

FIVE STAR SUSTAINABLE

Adams 12 Five Star Schools—Sustainability Report

Winter 2017

In This Report

- A new vision
- ZE Accelerator
- Growing your sustainability
- Setting our sights
- Energy challenge
- Imagine a day without water
- Rewards for recycling
- Putting our energy use on ice
- Get to know the team

Adams 12
Five Star Schools

www.adams12.org/sustainability

A new vision for sustainability

The Adams 12 Five Star Schools Sustainability Planning Committee met for the first time on Oct. 5, 2016 to learn about what sustainability means to the school district. During the meeting, members brainstormed activities that they associated with sustainability and grouped those activities into four focus areas - energy, water, waste management and student/community engagement. Participants also learned about vision statements, developed potential statements in small groups, and voted on three finalists for consideration by a larger contingent of district personnel. The final options were voted on and the new sustainability vision statement, detailed below, was established.

"Adams 12 Five Star Schools will develop sustainable practices in our schools and community that will benefit future generations. This will be accomplished through environmental stewardship and education, leaving a smaller footprint on the world ."

Accelerating toward zero (energy)

Zero Energy Schools Accelerator

The Five Star District is one of only seven districts nationwide selected to be a part of the Zero Energy Schools Accelerator (ZE Accelerator), a new program through the US Department of Energy and the Better Building Institute. ZE Accelerator was established to help drive the uptake of zero energy design and construction in the education sector. The goal is to make zero energy and zero energy ready K-12 schools more mainstream.

What is zero energy or zero energy ready? We need schools to have lights, computers, the ability to operate at an appropriate temperature and other necessary services that require energy to function properly. However, with thoughtful design, schools can be constructed to use the surrounding environment, utilize new lighting technologies and architectural features that limit the overall energy needed to run the building. This is called energy use intensity (EUI) and is measured in energy/square foot of the building. A typical school building has more roof space than is needed for the amount of energy

it uses. This allows new, low intensity schools to offset the smaller amount of energy needed to run them with solar panels on the ample roof space. This is what makes a zero net, or zero energy school, because the total energy use is less than what is produced by the solar panels. Zero energy ready means the school is designed with the same energy efficiency goals, but doesn't include solar panels in the initial construction. This allows for cheaper upfront construction costs while achieving the low energy goals of a zero energy school design, with the potential to add solar panels at a later date to make the building truly zero energy. Five Star Schools will incorporate the documentation process during design of both new school buildings under the current bond program, as well as for some of the large school renovations planned.



Visited another school and wonder how they got such a great garden?

Have you ever wanted a garden at your school?

Reach out to Adams 12 Nutrition Services!

Nutrition Services created processes, standards and resources to make gardens a reality in our schools. Please visit www.adams12.org/school-gardens to begin your school's garden. For further guidance, please contact TJ Ricciardi, district wellness coordinator, at antonio.ricciardi@adams12.org.



Setting our sights

At the Nov. 30, 2017 Sustainability Planning Committee meeting, the group came together again to establish specific goals for the waste management and student/community engagement focus areas of the sustainability plan. The group began by learning about SMART Goals and how they link to specific activities and outcomes that will help the district move toward its vision. SMART is an acronym intended to give criteria for developing project goals, with the letters standing for specific, measureable, actionable, realistic and time bound. This ensures that goals are clear, can be accomplished and can be evaluated to determine success. After learning about goal setting, the group broke into small teams and developed multiple SMART goals for each focus area, coming up with 17 potential goals. Through collaboration, the most popular goals for each focus area were narrowed down reaching the final goals listed below.

Student and Community Engagement

- Survey all schools two times per year from 2017 through 2020, to collect the following information:
 - Do they have an active green team/environmental club? - How many students participate?
 - What "green" activities are they currently doing? - Do they have a student leader?
 - What "green" activities are they interested in doing?
- Get all schools to host a zero-waste lunch one time per year from 2017 through 2020.
- Develop a Problem Based Learning project to baseline Waste Diversion Rate during the spring 2017 semester.
- Create an inter-district reuse network to include green teams/environmental clubs, the warehouse and community partners for launch at the end of the 17/18 school year.
- Develop a digital badge program to award students and staff for participation in "green" activities. Pilot this program with 5-10 schools that have active green teams during the 17/18 school year, and make the program available for the whole district starting with the 18/19 school year.

Waste Management

- Establish a waste diversion rate baseline from Jul. 2016 through Jun. 2017.
- Increase cafeteria recycling program participation by 20% from the summer 2016 audit baseline, by Jun. 2018.
- Increase number of schools participating in composting by one elementary school, one middle school and one high school, by Jun. 2018.
- Improve waste management education by end of 16/17 fiscal year as follows:
 - Create guidance document/training tool. - Field trips for schools and custodians.
 - Increase marketing via signage/stickers. - Emails about available grants/resources.
- Improve district-wide diversion rate as follows:
 - Increase diversion rate to 30% by Jun. 2018. - Increase diversion rate to 40% by Jun. 2019.
 - Increase diversion rate to 50% by Jun. 2020.
- Establish baseline for existing purchasing practices of "green" products by end of fiscal year 2018.

A powerful challenge

Energy Challenge

During the fall semester, fourth-graders at STEM Launch completed an energy unit as part of their normal curriculum. Wanting to engage their students more, staff at STEM Launch challenged their students to set an electricity reduction goal for the month of Oct. 2016.

