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?**

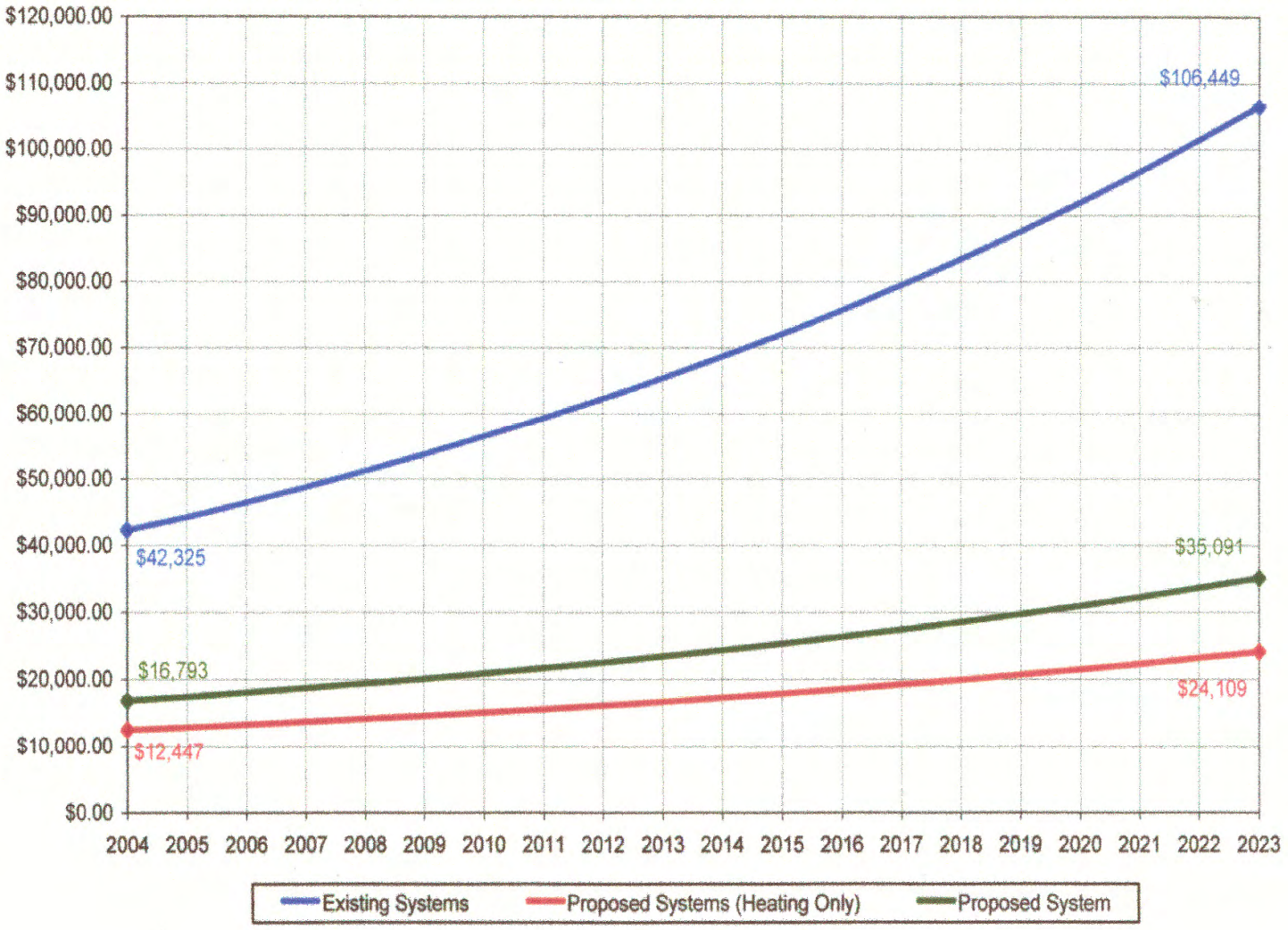
Consider Performance Contracting

- 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

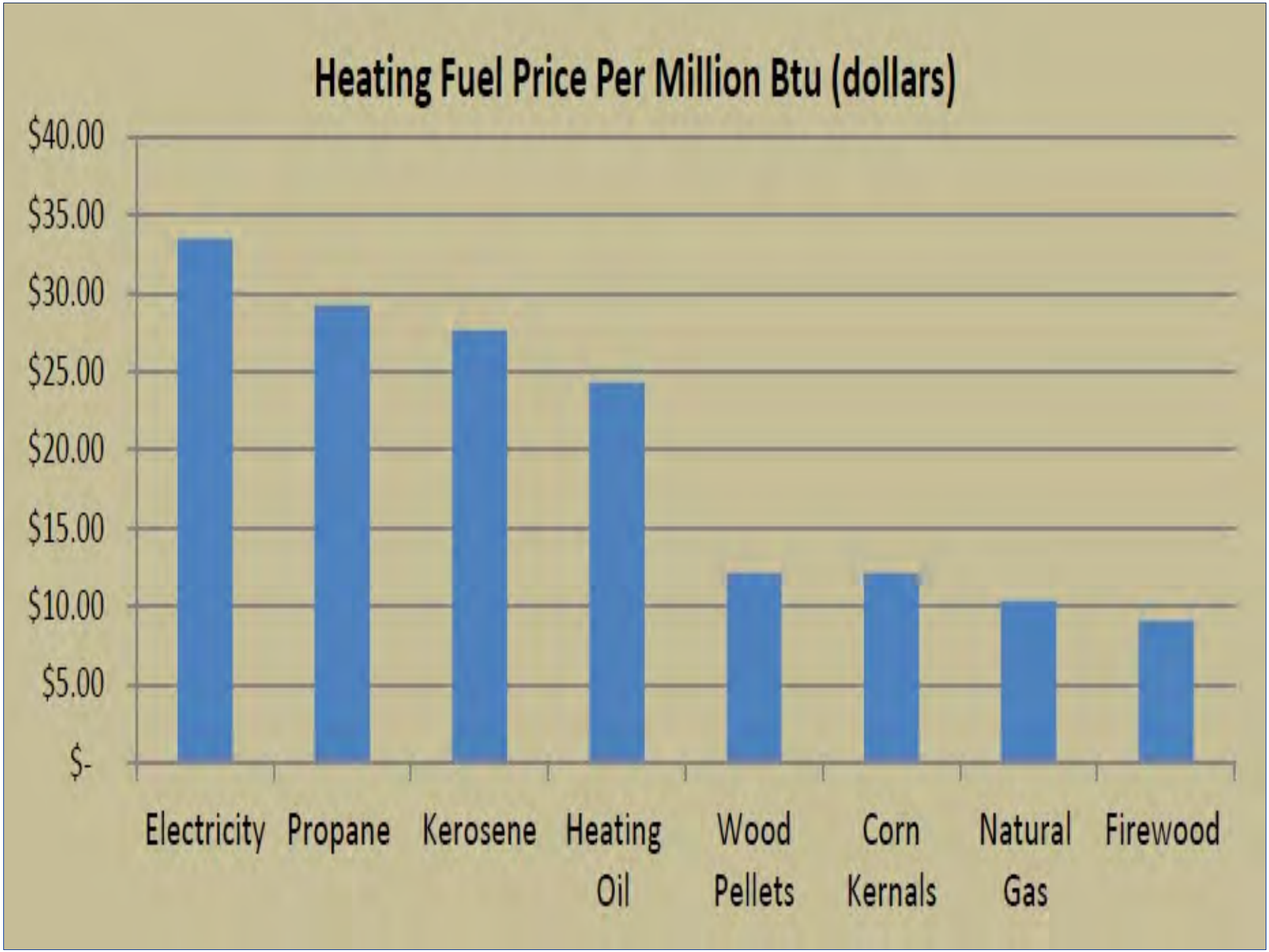
- **A Performance Contract is only as good as the performance contractor**
- **Make sure your needs are *specifically* addressed in the PC or contract**
- **Training**
- **Maintenance costs**
- ***Chip Quality-* expectations**
- **Supply**
- **Penalties ($) for missing completion time line**

What we have Learned…cont.

