Council School District

Fuels For Schools Biomass Project

Western Idaho Biomass Workshop

Murray Dalgleish Superintendent

Rhonda Getusky/Facilities

Tuesday-Wednesday,

July 29-30, 2014

Council Lumberjacks

Sustainability in a Time of reduced resources

- *Necessity is the mother of invention*
- One idea or change creates many other opportunities
- Biomass system --→
- Greenhouse --→
- Community garden →
- Food program changes →
- Recycling →

What is “Fuels For Schools”?

- **Forest Service/Idaho Department of Lands Grant program- Healthy Forest Initiative**
- **Create Pilot Schools to use Biomass for heating**
- **Grants awarded in Idaho-Council/Kellogg/GV**
- **About 12 up and running in Montana**
- **Council was awarded a $510,000.00 grant to be a pilot project in 2004**
- **Engineering study found CSD as a perfect fit for the FFS program**

How we implemented our project…

- Needs assessment- Find the experts
  - Help determine what we needed and wanted
- Created partnerships-
- School District
- State DWR-Energy Division
- Forest Service
- Energy Service Co. (ESCO) (Siemens)
- Political leaders
- County Commissioners/Community leaders

How we Implemented

- **40-50 yr old buildings in need of upgrades**
  - **Oil boiler/electric heat/no ventilation**
- **Applied for and received a $386K Fuels For Schools Grant in 2004 (Total $510K)**
- **Facility bond in April 04 failed with 64.3%**
- **Passed a $2.2M facilities bond in Nov. 2004 with 74%**
- **System in use since the fall of 2005**

Ground breaking May 2005

COUNCIL SCHOOL COMPLEX
HIGH
SCHOOL
MUSIC
CHIP &
BOILER

Project Costs

- Cost of the project was $2.8M
- Heating/Ventilation/electrical/upgrades/lighting/ controls/various energy savings
- PC gives us guaranteed energy savings
- Option was to add Air Conditioning
- Facilities upgrade will last CSD for 40-50 years
- Need to think long term instead of short term

Project Implementation

- Learned as much as possible-study options
- Became a teacher- inform public
- Have a passion- pass it on
  - Enthusiasm helps make others believers
- ***Change paradigms***

Questions ???? Biomass

- **Chip source?- local, landfill, mill, Forest Service, BLM, state, private**
- **Idaho Dept. of Lands (FFS partner),**
- **DEQ- air quality questions**
- **This is not an experimental system**
- **Potential for a co-generation facility in this region-we have to change the way we look at our forest resources- the new paradigm**
- **Why import fuel when it surrounds us, is cheaper, renewable, will improve forest health, improve air quality, create jobs, etc**

Benefits-WIN-WIN-WIN

- **Better learning/working environment- AC-fresh air-consistent heat**
- **Save Money- energy –become more efficient (we owe it to the taxpayers)**
- **Partnerships- FS/School/ County**
- **Improve Forest health**
- **Use local natural resources**
- **Potential for economic development**
- **Better alternatives?**

