Energy Solutions For Industry

LivingEnergy

WoodEnergy Australia

Wood Energy : Beaufort Hospital and Other Case Studies

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Living Energy Limited, and Wood Energy Australia Pty Ltd

Topics

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1. Introduction
2. Why Wood energy ?
3. Wood energy – who suits it ?
4. Wood energy – a Politicians dream
5. Wood energy – a quick intro
6. Case Studies – including Beaufort Hospital
7. Summary

1. Living Energy

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10 years old. Installed over 40,000kW of wood boiler capacity (25 boilers)

Installed boilers ranging from 100kW to 22,500kW

Partnered with Hargassner and Binder (Austrian) as well as Visdamax (Malaysian)

Wood Energy specialists : focus is on the area that is economic : **HEAT !!**

Our Partners

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2. Why Wood Energy ?

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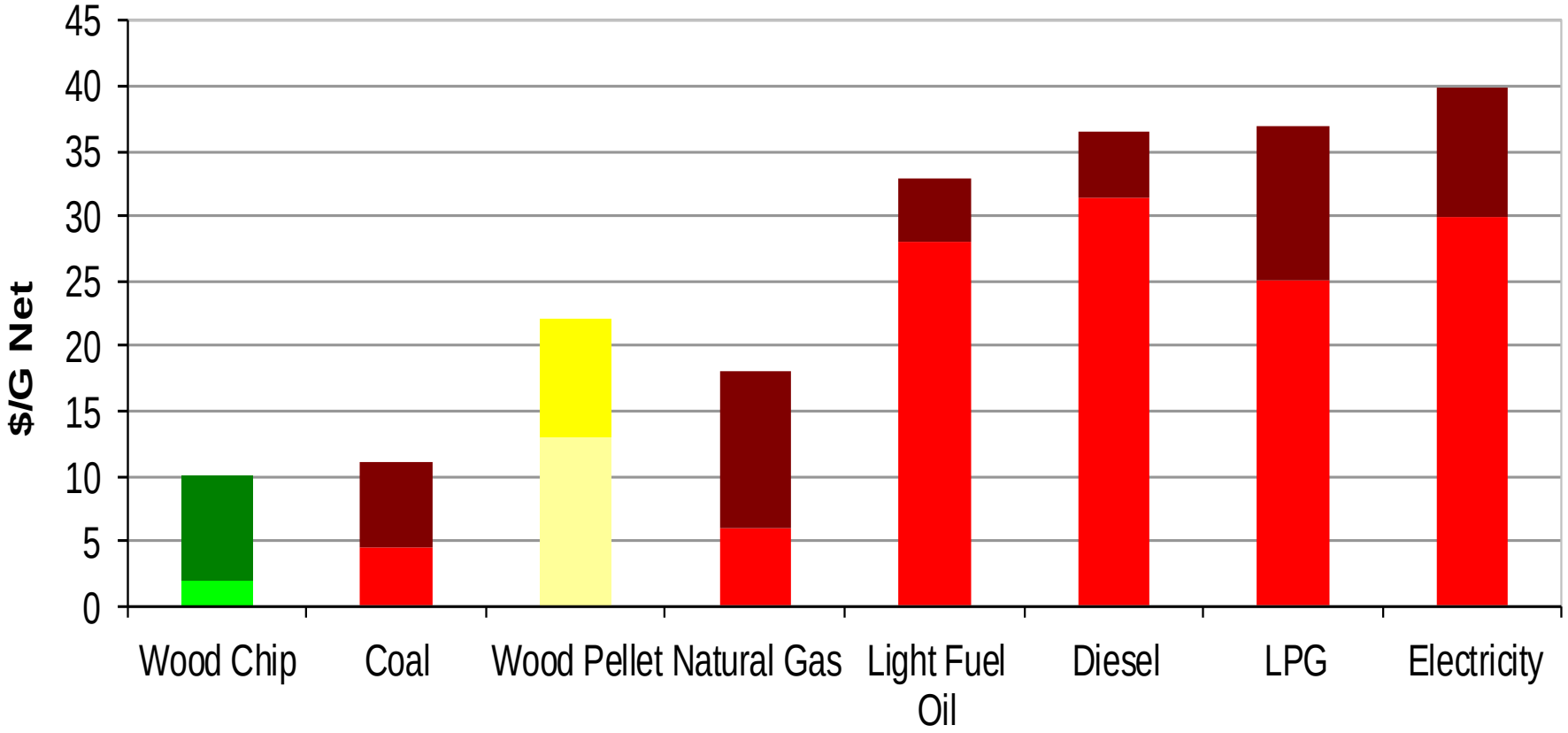
Well-proven, reliable technology : Good old combustion

Amongst the best pay-back of all carbon abatement opportunities

Under-utilised for various reasons (short term-ism, policies, mis-information)

Bio-mass fuel is abundant, so supply is hardly ever an issue, and it compares well on costs :



2. Price Changes

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- Natural Gas prices are forecast to increase due to LNG commitments ex Queensland

Angela MacDonald-Smith, Financial Review, May 2013 :

"…..but the fear is that much worse is to come as $60 billion in liquefied natural gas (LNG) projects start production in 2014-15 and customers in eastern Australia have to compete for supply with export markets in Asia."

