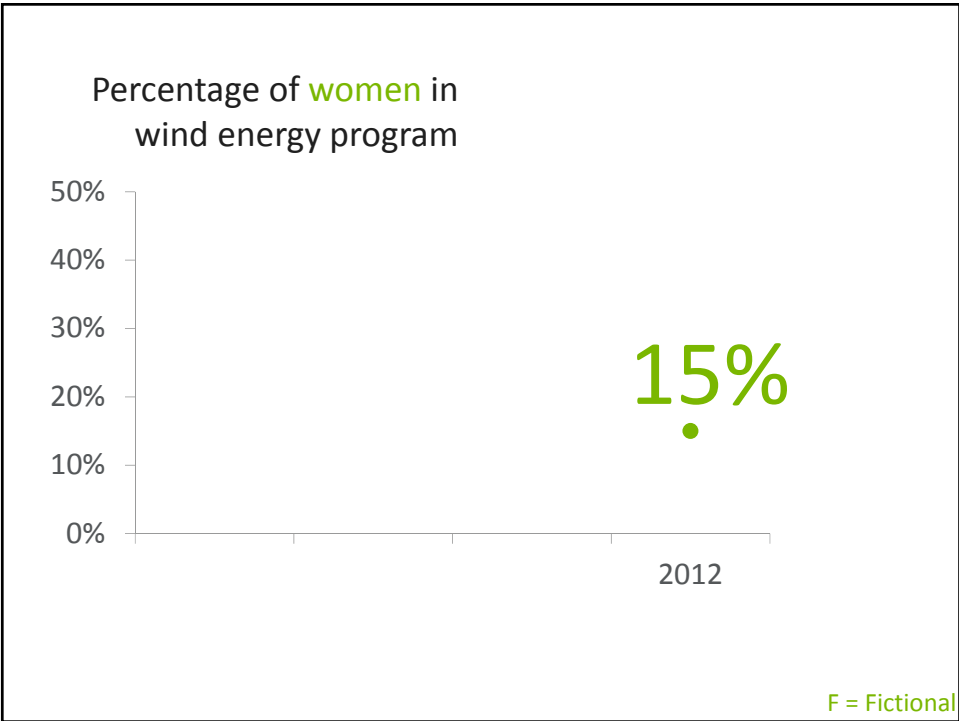
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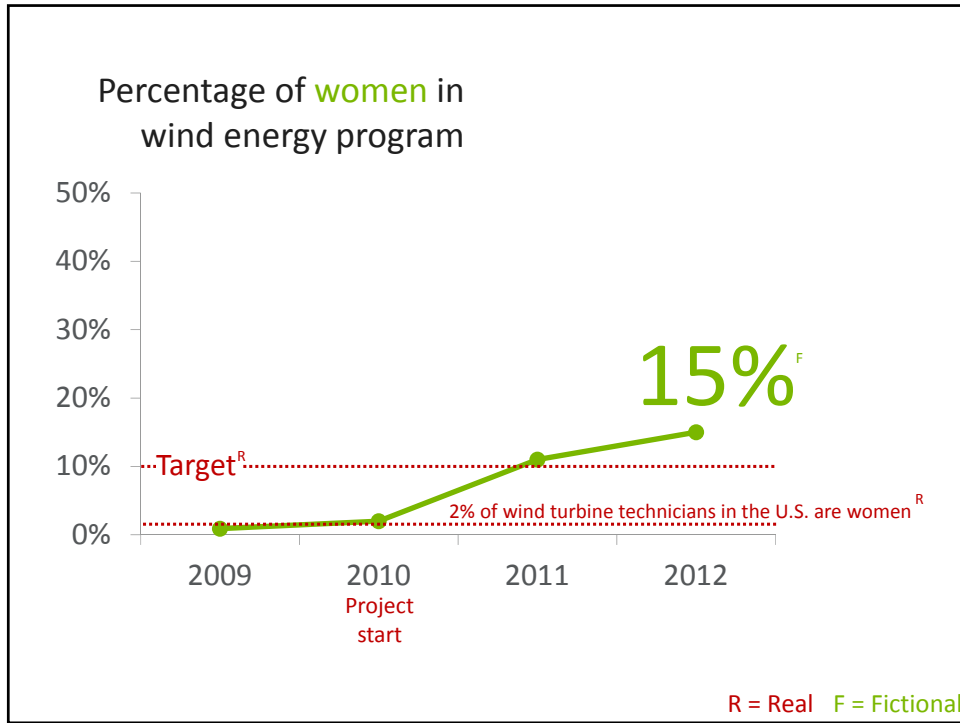
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## Interpretation requires comparison



