

Budget

Springfield-Clark County (051532) - Clark County - 2015 - Straight A Fund - Rev 0 - Straight A Fund - Application Number (347)

U.S.A.S. Fund #:

Plus/Minus Sheet ([opens new window](#))

Purpose Code	Object Code	Salaries 100	Retirement Fringe Benefits 200	Purchased Services 400	Supplies 500	Capital Outlay 600	Other 800	Total
<b>Instruction</b>		225,472.00	0.00	361,344.00	486,240.00	0.00	50,400.00	1,123,456.00
<b>Support Services</b>		0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Governance/Admin</b>		0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Prof Development</b>		0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Family/Community</b>		0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Safety</b>		0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Facilities</b>		0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Transportation</b>		0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>		225,472.00	0.00	361,344.00	486,240.00	0.00	50,400.00	1,123,456.00
<b>Adjusted Allocation</b>								0.00
<b>Remaining</b>								-1,123,456.00

Application

Springfield-Clark County (051532) - Clark County - 2015 - Straight A Fund - Rev 0 - Straight A Fund - Application Number (347)

**Please respond to the prompts or questions in the areas listed below in a narrative form.**

**A) APPLICANT INFORMATION - General Information**

1. Project Title:

Linking Careers for 21st Century Students By Developing Sustainable Districts

2. Executive summary: Please limit your responses to no more than three sentences.

The project will engage a highly innovative energy educational program with a resourceful use of school facilities while building upon comprehensive energy education and experiencing early career exposure. Students at all levels will benefit by using their school building as a hands-on learning lab, working collaboratively with energy audit professionals to investigate, incorporate scientific reasoning, analysis and develop a report with energy savings recommendations. Through this audit process, school districts will save significant dollars on energy usage by implementing recommendations which can then be redirected back into the classroom for other needs.

*This is an ultra-concise description of the overall project. It should not include anything other than a brief description of the project and the goals it hopes to achieve.*

27962 3. Total Students Impacted:

*This is the number of students that will be directly impacted by implementation of the project. This does not include students that may be impacted if the project is replicated or scaled up in the future.*

4. Please indicate which of the following grade levels will be impacted:

Pre-K Special Education

Kindergarten

1

2

3

4

5

6

7

8

9

10

11

12

5. Lead applicant primary contact: - Provide the following information:

First Name, last Name of contact for lead applicant

Rick Smith

Organizational name of lead applicant

Springfield-Clark CTC

Address of lead applicant

1901 Selma Rd., Springfield, OH 45505

Phone Number of lead applicant

937-325-7368

Email Address of lead applicant

ricksmith@scctc.org

6. Are you submitting your application as a consortium? - Select one checkbox below

Yes

No

If you are applying as consortium, please list all consortium members by name on the "Consortium Member" page by clicking on the link below. If an educational service center is applying as the lead applicant for a consortium, the first consortium member entered must be a client district of the educational service center.

[Add Consortium Members](#)

7. Are you partnering with anyone to plan, implement, or evaluate your project? - Select one checkbox below

Yes

No

If you are partnering with anyone, please list all partners by name on the "Partnering Member" page by clicking on the link below.

[Add Partnering Members](#)

## B) PROJECT DESCRIPTION - Overall description of project and alignment with goals

8. Describe the innovative project: - Provide the following information

*The response should provide a clear and concise description of the project and its major components. Later questions will address specific outcomes and the measures of success.*

The current state or problem to be solved; and

Currently, school districts all over Ohio are spending significant dollars on energy usage. Many districts are operating aging facilities with extremely inefficient energy systems. As a result, districts are wasting hundreds of thousands of dollars on energy usage unnecessarily. From the education standpoint, students often have little, if any, exposure to the field of energy efficiency and renewable energy. As one of the fastest growing fields, there continue to be significant job opportunities for people of all skill levels in and around the science of energy. There is a real need for earlier career exposure for students to pique their interest in these fields. These jobs can range from hourly technician positions to high level salaried engineering positions.

The proposed innovation and how it relates to solving the problem or improving on the current state.

This innovative project is based on data which shows that students vastly increase their knowledge and learning when they are immersed in a hands-on learning environment and are charged with finding solutions to real world problems. This project seeks to expose students to the science of energy at a young age. The tangible education world (school facility) will literally become the classroom and upper level students will work with energy professionals to identify ways to save their district significant dollars. The project aims to help students from diverse backgrounds develop mastery of Ohio core subjects, information and communication technology literacy and 21st century skills. It aims to engage the power of science and mathematics as the international language of innovation; collaboration; contextual learning; and information and media literacy. Students will learn to create, acquire, analyze, synthesize, evaluate, understand and communicate knowledge and information in a global context. Elementary students will learn energy efficiency basics while being empowered as part of a "Green Team" to teach fellow students about how to cut energy costs by making positive decisions throughout the day. Studies show children exposed to STEM education at a young age perform better than students who are not. Early school-age is when children begin to use the technology tools with competence. Students learn to read and write, calculate, and investigate using books, touch screens, writing instruments, and tools for studying science. Districts conducting energy audits on a regular schedule realize sustained energy savings. This program will pair engineers with middle and high school students to work on school facility audits. Students will be empowered to conduct energy audits (with guidance) and provide recommendations on how to cut energy usage and make facilities more efficient. Students will write and present recommendations to the district school board. The student energy audit report will include the findings of the audit along with student recommendations. The EOU commissioning agent will provide commissioning of the facility. Districts will establish student-driven "Green Teams" that will be responsible for: Energy Waste Patrol-issuing energy waste tickets to teachers and administrators when they are not following the agreed upon district's "Energy and Environmental Efficiency Plan." Energy Education Team-establish a team of older students (grades 6-12) to teach younger students about energy and the environment using fun and interactive teaching tools. University partners will provide engineering and education interns who will serve as trainers to the teachers in individual districts. University partners will also provide academic resources and exposure to higher education to students. The philosophy behind this project is in line with the governor's focus on "Career Connections"--grade-level strategies to connect learning with real-world jobs. It demonstrates the "blurring of the lines" between K-12 education, vocational and higher education. The project aims to not only interest students but make direct career connections by exposing them to real world applications and professionals. This project easily blends with Ohio's New Learning Standards in reading, math, social studies and science. The program includes the installation of next generation classroom lighting into a school's self-contained special needs classroom. Next generation light LED lighting will replace the current florescent lighting in at least one classroom. Special needs classroom teachers and evaluators will be able to assess the effect of the next generation lighting on their students. An innovative solar aspect of the project will also be implemented. The curriculum by design will provide tools for teachers to help meet Common Core State Standards, Ohio Revised Science Content Standards and Ohio's New Learning Standards.

