Budget

Clay Local (049601) - Scioto County - 2015 - Straight A Fund - Rev 0 - Straight A Fund - Application Number (313)

U.S.A.S. Fund #:

Plus/Minus Sheet (opens new window)

Object Code / Purpose Code	Salaries 100	Retirement Fringe Benefits 200	Purchased Services 400	Supplies 500	Capital Outlay 600	Other 800	Total
Instruction	0.00	0.00	0.00	35,918.00	0.00	0.00	35,918.00
Support Services	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Governance/Admin	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Prof Development	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Family/Community	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Safety	0.00	0.00	0.00	4,500.00	0.00	0.00	4,500.00
Facilities	0.00	0.00	949,264.11	0.00	1,900.00	0.00	951,164.11
Transportation	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	949,264.11	40,418.00	1,900.00	0.00	991,582.11
						Adjusted Allocation	0.00
						Remaining	-991,582.11

Application

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

A) APPLICANT INFORMATION - General Information

1. Project Title:
PSTS - Powering STEM Through Solar

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

The PSTS project at Clay will build a large scale solar power plant on the roof of the CLSD campus. The project will be managed through the school's STEM and Engineering groups so that students get real-world and hands-on experience in the alternative energy industry. The utility cost savings will go to support STEM expansions and sustainability as well as reduce school operating costs so that more funds can be directed directly into the P-12 classrooms rather than operating overhead.

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.

671 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:

- [x] Pre-K Special Education
- [x] Kindergarten
- [x] 1
- [x] 2
- [x] 3
- [x] 4
- [x] 5
- [x] 6
- [x] 7
- [x] 8
- [x] 9
- [x] 10
- [x] 11
- [x] 12

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

First Name, last Name of contact for lead applicant
Anthony Mantell, Superintendent

Organizational name of lead applicant
Clay Local School District

Address of lead applicant
44 Clay High St, Portsmouth, OH 45662

Phone Number of lead applicant
7403546644 ext 309

Email Address of lead applicant
mantellt@claylocalschools.org

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

- [ ] Yes
- [x] 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

- [x] 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

CLSD has built a strong engineering I, II, III, and IV program over the past eight years. Originally, the program was just engineering design and CADD related, but it has branched out in recent years to cover STEM programs like bio fuels development, alternative energy, process manufacturing, and chemical engineering. We seek to expand and accelerate our STEM/Engineering program to offer our students the most competitive edge and comprehensive education they can get. We need a way to draw more students to the STEM field and help them learn to cooperative instruction and guided inquiry development. We need a project that ignites their passion for STEM and gives them a common goal to learn with while helping us save money and direct more funds to classroom needs rather than operational overhead.

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

We feel the best way to do this is a large scale alternative energy project where our students help design, observe construction, and help manage an onsite solar energy system. The project will give our students experience in solar energy while building one of the largest student managed solar power plants in Ohio. We hope to partner with other local district STEM and engineering programs so that their students can learn from ours through peer instruction. We will use the grant funds to build a rooftop 347kW solar power array that will generate 421,056 kWh annually. The first 10 years of operation the array will save the district an average of $52,783 in electrical utility costs and generation of SREC credits. The remaining 20 years of system life the array will save the district between $50,000 and $80,000 depending on electric utility rates. During the system lifespan of 30 years the solar array will save the district $1,856,159 in electric utility costs and generation of SREC credits. The utility savings each year will enable expansion of the STEM program as well as significant year over year savings for the district at large. Part of the PSTS project is bringing the supplies and equipment of our STEM program up to date so that our student have the tools they need to work on this project. We will upgrade their lab, their data collection equipment, safety equipment, tools, and provide a 3D Makerbot printer so they can produce prototypes of parts and tools they want to test in their STEM curriculum as well as for the PSTS project and array. Each year after the grant there are costs associated with maintaining the STEM and PSTS programs. There will be insurance costs of $1,500 per year to insure the array against fire, tornados, and other damages. There will be annual upgrade and replacement costs of $5,500 to keep our STEM program up to date on the latest technology and tools. There will be $1,900 set aside each year or any unforeseen maintenance or repairs related to the PSTS. The savings and income from the PSTS will more than cover the ongoing costs and operational outlays of the project and even provide extra savings to the district which can go back into the budget to support other instructional and classroom goals in P-12 classrooms. The PSTS is not only budget neutral it saves the district money year over year while maintaining a strong STEM curriculum and providing the STEM group an extraordinary hands-on learning environment.