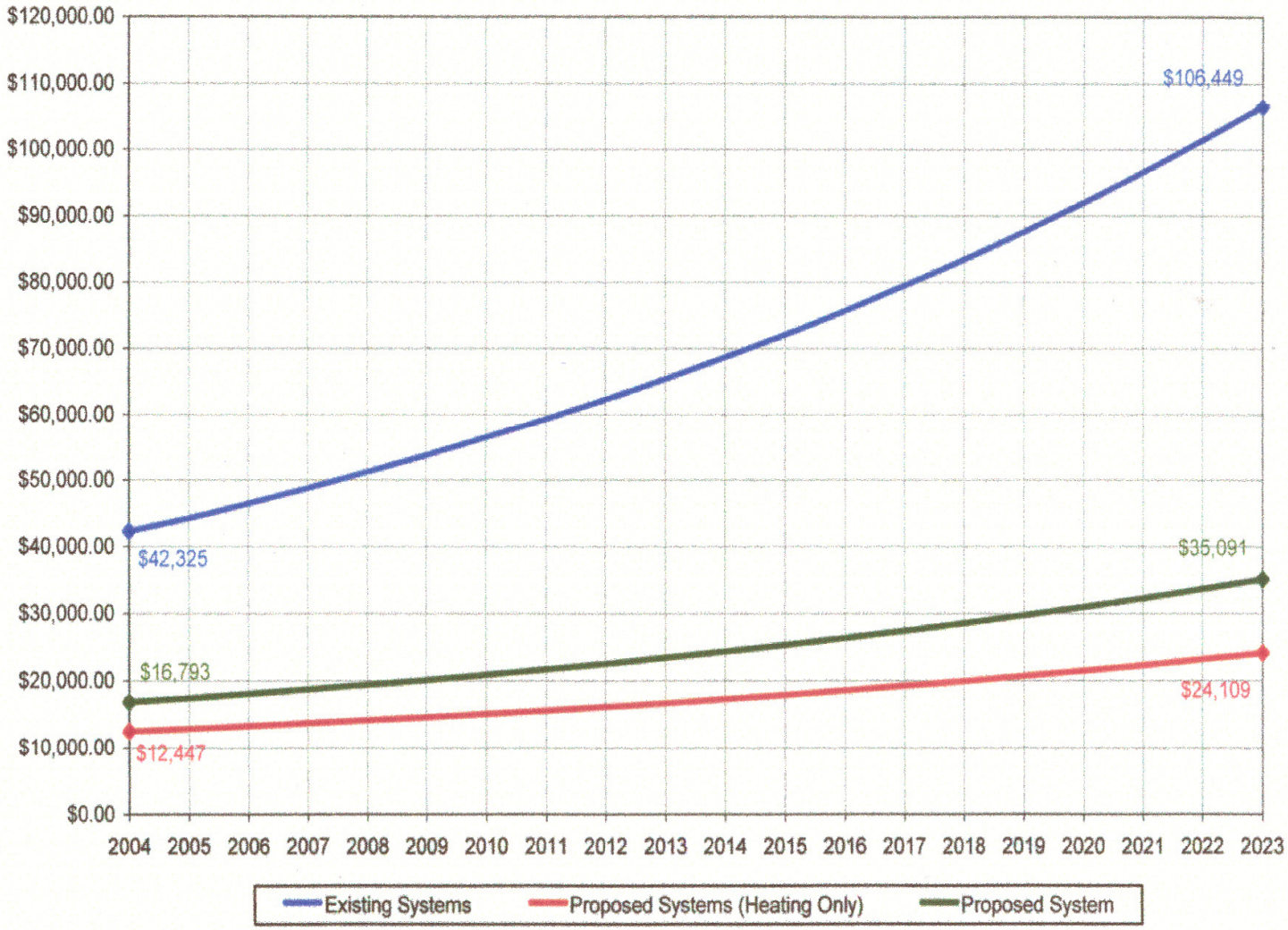
Consider Performance Contracting

Guaranteed maximum cost
Shared risk
Guaranteed savings for life of the contract-15 years
Design/build concept- whole integrated system
Life cycle planning
More customer protections in Performance Contract

Financing

- Seek out grants- this is where partnerships pay off
- Find low or zero interest loans-QZAB or QSCB
- Look for State and Federal subsidies
  - State/ Federal stimulus money
- Use energy savings as a tool to leverage financing
- Seek out others who may want to be a partner in biomass project

20-Year Energy Cost Projections



Being a pilot- What have we learned?

- Partnerships are essential to success
- Do homework-become an expert-share your passion
- You really have to sell this to change perceptions/old paradigms of public
- Be creative with financing
- Training of personnel is essential for these systems

SAVINGS

- We will spend less then $6,500 to heat 60,000 Sq. Ft this year (325 tons X $20)
- Oil for the Elementary was $25,000 /yr alone, electric heat for Secondary was $35,000+ for the winter (Free AC now too)
- More maintenance then we expected
- More use of propane then anticipated
- Still way ahead on costs and have an updated system and improved learning environment