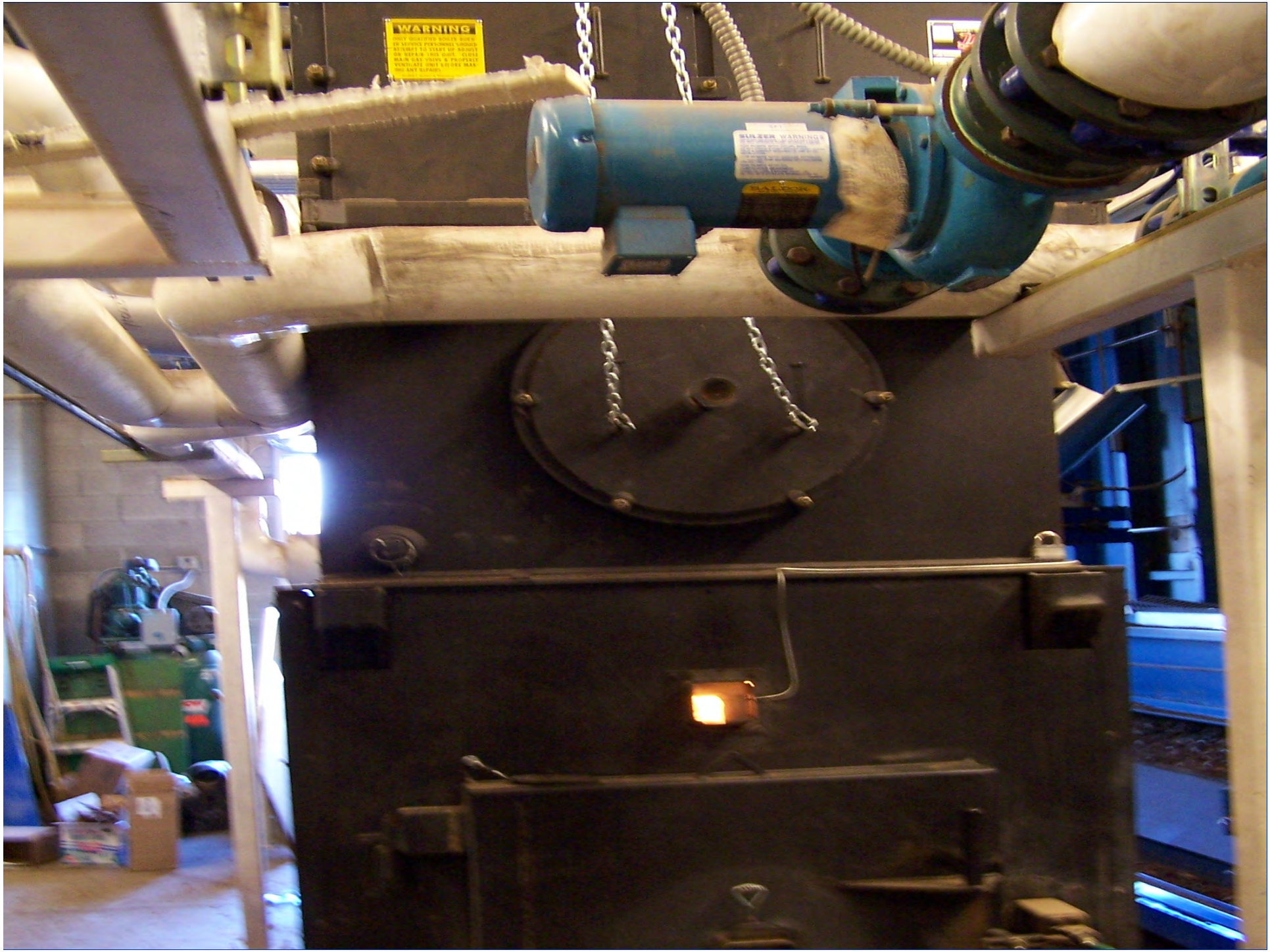
- Air quality has been an issue that we have resolved with DEQ and EPA
- Have a third party do final commissioning or inspection of the project
- A strong working relationship with FS/State/ locals is important
- Fuel supply for the long term has to be investigated (stewardship programs)
- Look into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