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 PSTS project will affect student achievement in all grades as spending reductions will enable the district to redirect savings toward supporting student technology programs such as 1:1 student laptop to student ratio in grades P-12. The most significantly impacted group of students will be our STEM students in grades 9-12 who will be directly involved with the design, observing construction, and helping with day to day management of our 374 kW solar power plant. The most significant role our STEM students will play in the PSTS is the data logging and helping to manage the cost savings reporting of the solar array. They will prepare and provide regular reports that district administration will use to gauge the savings we see from the array. The STEM students will get real-world experience at generating reports and presentations and presenting that data to our local school board and leaders at board meetings. The STEM group will present at 4 board meetings per year. 1 for each 9 weeks. They will rotate presenters so that each student gets an experience at presenting the data to leaders and stakeholders.

☑ 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 PSTS project will result in annual utility savings to the district of $35,748 in the first year alone. As conventional utility costs rise over time, the annual savings from avoided energy purchases will increase. Over the 30 year expected life of the project and system the district will save over $1.8 Million in electricity, significantly impacting the district budget with savings and allowing resources to be better devoted directly to classroom and student needs. In addition to the utility savings, Solar Renewable Energy Credits (SRECs) generated by the solar PV system can be sold into the Ohio SREC market for income. Ohio has a viable SREC market and income from the sale of SRECs is over and above any utility savings. Based on current and expected market prices, SREC income will start at $20,211 per year and decline to zero by 2025. Total SRECs income is expected to be $135,611 in the first 10 years of the project. In FY16 we project savings of $45,160. In FY17 we project

savings of $46,262. In FY18 we project savings of $44,040. In FY19 we project savings of $45,228. In FY20 we project savings of $43,160. These savings are even after the expenditures of $5,500 to support and upgrade the STEM program each year, $1900 for any unforeseen maintenance issues, and $1,500 a year to insure the solar array against weather and fire events. The project isn't just budget neutral. It will save the district $1.8 million over the next year 30 years while providing for an excellent STEM program and curriculum.

☑ 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.)

The solar power plant itself will be a large scale real world learning lab for our STEM students offering them a unique learning opportunity not traditionally found in classrooms. Students will participate not observe the construction of our solar power system, but they will take yearly field trips to other Third Sun installation locations to interact with solar technicians, engineers, and designers to learn more about the alternative energy industry and construction.

☑ 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.)

n/a

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.

991,582.11 State the total project cost.

* Provide a brief narrative explanation of the overall budget.

The STEM costs for the project is for new Student lab computers for the STEM lab along with student iPads for data collection and student laptops for use with the robotic engineering Fischertechnik kits. There is also cost for a new 3D printer and digitizer for the STEM students so they can prototype and build their parts. Research has shown that CADD and engineering is more effective when students can actually print

out the part or item they are designing or troubleshooting. The total STEM upstart cost are $35,918.00 for student equipment and supplies. There is also a cost of $4,500 for safety equipment, tools, and supplies related to the STEM group working with the PSTS array. The solar system price is for a completely turnkey project including professional engineering, permitting, equipment, construction, utility interconnection, commissioning, everything necessary for a fully functioning solar PV system. No additional project costs or fees will be required to implement solar. The total cost of the solar array component is $949,264.11 There is an insurance cost of $1,500 to insure the solar array against weather events and fire. This cost is covered by the cost savings in subsequent years. There is a maintenance outlay of $1,900 per year for any unforeseen events with the solar array. This is a projection from industry standards. This cost is covered by the cost savings in subsequent years.

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.