What We Have Learned

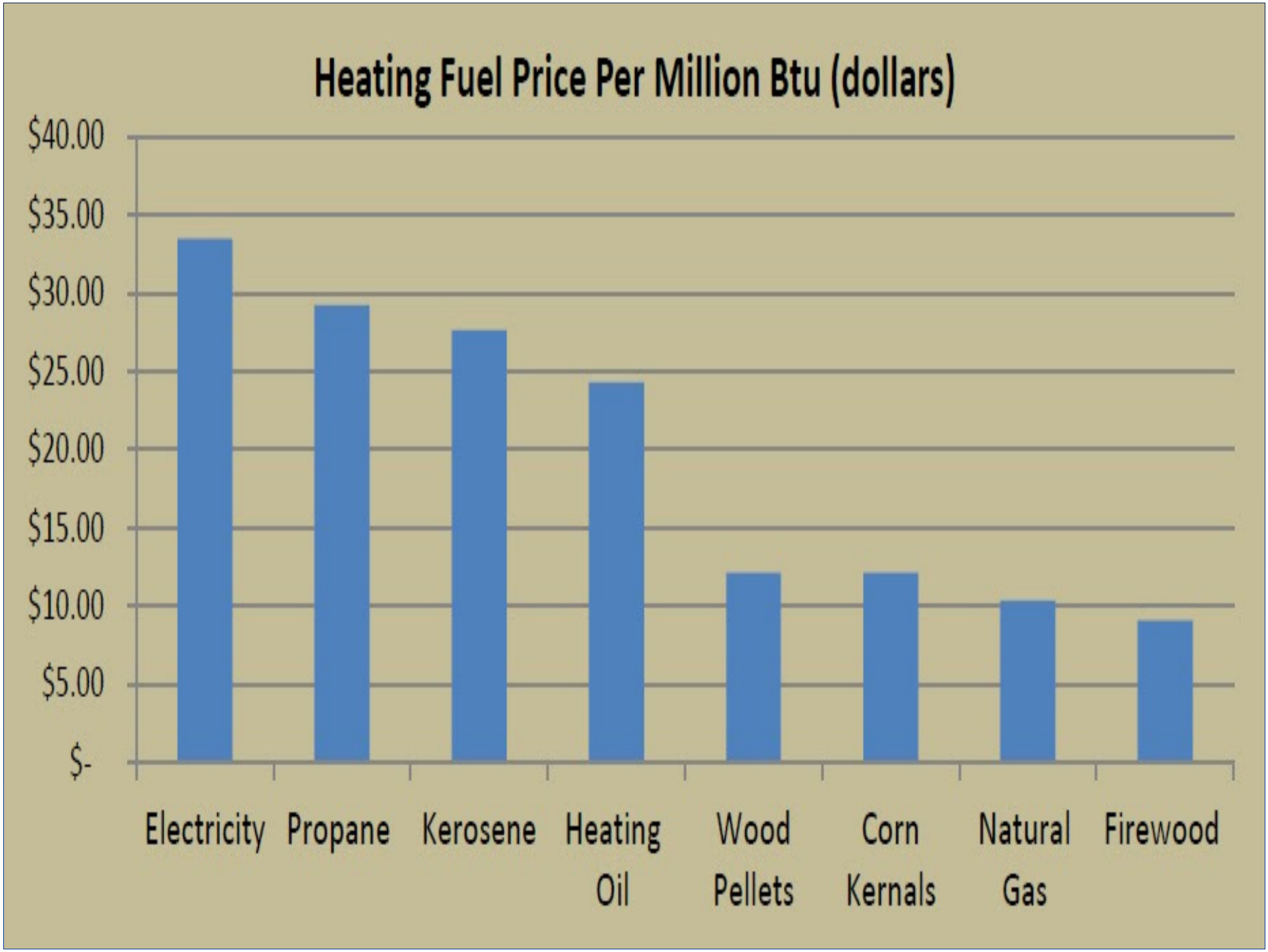
- A Performance Contract is only as good as the performance contractor
- Make sure your needs are ***specifically*** addressed in the PC or contract
- Training
- Maintenance costs
- ***Chip Quality-*** expectations
- Supply
- Penalties ($) for missing completion time line

What we have Learned…cont.

