

Budget

Western Reserve Local (048397) - Mahoning County - 2015 - Straight A Fund - Rev 0 - Straight A Fund - Application Number (53)

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
Instruction		0.00	0.00	0.00	0.00	0.00	0.00	0.00
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	10,000.00	0.00	0.00	0.00	10,000.00
Family/Community		0.00	0.00	0.00	0.00	0.00	0.00	0.00
Safety		0.00	0.00	0.00	0.00	0.00	0.00	0.00
Facilities		0.00	0.00	990,000.00	0.00	0.00	0.00	990,000.00
Transportation		0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	1,000,000.00	0.00	0.00	0.00	1,000,000.00
Adjusted Allocation								0.00
Remaining								-1,000,000.00

Application

Western Reserve Local (048397) - Mahoning County - 2015 - Straight A Fund - Rev 0 - Straight A Fund - Application Number (53)

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

A) APPLICANT INFORMATION - General Information

1. Project Title:
Reinvesting Energy Savings Into 6th-12th Grade STEM Programs

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

Through a partnership with a local solar energy business, The University of Akron, and Western Reserve Local School District (WRLSD), Straight A funds will be used for the installation of a solar panel array system on the Western Reserve Local School District site and for professional development to prepare teachers to implement and expand STEM concepts into the curriculum. Solar energy will be used to power 50% of the building resulting in an approximate energy savings of 26% based on projections from the average utility rates from March 2012-March 2014. The savings resulting from the use of solar energy will be redirected into a 6th-12th grade STEM program for students with and without disabilities.

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.

307 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:

- | | |
|--|--|
| <input type="checkbox"/> Pre-K Special Education | <input type="checkbox"/> Kindergarten |
| <input type="checkbox"/> 1 | <input type="checkbox"/> 2 |
| <input type="checkbox"/> 3 | <input type="checkbox"/> 4 |
| <input type="checkbox"/> 5 | <input checked="" type="checkbox"/> 6 |
| <input checked="" type="checkbox"/> 7 | <input checked="" type="checkbox"/> 8 |
| <input checked="" type="checkbox"/> 9 | <input checked="" type="checkbox"/> 10 |
| <input checked="" type="checkbox"/> 11 | <input checked="" type="checkbox"/> 12 |

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

First Name, last Name of contact for lead applicant
Jeffrey Zatchok

Organizational name of lead applicant
Western Reserve Local School District (IRN: 048397)

Address of lead applicant
13850 Akron-Canfield Road, Berlin Center, OH 44401

Phone Number of lead applicant
330-547-4100 ext. 23301

Email Address of lead applicant
jzatchok@wrls.k12.oh.us

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

The WRLSD currently spends an average of \$.088/KWH on energy costs which is based on records from March 2012-March 2014. The current energy costs fluctuate with the economy and supply and demand which has caused the energy costs to increase. Because the increased energy costs are paid through the general fund, this does not allow the funding for the development, expansion, and sustainability of STEM programs that will equip students with the 21st century skills necessary to be competitive in the college and career fields that are in most demand today. The grant funds would be used to install a solar panel array system, and utilizing a Power Purchase Agreement (PPA), energy costs would be reduced to \$.053. This would allow the savings to be redirected into a 6-12 grade STEM program. This PPA is an installment payment contract for the purchase and installation of energy conservation measures that is permitted for schools under R.C. 3313.372. The conservation measure is renewable energy from a solar panel array system installed on the premises of WRLSD that will produce solar energy for 50% of the school's energy consumption. The energy contract will create a long term savings to the school's utility costs and provide a sustained funding source to be used to develop, expand, and sustain the 6-12 grade STEM program. A small part of the grant money will be used to provide professional development to prepare teachers to develop and implement a STEM education program into the 6th -12th grade curriculum.

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

Schools and universities in Ohio have already started installing solar panel arrays to achieve energy savings. An article "Honeywell Energy Smart Schools" in the publication, Ohio Solar Schools featured Centerburg LSD in Knox County. Centerburg teamed with Solar Planet to install solar panel arrays that provide energy for up to 80% of their buildings for an average of 26% less than they were paying a local vendor. The superintendent stated that the current savings is \$40,000 - \$50,000 per year. Once Centerburg LSD purchases the array. The savings could be \$100,000-\$200,000 annually. The article "Solar Scholars" in the March 2014 issue of American Schools and Universities states there are many benefits to solar panel arrays, also known as Photovoltaic systems (PV). The article states: "The benefits of on-site solar PV systems include low maintenance and operation costs, a competitive-essentially fixed rate cost for electricity, educational opportunity for your students, and a reduction in the carbon footprint." The article goes on to state an additional benefit is the longevity of the system, "the solar panel arrays have a lifetime of at least 30 years with the DC to AC inverters lasting 15-20 years and the cost of the inverter can be paid for by the energy savings." One final benefit stated in the article is that solar energy schools often recruit the best and brightest teachers because of the district's "forward thinking."