One of the great features of a solar power solution is that there are no moving parts or mechanical pieces to wear out. There is no required scheduled maintenance or operational requirement, and for systems deployed in the Midwest, there is no need to wash the panels. Generally, they just need to be inspected annually and have insurance against possible weather events. Additional insurance cost will be $1,500 annually for the 374kW solar PV system. Based on solar industry best practices, CLSD will set aside $1,900 per year for unforeseen maintenance. The costs of supporting and expanding the STEM program are expected to be $5,500 per year for upgrades and maintenance. The main STEM costs are lab computers, logging equipment, safety equipment, tools, and 3D modeling and printing devices. The total annual electrical utility savings of the project will be over $35,748. In addition to the utility savings, Solar Renewable Energy Credits (SRECs) generated by the solar PV system can be sold into the Ohio SREC market for income. SREC income will start at $20,211 per year and decline to zero by 2025. Total SRECs income is expected to be $135,611 in the first 10 years of the project. The STEM lab equipment will age and need be replaced and updated regularly. The project assumes STEM equipment replacement and supply costs of $5,500 per year. This makes the PSTS project fully self sustaining since the net savings of the PSTS will be $50,459 each year the first 10 years and $30,248 each year the following 20 years. The ongoing PSTS project will not only be a budget neutral project but save the district every year that it operates.

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

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.

35,748.00 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

Yes. After the sustainability costs, the PSTS project will save the CLSD over $35,748 each year in utility costs. This is an minimum expected utility savings. Additionally the PSTS will generate an income of $135,611 in SREC energy credits during the first 10 years of operation. As utility rates are projected to rise, this costs savings will grow each year the project operates. With an expected lifespan of 30 years the PSTS will save the district $1,839,350 over it's 30 expected lifespan while preparing our STEM students for careers in science, technology, engineering, and math with real-world and hands-on experience.

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.

The PSTS project is not only self sustaining and expenditure neutral, it will actually save the district $35,748 each year of operation. Additionally the PSTS will generate an income of $135,611 in SREC energy credits during the first 10 years of operation. This is after the expected costs of insuring, maintaining, and supporting STEM and Engineering in the classroom each year. The total expected savings is $1,856,159 over the 30 year lifespan of the system. The total savings assumes electrical utility rates stay the same. If they rise over the coming years, the savings become greater. The only way the PSTS project would not save the CLSD money each year is if electrical utility companies stopped charging for power and make it free. Current industry trends support the projection that electrical utility rates will continue to rise around 4% every year for the next 20 years. The PSTS project will continue to save district operating costs and support STEM and Engineering in the classroom well into the future.

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 RangeJanuary 2014 - August 2014

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

During the planning phase, CLSD and ThirdSun will be meeting weekly in-person or via phone/webinar to complete the design details of the PSTS Project. This phase will result in full construction prints and project guidelines for the implementation phase. The PSTS Leadership Team will also be meeting weekly to fully design the STEM learning goals and align them to revised content standards. They will also develop the daily schedule so that students can participate in the implementation and construction phase during the school day in fall 2014-2015.

* Anticipated barriers to successful completion of the planning phase

None.

18. Implementation - Process to achieve project goals

* Date RangeJuly 2014 - Nov 2014

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

During the implementation phase, ThirdSun and sub-contractors will be onsite constructing the PSTS Solar Energy Array. STEM students will be participating and observing to learn more about solar power and how the PSTS system will function so they can manage it better when it is operating. The PSTS Leadership team will be meeting quarterly to discuss the project goals and look at how the learning objectives are progressing with the project. The STEM instructor Mr. Ted Garrett has full oversight of the STEM student group. Third Sun Solar has already evaluated the Clay Local School buildings for solar system placement and completed initial system design to the 30% level. Immediately following receipt of grant award, Clay Local Schools will contract with Third Sun Solar to manage the solar project. Third Sun Solar will then complete system design, engineering, permitting and utility interconnection approval prior to ordering equipment. Once all permits are secured, Third Sun Solar will procure equipment and oversee construction. Following construction, Third Sun Solar will commission the system and provide system training for school maintenance staff and STEM students. The STEM students will be doing construction observation, safety training, and other training during the solar array construction phase. With the completion of solar array construction they will transition into an active monitoring, reporting, and analytical role of running the PSTS Program. The STEM students will be directly responsible for the data collection, analyzation, and presentation to the local board and stakeholders. They will consult and confer with the Facilities Director on system operation, energy production, cost savings goals, and other operational or change tasks.