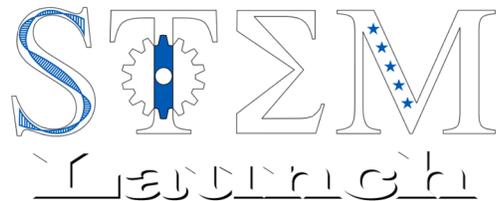
Developed as a Problem Based Learning (PBL) project, the students faced the challenge of reducing electricity use throughout their school. Several great ideas came out of the problem and were used to reduce electricity use for the school.

- Signs to promote turning off lights were placed in all classrooms
- Public Service Announcements (PSAs) were made each morning
- Students set their own goal, an important learning lesson
- Students earned an extra uniform-free school day for meeting their goal

GOAL: 5.0% Reduction
ACTUAL: 5.9% Reduction
SAVINGS: \$660

The Numbers

3-yr October Baseline Electricity Usage:	101,921 kWh
October, 2016 Electricity Usage:	95,879 kWh
October, 2015 Electricity Cost:	\$13,348
October, 2016 Electricity Cost:	\$12,688

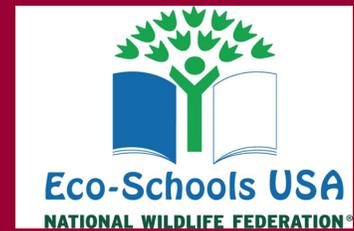


Life would be pretty dry without water

Imagine a day without water contest

Working with one of our major water purveyors, Thornton Water, we challenged middle school students to consider what life would be like without water. Water is a crucial component of our life, particularly in Colorado with four major rivers originating in our mountains. The Colorado River alone serves over 10% (36M) of the US population with drinking water!

Promotional materials were provided by Thornton Water to participating schools, and students created artwork representing their view of a waterless world. A committee of Thornton Water employees reviewed the artwork and selected two winning projects, both from Century Middle School. You can view the winning projects by searching 'water' at www.facebook.com/adams12fivestarschools.



Rewards for recycling

Have an active recycling school group?

Want to attend a workshop on recycling?

Become a National Wildlife Federation Eco-School and get recognized for your efforts! Multiple reward levels exist, so any school with active recycling can apply. Benefits of becoming an Eco-School include:

- Teacher/staff stipend (\$75) for recycling workshop attendance OR to help recycling efforts
- National recognition
- Access to materials and information
- Waste program grants may be available in 2017

Contact Shannon Oliver today, workshops fill up quickly.

Putting our energy use on ice

During the week of Dec. 5, 2016, Five Star Schools operations, nutrition services and sustainability personnel collaborated on a project to reduce energy use from our school kitchen refrigerators and freezers. This program is a free service provided by our energy partner, Xcel Energy through a third party contractor—Franklin Energy Services.

The program included the replacement of all walk-in refrigerator and freezer light bulbs with LED bulbs, providing immediate energy savings. Additionally, each unit had its coils cleaned, prolonging its service life and reducing energy use due to heat loss. Finally, an analysis of the cooling system fan motors on each refrigerator and freezer was conducted to determine if efficient motor upgrades would be a good option. Here is a summary of the actual energy and dollar savings from the lighting upgrades and coil cleanings, greenhouse gases (GHGs) prevented as well as the potential impact to energy use, cost and GHGs from upgrading the motors.

Coil Cleaning & Lighting

LEDs Installed:	89
Coils Cleaned:	80
Energy Saved:	85,317 kWh/yr
GHGs Prevented:	60.0 tonne CO ₂ e/yr
Dollars Saved:	\$4,774/yr
Project Cost:	\$0

Engine Upgrades

Cooler Motors:	92
Freezer Motors:	97
Energy Reduction Potential:	172,339 kWh/yr
Potential GHGs Prevented:	121.2 tonne CO ₂ e/yr
Potential Dollar Savings:	\$9,651/yr
Potential Project Rebate:	\$12,880

Meet the team

Reach out to us with ideas and questions

Shannon Oliver—Assistant Director of Energy and Sustainability

Shannon began with Five Star Schools in Feb. 2016 and brings over seven years of experience in environmental regulatory compliance and energy efficiency for the oil and gas industry. He has a Bachelor of Science in Environmental Health from Colorado State University and a Master in Public Health—Global Environmental Health from Emory University. Shannon is excited to work with district personnel to achieve meaningful reductions in energy use, water use and help improve waste reduction efforts. Shannon.t.oliver@adams12.org

Terry Clymer—Energy Engineer

Terry began with Five Star Schools in March 2008 and brings over 35 years of experience in energy management. He has a Bachelor of Science in Mathematics with a minor in Computer Science from Central State University of Oklahoma. Terry is a great resource for energy reduction in the district. Terry.clymer@adams12.org

Justin Price—Water Resource Specialist

Did you know that the district irrigates over 13.5M sq. ft. of area? That's more than 300 acres!

In order to maintain all this landscaped area, Five Star Schools employs an internal team of groundkeepers that water, cut, weed, seed, aerate, clean and otherwise take care of the properties around our schools. One of the major tools in our grounds department's toolkit is a centralized irrigation system. Much like central heating and cooling in a house, the centralized irrigation system is comprised of many moving parts that need to be maintained and updated. In order to lower our water use, the Facilities department created a new position, Water Resource Specialist, to focus on water reduction efforts tied to our irrigation system and practices.

Justin Price transitioned to this position on Jan. 3, 2017. Justin was an internal candidate, with almost two years of experience operating our current irrigation system. He came to us with prior grounds experience, military service and landscape design experience. We are excited to have Justin on the Sustainability Team! Justin.price@adams12.org