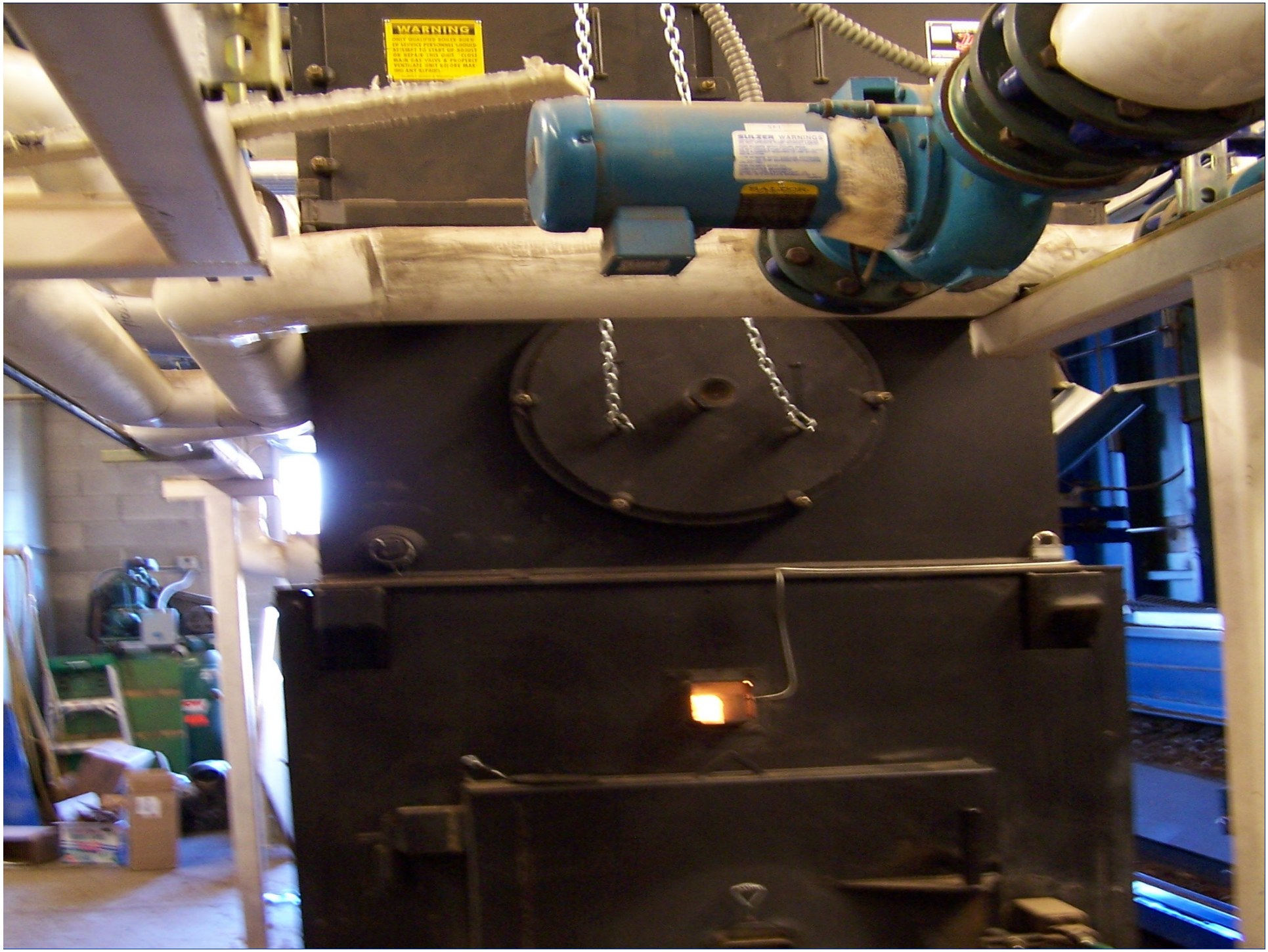
- Air quality has been an issue that we have resolved with DEQ and EPA
- Have a third party do final commissioning or inspection of the project
- A strong working relationship with FS/State/ locals is important
- Fuel supply for the long term has to be investigated (stewardship programs)
- Look into systems that can burn hog fuel *and* industrial pellets.