9. Which of the stated Straight A Fund goals does the proposal aim to achieve? - (Check all that apply)

*Applicants should select any and all goals the proposal aims to achieve. The description of how the goals will be met should provide the reader with a clear understanding of what the project will look like when implemented, with a clear connection between the components of the project and the stated goals of the fund. If partnerships/consortia are part of the project, this section should describe briefly how the various entities will work together in the project. More detailed descriptions of the roles and activities will be addressed in Question 16.*

Student achievement (Describe the specific changes in student achievement you anticipate as a result of this innovation (include grade levels, content areas as appropriate) in the box below.)

The project will increase student achievement by turning school facilities into hands-on tools and to empower students to become energy leaders beginning in elementary school and continuing through high school graduation. The project aims to help students of all ages develop personal mastery of Ohio core subjects, information and communication technology literacy and 21st century skills. It also aims to help students engage the power of science and mathematics as the international language of innovation; collaboration; contextual learning; and information and media literacy. They will learn to create, acquire, analyze, synthesize, evaluate, understand and communicate knowledge and information in a global context. Studies show children exposed to STEM educational resources at a very young age perform better in science and math than students who are not. It is during the early school-age years that children begin to use the technology tools with competence. Student now learn to read and write, calculate, and investigate using books, touch screens, writing instruments, and tools for studying scientific and social concepts. Curriculum and programs developed by the Ohio Energy Project bring relevant, topical materials that are

hands-on. OEP partners with teachers to provide classroom activities designed for grades K-12. This project will utilize their program and build upon it by engaging energy professionals to and college interns to infuse students into their facility energy audit process. Teachers will track program progress through provided spreadsheets to ensure participating districts are implementing. The project will incorporate real world energy education by the students performing a professional energy audit of their building. Partnering higher education institutions (Wright State University, Ohio Northern University and Edison Community College) will engage engineering and/or education interns to work with teachers to prepare and implement the program. Teachers will be supported by Mentor Coaches (MC) who will assist them in integrating energy education, energy audits, and service learning educational approaches. MC's will be former teachers who can serve in a Peer to Peer capacity. OEP's energy education programs follow Ohio Department of Education requirements and courses meet specific Common Core Literacy and Science and Technical Subjects. This program intends to provide teachers with the tools they need to meet these requirements. This project is directly aligned with the STEM approach to education--building upon students' capacity for innovation, invention and creative problem solving by providing challenging, student-centered, inquiry-based educational experiences. The project will provide teachers with professional development materials and curriculum. It is designed and implemented in conjunction with the Ohio State Testing Standards as developed by the Ohio Department of Education. Teachers will have innovative and relevant tools that they can integrate into their lessons. They will have access and support of industry technical and business professionals that will assist the students in producing a professional audit and report. Consortium partners include higher education institutions, some that potentially seek to offer dual enrollment opportunities for students. The structure of the project aims at driving more students towards "successful completion" of courses. MC's will assist the teacher facilitate the energy- based curricula and the energy audit into the teachers lesson plans.

Spending reductions in the five-year fiscal forecast or positive performance on other approved fiscal measures (Describe the specific reductions you anticipate in terms of dollars and spending categories over a five-year period in the box below or the positive performance you will achieve on other approved fiscal measures. Other approved fiscal measures include a reduction in spending over a five-year period in the operating budget approved by your organization's executive board or its equivalent.)

The program will provide each district with an average of \$140,000 savings from reduced energy consumption over the five year forecast period. This project will aid in verifiable, credible and permanent spending reductions by shifting administrative and operational dollars over to the educational delivery budget. The project will achieve energy savings sufficient to cover the cost of the education program. National statistics support that performing facility energy audits produce on average 16% energy savings. Ohio case studies provided by Energy Optimizers, USA show districts that conduct energy audits achieve 4.65% gas savings and 6.20% electric energy savings. Districts achieve sustainable results and realize significant energy savings of from the continuous energy auditing performed by successive classes. This project is proven to produce quantifiable results that can be bench marked. The repetition of the energy audit process will provide for early identification of potential problems allowing the facility manager to schedule facility based corrective actions. The benefit of program is not only educational in nature but also shows a solid spending reduction on energy usage. While each district is unique, a significant reduction can be seen solely from behavioral and/or setting changes in the facilities. By engaging the students in the process, they benefit from unique, hands-on work while helping to save their district money.

Utilization of a greater share of resources in the classroom (Describe specific resources (Personnel, Time, Course offerings, etc.) that will be enhanced in the classroom as a result of this innovation in the box below.)

Cost savings from this project will help both students and teachers alike by providing additional resources to support increased learning. Not only will the savings support the energy education program but it will free up additional resources that can be used for things like additional labs, online access to STEM education virtual experiences and expanded services and school offerings. By engaging college interns, districts will benefit by higher education exposure for their students. Significant dollars will be saved by having the more "expensive" participants (i.e. engineers) train the interns and have the interns train the district teachers. This will result in greater sharing of resources while also creating career connections between the interns and students. Energy Efficiency and Renewable Energy curriculum will be made available to teachers from Ohio Energy Project. These resources are relevant, current and are intended to serve as tools for teachers to use to help meet Common Core and Ohio Revised Science Standards requirements. Response from participating teachers in the pilot Phase One has been tremendous and most have shared their gratefulness for new resources, especially on this topic area. The project is structured in a way that seeks to gain significant buy-in from stakeholders. Consortium partners (including school districts, higher education and private business) will be providing resources by participating. This provides opportunities for private business and higher educational institutions seeking to increase their engagement with students at all levels. Participating school districts should benefit by partner involvement by receiving additional resources to be used in the classroom. Districts will benefit by having a greater share of personnel resources in terms of staff engaged in partnering on this project. There will be professional engineering, college level engineering and education students and Mentor Coaches that will all be participating and assist with this project throughout. This is a significant shared resource for districts.

Implementing a shared services delivery model (Describe how your shared services delivery model will demonstrate increased efficiency and effectiveness, long-term sustainability, and scalability in the box below.)