- Supply vs Demand must be balanced
- Prices forecast to go up to around $18/GJ

3. Who suits Wood Energy ?

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- Medium/large **Heat** Users
- Especially users of expensive fuels, or ‘coal exiters’
- Ideally with good year-round heat loads
- Schools, Uni’s, Hospitals, Pools are at the heart of the community, so are good exemplar sites

4. Wood Energy : A Politician's Dream ?

1. It's proven and practical, and economic now
2. Wood energy reduces costs for heat users, improving competitive advantage
3. It's Sustainable
4. It provides a beneficial use for by-products (waste to energy)
5. Local demand can normally be matched with local resource
6. It creates local jobs, and supports rural communities
7. It helps improve air quality and water quality and soil quality (salinity)
8. It reduces reliance on finite fossil fuels, thereby building energy resilience
9. It's part of a sensible shift towards renewable, sustainable energy sources

ADD IN CO_2 ABATEMENT – WHAT ELSE CAN POLITICIANS WANT ?!

5. A quick intro to “Wood Energy”

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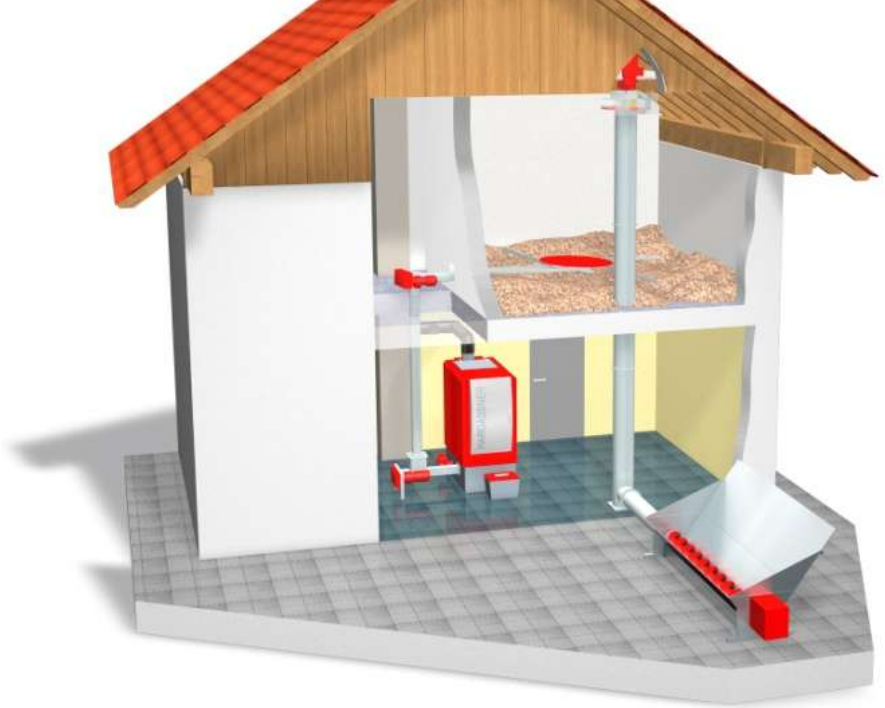
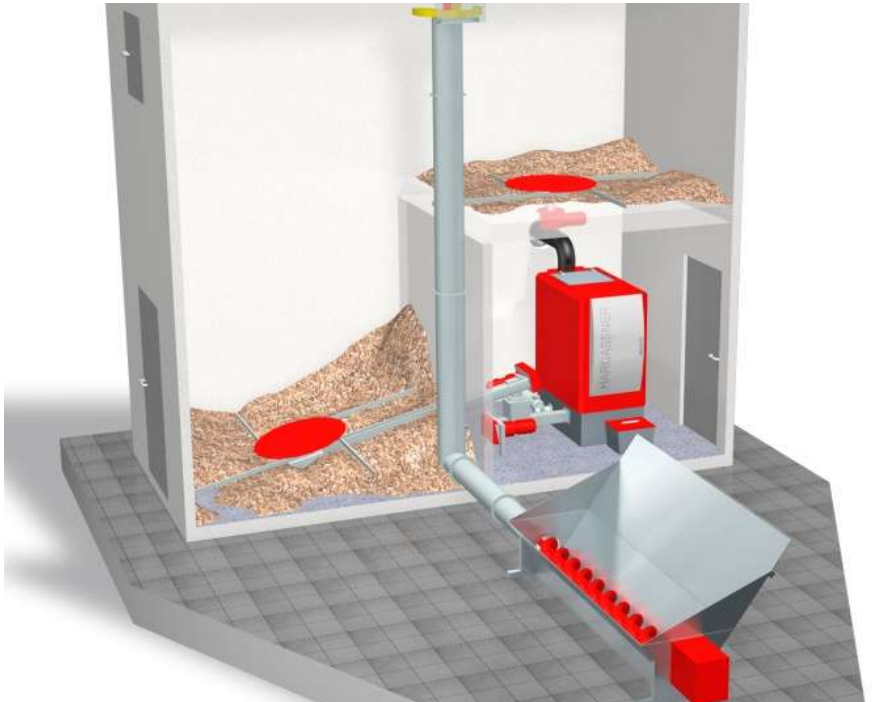