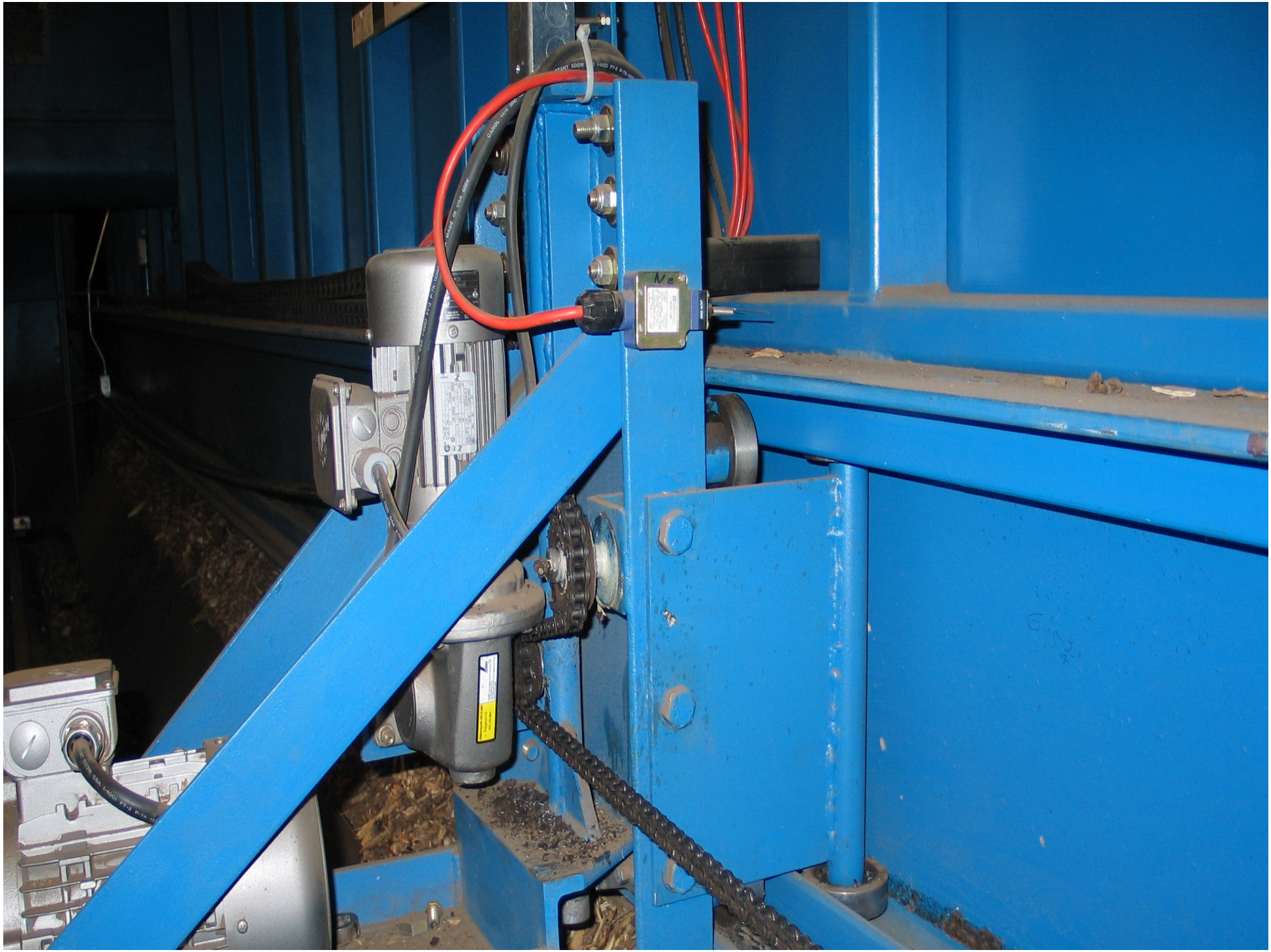
Council Today

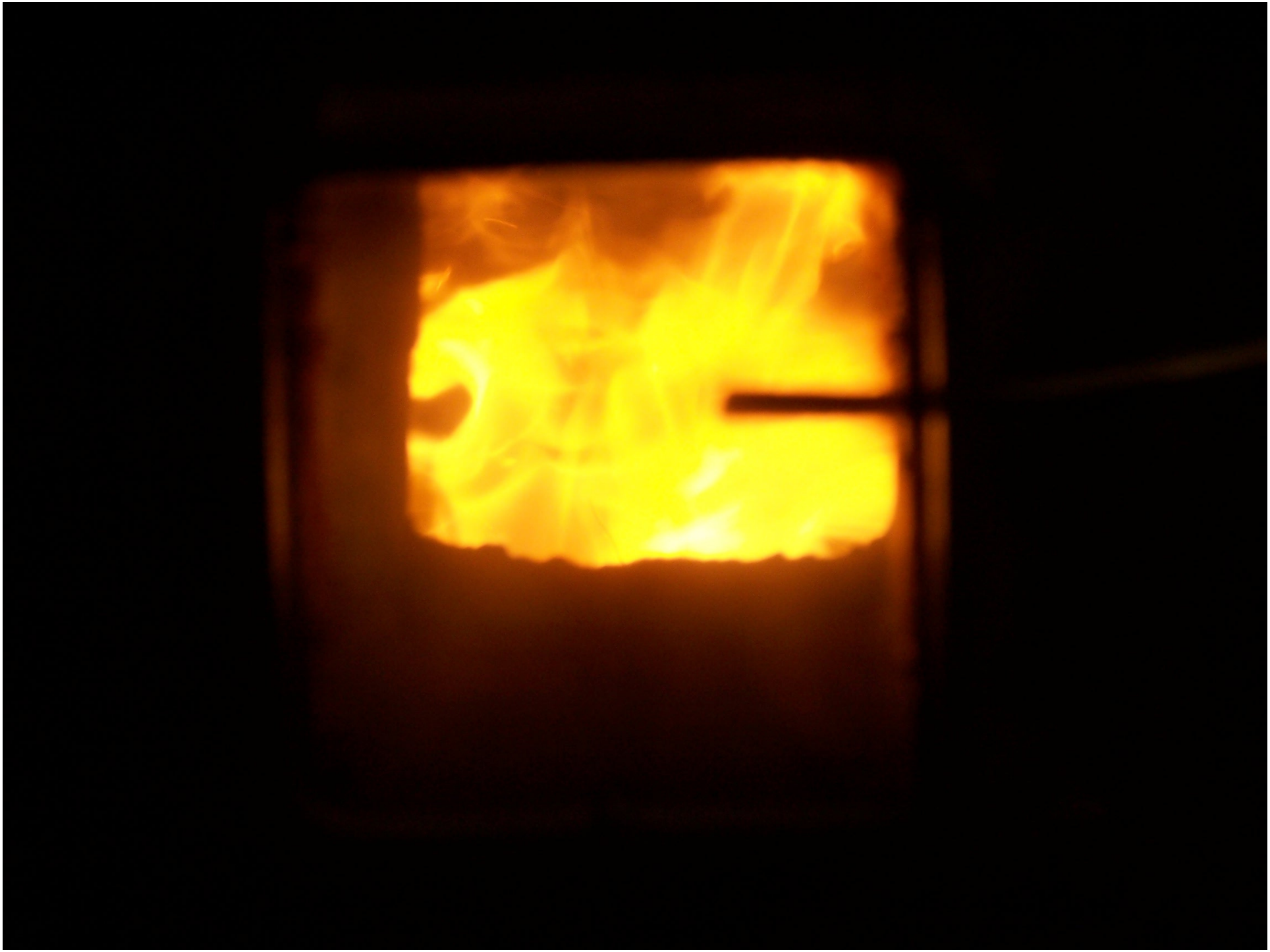
- We were not satisfied with the system's performance as contracted
- Too much maintenance, chip quality issues, breakdowns, lack of communication/action on the part of Siemens to resolve problems
- Called in payment and performance bond
- Third party engineers- did retro commissioning to identify design/engineering, construction faults


Heating Fuel Price Per Million Btu (dollars)
$40.00
$35.00
$30.00
$25.00
$20.00
$15.00
$10.00
$5.00
$-
Electricity
Propane
Kerosene
Heating Oil
Wood Pellets
Corn Kernals
Natural Gas
Firewood