* Anticipated barriers to successful completion of the implementation phase.

Potential obstacles to implementation would be any unforseen engineering or state or local permitting issues that prevent solar installation. While such issues are extremely unlikely, further engineering and cooperation with state and local permitting agencies will provide a favorable outcome. Once the system is operational, no obstacles are anitipated. Solar PV is a proven technology in widespread use worldwide and Thrid Sun Solar has a strong record of proven project performance in Ohio.

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

* Date RangeAugust 2014 - August 2044

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

The STEM classes will continue to do the day to day management, annual inspections, and cleaning of the solar panels. The facilities staff will coordinate any repairs or replacement of panels. The warranty of the panels mean they will be replaced for free in the 30 year expected lifespan. The STEM classes will continue to use the data logging and hands-on experience in the classroom to learn about alternative energy and design. The PSTS leadership team will meet quarterly to look at any problems, changes, or upgrades needed in the energy program or subsequent STEM curriculum. Solar is unique in that, as a power plant, it requires the least amount of maintenance and changes during its lifespan. We anticipate each year we will learn more about solar design and operation through our STEM program. The students will benefit while using their knowledge and experience to benefit the district and provide further cost savings through increased efficiency. During the first year of operation, the STEM program and students will devise a set of best practices and efficiency guidelines to be used in running the power system. Every 9 weeks the STEM students will present the data reports and energy savings to the local board of education and stakeholders. The presentation group will rotate so that each student gets experience presenting to leaders. Each subsequent year's group will have new discoveries that allow them to adjust load-shedding and other techniques to maximize savings and power generation. The bulk of the data analysis will be done by the PSTS Leadership team who will take the data collected by the PSTS student group and organize it for publication. We plan to present our findings and case studies of our program to other schools at the OETC conference, HSTW conference, and HSTW showcases.

* 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:

Research has found that students perform better when they have hands-on instruction and real-world projects that offer deliverables to show their work to their peers and parents. The PSTS is the ultimate science and engineering project in that respect. Its hands-on nature and immersive methods allows students to have lasting impact on their school and its operation while learning about science, technology, engineering, and math at the same time. The old instructional model of classroom lecture and reading is replaced with a disruptional method that allows students to learn at a faster pace and see the outcomes of their research and ideas first-hand. They will learn through cooperative learning, peer instruction, guided inquiry, and project based learning. The major change to the instructional/organizational methods of the district is the students getting a more direct hand in how their school district acquires and use electricity. The PSTS allows students to make a significant impact on an area that was never open to them before. In the process they learn about science, technology, engineering, and math and become engaged in this hands-on project.

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.

Solar and alternative energy as a teaching school has already been used in Ohio to great success in programs like Green Schools Ohio and the LEED initiatives currently on-going in the OCFF models. The impact of helping to design, construct, and run a solar power plant to our STEM students will be extraordinary. Past STEM courses have experimented with small scale solar and alternative energy, but the PSTS will be the first to allow students to interact with a major power production environment as a teaching tool. The goal is to energize our students with a zeal for learning and engineering while giving them the experience and education they need. On top of that, the PSTS will provide significant savings year over year that allows the CLSD to better support STEM expansion and direct funding more to classroom needs than operational overhead.

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.