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 utility cost savings achieved through the installation and use of the solar panel array will have a direct effect on student achievement in grades 6-12 through the development and expansion of STEM programs in all content areas for students with and without disabilities. The redirection of energy savings will provide opportunities to better prepare students with 21st century skills needed for success in today's college and career market. The money that will be reinvested in the STEM education program will be used to provide teachers with the professional development, mentoring, supplies, and materials to implement STEM concepts into their content areas while continuing to meet the Common Core State Standards for English Language Arts and Math as well as the Ohio State Standards for Science and Social Studies. Elective classes that focus on career ready skills such as certification programs in alternative energy and other technical STEM based fields will be implemented so that students can learn and practice the skill necessary to compete successfully in STEM related careers that are in such high demand in today's global job market.

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.)

Based on research from other educational institutions that have installed solar panel arrays, there will be a significant reduction in the operational budget resulting from the use of solar power that will be used for 50% of the school's energy consumptions. Using information from the Department of Energy's National Renewable Energy Laboratory software of solar production calculators the Western Reserve Local School District will realize an annual energy savings of \$28,829.52 and an energy savings of \$144,147.60 over five years. The energy costs in the five year fiscal forecast of the operational budget will be reduced so that the annual savings can be redirected into STEM programming in grades 6-12 which will allow Western Reserve Local School District to provide professional development and purchase supplies and

materials so that they can provide a progressive education to prepare students with 21 century college and career ready skills without impacting the operational budget of the district or asking the voters for new tax dollars.

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 utility savings will be redirected into the STEM education program for students in grades 6-12. These monies will be used for professional development and program development to equip the faculty of all content areas with the skills and tools to integrate STEM concepts into their classrooms while also expanding the STEM program to include the materials and resources to prepare the students with college and career ready skills for the 21st century workplace. Professional development will focus on the STEM skills currently used in today's job market. This will break down the classroom walls so that students are able to interact, research, and learn globally through the use of technology. Teachers will be empowered to use technology skills to provide students with experiences such as virtual field trips, collaborative meetings with students across town, across the country, and around the world, perform work in virtual labs and interact with professionals in the fields of science, technology, engineering, and math where they can run tests and observe results using materials unavailable in the classroom.

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.)

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.

1,000,000.00 State the total project cost.

* Provide a brief narrative explanation of the overall budget.

Of the grant funds, \$990,000.00 will be used for installation of a solar panel array on the Western Reserve Local School District site and \$10,000.00 will be used in the planning and professional development for the STEM program implementation. A Power Purchase Agreement which is an installment payment contract for the purchase and installation of energy conservation measures that is permitted under R.C. 3313.372. The WRLSD will enter into a PPA with a private equity investor, (system owner) as permitted under R.C. 3313.372, more commonly known as HB 264, Energy Conservation Proposal <http://www.osfc.ohio.gov/LinkClick.aspx?fileticket=nIVyBD2M9kc%3D&abid=69>. The district will begin professional development to prepare teachers of all content to develop and expand STEM programs that will result from the future utility savings.

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.

The associated cost to the WRLSD as required under Section 16.2 of the PPA will be the purchase of insurance from their current insurance holder, Trumco Insurance Agency, at a quote of \$5,000.00 per year. This policy satisfies the requirement to maintain a general liability insurance policy for bodily harm of not less than \$1,000,000.00 per occurrence and property insurance in an amount not less than the replacement value of the premises on which the system is located. The DC to AC inverter has a 15 to 20 year life span. These costs will be covered by the savings realized by the reduction of energy cost resulting from the solar panel array system. The purchase of the system includes maintenance costs. The money from the energy cost reduction will be used for future professional development, materials, and supplies to sustain the STEM education program.

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.