This project aims to implement efficiency, effectiveness, long-term sustainability and scalability on all levels. By engaging the higher education community, we will only be using the higher paid professionals (i.e. engineers) to conduct the actual energy audits and to train college interns. These interns will then work with the Mentor Coaches and teachers to prepare them to work directly with students in the districts. By implementing this approach, we are sharing services between energy professionals, college interns, Mentor Coaches and district teachers. This "pyramid" type of approach is highly effective and benefits all partners involved. The sheer nature of the dollars saved by decreasing energy consumption makes this project exceptionally sustainable. As buildings continue to age and technology continues to improve, energy audits will always need to be conducted in order to maintain efficiency and cost savings. As we have proven in Phase One of this program, it is completely scalable. The initial pilot of the project is proving extremely successful and able to be replicated on a variety of scales and number of districts. Because every district is unique, this program must be able to be adjusted and scaled as needed. Much of the cost savings is a direct result of behavioral changes therefore making it scalable to be implemented in districts of any size--large or small. Students of all backgrounds and from all areas of the state can benefit from this energy education and career exposure. Ohio Energy Project will provide relevant and current energy education curriculum for teachers to implement into their lesson plans. By design, this curriculum will help educators meet Common Core and Ohio Revised Science Standards requirements. These tools are meant to assist teachers in an easy to use and scalable way. Resources will also be provided to teachers for "Green Team" idea sharing and collaboration. Participating teachers will gather at the start of the program to learn about the program, share ideas, brainstorm and network. The gathering of teachers during the pilot Phase One was very well received and we intend to expand upon that success.

10. Which of the following best describes the proposed project? - (Select one)

- New - never before implemented
- Existing: Never implemented in your community school or school district but proven successful in other educational environments
- Mixed Concept: Incorporates new and existing elements
- Established: Elevating or expanding an effective program that is already implemented in your district, school or consortia partnership

**C) SUSTAINABILITY - Planning for ongoing funding of the project, cost breakdown**

11. Financial Documentation: - All applicants must enter or upload the following supporting information. The information in these documents must correspond to your responses in questions 11-14.

\* Enter a project budget in CCIP (by clicking the link below)

[Enter Budget](#)

\* If applicable, upload the Consortium Budget Worksheet (by clicking the link below)

\* Upload the Financial Impact Table (by clicking the link below)

\* Upload the Supplemental Financial Reporting Metrics (by clicking the link below)

[Upload Documents](#)

For applicants without an ODE Report Card for 2012-2013, provide a brief narrative explanation of the impact of your grant project on per pupil expenditures or why this metric does not apply to your grant project instead of uploading the Supplemental Financial Reporting Metric.

*The project budget is entered directly in CCIP. For consortia, this project budget must reflect the information provided by the applicant in the Consortium Budget Worksheet. Directions for the Financial Impact Table are located on the first tab. Applicants must submit one Financial Impact Table with each application. For consortium applications, each consortium member must add an additional tab on the Financial Impact Tables. Partners are not required to submit a Financial Impact Table.*

*Applicants with an "Ohio School Report Card" for the 2012-2013 school year must upload the Supplemental Financial Reporting Metrics to provide additional information about cost savings and sustainability. Directions for the Supplemental Financial Reporting Metrics are located on the first tab of the document. If your organization does not have an "Ohio School Report Card" for the 2012-2013 school year, please provide an explanation in the text box about how your grant project will impact expenditures per pupil or why expenditure per pupil data does not apply to your grant project.*

*Educational service center, county boards of developmental disabilities, and institutions of higher education seeking to achieve positive performance on other approved fiscal measures should submit the budget information approved by an executive board or its equivalent on the appropriate tabs of the Financial Impact Table. Educational service centers should use the "ESC" tab and county boards of developmental disabilities and institutions of higher education should use the "non-traditional" tab.*

12. What is the total cost for implementing the innovative project?

*Responses should provide rationale and evidence for each of the budget items and associated costs outlined in the project budget. In no case should the total projected expenses in the budget narrative exceed the total project costs in the budget grid.*

1,123,456.00 State the total project cost.

\* Provide a brief narrative explanation of the overall budget.

Project Costs include the physical deliverables to each district: 1) hands-on demonstration and teaching materials and accompanying exercises for energy curriculum integration into classroom activities provided by the Ohio Energy Project; 2) a kit of energy efficiency measurement devices and assorted tools so that school district Green Teams can continue to monitor and report on energy efficiency activities in the school buildings; 3) costs for purchasing and installing LED lighting retrofits in one complete room in each school district; 4) costs to purchase and install 1 kiloWatt of solar photovoltaic panels at each school as a demonstration to be used in math and science classes, including optional curriculum integration exercises. Personnel Costs: for District/Schools include stipends for outside-of-standard-school-day work for 2 - 4 Lead Teachers in each district; 2 - 4 Student Leaders from each district; 1 - 2 building operators from each district. These students, teachers and building operators make up the District Energy Auditing Team, to be trained in energy auditing techniques and to then conduct the energy audits of their own school buildings and develop and present a report on their findings. This group then becomes part of the District Green Team in future years to continue to focus on energy efficiency activities in their schools and to carry out yearly building energy audits. The additional JVS/CTC Personnel stipends are for additional liaison work the JVS/CTCs will do with other school districts in their region. Higher Education Personnel Costs provide stipends for college interns from the participating colleges to be trained in energy curriculum and energy auditing techniques, and then to help train Lead Teachers and Student Leaders in the school districts. The Curriculum Based Teacher Coaches will work with Lead Teachers and Student Leaders in training and assisting district teams as each works with other class groups in their district. Contracted Services Personnel Costs fund the services of the Project Leader and the Lighting, HVAC and Energy engineers who will train the college interns in energy auditing skills and then work with the District Energy Auditing Teams as they conduct energy audits of their own buildings, including providing assistance in data analysis. Travel, Meal, and Miscellaneous expenses will provide reimbursement for travel-related costs for teachers, interns, engineers, and project administration activities.

13. Will there be any costs incurred as a result of maintaining and sustaining the project after June 30th of your grant year?

*Sustainability costs include any ongoing spending related to the grant project after June 30th of your grant year. Examples of sustainability costs include annual professional development, equipment maintenance, and software license agreements. To every extent possible, rationale for the specific amounts given should be outlined. The costs outlined in the narrative section should be consistent and verified by the financial documentation submitted and explained in the Financial Impact Table. If the project does not have sustainability costs, applicants should explain why.*

Yes - If yes, provide a narrative explanation of your sustainability costs as detailed in the Financial Impact Table in the box below.

No - If no, please explain why (i.e. maintenance plan included in purchase price of equipment) in the box below.

Generally speaking, the provided energy education curriculum materials and energy education specific supplies are reusable and therefore are little to no recurring educational cost to apply the concepts. Once the program is fully implemented, the program goals become the teacher goals and are integrated into their lesson planning each semester. Benefits are maximized to the students, teachers and the measured energy performance of the school facilities. The industry standard is for school facilities to be audited or commissioned once every three years. The students will be performing an energy audit using the curriculum and tools provided. The energy education tools and supplies are to take the learning out beyond the classroom into the students' school environment. Some school districts organizational structure allows for all costs incurred to be absorbed into daily operations with no cost increase. Some district may choose to dedicate funding to expanding the program but additional expenditures are not required. Minimal ongoing costs that may occur will be associated with the cost to run the Green Team. This may involve an advisor stipend from the school each year. Consumables in the curriculum materials are, for the most part, available from OEP, funded through their utility backers. Energy Optimizers is funding an ongoing Mentor Coach for the Green Teams who will be available to assist Green Team advisors and to supply Green Team activity ideas and best practices through an ongoing portion of the Energy Optimizers' website.

