

EFMA ZONE -3, 6 MEETING

Agenda – April 20th, 2018

8:15: Greetings

8:30: Introductions
Fall Meeting Minutes
Presentations - Vantek, Rocky Point
Site Visit

12:00: Lunch

1:00: Round Table Discussions
Alex – Employee Evaluations
James – Work order system pro's/cons, integration with District accounting software
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8:30am

Greetings – Alex Telford, Wallace Miedema, Calvin Morven, Wade Simlik, Matt Lindgren, Randy Cobb, Robert Gudbranson, Marcus Loewen, Greg Porter, Travis Elwood, Brandy Links, Scott Thompson, Mike, Barry Bepple, Brett Apolczer. (Rod Graham, Markku Riioheimo – Vantek, Cory Langevin – Rocky Point)

Vantek presentation on Biomass installations – Rod Graham, Markku Riionheimo–

Fuel source is the number one consideration. Biomass chips or pellets? Size of plant, moisture content, density, loading/unloading facility, quality of pellets, security of supply. These all affect the design of the whole system. Particle size chips EN 14961 – must be uniform size and moisture to optimize, 100-150 km for transportation max. Wood pellets are more expensive but easier for everything. Higher density, flow easier, easier to transport, standard moisture, cheaper storage options.

Wood chips require 4x the amount of storage capacity compared to pellets. Poor quality can affect overall efficiency, maintenance costs, emissions, life expectancy of the boiler and conveyance equipment. Dirt in the chips is very hard on equipment. Security of supply, not all pellets are equal, multi-year contracts for supply, community forests for a source, wildfire mitigation as a source, trading standing wood for supply. Pellet delivery, grain auger truck, chips- dump truck. Grain truck must be able to reach the top of the silo. Walking floor system is better than silo's for operations using dump trucks. More robust for chip storage. Pellet storage is almost always a silo. In Europe they use pneumatic unloading methods. Self chipping is not a good option. Disc chipper from Europe is the best self-chipping method

Design Criteria –

Fuel type, system sizing, never size to 100% of connected load, always have backup boilers, 60-70%, burns better when working hard, analyze building heat loads, summer, winter, DHW, ventilation, plan for the future.

HVAC tie in – infrastructure age.

Controls interface – with or without DDC tie in. Remote monitoring and operating systems. Better quality controls from manufacturer.

Underground Piping systems

Pre-insulated pex, lower temp, lower cost, shorter life, easy installation as long as you don't unroll it when freezing out. 35year life affected by temp and water velocity. Expands when exposed to daylight so tie in as soon as possible.

Pre-insulated steel – norm in Europe, longer life, leak detection system, 80 year life expectancy. In Europe they don't use glycol so leaks don't matter.

There are over 200 European manufacturers. Categories of designs, heat exchanger, combustion, grate, back burn protection.

Fire tube boilers – higher maintenance, hard to clean, higher emissions

Vertical plate coil burners – emissions settle out in the bottom so it's easier to clean

Primary, secondary and ID fans are the best systems for efficiency. Turn down ratio is typically 30% but these systems can go down between 3-10%.

Back burn protection is a must! Water dousing 3 stage system. Powder system is best for pellets as they expand with water.

Boiler permits, if under 15psi they do not fall under boiler permitting as a pressure system, considered atmospheric.

Heat exchanger cleaning, manual, automatic, pneumatic.

Multiple Boiler Installations

Not a good idea from Vantec's standpoint. If you have a high summer load then yes add a second lower sized boiler. Look for the best turn down ratio.

Ash bin location should be outside as it is very dirty, pick up with a forklift and dump.

Chips do not flow... That is why a walking floor is best, it carves the bottom layer.

Boiler House

Insulated, pre-manufactured. C can is too tight, maintenance is too hard, not enough clearances.

Consider side hill unloading at the storage facility,

Emissions – particulates compared to gas. Nox, So2 are the same between gas and biomass. Local wood stoves are a problem. Biomass has around 80% less emissions than wood stoves.

In Europe emissions standards are

Chips 15-25% is ideal, automatic lighting does not work after 30%. Boilers will burn up to 50 or 60%.

Pellet is 5-10%

Dump truck hauls 7 – 8 metric tons. 1 truck lasts roughly one week at -8 for large connected load.

All electrical relays and parts are local supply Schneider.

Remote Monitoring and Operation

Look for complete access into parameters, re-programming remotely, training aid, don't rely on wireless connections, telephone or cell access at the control panel.

Operations

Keep boiler and site clean

Plan on 2-3 major shut downs per year. Continual load is good but requires more cleaning. 3 weeks between cleanings. 2 years to work the bugs out. Continual training and site visits from the manufacturer for the first 2 years at a minimum.

Cory – Rocky Point

Code requirements on boiler placement, 10 m from a property line, 50 part atmospheric load is max according to regulation. Currently we are around 10, way below standard. Filtration is not needed anymore. Design size is 60% of peak heating load. Plastic underground pipes can handle a higher velocity of water. Local bylaws for looks and location.

Alex Telford – SD27

Cataline Elementary

Original 2 buildings had old AO Smith boilers. Rocky Point did the design. Full funding through CNCP.

Building upgrades,

T8 fixtures inside, with occupancy sensors. LED exterior

1944 GJ – 331 GJ

2008 to now Gas \$25000 - \$3000

Gas – 89%

Electrical - - 52%

Cost \$155/ton

Annual savings of \$19892

Supply heat to TRU –

Carbon tax reduced by \$2100

\$1.4m total cost, mechanical, boiler, sprinkler, t-bar, fire panel

Design of mechanical and building \$100k

Learnings...

Biomass, contracts, supply, hazardous assessments, budgets, advertising success, grants.

Build bigger storage if supply facility is far away. If supply is not available and you need weekly supply, be careful.

Round Table Discussions

Alex – performance evaluations,

James – Work Order Systems :Fame, School Dude, Direct Line Meganations

Travis – EFMA Executive, really enjoys the group, Ops Talk magazine, Nino highlighted in the last issue.

We can send in ideas, don't be afraid to send in ideas and represent the north.

Trying to add certification, BOMA would be a great one. Wages for teachers higher because of certifications and masters. Shuffle again

Barry – hydro has knocked pst down to 3%. Still going up 2.5% this year.

Changing incentive plans, including controls, hardware and programming. Electrification for cars and charging systems. Media and success stories, we need to be proactive for ourselves.

Portfolio manager, Hydro, Fortis. Benchmarking across Canada. Energy star certification if above 75. .7gj/m2, 90percent 3.7GJ/m2.

New Energy Policy for PG, Barry stipulates that all energy funds saved goes back into energy.

Narcan website for energy managers

Boiler water – Chem Aqua is new to PG and they like the m– Kyrat

Travis- Architects and Engineers – Margins

Allan Kavanaugh – Safety, fines for safety programs. Shop and safety audits. Health effects of 3d printers.

End of discussions 3:30pm