

Academy District 20

Green Team



Green Team Agenda

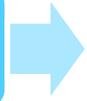
April 11, 2011

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Status of Sustainability Program Plan

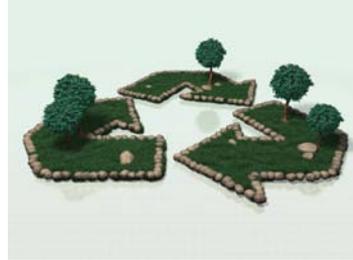
- **Foster student participation**
- **Recognize outstanding sustainability related performance**
- **Commit to responsible stewardship**



Goals



- Reduce energy consumption district wide (1.5% per year)
- Increase recycling



- Develop a 5-year energy related capital project plan
- Develop sustainability recognition plan
 - Money for reducing electric each month



- Include sustainability education at each opportunity in the curriculum
- Reuse copy paper and make only double sided copies

Additional Goals



- Communicate with schools monthly regarding energy use
- Evaluate and recommend awarding of Green Grants
- Reduce utilities 15% in ten years (2021)
- Develop 5-year energy related project portfolio
- Complete lighting retrofits
- Implement summer shutdown
- Increase single stream recycling

OUR IMPACT ON THE PLANET

WHY IS OUR IMPACT GROWING?

Is population growth the root cause? Or is it affluence, which leads to greater consumption of energy and other resources? Or technology, which offers new tools for exploiting and consuming? The IPAT formula is a way of thinking about the issue: It says the three factors compound. Since 1900 world GDP (a measure of A) and the number of patent applications (a measure of T) have grown even faster than population.

$$I = P \times A \times T$$

Human Impact = Population x Affluence x Technology

P x A x T = width times height times length of three boxes representing the human impact on the planet in 1900, 1950, and 2011.



*GDP FIGURES ARE CONSTANT 1990 INTERNATIONAL DOLLARS.
JOHN TOMAND, NOM STAFF ART; BRYAN CHRISTIE. SOURCES: UNITED NATIONS; ANGUS MADISON, "STATISTICS ON WORLD POPULATION, GDP AND PER CAPITA GDP, 1 2000 AD," UNIVERSITY OF GRONINGEN; WORLD BANK; WORLD INTELLECTUAL PROPERTY ORGANIZATION

HUMANS HAVE SO ALTERED THE PLANET IN THE PAST CENTURY OR TWO WE HAVE USHERED IN A NEW EPOCH:

Anthropocene

- ° A period of time that began in the late 18th century when ice cores show carbon dioxide levels began what has proven to be an uninterrupted rise.
- ° The term was coined by Paul Crutzen who shared a Nobel prize for discovering the effects of ozone depleting compounds.

Stratigraphers piece together Earth's history from clues that can be read from layers of rock after the fact. Gives us a long view of events.

Human impacts on the world have become more obvious in part because the population has roughly quadrupled to nearly seven billion since the mid 1800's.

THE MOST OBVIOUS WAYS HUMANS ARE ALTERING THE PLANET ARE

- Building cities
 - Use of steel, glass, concrete, and all other natural resource depletions which cause environmental damage and intensive energy utilization
- Farming
 - 38% of ice free land is agricultural
- Fertilizer
 - Run off triggers life throttling blooms of algae at river mouth causing dead zones
- Deforestation
 - Composition of atmosphere carbon dioxide emissions are colorless and odorless so the immediate sense if they are harmless. The warming effects could push global temperatures to levels that haven't been seen for millions of years and the sea could rise 20 feet. Some plants and animals are already shifting their ranges toward the poles.

CONSEQUENCES OF BURNING COAL AND OIL

- Clearly discernable as time goes by
- Carbon dioxide also seeps into oceans and acidifies them to the point that coral can no longer construct reefs

WARNINGS TO THE WORLD

- Changing seas
 - Rosignano Solvay, Italy
 - The beaches tropical sands have been whitened by carbonates from a chemical plant that converts salt extracted from the sea in to chlorine and other products. Fossil fuels power transformation worldwide the CO₂ from smokestacks and tailpipes are slowly acidifying the ocean and threatening marine life.