14. Will there be any expected savings as a result of implementing the project?

Yes

No

*Applicants with sustainability costs in question 13 or seeking to achieve significant advancement in spending reductions in the five-year forecast must address this response. Expected savings should match the information provided by the applicant in the Financial Impact Table. All spending reductions must be verifiable, permanent, and credible. Applicants may only respond "No" if the project will not incur any increased costs as a result of maintaining and sustaining the project after June 30th of your grant year. The Governing Board will use the cost savings as a tiebreaker between applications with similar scores during its final selection process. Cost savings will be calculated as the amount of expected cost savings less sustainability costs relative to the project budget.*

450,100.00 If yes, specify the amount of annual expected savings. If no, enter 0.

If yes, provide details on the expected savings (i.e. staff counts and salary/benefits, equipment to be purchased and cost, etc.). If no, please explain

The energy savings will result from the teacher led work of the students who conduct the facility based energy audits. The student results and recommendations will be reviewed by the project CEMs, facility manager, and district treasurer. The report will be presented to the district administration and a presentation made to the school board. Buildings contain multiple systems that must perform together twenty four hours a day. These systems and equipment must be checked and tuned on a regular basis to maintain optimal performance. The auditors (student) performing an energy audit will identify building operations and equipment that is not operating to peak performance. The findings can range from a stuck outside air damper, a pump motor running longer than necessary, to a building automation control schedule that had not been updated. The student will learn why these issues are important and what to do to improve their performance and save energy. The student will study and measure the operations and performance of the school facility heating and air conditioning systems, building automation controls, and lighting. The student audit process will provide data and recommendations to be used by the facility department to make necessary changes and adjustments to the building systems that will provide for improved efficiency and building comfort. Students may confirm the energy savings, depending on when the changes are made, by measuring the building performance after the initial audit findings are implemented by the faculty department. A single energy audit will have a lasting positive effect on the energy consumption of the facility operations. Continued energy audits assure that this lasting effect does not experience a downward drift or lost savings. Integrating the need for students to participate in real world investigation and problem solving with the need for facility energy audits provides a means for sustained energy efficiency and savings. The identified energy savings and the value of recommended future actions will be calculated and reported by the students. This energy savings will be sufficient to cover the cost of continuation of the energy education program by the school districts. There will be savings above the cost of the program that will go back to the school district to be reallocated by the district treasurer. A one-time energy audit will provide for energy savings that will continue over the five year fiscal projection period. Longer term energy saving will be sustained by the continuation of the program from year to year. The cost savings is easily identifiable and traceable. The energy savings from the district utility bills are used as the baseline for the savings analysis. The reduction in the utility bill of the audited facility is the energy cost savings to the district. The OEP energy education project will aid in spending reductions by shifting administrative/operational dollars from the utility bill over to the education budget. More specifically the proposed program will achieve energy savings sufficient to cover the cost of the program. National statistics support the fact that performing facility energy audits produce a median savings of 16%. The US EPA reports that districts can achieve up to 25% improved energy cost savings using simple behavioral and operations modifications. School district spends on average \$75/ student for gas and \$130/ student on electric annually.

15. Provide a brief explanation of how the project is self-sustaining.

*All Straight A Fund grant projects must be expenditure neutral. For applications with increased ongoing spending as documented in question 11-14, this spending must be offset by expected savings or reallocation of existing resources. These spending reductions must be verifiable, permanent, and credible. This information must match the information provided in your Financial Impact Table. Projected additional income may not be used to offset*

increased ongoing spending because additional income is not allowed by statute. Please consider inflationary costs like salaries and maintenance fees when considering whether increased ongoing spending has been offset for at least five years after June 30th of your grant year. For applications without increased ongoing spending as documented in questions 11-14, please demonstrate how you can sustain the project without incurring any increased ongoing costs.

For educational service centers and county boards of developmental disabilities that are members of a consortium, any increased ongoing spending at the educational service center or county board of developmental disabilities may also be offset with the verifiable, permanent, and credible spending reductions of other members of the consortium. This increased ongoing spending must be less than or equal to the sum of the spending reductions for the entire consortium.

Explain in detail how this project will sustain itself for at least five years after June 30th of your grant year.

This project will increase efficiency and effectiveness not only of the district's energy efficiency program but of their energy education program. The need for continual energy efficiency audits makes this project completely self sustaining on a long-term basis. As technology improves and school facilities age, audits will always be needed in order to maintain or increase efficiency. The cost savings are verifiable, credible and permanent. By turning the district's facilities into students' learning labs, there is significant cost savings. Districts save money by going through a rigorous energy audit and infusing the students in the process benefits the districts and students by creating a highly effective, hands on program with tangible energy and cost savings results. This project will expose students to energy and increase their knowledge and application of skills for the 21st century--critical thinking and problem solving; creativity and innovation; communication and information; collaboration; contextual learning; information and media literacy. By engaging university partners, there is an even greater use of shared services. There is cost savings by formatting the program so the most "expensive" participants (i.e. engineers) are focused on training the college level interns to then work with school districts. This results in increased effectiveness, efficiency, long term sustainability. This project will aid in spending reductions by shifting operation dollars over to the education budget. The program will achieve energy savings sufficient to cover the cost of the program. Statistics support the fact that performing energy audits produce a median savings of 16%. The US EPA reports districts can achieve up to 25% improved energy cost savings using behavioral and operations modifications. School district spends on average \$75/ student for gas and \$130/ student on electric. This program proposes to achieve a 4.6% natural gas cost savings and 6.2% electric cost savings based upon recent measured data of districts audited. Through strategic partnerships with organizations experienced in innovative projects, credible and with verifiable success in their fields, this project is positioned for a high probability for success. The Ohio Energy Project and Energy Optimizers, USA are both highly regarded organizations. The energy education program focuses on using the facility as a learning tool. Students participating in this program will continue to progress in their understanding of the efficient use of energy as it affects their everyday world. As the students develop greater understanding they will be challenged to pass on what they have learned. Older students will provide for peer to peer training of younger students. Annual repetition of the energy audit process will provide for early identification of potential facility operations problems allowing the facility manager to plan facility based corrective actions and refine their capital replacement budget plan to create lasting impact. Educational and Financial Benefit to School District: -Significant cost savings -Time savings for facilities staff -Advanced knowledge of current savings opportunities for facilities staff -Added by-in from students, staff, district leadership and community for the development of future capital projects -Variety of exposure for high school students to careers related to the field of energy, including an understanding of HVAC and advanced degrees (engineering). -Improved communication skills through development of reports and presentations of report findings and communication with younger students. -The LED classroom will result in reduced energy costs as LEDs reduce the stress caused by fluorescent flicker, there will be enhance student attention and performance. -The solar PhotoVoltaic one kilowatt demonstration array in each district will provide significant curriculum integration activities, in STEM at all levels.