efits of Biomass Energy.
Wood & Oil Energy Price History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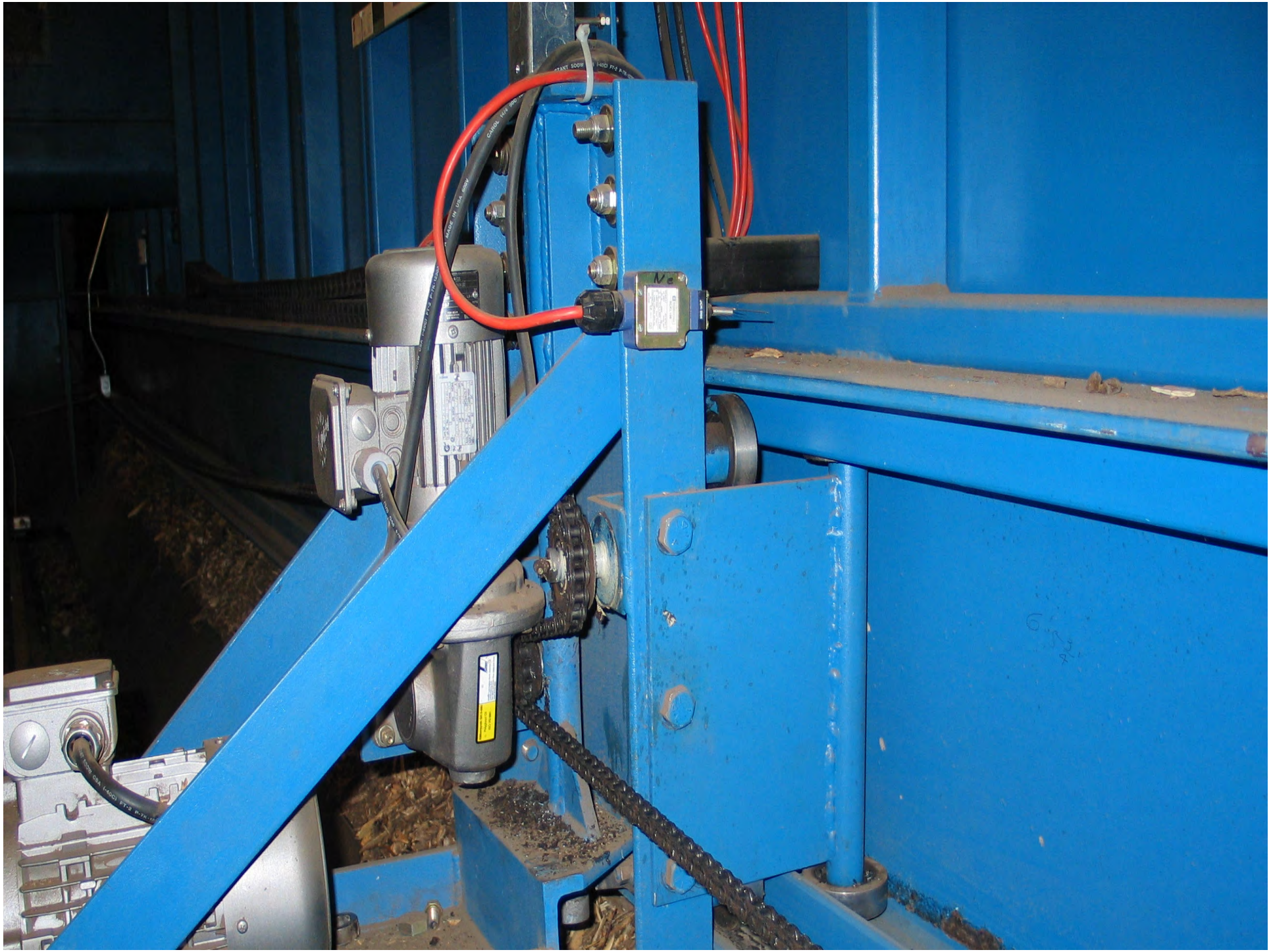
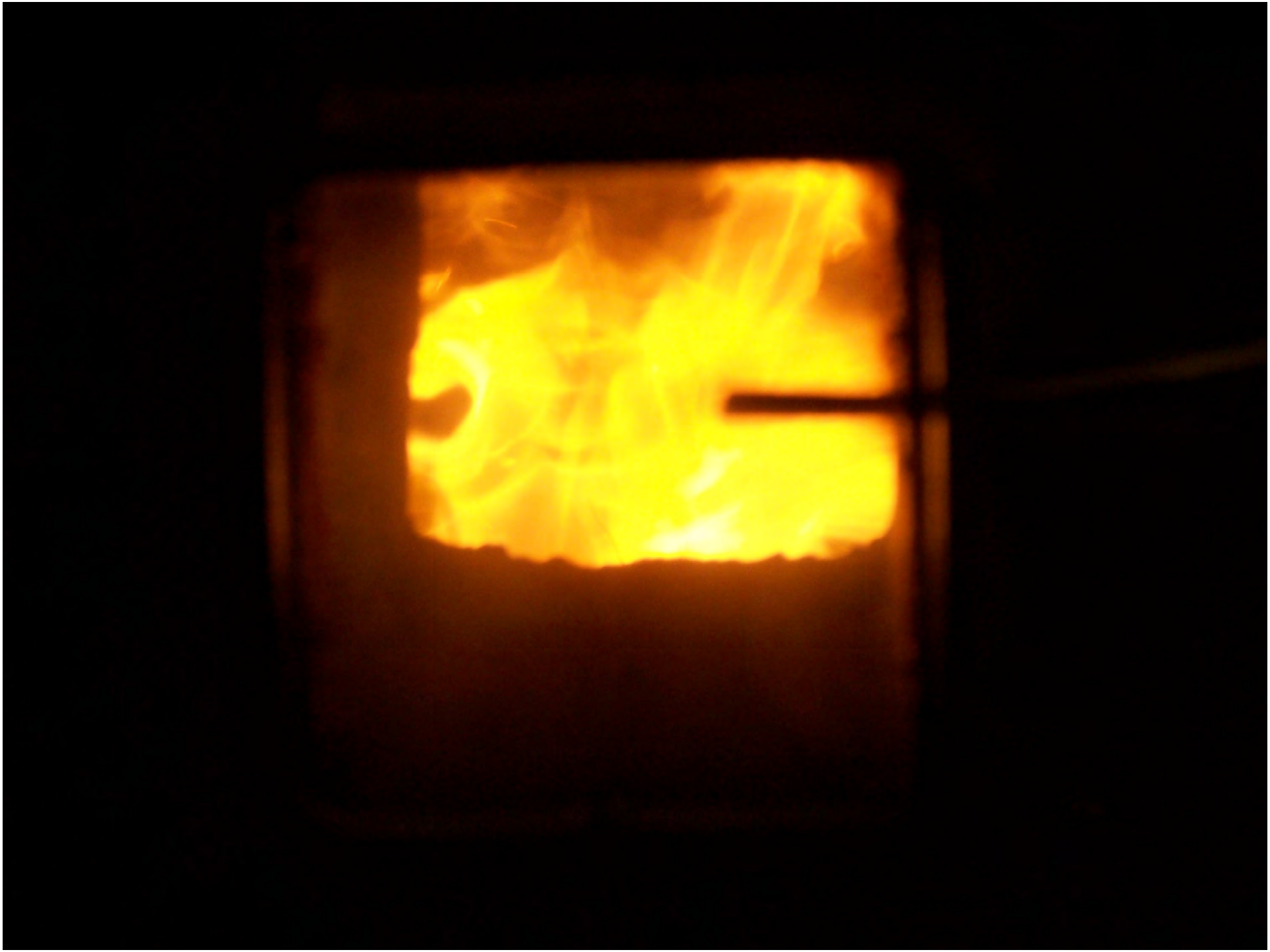
SULZER