The PSTS leadership team listed above will meet quarterly for at least the first 3 years of the program and at least twice a year for every year

afterward to evaluate the program and any STEM curriculum changes. The nature of the PSTS means that, once the infrastructure is constructed and running, the bulk of operation is just small changes and maintenance. The STEM students will be monitoring and logging the electricity output of the system with their advisor, Mr. Ted Garrett. The STEM students will present their data through a presentation to the local board of education and stakeholders every 9 weeks. The presentation group will rotate so that each student gets the chance to experience presenting to leaders. The STEM students will also use the dashboard and logging data collected by the group to calculate better performing scheduling and load shedding for further cost savings. They will work with the Facilities Director to implement the changes they discover will best benefit the district. The short-term goal of the project is to save at least $35,000 in electric utility costs per year before energy credits and other incentives. The long term goal of the project is to save $1,856,159 in electricity utility costs and credit generation over the 30 year lifespan of the PSTS. Since solar energy systems are a well understood technology, our estimates of 421,056 kWr savings per year are likely to be near target. The educational goals of better funding STEM and engaging our students in the solar energy industry will be measured two ways. We will keep track of post-high school college enrollment and science scores on the OGT, Ohio Next Generation Assessments, and the ACT. Better scores and more graduates with science, technology, engineering, and math degrees will let us know how successful we have been with our educational goals of engaging students in STEM. The PSTS leadership team listed above will meet quarterly to determine any needed changes.

* 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).

The PSTS student achievement benchmark is to increase the number of CLSD STEM students entering college science, technology, engineering, and math majors by a minimum of 20%. The spending reduction in the 5 year fiscal forecast benchmark is to save the CLSD $268,333. We also anticipate being able to attract more STEM interested students into our STEM program through the visibility of our solar project and the PSTS.

* 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.

The PSTS leadership team will draft and implement any changes that need to be made to the program. Since solar is a well understood technology and already in use around the world, the possibility of failure of the solar portion is remote. Our main goal after construction and implementation will be to keep the STEM program on track and help our student each year.

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.

There are two categories for substantial value and lasting impact that the PSTS hopes to change. In the spending reduction and cost savings category, the PSTS will save a minimum of $35,748 annually in electricity utility costs and $1.8 Million over the 30 year lifespan of the equipment. In the educational goals of the PSTS, we hope to better engage our STEM students in solar energy technology and encourage them to pursue college degrees in science, technology, engineering, and math fields. Since the PSTS will save the CLSD $35,748 each year and $1.8 Million over the 30 year lifespan of the solar equipment the project is self sustaining indefinitely.

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

The PSTS student achievement benchmark is to increase the number of CLSD STEM students entering college science, technology, engineering, and math majors by a minimum of 20%. The spending reduction in the 5 year fiscal forecast benchmark is to save the CLSD $268,333. We also anticipate being able to attract more STEM interested students into our STEM program through the visibility of our solar project and the PSTS.

* Spending Reduction in the five-year fiscal forecast

Since solar is a well understood technology in use around the world it is easy to model and project what our savings in the five year forecasts will be. In FY16 we project savings of $45,160. In FY17 we project savings of $46,262. In FY18 we project savings of $44,040. In FY19 we project savings of $45,228. In FY20 we project savings of $43,160. These savings are even after the expenditures of $5,500 to support and upgrade the STEM program each year, $1900 for any unforeseen maintenance issues, and $1,500 a year to insure the solar array against weather and fire events. The project isn't just budget neutral. It will save the district $1.8 million over the next year 30 years while providing for an excellent STEM program and curriculum.

* Utilization of a greater share of resources in the classroom

The PSTS as a teaching tool in our STEM curriculum enables our students to have a lab where they can develop presentations, reports, and future planning ideas to present to district leaders and stakeholders. They will present at a board meeting each of the 4 nine weeks. They will rotate each presentation so that each student gets experience in presenting to leaders and stakeholders the data they have collected as well as ideas for better utilization of the solar array. The board will give the students feedback about their methods and results. The STEM students will also present their findings and results to other local district STEM groups and hopefully at the OETC and HSTW conferences so that peer instruction and engagement can take place.

* Implementation of a shared services delivery model

This is not an area that we implemented.

* Other Anticipated Outcomes

We anticipate better community engagement and visibility through the PSTS program and the solar array.