#### D) IMPLEMENTATION - Timeline, scope of work and contingency planning

16. Please provide a brief description of the team or individuals responsible for the implementation of this project, including other consortium members and/or partners.

*This response should include a list of qualifications for the applicant and others associated with the grant. If the application is for a consortium or a partnership, the lead should provide information on its ability to manage the grant in an effective and efficient manner. Include the partner/consortium members' qualifications, skills and experience with innovative project implementation and projects of similar scope.*

Enter Implementation Team information by clicking the link below:

[Add Implementation Team](#)

For Questions 17-19 please describe each phase of your project, including its timeline, scope of work, and anticipated barriers to success.

A complete response to these questions will demonstrate specific awareness of the context in which the project will be implemented, the major barriers that need to be overcome and the time it will take to implement the project with fidelity. A strong plan for implementing, communicating and coordinating the project should be outlined, including coordination and communication in and amongst members of the consortium or partnership (if applicable). It is recognized that specific action steps may not be included, but the outline of the major implementation steps should demonstrate a thoughtful plan for achieving the goals of the project. The time line should reflect significant and important milestones in an appropriate and reasonable time frame.

17. Planning - Activities prior to the grant implementation

\* Date Range September/October

\* List of scope of work (activities and/or events including project evaluation discussions, communication and coordination among entities).

Sept. - Bring all district superintendents and representatives together to review entire project and role of each district, at Springfield-Clark CTC. - Collect all data from each district as to Lead Teachers, Student Leaders, baseline energy use data. - Establish specific schedule, working with all school calendars Oct. - Meet with all interns from participating colleges. Discuss role in program and assign responsibility for each district. - Interns meet with Lead Teachers and Student Leaders in their districts. - OEP training for all interns. Mentor Coach on call. - Energy auditing training for all interns by EOU (Energy Opt). Multiple sessions since interns will train Lead Teachers and Student Leaders in their districts - Administration in each district, with Lead Teachers input, identify district room for LED and site for 1 kW solar PV installation

\* Anticipated barriers to successful completion of the planning phase

-Availability of participants.-Understanding the program (participants) -Busy school schedules

#### 18. Implementation - Process to achieve project goals

\* Date Range January-May

\* List of scope of work (activities and/or events, including deliverables, project milestones, interim measurements, communication, and coordination).

Nov. - General meeting for all Lead Teachers and Interns. Review schedule and responsibilities. - OEP training with Lead Teachers and Student Leaders and Interns in regional meetings in state. All districts receive Energy Curriculum kits. - EOU identifies LED materials needed for retrofit for each district - orders LEDs and solar PV materials Dec. - Interns provide Energy Audit training with their districts. All districts have Energy Audit kit. Jan/Feb - Energy Audits conducted in all districts. Each involves Lead Teachers, Student Leaders, Intern, EOU Lighting and Mechanical Engineers, Straight A Project Leader. March - Installation of LED room and solar PV. CTC students from assigned region assist with installation. - Each district's Audit Team meets separately with Intern, EOU Engineer, develops report on Audit findings. Team prepares report to be provided in public meeting to district administration and Board of Education - District team (Lead Teachers and Student Leaders) meet with Intern to work on energy curriculum demonstrations. Schedule energy inputs with other teachers in district in multiple grades. Plan Energy Fair for May, based upon OEP model. - Lead Teachers establish Green Team in each district. Mentor Coach available to provide Green Team activities. April/May - Audit Teams present energy findings to school district administration and Board with recommendations. - Audit Team and Green Team carry out activities with other classes in their district, including Energy Fair.

\* Anticipated barriers to successful completion of the implementation phase.

-Teacher availability-Participant buy-in

#### 19. Summative Evaluation - Plans to analyze the results of the project

\* Date Range June

\* List of scope of work (activities and/or events, including quantitative and qualitative benchmarks and other project milestones).

June - Final reporting from all Lead Teachers and Interns on project. Project Evaluation and recommendations for scaling. Final report to Ohio Dept. of Ed.

\* Anticipated barriers to successful completion of the summative evaluation phase.

-None

#### 20. Describe the expected changes to the instructional and/or organizational practices in your institution.

*The response should illustrate the critical instructional and/or organizational changes that will result from implementation of the grant and the impact of these changes. These changes can include permanent changes to current district processes, new processes that will be incorporated or the removal of redundant or duplicative processes. The response may also outline the expected change in behaviors of individuals (changes to classroom practice, collaboration across district boundaries, changes to a typical work day for specific staff members, etc.). The expected changes should be realistic and significant in moving the institution forward.*

Please enter your response below:

Students participating in this innovative project will gain a stronger foundation for the science of energy. They will also gain significant hands-on learning by using the district facilities as a learning lab. By going through the energy education curriculum and ultimately joining the professional energy engineers and college interns in auditing the facilities, students are gaining critical skills in analytics, measuring, investigation and problem solving. They also gain skills in the area of crafting presentations, creative writing, topic position and presentation delivery as they prepare to present their findings and report to the district school board. They will be empowered to communicate their findings which will have a significant impact on them by positioning them as a respected source of data and direction. Additionally, the impact of their energy education will follow the students home and into the community. Results have shown that students begin to implement what they have learned at home and educate family members. Communities have also seen a positive impact as students have gotten engaged in energy related projects in their communities as a whole. The direct connection with engineering and/or education college interns provides peer to peer relationships to encourage career connections and interest. Teachers of all grade levels participating in this project will have the opportunity to be provided with new materials to supplement their teaching of the science of energy. They will have the unique opportunity to implement the use of their facility as a learning lab for their students giving them the real world application of what they have learned in their class. School districts will benefit from the student engaged professional energy audit by learning what behavioral changes and equipment/control changes can be made to have a positive impact on their energy use. This data is proven to have quantifiable results that have substantial value and lasting impact. Districts will also benefit from college intern involvement with students to encourage career connections as well as potential dual enrollment opportunities. Communities will see great impact by this innovative approach to education as students become more engaged with energy efficiency projects in their local communities. They are excited for opportunities to use their education to benefit others in their community. Energy kits are provided to participating schools that include technology tools for energy education. Other organizations in the community could potentially benefit from students using the kits outside of district buildings. Students will have the opportunity to experience working in a professional environment and learn of the expectations and excitement that are present in future career opportunities. The students' exposure to real world problem solving, work expectations and goals will provide motivation as the connection between classroom learning and career potentials are expanded. Professionals will have the opportunity to share their expertise with the future workforce.