**Comparison or Control Groups**



**Performance Targets**



**National Data**



**Historical Data**



**Standards**



**Stakeholder Expectations**

**Outcome Evaluation Question 2:**  
 What impact is the project having on student **diversity**, enrollment, and persistence?

Indicator	Target
Percentage of women completing program	10%
Number of veterans enrolled	5-10
Percentage of underrepresented minority students completing program	10%

Performance **targets** from project proposal

Indicator	Met or not met (Yes/No)		Continuum	
	Original Target	Below Target	On Target	Above Target
Percentage of women completing program	10%	Less than 8%	8-12%	More than 13%
Number of veterans enrolled	5-10	Fewer than 5	5-10	More than 10
Percentage of underrepresented minority students completing program	10%	Less than 8%	8-12%	More than 13%

Alternative Rubric				
Indicator	Low Impact	Minimal Impact	Moderate Impact	High Impact
Percentage of women completing program	2% or less	3-5%	6-12%	More than 13%
Number of veterans enrolled	2 or fewer	3-5	5-10	More than 10
Percentage of underrepresented minority students completing program	2% or less	3-5%	6-12%	More than 13%

Outcome Evaluation Question 2:  
What impact is the project having on student **diversity**, enrollment, and persistence?

Indicator	Low Impact	Minimal Impact	Moderate Impact	High Impact
Percentage of women completing program	2% or less	3-5%	6-12%	More than 13% <sup>F</sup>
Number of veterans enrolled	2 or fewer	3-5	5-10 <sup>F</sup>	More than 10
Percentage of underrepresented minority students completing program	2% or less	3-5%	6-12%	More than 13% <sup>F</sup>

F = Fictional



Overall, the project had a high impact on the diversity of enrolled students, as determined by comparing the project results with rubrics established by project stakeholders.

Indicator	Low Impact	Minimal Impact	Moderate Impact	High Impact	
Percentage of women completing program	2% or less	3-5%	6-12%	More than 13%	15% <sup>F</sup>
Number of veterans enrolled	2 or fewer	3-5	5-10	More than 10	8% <sup>F</sup>
Percentage of underrepresented minority students completing program	2% or less	3-5%	6-12%	More than 13%	13.5% <sup>F</sup>

F = Fictional





Rubrics can be **qualitative**, too

INDICATOR: Degree of Industry Engagement

Low Engagement	Minimal Engagement	Moderate Engagement	High Engagement
There is little or no tangible evidence of involvement by industry in any aspect of program.	Industry involvement is mainly characterized by attendance at meetings, with limited input on program.	Industry involvement has provided important contributions to certain aspects of program, such as advising on curriculum or offering facility tours.	Industry has substantial involvement on multiple aspects of program, including direct involvement with students through workplace-based learning or mentoring.



### Creating rubrics, setting standards:

-  1 Research context
-  2 Facilitate dialogue among stakeholders
-  3 Draft together
-  4 Try out with fictional data

## Summary

- ✓ Answer evaluation questions in the same terms in which they are asked.
- ✓ Make interpretive processes explicit and transparent.
- ✓ Engage stakeholders in interpretation.

## Resources

Guide to developing and using rubrics in evaluation

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 March 21, 2019

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the feedback survey