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

Yes. This project is highly and easily reproducible. Once the PSTS is operating and producing data results that we can share, we plan present our findings at as many conferences and gatherings as we can. The STEM group will also attend conferences like the OETC and HSTW Showcases to get other schools interested in saving money through solar energy and furthering their STEM programs at the same time. We hope to partner with higher-ed groups to help publish our data and outcomes so that others can learn from our experience and project success. Ultimately, we would like to be the first net zero electrical utility usage P-12 school in Ohio. The calculations and plans will be developed by the STEM group as we move forward and their data logging and modeling improves. We believe our facility and STEM group are up to the challenge of eventually producing all of the electrical power we need annually through alternative energy methods. The PSTS gives us the chance to huge first step toward start accomplishing this goal.

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).

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. Anthony Mantell

Consortium

Clay Local (049601) - Scioto County - 2015 - Straight A Fund - Rev 0 - Straight A Fund

Sections

Consortium Contacts

No consortium contacts added yet. Please add a new consortium contact using the form below.

Partnerships

Clay Local (049601) - Scioto County - 2015 - Straight A Fund - Rev 0 - Straight A Fund

Sections

Partnerships							
First Name	**Last Name**	**Telephone Number**	**Email Address**	**Organization Name**	**IRN**	**Address**	**Delete Contact**
John	Fanselow	7402494533	jfanselow@thirdsunsolar.com	Third Sun Solar, LLC - Federal Tax ID: 81-0632701		762 West Union St, Suite C, , Athens, OH, 45701	

Implementation Team

Clay Local (049601) - Scioto County - 2015 - Straight A Fund - Rev 0 - Straight A Fund

Sections

Implementation Team						
First Name	**Last Name**	**Title**	**Responsibilities**	**Qualifications**	**Prior Relevant Experience**	**Delete Contact**
Matthew	Kuehne	IT and Facilities Director	Matt will serve on the PSTS Leadership Committee and will provide oversight for the entire project relating to facilities management, utilities management, and other operational goals.	Mr. Kuehne started with CLSD as the technology coordinator in 2002. His role expanded to managing the facilities in 2012. He has experience with large scale construction projects. He was the construction planning and implementation liaison for the district in it's recent LEED certified 167,000 sq foot campus construction and renovation. He manages the district's technology and facilities departments and staff. He holds a bachelor's degree from Marshall University.	Mr. Kuehne started with CLSD as the technology coordinator in 2002. His role expanded to managing the facilities in 2012. He has experience with large scale construction projects. He was the construction planning and implementation liaison for the district in it's recent LEED certified 167,000 sq foot campus construction and renovation. He manages the district's technology and facilities departments and staff. He holds a bachelor's degree from Marshall University.	
John	Fanselow	Senior Project Developer with Third Sun Solar	John will serve on the PSTS leadership team and provide industruct and solar expertise to the group.	Third Sun Solar will design, build and maintain the solar PV system. Third Sun Solar is a Photovoltaic (PV) Solar system provider. Third Sun Solar serves as an EPC (Engineering, Procurement, Construction) and design-build contractor and project developer serving the solar electric power market. They supply consulting/design services and full turnkey solutions for new and retrofit projects in the federal, commercial, institutional and residential sectors. Third Sun Solar was founded in 2000 and operates out of their central office in Athens, Ohio. Third Sun Solar has built over 400 solar energy projects throughout the Midwest. See attached Statement of Qualifications.	Third Sun Solar will design, build and maintain the solar PV system. Third Sun Solar is a Photovoltaic (PV) Solar system provider. Third Sun Solar serves as an EPC (Engineering, Procurement, Construction) and design-build contractor and project developer serving the solar electric power market. They supply consulting/design services and full turnkey solutions for new and retrofit projects in the federal, commercial, institutional and residential sectors. Third Sun Solar was founded in 2000 and operates out of their central office in Athens, Ohio. Third Sun Solar has built over 400 solar energy projects throughout the Midwest. See attached Statement of Qualifications.	
Ted	Garrett	STEM Teacher	Ted is the STEM teacher and will have oversight of the STEM student group who will be working on this project.	Ted Garrett - STEM Teacher. Mr. Garrett has been teaching in the CLSD since 2004. Ted leads a diverse group of students in grades 9-12 in learning about science, technology, engineering, and math. The STEM program originally started out as a Project Lead The Way engineering course. It has expanded over the years into a comprehensive STEM program where Mr. Garrett covers everything from design, process engineering, electrical engineering, chemical reaction and production methods, and more.	Ted Garrett - STEM Teacher. Mr. Garrett has been teaching in the CLSD since 2004. Ted leads a diverse group of students in grades 9-12 in learning about science, technology, engineering, and math. The STEM program originally started out as a Project Lead The Way engineering course. It has expanded over the years into a comprehensive STEM program where Mr. Garrett covers everything from design, process engineering, electrical engineering, chemical reaction and production methods, and more.	
Jeff	Hunter	Science Teacher	Jeff will serve on the PSTS leadership commitee and	Jeff is currently finishing his PhD at Ohio University.	He serves as the High Schools that Work (HSTW) Site coordinator. He is a member of the Clay Local District Leadership Team, a	