#### **E) SUBSTANTIAL IMPACT AND LASTING VALUE - Impact, evaluation and replication**

*The responses in this section are focused on the ability to design a method for evaluating the project's capacity for long-term sustainable results. Therefore, the questions focus on the method of defining the problem(s) the project hopes to solve and the measures that will determine if the problem*

(s) have been solved.

21. Describe the rationale, research or past success that supports the innovative project and its impact on student achievement, spending reduction in the five-year fiscal forecast or utilization of a greater share of resources in the classroom.

*The response should provide a concise explanation of items which provide rationale that will support the probability of successfully achieving the goals of the project. Answers may differ based on the various levels of development that are possible. If the proposal is for a new, never before implemented project, the response should provide logical, coherent explanations of the anticipated results based on some past experience or rationale. For projects that have been implemented on a smaller scale or successfully in other organizations, the response should provide the quantifiable results of the other projects. If available, relevant research in support of this particular proposal should also be included.*

Please enter your response below.

This project will aid in spending reductions by shifting administrative/operational dollars over to the educational budget. The program will achieve energy savings sufficient to cover the cost of the energy education program. Statistics support the fact that performing energy audits produce a median savings of 16%. The US EPA reports that districts can achieve up to 25% improved energy cost savings using behavioral and operations modifications. School district spends on average \$75/ student for gas and \$130/ student on electric. (Energy Efficiency Programs in K-12 Schools: A guide to developing and implementing, greenhouse gas reduction programs; U.S. Environmental Protection Agency, 2011). This program proposes to achieve a 4.6% natural gas cost savings and 6.2% electric cost savings based upon recent measured data of school districts audited by Energy Optimizers, USA. A single energy audit will have a lasting positive effect on the energy consumption of the facility operations (Lawrence Berkeley study on commissioning, 2009, 2011). Continued energy audits assure that this lasting effect does not experience a downward drift or lost savings. Integrating the need for students to participate in real world investigation and problem solving with the need for facility energy audits provides a means for sustained energy efficiency and savings. Energy Optimizers has determined this average savings based upon nearly 75 Ohio school districts energy efficiency projects they have conducted and averaged the energy cost savings.

22. Describe the overall plan to evaluate the impact of the concept, strategy or approaches used in the project.

*This plan should include the methodology for measuring all of the project outcomes. Applicants should make sure to outline quantitative approaches to assess progress and measure the overall impact of the project proposal. The response should provide a clear outline of the methods, process, timelines and data requirements for the final analysis of the project's progress, success or failure. The applicant should provide information on how the lessons learned from the project can and will be shared with other education providers in Ohio.*

\* Include the name and contact information of the person who will be responsible for conducting the evaluation and whether this will be an internal or external evaluation.

Ohio Energy Project Debby Yerkes 513-602-5522 Chris Meyer Energy Optimizers USA 937-532-8358 Internal evaluation

\* Include the method by which progress toward short- and long-term objectives will be measured. (This section should include the types of data to be collected, the formative outputs and outcomes and the systems in place to track the project's progress).

Engineers with Energy Optimizers USA have already established evaluation tools that they have used for several years with school facilities to determine if energy usage is being impacted. This robust system is part of the audit process the engineers will be using. It is no different than if an energy audit was being conducted independently of the Straight A Fund project. Pre, mid and post project evaluations of students will be conducted to test their knowledge of the science of energy. The same set of questions will be used each time so that the data can be compared. Questions will be developed by Ohio Energy Project staff and administered by Energy Optimizers USA staff assigned to the Straight A Fund project. Results will be compiled and analyzed to determine impact.

\* Include the method, process and/or procedure by which the project will modify or change the project plan if measured progress is insufficient to meet project objectives.

Once the mid project evaluation is complete, OEP and EOU staff will be able to determine if an impact is starting to be made on students' knowledge of the science of energy. If it is not at the level they would like, adjustments to the curriculum and project can be made to ensure the desired result is being achieved. OEP has extensive experience in energy education and their material has been tested and modified appropriately over the years.

23. Describe the substantial value and lasting impact which the project hopes to achieve.

*The response should provide specific quantifiable measures of the grant outcomes and how the project will lead to successful attainment of the project goals. Applicants should describe how the program or project will continue after the grant period has expired.*

Please enter your response below.

This project will engage students in real-world energy education through their performance of an educational energy audit of their school facility. It is a well-conceived and thoroughly developed proven educational program in which teachers will integrate energy education, energy audits, service learning educational approaches and alighting to the common core into their daily activities. Student achievement will be increased, particularly in science and math. Students will gain knowledge of careers in science, math, and engineering professions and will hopefully choose to go into those careers. This approach will achieve lasting impact on education as well as long-term impact on energy reduction and cost saving which results in substantial value. The educational benefits of this program will increase student educational outcomes, especially in science and math. Students will also become more informed about energy efficiency and facility operations through this program. This project will aid in spending reductions by shifting administrative/operational dollars over to the educational delivery budget. Specifically, the proposed program will achieve energy savings sufficient to cover the cost of the energy education program. Districts will save money on energy costs through findings in the auditing process and commissioning of equipment. The savings achieved will persist over the life of the equipment, as documented in the Lawrence Berkeley study. Teachers will be provided with materials that can be utilized year after year, as well as skills in service learning, environmental and facilities education that will last the duration of their careers. Higher education connections created through this program will have a significant positive impact on districts and students. Through the installation of LED lighting in the District's Special Needs classroom, those students who would likely be negatively affected by the electronic flicker inherent in fluorescent lighting will experience a direct positive impact on learning. By installing next generation LED classroom lighting in the District's

Special Needs/Autism Spectrum classroom energy savings will be realized, providing substantial, measurable value. The program will utilize a greater share of resources in the classroom by providing professional experts, higher education interns and coaches to teachers, as well as materials, tools and lesson plans. Teachers are provided with a new set of curricula and training techniques to integrate into their educational art through the use of consortium professionals. Teachers will tailor the project to meet individual student learning objectives in a way to excite and motivate students through the assistance of Mentor Coaches who will assist the teacher (Peer to Peer) in assimilating and integrating the program materials into their lesson plans. The goal of this project is create lasting impact on districts through implementation of energy reduction strategies and tools. This has undeniable value to districts by helping them save significant dollars in energy usage. To be able to infuse students into the process and educate and empower them will have lasting impact not only on the districts but on the students, as well.