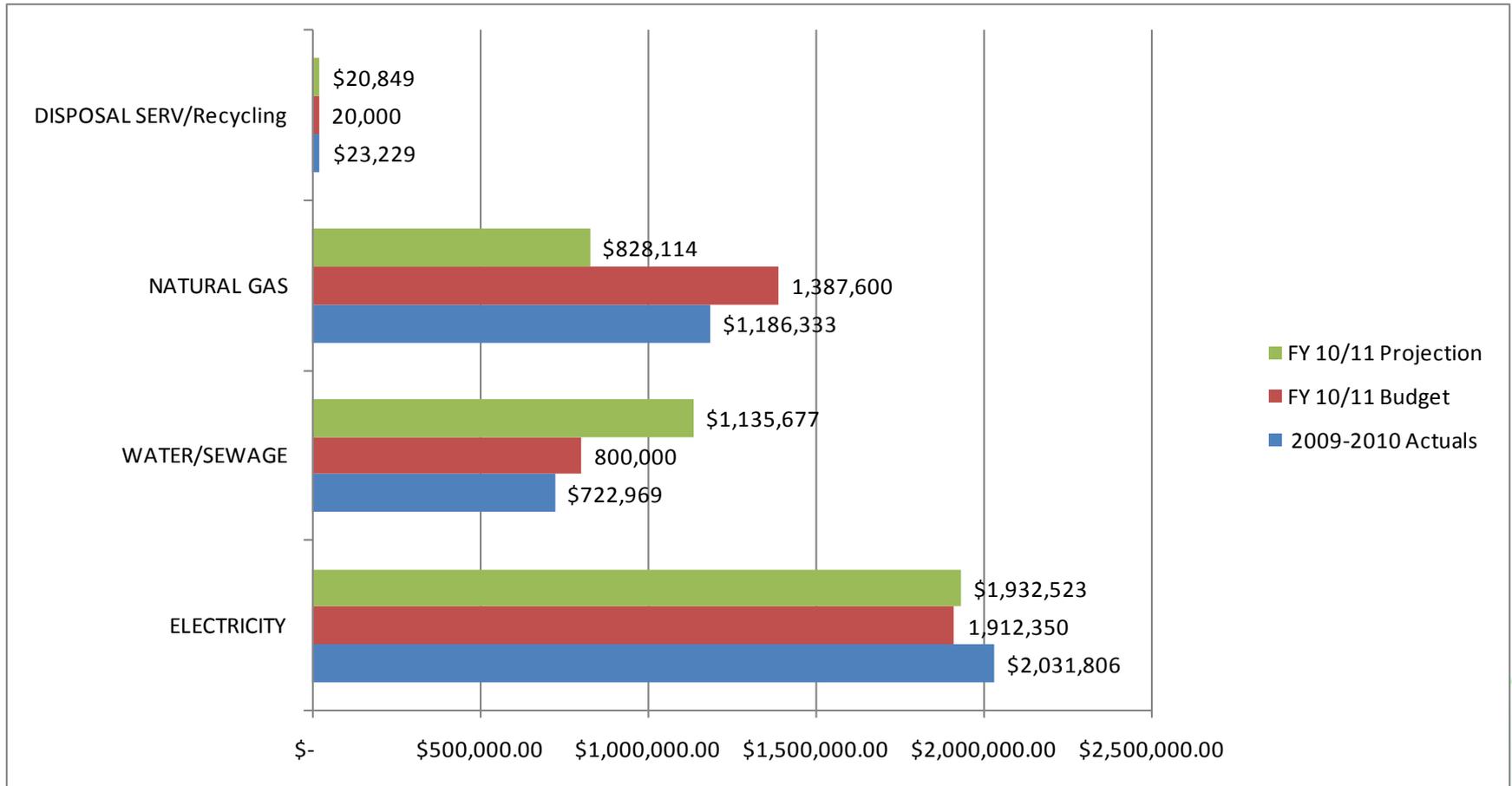
- Moving Mountains
 - West Virginia
 - Mining companies work 24/7 to level Appalachian peaks for coal which supplies ½ of the US electricity. Summits are removed in a day accounting for the loss of 470 mountain tops since 1980. The waste is often buried in streams. Mountain top removal recovers only 6% coal.

A DAMMED WORLD

- Hoover Dam / Lake Mead
 - Originally to tame flood waters and generate electricity. (16% of the world's electricity)
 - Over one half of the world large rivers are dammed, which has displaced 80 million people
 - Destroyed eco systems
 - The persistent drought has dropped levels causing the bath tub ring

Utility Usage Update

March FY2010-11



School Responsibilities

- Create pledge
- Develop a school Green Team
- Follow Sustainability Action Plan
- Begin a District 20 student led and focused sustainability team
- Post energy usage showing progress in a visible area in the school
- Introduce sustainability into site plans



Food Service

- ° Use plastic baskets and biodegradable liners at Middle School sites
- ° Use washable silverware at Elementary sites
- ° Develop compost programs (pilot project)
- ° Verify kitchen operations



Retro commissioning

- ° Two schools and one support facility have been completed
- ° Six schools will be completed this year



Lighting upgrades

- ° Induction/LED lighting
- ° 95% of district lighting is complete to T8
- ° Black out campus
- ° Lighting controls



Energy Star Buildings

Academy District 20 uses the EPA's Portfolio Manager to manage and benchmark the energy performance of our properties and to track improvement and apply for recognition from EPA. Our top-performing buildings have earned the ENERGY STAR, the national symbol for protecting the environment through energy efficiency.