28,829.52 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

All energy usage calculations for school districts are required by law under the Ohio R.C. 3313.372 to be based on a 24 month average prior to system design. Based on the First Energy billing summary of Western Reserve Local Schools, the average yearly production from December 2011-November 2013 is 1,745,100 KWH and the average annual cost of utilities is \$.088 per KWH. Solar energy production is predicted by the Department of Energy's National Renewable Energy Laboratory software of solar production calculators. This software calculates solar production from the sun in NE Ohio by strategically placed solar stations along the highways in that area. Using this information, the solar panel array system will provide 702,000 KWH per year of solar energy to WRLSD at the price of \$.053 per KWH, an annual savings of \$28,829.52. The 5 year savings of \$144,147.60 equates to a 26% reduction in costs to the operational budget. These savings are guaranteed as the Ohio R.C. 3313.372 (B) requires that the electrical payments be stated as a percentage of calculated energy cost saving and that those payments be made by the school only to the extent that those savings actually occur, while the system owner, Valley Energy Solutions is required to warrant and guarantee the cost savings and is responsible to pay the host customer (WRLSD) an amount equal to any savings shortfall. The purpose of this requirement is to ensure that the energy savings are greater than the cost of the conservation measure. Thus, Section 20.1-20.6 of the Revised Code acts as a guarantee for the host customer (WRLSD) in which the PPA shall include a measurement and verification plan for each energy conservation measure (ECM) that is projected to generate savings. The performance of each ECM shall be verified by the International Performance Measurement and Verification (M&V) Protocol most recent edition. The M&V plan shall include methods of calculation actual savings based upon measured results.

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.

There are two recurring costs for the solar array panel system. First is insurance coverage through Trumco Insurance Agency, at a quote of \$5,000.00 per year for bodily harm of not less than \$1,000,000.00 per occurrence and property insurance in an amount not less than the replacement value of the premises on which the system is located. The second cost is the DC to AC inverter which has a 15 to 20 year life span. Both the insurance and replacement of the DC to AC converter costs will be covered by the utility savings from the solar panel array system. The additional utility savings will be redirected into a 6th - 12th grade STEM program. The available money will be used to provide professional development for all content area teachers so they have the tools necessary to plan, implement, and expand STEM concepts in their content areas. Additionally, the supplies and materials/ purchased services needed for implementation will be paid for through the utility savings realized through the use of solar energy.

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 July 2014-November 2014

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

July 1-August 2014: The Power Purchase Agreement is agreed upon and signed by Western Reserve Local School District and Valley Energy Solutions. Valley Energy Solutions will facilitate a land utilization study by a third party evaluator. September-November 2014: A schedule of regular monthly meetings will be scheduled to ensure regular updates during the all stages of the project. Valley Energy Solutions will complete the solar panel array system design then utilize a third party licensed engineer and architect to complete final drawings. Valley Energy Solutions will review the design and drawings with the superintendent and school administrators of WRLSD, Valley Energy Solutions will complete applications for Mahoning County permitting and Utility Interconnection. The STEM implementation plan and the schedule for the construction of the solar panel array will be unveiled to the teachers. Teachers will complete a needs assessment to measure background knowledge in STEM and understanding of the application of STEM concepts as they relate to their content.

* Anticipated barriers to successful completion of the planning phase

Anticipated barriers include extended permitting time for any engineering or environmental modification needed to satisfy local code regulations.

18. Implementation - Process to achieve project goals

* Date Range December 2014-May 2015

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

December 2014-January 2015: Upon completion of permitting and Utility Interconnection with First Energy, Valley Energy Solutions will purchase and receive equipment from vendors. Valley Energy Solutions and the superintendent of WRLSD will develop a schedule for the installation of the solar panel array system so as to cause as little disruption to the learning process as possible. February-May 2015: Installation of the solar panel array system by Valley Energy Solutions on the Western Reserve Local School District site. Conduct weekly meetings either in person or via teleconferencing for regular updates during the installation period. Upon immediate completion, Valley Energy Solutions will conduct a thorough system evaluation with electrical, fire, and building inspections as required by Mahoning County and Ohio Building Code laws. The superintendent of WRLSD will be given the inspection dates prior to the inspections. Valley Energy Solutions will communicate the results of the inspections with the superintendent of WRLSD. The First Energy Interconnection certificate of completion will be signed by all inspecting parties, system owner and installer. Western Reserve Local School District appointed staff member(s) will be trained by a NABCEP certified technician of Valley Energy Solutions. Western Reserve Local School District will be provided with contact information for servicing and maintenance as stated in the Power Purchase Agreement. Professional development will be scheduled and implemented. Teachers and administrators will work together to plan STEM program implementation.