24. Describe the specific benchmarks, by goal as answered in question 9, which the project aims to achieve in five years. Include any other anticipated outcomes of the project that you hope to achieve that may not be easily benchmarked.

*The applicant should provide details on the quantifiable measures of short- and long- term objectives that will be tracked and the source of benchmark comparative data points. Responses should include specified measurement periods and preliminary success points that will be used to validate successful implementation of the project. If a similar project has been successfully implemented in other districts or schools, identification of these comparable benchmarks should be included.*

**\* Student Achievement**

Student knowledge will be evaluated pre, mid and post project by a set of questions, developed by Ohio Energy Project and administered by Energy Optimizers USA. It will be known by the mid project evaluation if goals are beginning to be met.

**\* Spending Reduction in the five-year fiscal forecast**

1. Energy analysis and benchmark report -Analyze and Benchmark the Past 2-Years of Utility Bills of All Existing Facilities 2. Monthly utility bill analysis reports and tracking. -Utility bills entered into the US EPA Energy Star Portfolio Manager program -Compare to previous months/years to determine abnormalities and energy usage reductions. 3. Annual utility bill analysis and budgeting assistance -Work directly with the financial and business administrator(s) to assist with energy usage and cost forecasting for the next years' budgets 4. Quarterly facility walkthrough and analysis of all existing buildings -A Certified Energy Manager will walk through your facility(s), with the school Green Team to identify potential energy conservation opportunities. 5. Lighting project installation -The lighting project manager will work with the facility manager and classroom teacher to schedule the installation of the LED lighting -The classroom teacher reports their observations and opinions 6. Energy audit report -Students prepare and deliver the School Facilities Energy Audit Report to board -Detailed written report will be reviewed and provided for the appropriate facility administrator(s) and/or school board -Annual facility improvement planning and budgeting - Assist the facility managers and administrators with establishing and updating the districts' 5-year permanent improvement list. -Both short-term and long-term opportunities identified 2. Energy Star analysis, report and recognition -Submit documents that will enable the district to become recognized and accredited by Energy Star. -4. Financial consultation and assistance for completing capital energy conservation project implementations

**\* Utilization of a greater share of resources in the classroom**

Resources will be both physical -- the demonstration materials and curriculum project aids which come from OEP and the Audit Tool Kit which the district receives from Energy Optimizers -- and knowledge-based -- the knowledge gained by Lead Teachers and Student Leaders from OEP energy training and the building energy auditing training from interns and Energy Optimizers engineers. These resources will be shared within the district classes through demonstrations by the Energy Audit Team and on-going Green Team activities in classrooms throughout the district. They will also be shared in Energy Fairs and other energy-related events conducted by the Green Team and the Energy Audit Team.

**\* Implementation of a shared services delivery model**

The peer-to-peer teaching design of this project provides opportunity for services which the Energy Audit Team and Green Team can provide to be shared throughout the district.

**\* Other Anticipated Outcomes**

25. Is this project able to be replicated in other districts in Ohio?

Yes

No

*If the applicant selects "Yes" to the first part of the question, the response should provide an explanation of the time and effort it would take to implement the project in another district, as well as any plans to share lessons learned with other districts. To every extent possible, applicants should outline how this project can become part of a model so that other districts across the state can take advantage of the learnings from the proposed innovative project. If there is a plan to increase the scale and scope of the project within the district or consortium, it should be included here.*

**\* Explain your response**

This project absolutely can be replicated in other districts. We know this because this application is a result of a successful pilot project with a few districts. We compiled data and lessons learned for this application. Because every district can benefit from energy audits, every district can implement this program. Students from all over the state would benefit from increased STEM education opportunities, as well. We would like to see this project implemented in every district in the state. It is customizable and highly effective.

By virtue of applying for the Straight A Fund, all applicants agree to participate in the overall evaluation of the Straight A Fund for the duration of the evaluation time frame. The Governing Board of the Straight A Fund reserves the right to conduct an evaluation of the project and request additional information in the form of data, surveys, interviews, focus groups and other related data on behalf of the General Assembly, Governor and other interested parties for an overall evaluation of the Straight A Fund.

PROGRAM ASSURANCES: I agree, on behalf of this applicant, and any or all identified consortium members or partners, that all supporting documents contain information approved by a relevant executive board or its equivalent and to abide by all assurances outlined in the Straight A Assurances (available in the document library section of the CCIP).