District 20 is also an ENERGY STAR Leader. Our building portfolios have shown a 10%, 20%, 30% (or more) reduction in normalized energy use. This year 19 facilities have achieved a rating of 75 or above.



Water Conservation

- ° Keeping athletic fields safe and ornamental grass up to expectations
- ° Water wise gardening when feasible
- ° Explorer Elementary project



Transportation

- Minimize warm up times
- Gradual acceleration
- Anticipate stops
- Follow idling policy
- Review alternate strategies in routing, vehicle purchases, prolonging use of buses through maintenance and parts replacement, and alternate fuels



POLICY

ECF

ECF-Energy Conservation and Management Policy

The Board of Education and district administration recognize the importance of conserving non-renewable energy resources, preserving the high quality of education, and exercising sound financial management. Academy District 20 pledges to provide leadership in the area of energy conservation.

Implementation of this policy shall be a joint responsibility of the board, administration, teachers, students, and support personnel.

Adopted/Approved: September 20, 2001

Reviewed: October 21, 2004

Revised: January 12, 2011

Cross Reference: EL 2.5.16 Asset Protection



Energy Conservation and Management Procedures

District 20's long term goal is to reduce energy consumption. In order to achieve this goal, the following must be implemented:

1. All lighting in unoccupied or unused areas shall be turned off during the school day. Lights shall be immediately turned off when students, staff, and teachers leave their classroom/office or the school.
2. Outside school hours, custodians will turn on lights only in areas where they are working and in areas where the building is being used. The night custodians at each school will be responsible for turning off building lights when closing each evening.
3. During the school year, thermostat controls will be set to maintain a classroom temperature between 68° and 74°. Gymnasiums shall operate in the range of 67° to 75°. Building managers should submit a work order to the Facilities Management department if they find spaces are operating outside of these ranges.

4. Cooling equipment will typically not be activated until the outside air temperature reaches 60°. In addition, mechanical cooling will not be activated until room temperatures cannot be maintained without it (i.e., as long as space temperatures are within the acceptable range, mechanical cooling will be off even if the outside air temperature is above 60°). When air conditioning is active, doors and windows should remain closed.

5. Control set points will be programmed to return to unoccupied mode, 15 minutes before all activities are scheduled to end. The heating season unoccupied setpoint is between 60° and 65°. Building managers should enter a work order if they find that their building is operating outside these ranges.

6. Summer/Break Operations:

To reduce utility operating costs, HVAC equipment will be shut down during the summer. The time frame for this shutdown coincides with our 210 day classified employee calendar which typically ends the second week in June and begins the third week in July. All HVAC equipment will be shut down when 210 day employees begin their summer break and units will be activated when they return in July. Cooling will not be utilized in the summer months for any activity other than Academy District 20 sponsored summer school, approved rentals, and approved programs. Facility administrators shall notify Facilities Management in writing during the last week of April if there will be any district or other use of the building in the summer months. Dates and hours of scheduled use shall be included in the request. See ECF-R Appendix 1 for the Notification of Summer Building Use form.

- All air handling equipment will be shut down the day following the last contract work day for 210 day employees unless the Facility Management department grants an exception.
 - All air handling equipment will be restarted the week new teachers return to the classroom for District 20 sponsored professional development classes and activities.
7. All summer activities at Academy District 20 schools will be co-located or held within areas where energy utilization can be minimized. Principals will need to secure approval for building utilization before publishing plans to staff and community members about facility use. Staff and students are responsible to ensure all classroom CPUs, monitors, local printers, and audio/visual equipment are turned off at the conclusion of each day.

8. Office staff is responsible for insuring copiers, laminating equipment, and other office machines are turned off each day. The following additional strategies may be implemented to increase energy efficiency.

Recommended Best Practices:

1. During breaks of one week or more, all plug load type of equipment shall be unplugged until teachers and staff return from the break.

Plug load equipment refers to devices or appliances plugged into common electrical outlets.

Examples of plug load equipment in schools include refrigerators, and vending machines.

Examples of plug load equipment in classrooms include computers, televisions, DVD players, tape players, overhead projectors, boom boxes, radios, CD players, printers, scanners, copiers, mini-refrigerators, toasters, coffee pots, hot plates, overhead projectors, LCD projectors, space heaters, fans, holiday decorations, docking stations, microwaves, and fax machines.

