

Reaching the next workforce generation through Citizens Partnership for Excellence in Research and Learning (PERL) Program

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2023

INDIANAPOLIS
FIVE CITIES PLUS



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Citizens Energy Group Today

- Natural gas utility serving Indianapolis
- Nation's second largest steam utility serving downtown Indianapolis
- Largest water and wastewater utilities in Indiana
- Other for-profit businesses



Agenda

- Program Overview
- Example Collaborations
- Student Benefit/Feedback
- Metrics



PERL Overview

- Partnership for Excellence in Research and Learning (PERL)
 - Started by Citizens in 2016
 - Concerted effort to recruit and retain top talent in the state of Indiana
 - Goals:
 - Encourage graduating students to remain in Indiana and the Indianapolis area after graduation to fulfill the workforce needs of Citizens and its supporting businesses;
 - Create more professional development opportunities for students as emerging talent and future business leaders; and
 - Create an improved exchange of industry and collegiate data that will better address research, technology, and industry challenges - ultimately resulting in more valuable, efficient, and sustainable business and community solutions.



PERL Overview

- PERL pursues partnerships in multiple disciplines to support all facets of the utility industry.
- Collaboration Types:
 - Student Projects
 - Internships
 - Tours
 - Research
 - Guest Lecturing
 - Job Shadowing



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PERL Overview

- Current Academic Partners:

- Anderson University
- Ball State University*
- Butler University
- IUPUI
- Purdue University
- Trine University
- University of Evansville*
- University of Indianapolis



*Unofficial Partner



Collaboration Example 1

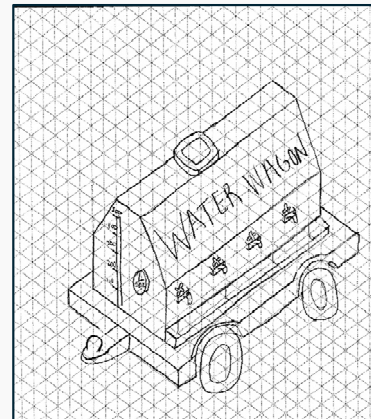
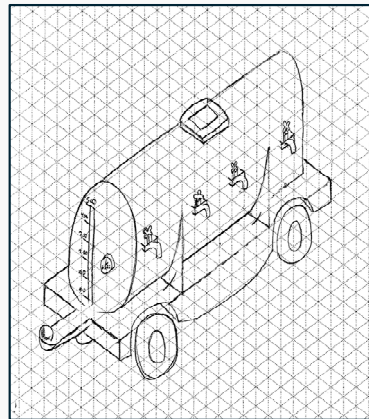
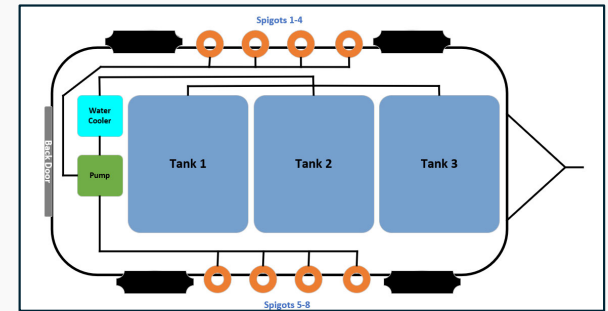
- Water Wagon
 - Mobile water distribution vehicle
 - Originally envisioned around 2015
 - Used for outreach and education



Collaboration Example 1

- Water Wagon

- 2019 Partnership with the University of Indianapolis
- Four mechanical engineering student team
- One semester course