* Anticipated barriers to successful completion of the implementation phase.

Anticipated barriers include a delay of the installation because of extreme winter weather conditions.

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

* Date Range June 2015

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

The system owner, (Valley Energy Solutions) shall submit an energy savings report to the Western Reserve Local School District on an annual basis, beginning no later than ninety days after the one year anniversary of the issuance of a Certification of Contract Completion, or equivalent document noting the completion of construction, and continuing until the end of the PPA term of 15 years. The utility baseline for the energy savings report shall be the actual energy consumption data for the most recent 24 months preceding the design of the project as already provided by the Western Reserve Local School District. According to the PPA, if the actual savings in any year of the contract are less than the guaranteed savings for that year, the system owner (Valley Energy Solutions) shall pay or credit the host customer (WRLSD) the difference at the host customer's discretion. The planning and professional development of the staff will be evaluated by a pre and post assessment of STEM understanding and how STEM concepts apply to their content. We will also conduct a needs assessment of materials, further training necessary to implement the STEM initiatives, and continual planning/communication/meeting needs for implementing and monitoring the STEM program.

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

Based on the needs assessments, we may have to increase the timeline of the professional development if teacher needs are very diverse or if there is a disconnection between STEM concepts and their application to the teacher's content.

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:

There will be two main areas of change; the use of solar energy to provide energy for 50% of the buildings energy resulting in an energy savings that will be redirected into a 6th-12th grade STEM program. The first change will be the use of solar energy which will require the administration and maintenance team to learn about the use of solar energy. While Valley Energy Solutions will maintain the solar panel array system, the system is on the WRLSD site so the school personnel will need to learn the basic operational system. The school district will assume ownership after the first 15 years so they will need to learn about the operation and maintenance of the system during the first 15 years. The STEM education program will be implemented through the incorporation of a co-teaching, project based learning (PBL), and differentiated instruction model in regular education classrooms, which will in turn support all students. PBL is an experiential learning approach that focuses on investigating and solving real-world problems and utilizes an integrated curriculum. PBL promotes inquiry, engagement, in-depth understanding, and innovative thinking. PBL experiences, especially authentic PBL's enable the embedding of instruction in some authentic context. Thus, these problems are authentic and meaningful to support student learning. Within this context, students are self-directed and engaged in the problem solving process (Jonassen, 2000). An authentic learning environment is one in which the cognitive demands in the environment for which we are preparing the learner (Onebein, et. al. 1993). The Professional Learning Community (PLC) model will be used, in conjunction with professional development, train the trainer, and mentoring to assist teachers and to facilitate innovative teaching practices. A recent study (Fulton, Britton, & National Commission on Teaching and America's Future 2011) found that STEM- teacher PLC's offer the type of collaboration that helps STEM K-12 educators gain greater job satisfaction, want to remain in their teaching field improve their content knowledge, feel comfortable discussing their content knowledge, and feel better prepared to teach in their subject area(s).

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.

The solar savings that generates sustainable education can be researched via Department of Energy work, especially at the National Renewable Energy Laboratory in Golden, CO. PV WATTS is a proven software model that Department of Education launched and both State and Federal entities apply in the analysis of solar projects and proposed outputs. Stem integration analysis and assessment tools have been utilized by the University of Akron based on State of Ohio Department of Education guidance. This the educational content of this project is guided by those principles. Locally, both Kent State University and Youngstown State University have installed solar panel arrays as a way to reduce utility costs. Kent State University entered into a PPA with a private equity partner to install a .5 MW Solar System on their field house. In this PPA they are purchasing solar at a reduced cost from what they previously paid to operate the facility. Historically, their electric usage is 1.5 million KWH per year. Based on a nationally certified renewable energy calculator, they were predicted to produce 472,722 KWH from

system commissioning date of 7/20/12 through 12/31/12. The measured production was 473,083 KWH. Robert Misbrener, project manager, commissioning in the Office of the University Architect at Kent State., states "We have seen a 103% of the estimated production through year 1 of the Solar System Installation. Under the PPA, the school is free of risk to solar panel malfunctions, maintenance, and repair." (<https://www.kent.edu/news/announcements/success/solarpanels.cfm>). This unique approach to education has a sustainable format thanks to the savings resulting from utility costs. That savings is expected for at least thirty years. However the lasting value of this project is its real potential to generate a new group of young men and women who gain confidence that they have the skills and passion to embrace a lifelong career in applied technical work or as engineers, scientists, mathematicians, manufacturing owners, and business leaders. Our state will be poised to compete economically both from a regional perspective and a globally. Therein is the value of this bold approach to education.