Electricity use can be reduced by controlling plug loads by: disconnecting devices at the end of every day, plugging equipment into power strips and turning power strips off at the end of the instructional day, education and awareness, and use of computer control programs like D20's KBOX solution.

2. If feasible, schedule all summer activities to end by 11:00 a.m.
3. Request a Lighting audit from Facilities Management to determine whether lighting retrofit would reduce energy consumption.
4. Consult with risk management and security to determine whether exterior lights may be turned off during breaks of one week or more.
5. Reduce or eliminate the use of space heaters and personal refrigerators in all District 20 facilities.
6. Permit only Energy Star rated personal refrigerators, personal electrical appliances, microwaves, toaster ovens and hot plates. Restrict coffee pots to the lounge.

7. Leave corridor and classroom lights off until 15 minutes before students arrive and shut corridor and classroom lights off 15 minutes after students are dismissed. Encourage teachers to use task lighting until students arrive.
8. Leave auditorium, gymnasium, office, cafeteria, and classroom lights off until the space is being used.
9. Encourage the use of natural lighting rather than artificial light.
10. Close blinds at night to keep the heat inside the space. Open blinds during the day to allow ambient light to warm the interior space. During the cooling season, do the reverse.
11. Kitchen staff should preheat ovens only when necessary.

Adopted/Approved: September 20, 2001

Reviewed: October 21, 2004

Revised: January 12, 2011

BACKGROUND AND INSTRUCTIONS:

Thank you for your interest in the Academy District 20 (D20) Green Grant Program. The D20 Green Team seeks to promote education, awareness, and understanding through the celebration of outstanding sustainability related ideas and performance. The D20 Green Grant program is intended to facilitate the delivery of district sustainability goals by creating a mechanism for students to initiate, lead, and deliver projects that would normally be considered financially unachievable.

All eligible schools may receive up to \$5,000. The \$5,000 can be the total of multiple grant applications. Each school can submit up to two grants and partial funding grant requests will be honored and accepted. The D20 Green Grant team will accept up to two applications from each school. The aim of this program is to involve students in the development of sustainability grant ideas, their execution, and ultimate objective fulfillment.

We strongly encourage applicants to seek other funding means or in-kind donations from a variety of sources such as local businesses, local sustainability organizations, community and district foundations, etc. to strengthen the application.

NOTE TO ALL APPLICANTS: If your grant request will require a third party contractor to perform the work (electrician, plumber, carpenter) please insure the school has completed and received approval for the project using the D20 building modification process. Each school's building manager is aware of this process and the necessary paperwork and approvals. The approved Building Modification Form is a required application submittal if applicable to your grant package.

Teachers, principals, project sponsors/mentors, and other school affiliated leadership are encouraged to work in collaboration with students on the delivery of the Grant paperwork and project goals. The following considerations are good indicators of a successful sustainability project and will be the basis for the review of the application.

GREEN GRANT SCOPE FOR SCHOOL YEAR 2011-2012

This funding cycle for Green Grants will be focused on projects that add to energy efficiency. Activities listed below must be developed by the students with mentorship of a teacher or other school professional. The analysis and methods must also be completed primarily by the students. Below is a list of potential projects that will be reviewed for consideration.

- Criteria for acceptable applications is as follows:
- Demonstrates cost reduction of specific utility: eg: gas, electricity, water
- Analysis of cost savings with projected savings over a 12 month period.
- Simple payback/ROI (return on investment)
- Integrates renewable energy source and has a tie into curriculum

The list of projects below are samples of the types of initiatives that may be considered.

- Lamp and/or fixture retrofitting (lighting and plumbing)
- Photovoltaic applications
- Water reduction strategies
- Methods to reduce burn time on lighting fixtures

The program is NOT intended for the following:

- Individuals
- For projects with purposes outside of the district's mission
- For salaries, overhead, or scholarships
- For activities executed when school is not in session

It is important to note that Grants will be considered to reimburse funds already expended. All grant checks will be written to the school where the Grant is proposed to occur. The school is then responsible for ensuring the Grant is financially fulfilled once the Grant is received.

ELIGIBILITY INFORMATION

To be eligible for a Green Grant, the receiving organization must be assigned to one school in Academy District 20. In addition, **eligible schools must be currently Sustainability Certified**. Sustainability Certification in D20 requires that schools complete, annually, a Sustainability Action Plan with specific goals assigned to energy, water, waste, transportation, and community involvement.

Grant projects/programs/endeavors must be ultimately coordinated with a school classroom teacher, school administrator, student program advisor, or recognized parent organization.