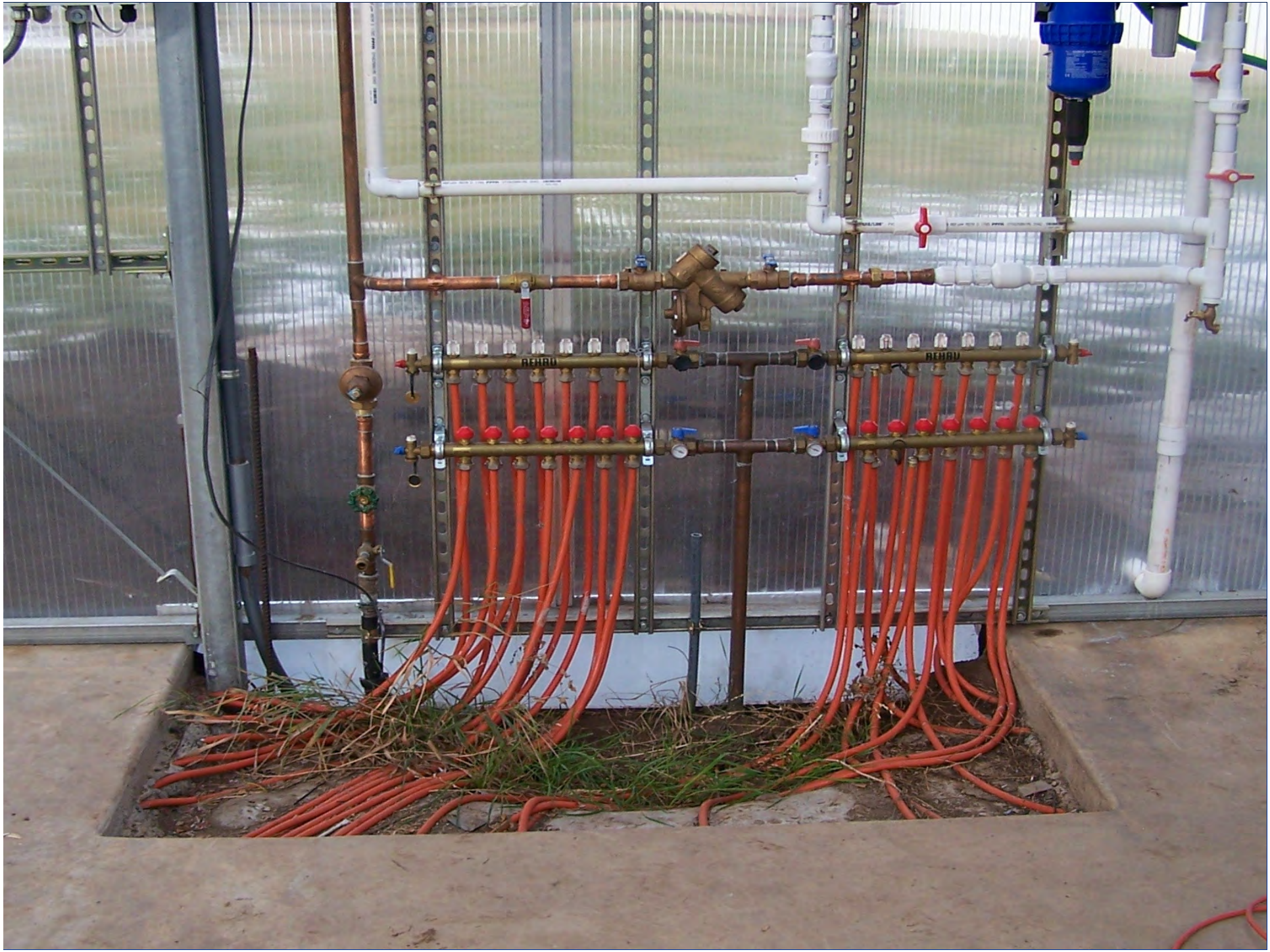



CAUTION
THIS DEVICE POWERED
FROM SEVERAL SOURCES
THIS ENCLOSURE
CONTAINS
HIGH VOLTAGE
ELECTRICAL EQUIPMENT
AUTHORIZED
PERSONNEL ONLY