Collaboration Example 1

- Water Wagon PERL project to H2O to GO trailer



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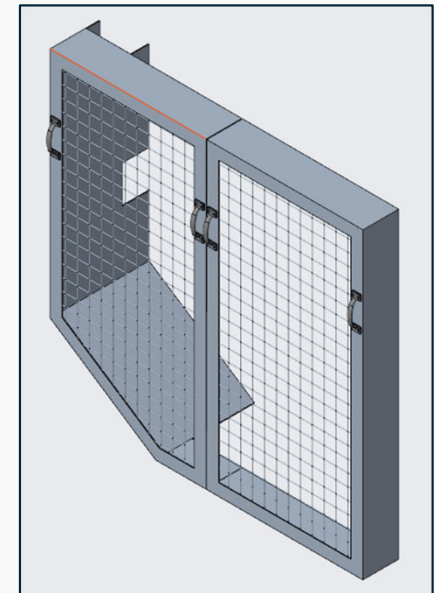
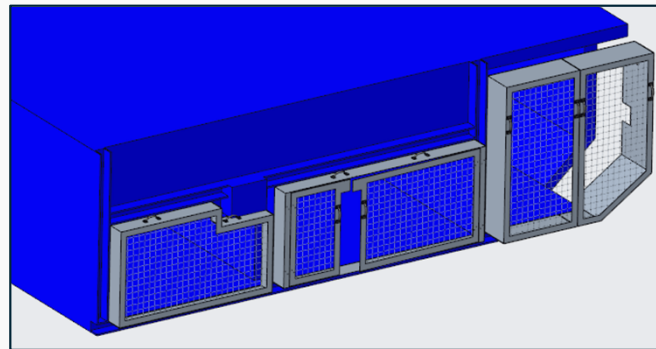
Collaboration Example 2

- Gravity Belt Thickener Safety Grates
 - GBTs need cleaning but the factory grates did not provide access without machine shut down
 - Stainless steel modified grates allowed for cleaning but were excessively heavy



Collaboration Example 2

- Gravity Belt Thickener Safety Grates
 - 2020 partnership with Indiana University Purdue University - Indianapolis (IUPUI)
 - Six mechanical/energy engineering student team
 - One semester course



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Collaboration Example 2

- Gravity Belt Thickener Safety Grates
 - Student-designed grates were manufactured and installed
 - Saved staff time while cleaning and prevented machine down time while maintaining safety standards



Collaboration Example 3

- Facility Solar Panel Evaluation
 - Originated as a safety improvement project
 - Improved site conditions
 - Improved fleet conditions
 - Evolved into a sustainable energy investment study



Collaboration Example 3

- Facility Solar Panel Evaluation
 - 2021 partnership with Indiana University Purdue University - Indianapolis (IUPUI)
 - Two energy engineering student team
 - One semester course



Collaboration Example 3

- Facility Solar Panel Evaluation
 - All options/configurations resulted in payback periods of 12+ years
 - Good example of how projects can be utilized to help narrow down ideas to problems
 - Suggested a follow up project about alternative fleet fueling options

System Type	Payback Period (years)
A - 1.5 MW w/o Batteries	16
B - 2.0 MW w/o Batteries	12
C1 - 1.5 MW w/ 2,000 kWh Batteries	20+
D1 - 2.0 MW w/ 2,000 kWh Batteries	19
C2 - 1.5 MW w/ 6,500 kWh Batteries	20+
D2 - 2.0 MW w/ 6,500 kWh Batteries	20+
C3 - 1.5 MW w/ 13,000 kWh Batteries	20+
D3 - 2.0 MW w/ 13,000 kWh Batteries	20+



Student Benefit/Feedback

- Student Benefits:
 - Gain real world industry skills and knowledge
 - Resume builder (experience, references, etc.)
 - Apply classroom knowledge/skills
 - Career path, opportunities and decision-making assistance
 - Develop professional contacts
 - Access to industry expertise
 - Behind-the-scenes tour opportunities



Student Benefit/Feedback

- Student Lessons Learned:
 - Delegation - if you try to do all the work yourself, it will yield worse results
 - Overcoming unforeseen obstacles - creating a plan and executing that plan are two different processes
 - Utilizing resources/experts
 - Positive attitude, trust
 - Team work



Student Benefit/Feedback

- Feedback:
 - “Being lowered into the tunnel and seeing all of the large scale equipment up close was not something I could have grasped via pictures in a textbook. The size of the tunnel, both length and diameter, were truly impressive.” - **Amy Getchell, Purdue University Graduate Student**



Metrics

- Since 2016...
 - Over 3,000 students engaged in at least one collaboration
 - Over 100 projects completed
 - Over 80 events with student participation completed
 - 39 summer internships
 - 8 full-time hires at Citizens
 - 4 full-time hires at Citizens' business partners



Questions?

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