Wood & Oil Energy Price History


WARNING
SULZER





CAUTION
THIS DEVICE POWERED FROM SEVERAL SOURCES
DISCONNECT SWITCH WILL NOT SHUT OFF ALL SOURCES OF ELECTRICAL ENERGY
THIS ENCLOSURE CONTAINS HIGH VOLTAGE ELECTRICAL EQUIPMENT
AUTHORIZED PERSONNEL ONLY

Council School District #1
Partners in Progress

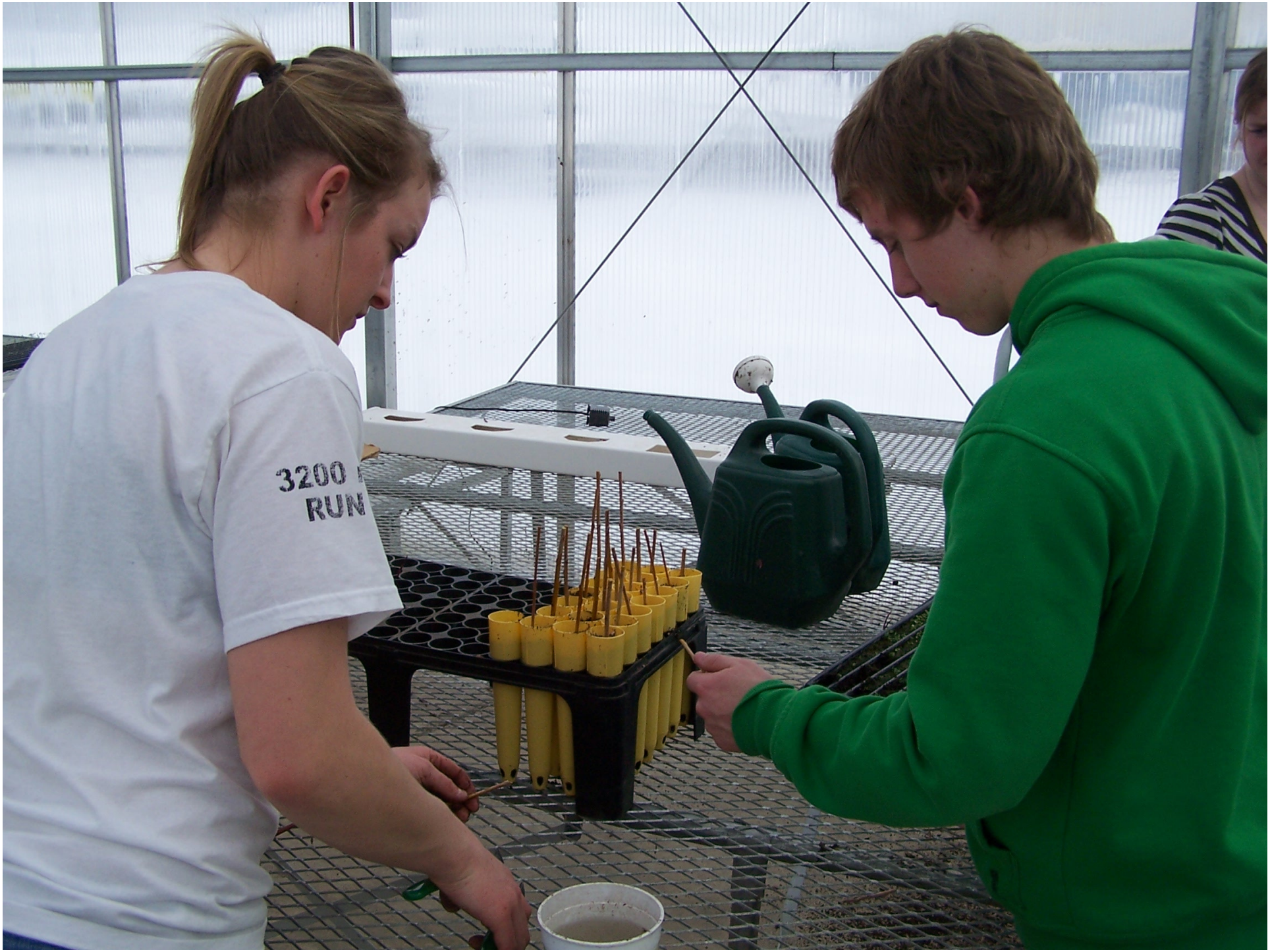
AS-1
CHAMPION

NATIVE PLANT GROWTH
CENTER
COUNCIL SCHOOL DISTRICT
IN COOPERATION WITH
U.S. FOREST SERVICE
FOREST SERVICE
U S
DEPARTMENT OF AGRICULTURE
SW IDAHO RESOURCE ADVISORY
COMMITTEE

REHAU
REHAU

BASIC ROOM

BI 342 Microbiology
Tubes/Plates Only


3200
RUN

GREEN BINS &
BUCKETS =
ALUMINUM,
GLASS & ALL
PLASTICS
BINS &
BUCKETS =
MINUM,
ASS & ALL
PLASTICS
3.
RED BINS =
ALL OTHER RECYCLABLES
EVERYTHING BUT THE 3 G's:
Gum, Glitter & excessive Glue
AND NO SOFT PLASTICS - These are all TRASH.
The following goes into the RED bin:
COLORED PAPER
CARD STOCK
POSTER BOARD
BULLETIN BOARD PAP
CONSTRUCTION PAP
FILE FOLDERS
POCKET FOLDERS
ALL ENVELOPES
ALL JUNK MAIL
MAGAZINES & BOOKS
NEWSPAPER
ALL CARDBOARD
PAPER PACKAGING MATERIAL
STICKY NOTES
4.
Expo Vis-à-Vis
Upcycle!

CHS
PEP
BAND
COUNCIL

BLUE BINS =

WHITE PAPER ONLY

WHITE PRINTER PAPER &
WHITE LINED PAPER ONLY

This is how we recycle:

This school year there will be recycling containers in every hallway, classroom, workroom and office in CSD. They will also be available at all school events.

1. **Blue** bins = WHITE PAPER ONLY
   - White printer paper & white lined paper only
   - Never worry about removing staples and never worry about what is on the paper (colored ink, crayon drawing)

   *! Sticky notes must be removed from all pieces of white paper and put into the **red** bin.*

2. **Green** bins/buckets (in hallways) = ALL ALUMINUM, TIN, GLASS & ALL HARD PLASTICS (w/recycling symbols)