Grantees must demonstrate the ability to purchase or subsidize (if necessary) approved grant items for later reimbursement from the District (if funding is needed prior to the award date)

DEADLINE FOR APPLICATIONS:

3:00 PM, May 13, 2011. Funding will be available the first week of July, 2011. All submissions will be turned in to Mark Bissell.

Academy District 20
Green Grant Program

Grant Application

HOW TO APPLY:

1. Please read all instructions carefully. All applications must be submitted electronically in PDF or Word format. Please do not include a cover letter with your application.
Applications should be submitted to marsha.rau@asd20.org.
2. Complete all portions of the application. Answers to the specified questions must be one page or less. If a list is required (i.e. for certain budget items), label clearly to facilitate review. The list will not count toward your one page maximum.
3. You may submit two pages of attachments with the application to support your proposal. The attachments can include color photos, schematic drawings, spreadsheet calculations, cost proposals, etc. All attachments must fit on 8.5" x 11" paper. Please do not submit loose photos. All attachments shall be included with each submission copy (see #6 below) Attachments will not be returned to the submitter.
4. Include an approved D20 Building Modification form, if applicable.
5. All applications should include a letter of support on official letterhead from you school's principal. The letter must be signed and dated.
6. Notification of grant status will be provided by May 20, 2011.

GRANT RECIPIENT AGREEMENT FORM:

If your school project is granted full or partial funding from the D20 Green Grant Team, you will be sent a *Grants Recipient Contract* specifying the grant report requirements. You will be asked to read the contract carefully, sign and date, and return to the D20 Office of Sustainability.