Gooding School District #231
Partners in Progress

AS-1


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


REHAU
REHAU

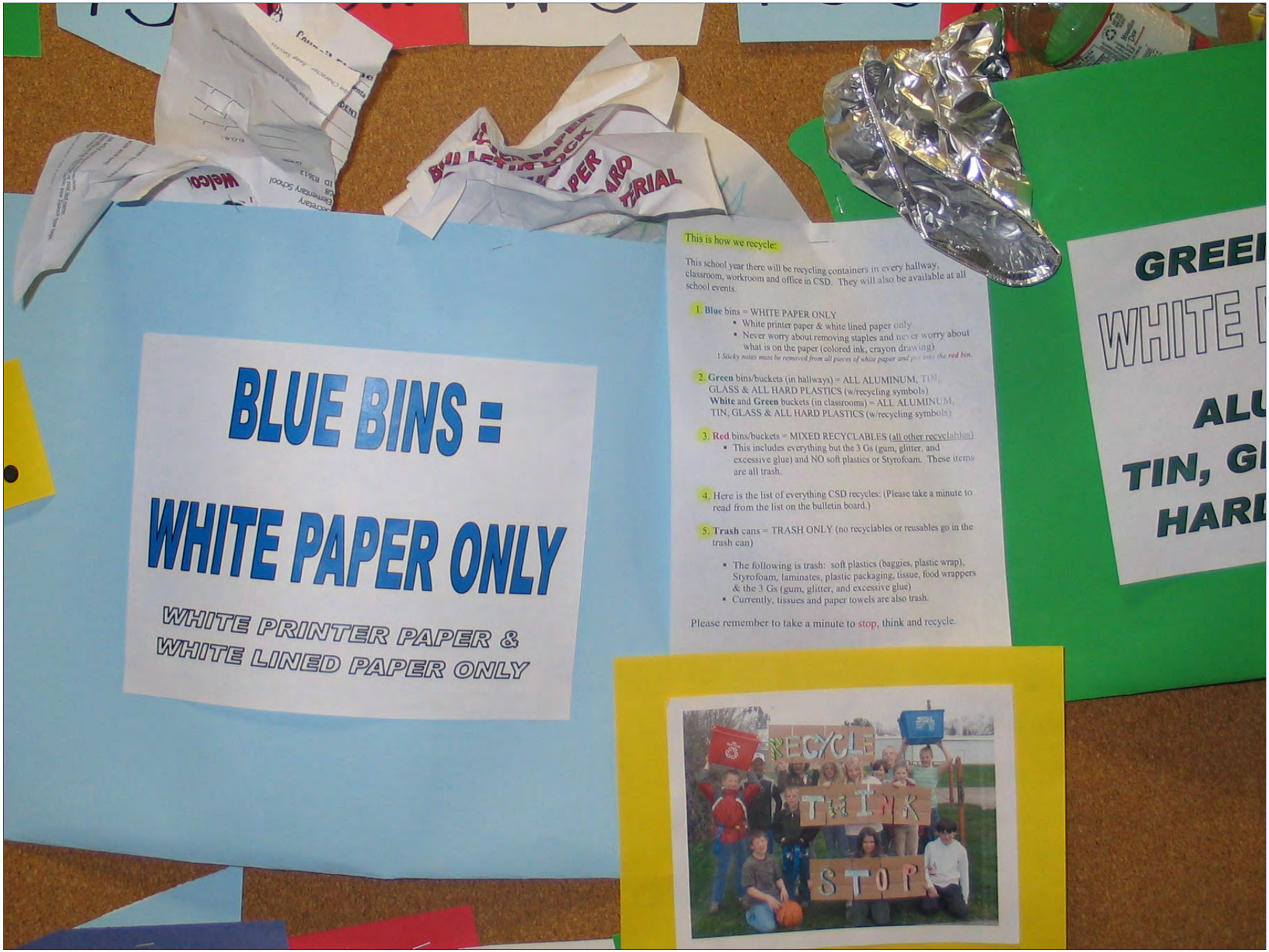

BI 342 Microbiology
Tubes/Plates Only


PSI


3200
RUN


Expo Vis-à-Vis
GREEN BINS &
BUCKETS =
ALUMINUM,
GLASS & ALL
PLASTICS
4.
RED BINS =
ALL OTHER RECYCLABLES
EVERYTHING BUT THE 3 G's:
Gum, Glitter & excessive Glue
AND NO SOFT PLASTICS - These are all TRASH.
3.
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.
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.
RECYCLE
THINK
STOP


DIESEL


FO 723449
Lake Shore
SAL
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?