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.

Dr. Charles Carlin, assistant professor in the College of Health Professions at the University of Akron (330-972-6556) will lead the external evaluation efforts. District stakeholders and Valley Energy Solutions will contribute to the internal evaluation of the project. Dr. Carlin will use a responsive evaluation approach and conduct an ongoing evaluation of the implementation process and outcomes of the project, (Stake, 2006). This approach will provide a flexible evaluation structure that can be used to inform stakeholders of the successes and failures of the project and offer solutions that will ensure the outcomes are achieved. (Fitzpatrick, Sanders, & Worthen, 2011). Dr. Carlin will collect and analyze data relative to the goals and long and short-term objectives and the desired outcomes of the project. The project outcomes guide the overall evaluation effort and enable analysis of the various aspects of the project (e.g. implementation, outcomes of formative and summative evaluations.) The formative evaluation process will provide timely data to 1. Inform district and community stakeholders, ODE, and grant partners about the successes and failures of the project; 2. help monitor progress and the impact of the project; 3. aid in modifying or changing the project plan in order to ensure outcomes are achieved, and 4. Provide a platform to communicate the lessons learned to other education providers in Ohio (e.g., attendance at Buckeye Association for School Administrator events.)

* 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).

Quarterly meetings with Valley Energy Solutions and Western Reserve Local School District to collect and review data such as copies of agreements, PPA, permits, plans, permits, and monitor the grant proposal. Western Reserve Local School District will monitor and track the energy savings every six months by comparing the cost of the utilities before and after the installation of the solar panel arrays. Develop a budgetary process and monitoring system for the reinvestment of the utility cost savings into the STEM program for grades 6-12. Develop a budget for the STEM program that tracks the amount of the reinvestment used for professional development, supplies, and instruction and reviewing the budget annually. Student achievement and growth will be measured annually through baseline and benchmark assessments then compared to the per pupil cost based on the annual budget to determine effectiveness of the program. Change in teaching techniques and mode of delivery will be evaluated through walkthrough evaluations and annual observations along with teacher student learning objective plans and artifacts of student work. Finally, The program will be evaluated annually to determine the amount of funds redirected into the STEM education program, the targeted use of funds, and the impact on student achievement. Trend data will be evaluated every 3 years to monitor the influence of the program on a student's post-secondary education and career path.

* 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.

There is no risk of Western Reserve Local School District not meet the cost savings from the use of solar energy because under the PPA, Western Reserve Local School District is free of risk to solar panel malfunctions, maintenance, and repair. the utility baseline for the energy savings report shall be the actual energy consumption data for the most recent 24 months preceding the design of the project as already provided by the Western Reserve Local School District. According to the PPA, if the actual savings in any year of the contract are less than the guaranteed savings for that year, the system owner (Valley Energy Solutions) shall pay or credit the host customer (WRLSD) the difference at the host customer's discretion. If the timeline for installation is delayed due to weather then the school district will work with Valley Energy Solutions to modify the installation plan to meet the objectives. This could mean having the installation crew work extended hours or on weekends at no cost to WRLSD. Quarterly evaluation of the STEM program will allow for expedient intervention if students are not showing growth in a particular classroom or grade level. Western Reserve Local School District administration will work with the teacher and University of Akron to provide mentoring, professional development, and a professional development plan for the teacher(s). if there is not an increase in students entering STEM based college and career paths then a survey every 3 years of those who do not choose STEM based college or career paths will be evaluated to determine if there are changes needed to the program.

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.

The solar panel array enables a thirty year financial benefit to the Western Reserve Local School District through the reduction in utility costs by approximately 26% as a result of the installation of a solar panel array system. The educational component enables a much longer opportunity to prepare students through a comprehensive STEM education program so they can successfully compete for careers in the fields of science, technology, engineering and mathematics whether they enter the workforce directly after high school graduation or pursue post-secondary education to further prepare them for work in these critical need areas. Northeastern Ohio will benefit from a more skilled workforce that can compete effectively in our global environment. Through the reinvestment of the energy savings afforded by the installation of the solar panel array this STEM education is completely self sustaining. This project will be a hallmark example for Western Reserve Local

School District, the Mahoning Valley and the state of Ohio to entice and attract our youth to pursue STEM related careers and affiliated businesses to either stay in the northeast Ohio region or relocate their operation to such environmentally responsible and economically progressive area.