Rick Smith

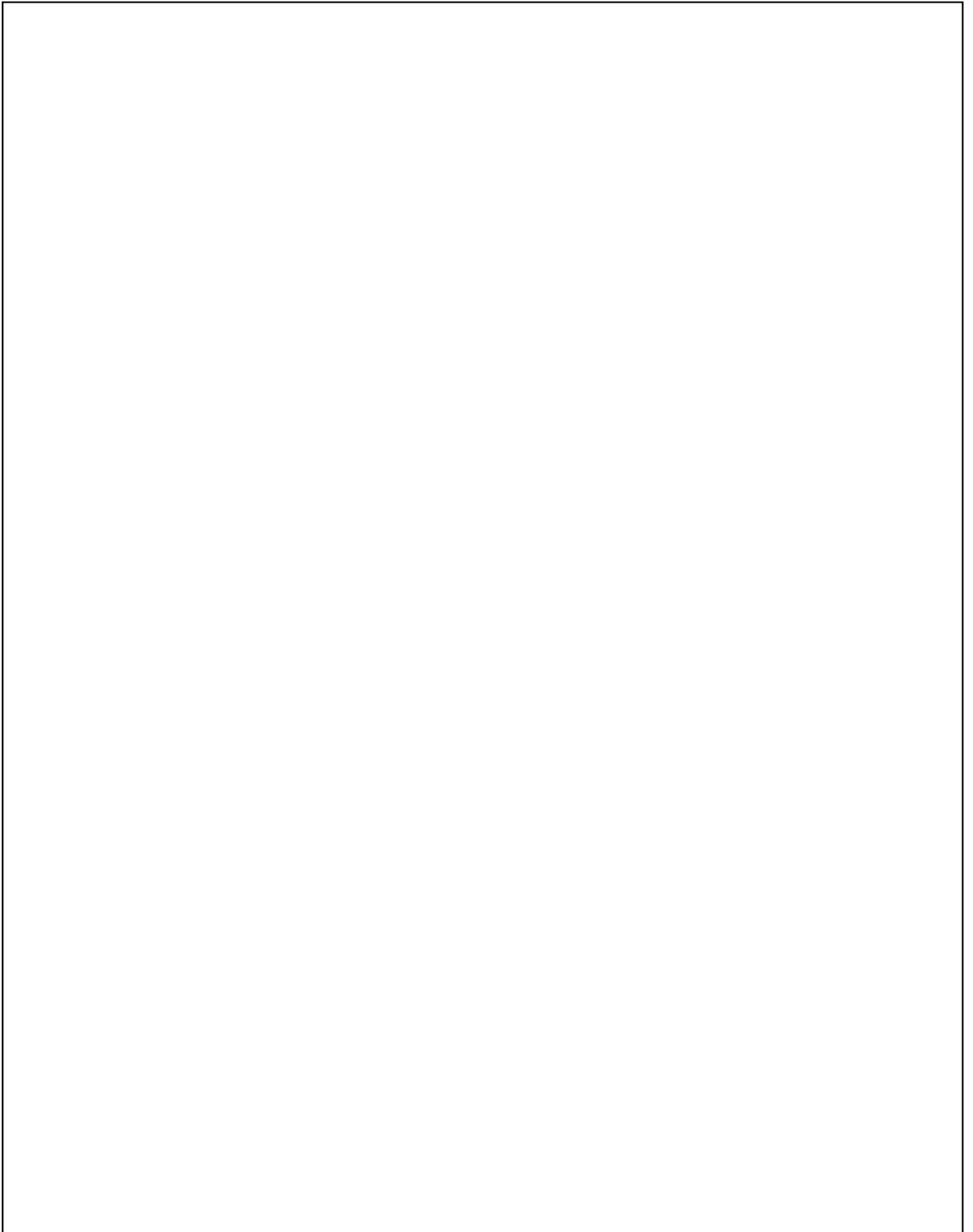
Consortium

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**Consortium Contacts**

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Mike	McCoy	740-682-7055	michael.mccoy@oakhill.k12.oh.us	Oak Hill Union Local	047761	205 Western Ave, Oak Hill, OH, 45656-1068	
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Kim	Wilson	614-873-4667	kwilson@tollestechn.com	Tolles Career & Technical Center	063511	7877 Us Highway 42 S, Plain City, OH, 43064-8854	
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Dennis	Franks	740-642-1200	dennis.franks@pickawayross.com	Pickaway-Ross County JVSD	051433	895 Crouse Chapel Rd, Chillicothe, OH, 45601-9009	
John	Stephens	937-692-5176	ab_supt@mdeca.org	Arcanum-Butler Local	046631	2011 Trojan Ave, Arcanum, OH, 45304-1381	
Judith	Geers	937-372-6941	jgeers@greeneccc.org	Greene County Vocational School District	051045	2960 W Enon Rd, Xenia, OH, 45385-8548	
Deborah	Kapp-Salupo	740-622-0211	deborah.kapp-salupo@coshoctoncareers.org	Coshocton County	065227	23640 Airport Rd, Coshocton, OH, 43812-9222	
David	Vail	937-866-3381	dvail@miamisburg.k12.oh.us	Miamisburg City	044396	540 E. Park Ave, Miamisburg, OH, 45342-2854	



## Partnerships

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## Partnerships

First Name	Last Name	Telephone Number	Email Address	Organization Name	IRN	Address	Delete Contact
Greg	Smith	937-877-1919	gsmith@energyoptusa.com	Energy Optimizers USA		7950 S County Rd. 25A, , Tipp City, Ohio, 45371	
Debby	Yerkes	614-785-1717	dyerkes@ohioenergy.org	Ohio Energy Project		200 E. Wilson Bridge Rd., Suite 320, Worthington, Ohio, 43085	
Terry	Keiser	419-772-1018	t-keiser@onu.edu	Ohio Northern University	063875	525 S Main St, Ada, OH, 45810-6000	
James	Menart	937-775-5145	james.menart@wright.edu	Wright State University	063123	3640 Colonel Glenn Hwy, Dayton, OH, 45435-0001	
Michael	Green	419-461-0577	michael.green@utoledo.edu	University Of Toledo	063099	2801 W Bancroft St, Toledo, OH, 43606-3328	
Patty	Ross	9377787887	pross@edisonohio.edu	Edison Community College		1973 Edison Dr., , Piqua, Ohio, 45356	

Implementation Team

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Implementation Team						
First Name	Last Name	Title	Responsibilities	Qualifications	Prior Relevant Experience	Delete Contact
Chris	Meyer	Project Director	Chris Meyer will be the lead on all aspects of the project. He will coordinate with districts, partners and teachers.	Meyer was formerly a middle and high school teacher, entrepreneur, and manufacturer, and participating inventor in six vacuum insulation technology patents. More recently he has worked in the energy field with several small businesses, in energy efficiency, wind and solar renewables, and financing mechanisms to accomplish energy upgrades. He is currently the Project Director of the Phase 1 Straight A Energy Efficiency project.	Chris Meyer is the current Project Director for Phase One of this project.	
Douglas	Trimbaugh	Vice President, Energy Optimizers USA	Doug Trimbaugh will lead the lighting aspects of the project.	Trimbaugh performs lighting audits and develops recommendation for efficient lighting projects for government agencies, K-12 schools, colleges and universities, and commercial and industrial facilities. Trimbach is a frequent presenter at professional conferences, including the Buckeye Association of School Administrators and Ohio Public Facilities Maintenance Association, and the Ohio Energy Management	Trimbaugh currently leads all lighting aspects of Energy Optimizers USA.	
Debby	Yerkes	Executive Director	Yerkes will lead the energy education aspect of the project.	Yerkes came to OEP after serving as a high school science teacher for six years. OEP trained 700 teachers on energy efficiency education curriculum. Yerkes has a strong collaboration with universities (OSU, Zane State, Ohio University, Cincinnati State.) OEP partners from the utility industry include: AEP Foundation, AEP Ohio, DP&L, Vectren, Buckeye Power, American Municipal Power, Marathon Oil, and Honda of America. OEP was recently recognized by EPA for outstanding project: Careers for Ohio High School Students.	Ohio Energy Project is the premier energy education resource for teachers in Ohio. Created by teachers for teachers, OEP has been energizing classrooms with hands-on, interactive learning tools and programs since 1984. OEP facilitates students' and teachers' understanding of the science of energy and its efficient use in order to empower the next generation of energy consumers. They bring the latest in the energy field to teachers and students in a way that makes everyone take notice by working with utilities, the State of Ohio, nonprofit organizations, energy organizations, universities, manufacturers and others. OEP's energy education programs follow Ohio Department of Education requirements, making them the perfect teaching resource. They provide lesson plans, professional development, special events and workshops. OEP is the state affiliate of the National Energy Education Development Project (NEED) and they partner with them to provide Ohio	

educators with excellent curriculums,  
resources and programs.