   White and **Green** buckets (in classrooms) = ALL ALUMINUM, TIN, GLASS & ALL HARD PLASTICS (w/recycling symbols)

3. **Red** bins/buckets = MIXED RECYCLABLES (all other recyclables)
   - This includes everything but the 3 Gs (gum, glitter, and excessive glue) and NO soft plastics or Styrofoam. These items are all trash.

4. Here is the list of everything CSD recycles: (Please take a minute to read from the list on the bulletin board.)

5. **Trash** cans = TRASH ONLY (no recyclables or reusables go in the trash can)
   - The following is trash: soft plastics (baggies, plastic wrap), Styrofoam, laminates, plastic packaging, tissue, food wrappers & the 3 Gs (gum, glitter, and excessive glue)
   - Currently, tissues and paper towels are also trash.

Please remember to take a minute to stop, think and recycle.

GREEN
WHITE
ALU
TIN, GL
HARD

DIESEL

FO 723449
Lake Shore
DISPOSAL
McCALL, IDAHO
634-7176
FO 723702

* Reliability- Fair- depends on Chip quality and personnel- hold contractor liable

* Operational costs- $7K plus for service contract /$1000/month- operator/less in summer

* Fuel Source Stability- not a problem so far …. Free to $30/ton- Average $15-20/ton

* Performance contract- yes/ have it reviewed by your lawyer Avoid long term costs

Labor- Contract agreement with a reliable HVAC service company for big maintenance District employee- need training (by contractor) 15/hrs per week- less in non-heating season

Final Thoughts

Form partnerships

Be creative to find $ incentives/grants

Learn from pilots/other systems

Think Systemically/Think long term

Change paradigm

Look to the future-how can we become more self sufficient and use our resources more efficiently?