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**

An interest inventory will be given to students in grades 6 and 9 and 12 to measure interests and career aspirations in STEM related education and careers. A pretest will be conducted at the beginning of each course to determine students current level of knowledge of content that will include STEM related skills. A post test will be given at the end of every course to measure knowledge of content and growth of STEM skills. STEM skills acquisition data will be tracked on students as they move from grades 6-12 to measure acquisition of STEM skills and the affects on student achievement. The pre and post tests can be linked to the student learning objectives (SLO) for each content area. Interest inventories will be tracked every 3 years to determine if interests in STEM related careers increase as a result of the STEM education program. Alumni will be surveyed 5 years after graduation to determine lasting effects of theSTEM education program and to measure the percentage of students who are actually working in STEM related careers.

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

Energy savings will be measured quarterly by comparing the current utility bills to those of the past two years during the same quarter. The annual utility savings will be calculated at the end of the first year and compared to the predicted savings of \$28,829.52. Data will be collected for five years and compared to the predicted savings. Costs for professional development, purchased services and supplies/materials will be collected and reviewed both quarterly and annually to determine the relationship between utility savings and spending on the STEM education program. Student growth as measured by pre and post assessments and interest inventories will be reviewed annually then analyzed with the spending costs to determine effectiveness of the program. The five year spending and utility cost savings will be measured then compared to student growth and interests data as well as students who pursued careers in STEM related fields to determine long term effectiveness of the program.

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

The utility savings will be measured quarterly then compared with the expenses used for professional development, purchased services, supplies and materials for the STEM education program. The comparative data will be analyzed annually to determine the relationship between savings and spending and then compared to student growth in the STEM related areas as measured by pre and post assessments and interest inventories.

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

*** Other Anticipated Outcomes**

The use of solar energy will create a school and community awareness of the use of alternative energy sources in an effort to reduce the impact on natural resources to provide a more energy using readily renewable resources. The utility savings and redirection of funds into the classrooms will enable the WRLSD to provide a current up-to-date education in the ever changing world without asking the local taxpayers for more money. Finally, this innovative idea will attract the best and brightest teachers equip them with the tools and time they need to provide students with a state of the art education that prepares them to succeed in college and career.

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 can be replicated through the use of any alternative energy saving measures in any school district. While we have chosen solar, there are many alternative energy measures that a district can pursue, wind and geothermal are two that schools are currently using. The alternative energy portion of the project can be implemented within one year of receiving grant funding. Monthly meetings are approximately two hours in length. Using computer storage for data makes the data collection and use readily available. There will be time required for professional development and development of the STEM programs for use in the classrooms. The STEM education program will be an ongoing project as we continue to learn so that we can prepare students with the skills necessary to succeed in the current and future workplaces. The timeline for the initial installation and implementation of the STEM program will be one year to plan, design, and install the solar panel array system; the STEM program professional development and planning will take one year and the implementation will begin at the beginning of the second school year. We would like to expand the STEM education program to include grades K-5 by using other alternative energy sources to further reduce utility spending and redirect money into the K-5 STEM education program. We would use the 6-12 grade implementation model. Following the initial installation and implementation, the district would be willing to present at state conventions, provide guidance to other districts, and publish the project and results of the effort.

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).

The assurances have been signed by the district Superintendent and Treasurer and is in the uploaded documents section of the grant application.

Sections ▶

Consortium Contacts

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

Partnerships

Western Reserve Local (048397) - Mahoning 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
Susan	Ramlo, PhD	330-972-7057	sramlo@uakron.edu	University of Akron		Department of Engineering & Science Technology and Department of Curricular & Instruction, Schrank Hall South 123B, Akron, OH, 44325-7057	
Charles	Carlin, PhD	330-972-6556	ccarlin@uakron.edu	University of Akron		School of Speech-Language Pathology and Audiology, Polsky Building 181, Akron, OH, 44325-3001	
Erin	Quinlan	330-702-0147	erinq@valleyenergysolutions.com	Valley Energy Solutions		8675 W. Pine Lake Road, , Salem, OH, 44460	