Academy District 20 Green Grant Application

Date: _____

School Name: _____

Project description and scope: _____

Projected cost savings: _____

Matching grants researched and applied for: _____

Amount requested: _____

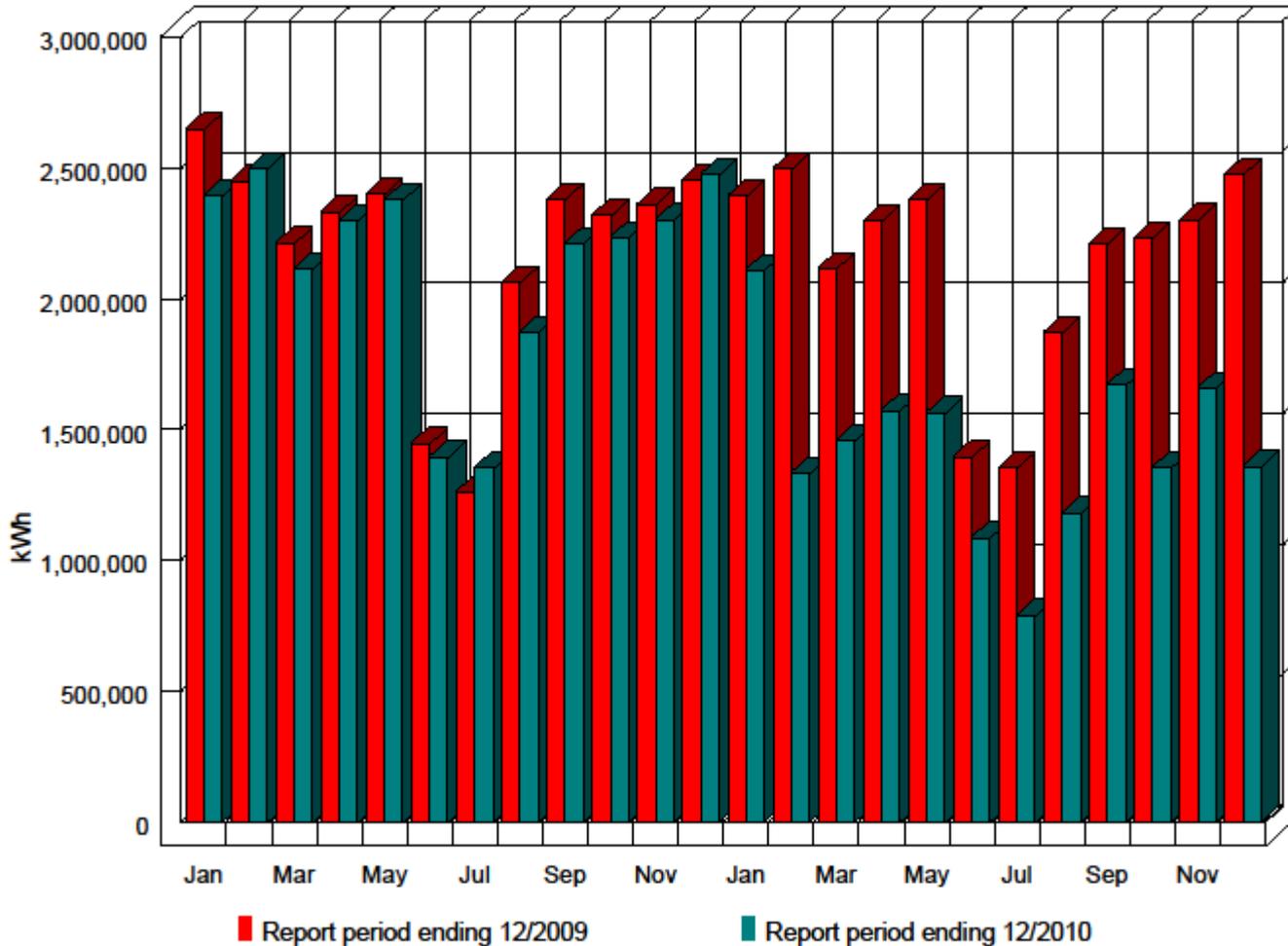
Faculty Sponsor: _____



Future Meetings



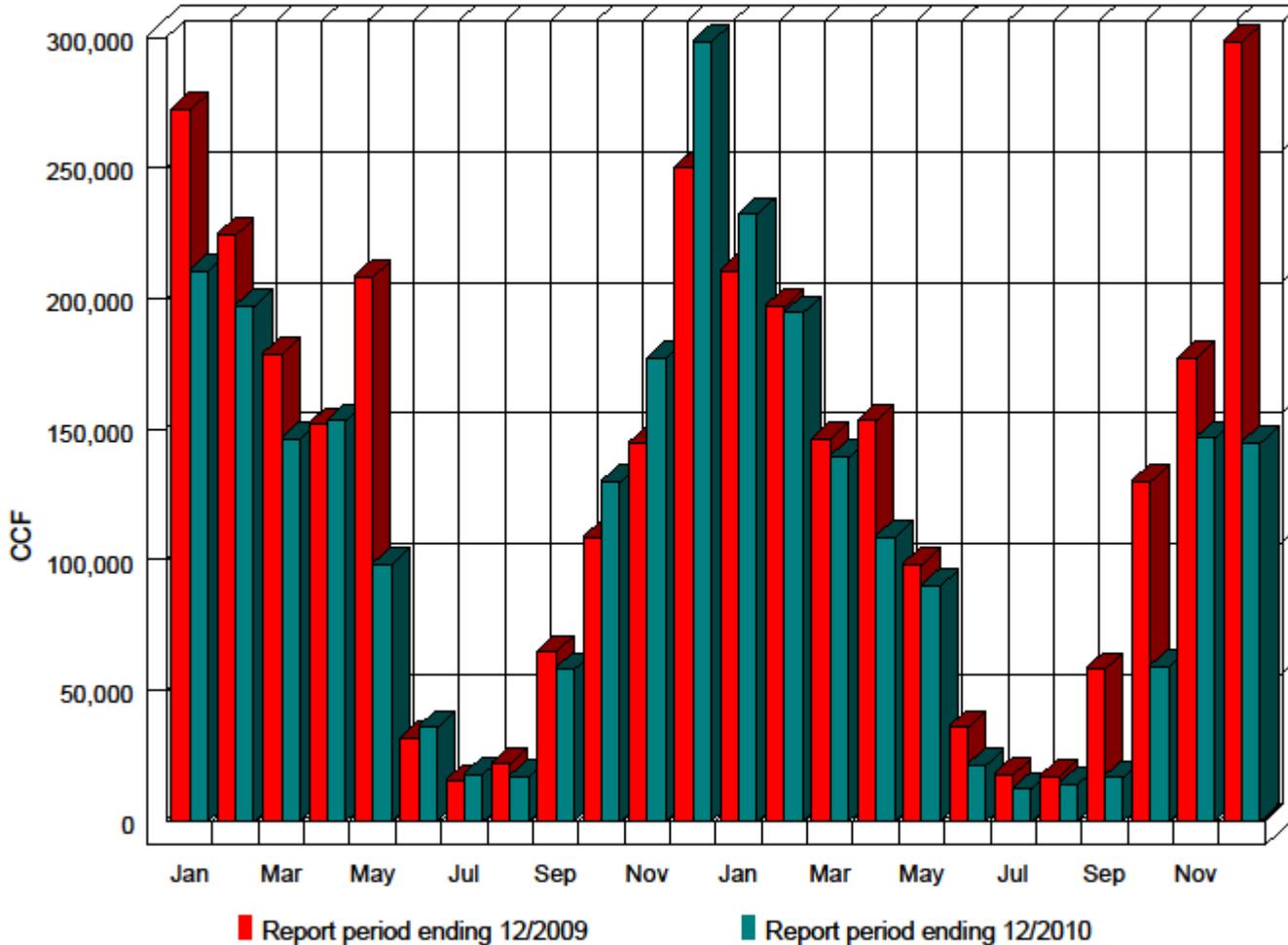
Monthly Electricity Use for Academy School District Twenty