			provide teaching and science insight to the group.		Mentor for the Resident Educator Program. Hunter has presented at the Ohio Educational Technology Conference about blended learning.	
Todd	Warnockt	MS/HS Principal 6-12	Todd will serve on the PSTS leadership team and provide building level insight and guidance to the group.	He has worked in many areas during his career at Clay and is in his twelfth year as the Middle School and High School Principal. During his tenure at Clay he also served as a volunteer technology coordinator during the mid 1990's and helped to usher in more widespread technology use through the help of the Scioto County Technology Consortium and the Riordan Foundation. He has been involved in every major technology project at the school district since that time. Todd will be responsible for being a liaison between school districts and will work to fully implement and integrate all aspects of the program in the middle school and high school. He holds a Bachelor's degree in history and education from Marietta College (1990), a Master's Degree from Ohio University (1996), and completed the superintendent's licensure program through Ashland University (2003).	He has worked in many areas during his career at Clay and is in his twelfth year as the Middle School and High School Principal. During his tenure at Clay he also served as a volunteer technology coordinator during the mid 1990's and helped to usher in more widespread technology use through the help of the Scioto County Technology Consortium and the Riordan Foundation. He has been involved in every major technology project at the school district since that time. Todd will be responsible for being a liaison between school districts and will work to fully implement and integrate all aspects of the program in the middle school and high school. He holds a Bachelor's degree in history and education from Marietta College (1990), a Master's Degree from Ohio University (1996), and completed the superintendent's licensure program through Ashland University (2003).	
Anthony	Mantell	Superintendent	Anthony will head the PSTS leadership team and provide district level insight and guidance to the group.	He will have the responsibility to oversee and direct the Clay Leadership Team. He has been an educator for thirty seven years. Twenty four of those years he has served as an administrator. The last fourteen he has worked as the superintendent of the Clay Local School District. His experience as the CEO of a school district generates confidence he will be able to manage our grant in a very responsible and efficient manner. His experience also has created the ability to work and collaborate with other entities in a positive manner. He is extremely confident we will have a very strong consortium with a unified goal of providing unique educational opportunities for all of our students. Mr. Mantell holds a Bachelor of Science degree in education from Ohio University (1977). He obtained his Master's Degree in Educational Administration from the University of Dayton in 1988. He has taken many additional graduate courses from Ohio University and the University of Dayton allowing him to complete his superintendent's licensure requirements in 1996.	He will have the responsibility to oversee and direct the Clay Leadership Team. He has been an educator for thirty seven years. Twenty four of those years he has served as an administrator. The last fourteen he has worked as the superintendent of the Clay Local School District. His experience as the CEO of a school district generates confidence he will be able to manage our grant in a very responsible and efficient manner. His experience also has created the ability to work and collaborate with other entities in a positive manner. He is extremely confident we will have a very strong consortium with a unified goal of providing unique educational opportunities for all of our students. Mr. Mantell holds a Bachelor of Science degree in education from Ohio University (1977). He obtained his Master's Degree in Educational Administration from the University of Dayton in 1988. He has taken many additional graduate courses from Ohio University and the University of Dayton allowing him to complete his superintendent's licensure requirements in 1996.	