Implementation Team

Western Reserve Local (048397) - Mahoning 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
Debbie	Farelli	Principal	Coordinate, plan, schedule, and monitor professional development for the implementation of the STEM program. Coordinate the writing and implementation of the STEM initiatives.	BS Earth, Life, and Physical Science and Social Studies Middle Grades Education East Carolina University. MS Educational Leadership and Supervision Nova Southeastern University. Principal at Western Reserve Local School District. Elementary and middle school principal for 18 years in the public school system. Science and social studies teacher for 10 years. Federal Programs Coordinator 12 years.	Won and successfully implemented an Early Literacy Reading Grant. Leads standards implementations, developed parent involvement programs, and worked with the district teachers. Coordinated over 15 state and local agencies to implement an interactive field based Family Environmental Education program. Lead teacher on an inclusion setting inquiry based science program.	
Susan	Ramlo, PhD	Professor	Consultant on the implementation of the STEM program. Provide professional development for the implementation of STEM initiatives.	Nationally recognized as a STEM education expert. 20 years of academic experience at The University of Akron.	UA STEM liaison to the Akron Public Schools' STEM middle and high school with duties that include developing innovative secondary school curricula, providing professional development to teachers, facilitating Problem-Based Learning experiences, and producing novel STEM education and career experiences at the university for middle and high school students.	
Charles	Carlin, PhD	Professor	Consultant on the implementation of the STEM program. Liaison between the University of Akron and Western Reserve Local School District. Lead the grant assessment and write the final grant report.	Educational administration: K-12 Leadership with specialized coursework in curricular development, literacy instruction, and evaluation of educational programs.	As a former educational service center consultant, provided professional development to school districts on evidence-based instructional practices, differentiated instruction, and inclusion. He acted as the primary investigator on the Caseload Ratio Study and E-supervision of Speech-Language Pathologist Interns Study, which were multiyear grants funded through the Ohio Department of Education.	
Doug	McGlynn	Principal	Coordinate, plan, schedule, and monitor professional development for the implementation of the STEM program. Coordinate the writing and implementation of the STEM initiatives.	Western Reserve Junior/Senior High School Principal. Over 33 years of Educational instruction and school Administration.	Has many years of grant writing to improve instructional practices in the district.	
Jeffrey	Zatchok	Superintendent	Grant project manager. Manage	Western Reserve	Member of the CORE team	

			<p>installation of the solar panel array on behalf of Western Reserve Local School District. Coordinate planning, preparation, and installation schedules and timelines with Valley Energy Solutions for efficient and effective installation of the solar panel array. Coordinate and schedule a regular maintenance and monitoring plan of the solar energy panel with Valley Energy Solutions. Oversee the planning and professional development of the STEM initiative.</p>	<p>superintendent and High School principal for 19 years. Rated an excellent school district by the state of Ohio for the past 12 years, The High School and Elementary Schools have been designated "Blue Ribbon" schools by the United States Department of Education.</p>	<p>for OSFC construction project of a new K-12 building at Western Reserve completed in December, 2011. This project included the use of a geothermal field for heating and cooling as well as other energy efficient systems to enable the project to receive a gold LEED certification.</p>	
Erin	Quinlan	Owner, Valley Energy Solutions	<p>Manage installation of the solar panel array on behalf of Valley Energy Solutions. Coordinate planning, preparation, and installation schedules and timelines with Western Reserve Local School District for efficient and effective installation of the solar panel array. Coordinate with Western Reserve Local School District a schedule for regular maintenance and monitoring of the solar energy panel.</p>	<p>Valley Energy Solutions. Over 14 years of small business management experience in northeastern Ohio to include principal owner of a renewable energy company and numerous management positions in the health care industry. .</p>	<p>Program management and budget management experience numerous northeastern Ohio charity efforts which target quality of life issues and economic stimulus for young men and women in the Mahoning Valley</p>	
Dan	Quinlan	Owner, Valley Energy Solutions	<p>Manage installation of the solar panel array on behalf of Valley Energy Solutions. Coordinate planning, preparation, and installation schedules and timelines with Western Reserve Local School District for efficient and effective installation of the solar panel array. Coordinate with Western Reserve Local School District a schedule for regular maintenance and monitoring of the solar energy panel.</p>	<p>Valley Energy Solutions. Over 16 years of technical experience in construction, energy efficient construction and solar technology integration. Nationally certified Solar Installer per the North American Board of Certified Energy Practitioners and recognized by the Department of Energy as a Residential Services rater.</p>	<p>Has engineered, managed and installed numerous solar projects.</p>	