Individual Utility Graph -- Printed by Utility Manager Pro Monday, April 11, 2011 at 10:53 am

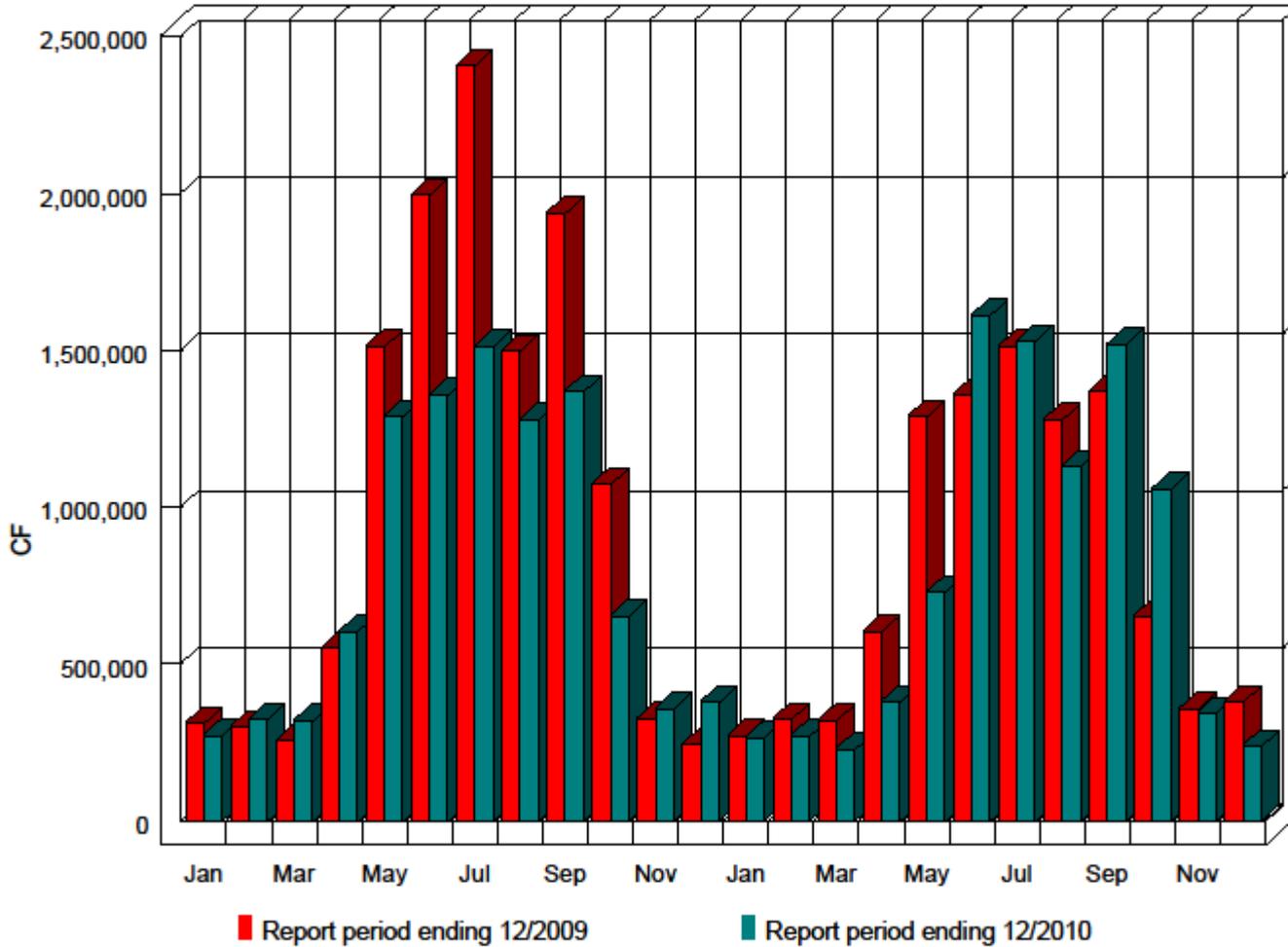
Data accumulated according to budget period -- N/A indicates missing data

Monthly Natural Gas Use for Academy School District Twenty



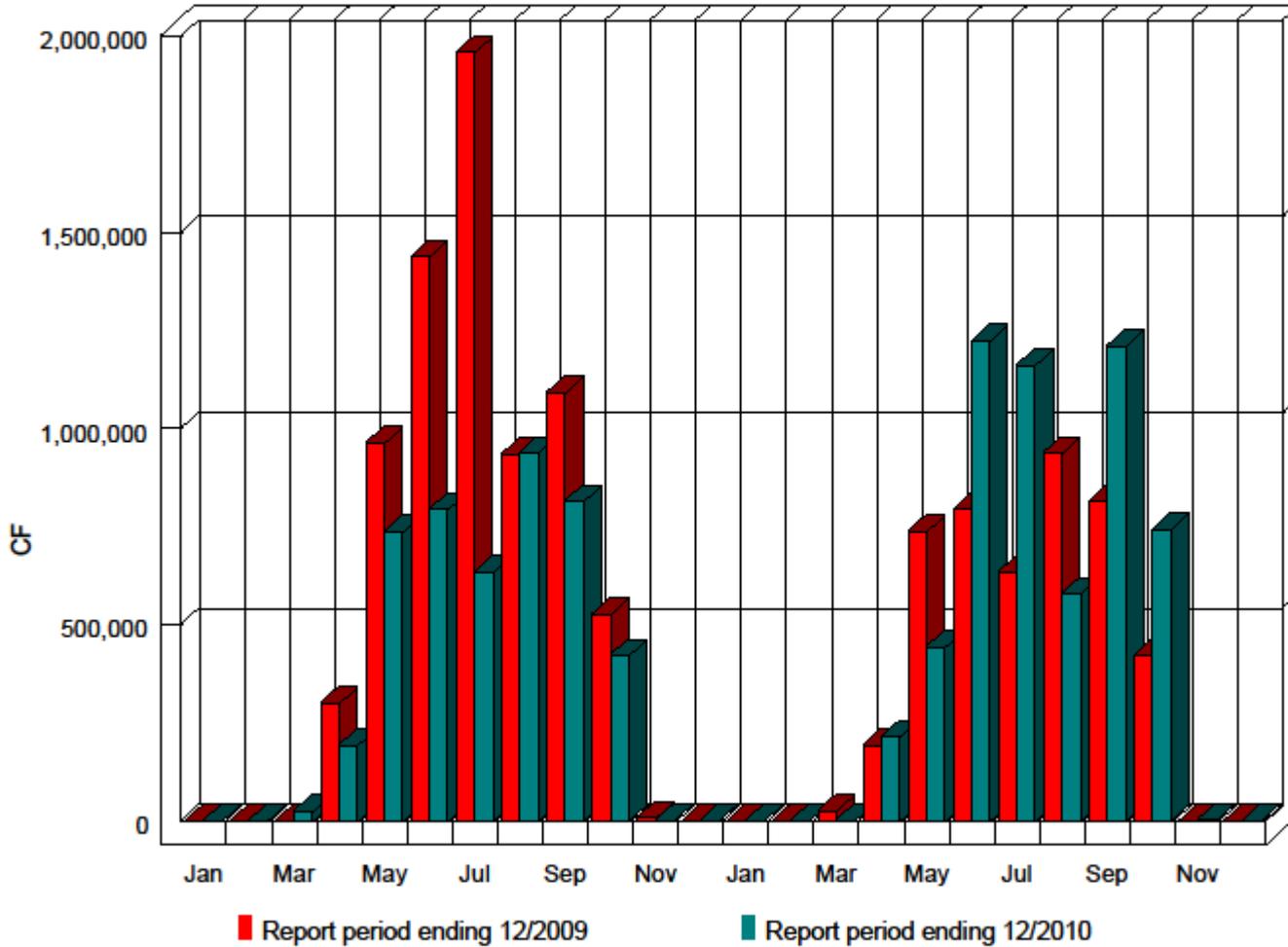
Individual Utility Graph -- Printed by Utility Manager Pro Monday, April 11, 2011 at 10:55 am
 Data accumulated according to budget period -- N/A indicates missing data

Monthly Water Use for Academy School District Twenty



Individual Utility Graph -- Printed by Utility Manager Pro Monday, April 11, 2011 at 10:55 am
 Data accumulated according to budget period -- N/A indicates missing data

Monthly Irrigation Use for Academy School District Twenty



Individual Utility Graph -- Printed by Utility Manager Pro Monday, April 11, 2011 at 10:56 am
 Data accumulated according to budget period -- N/A indicates missing data