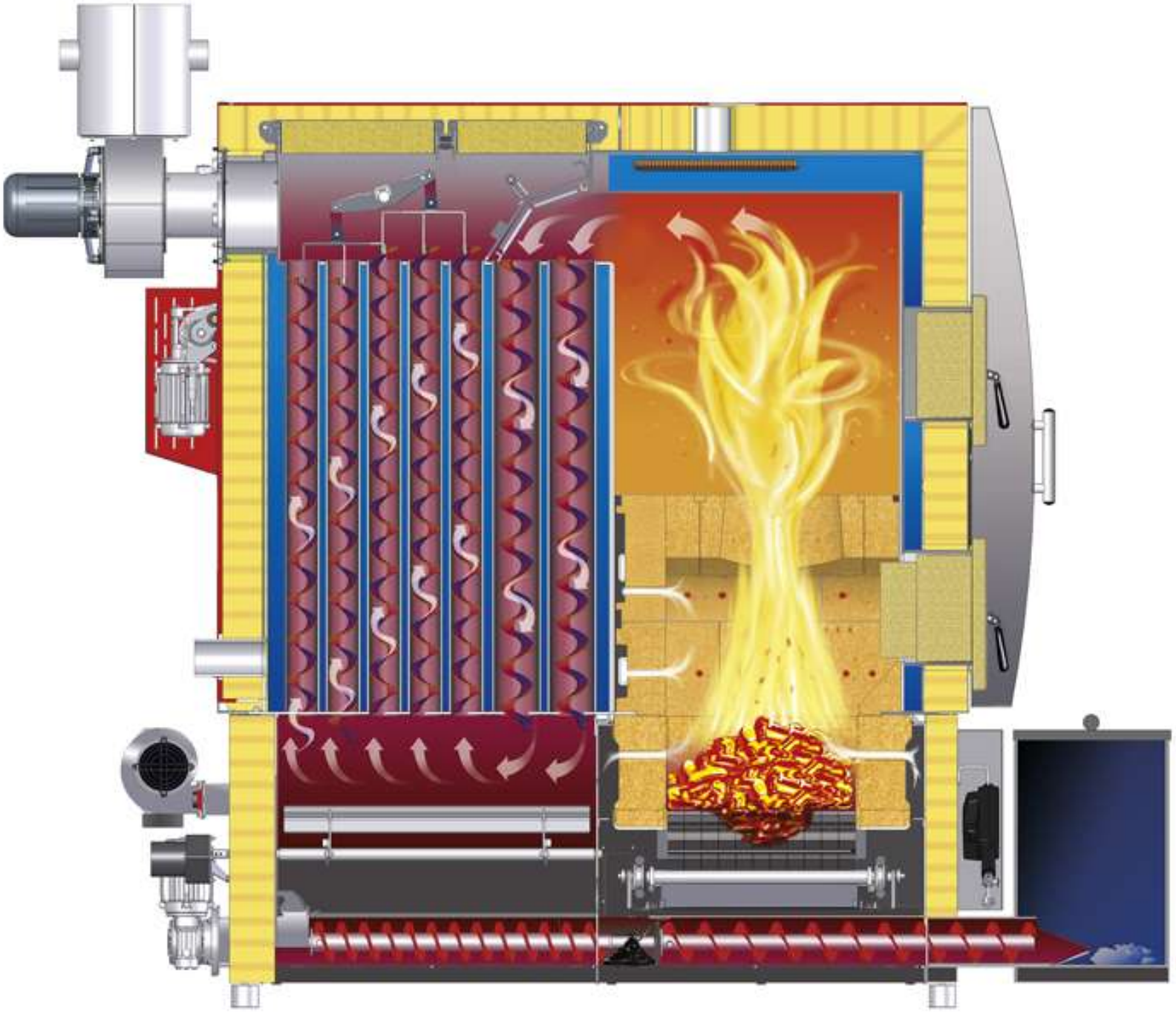
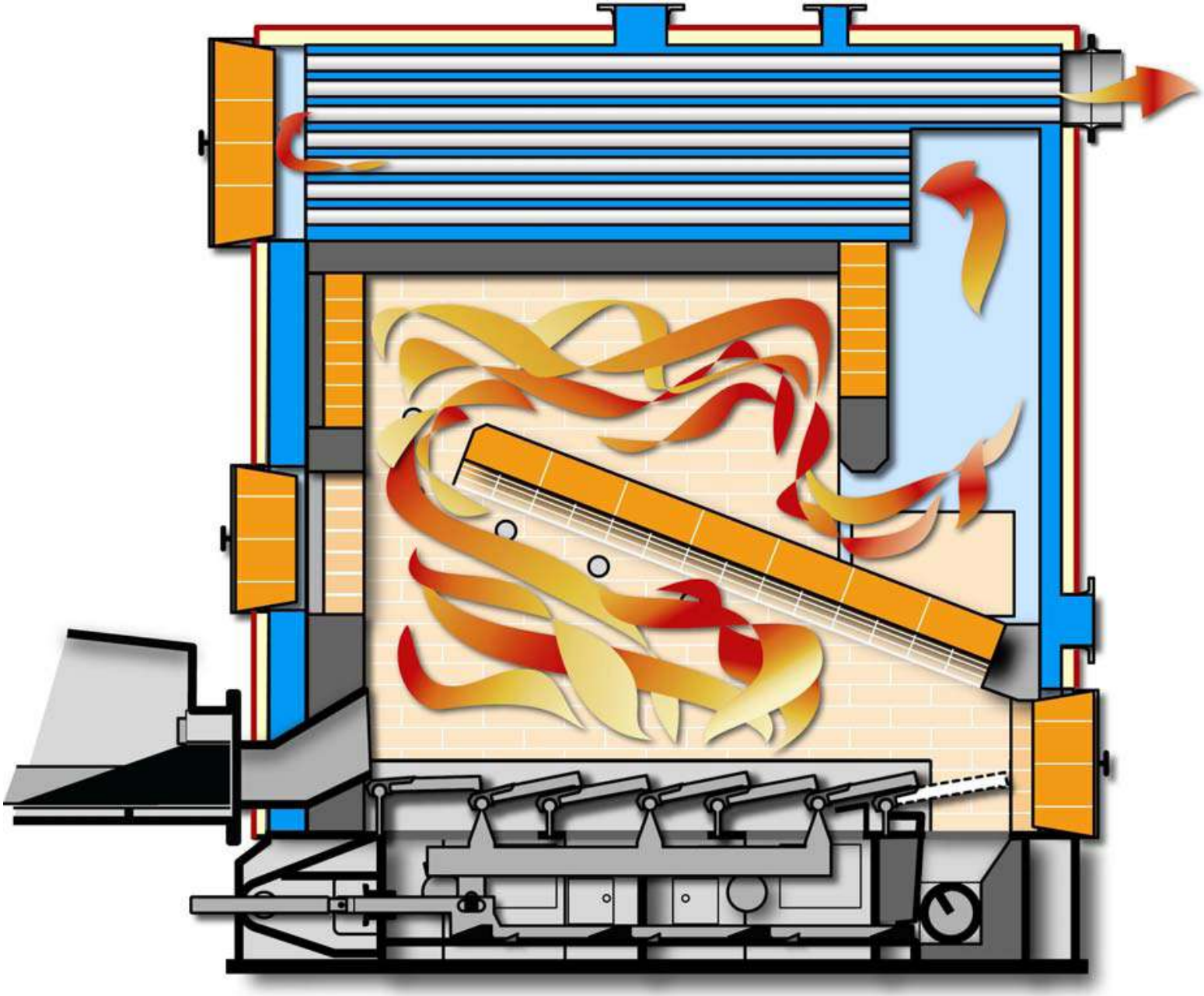
- Boilers are highly developed products
  - Automated ignition
  - Automated fuel feed
  - Automated boiler tube cleaning
- As convenient as fossil fuels….?

- SEE VIDEO……









6. Case Studies - Summary

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Site	Old Fuel	Boiler Size	Capital	Payback
Hospital	LPG	300kW	$0.6m less grant	2-3 years
Sewage Plant	Diesel	500kW	c.$1.2m less grant	3-4 years
University	Coal	1100kW	c.$1m less grant	4-5 yrs vs LPG
Polytechnic	Coal	2 x 650kW	c.$1m	3-4 yrs vs LPG
Aquatic Centre	Brown coal	850kW	c.$0.6m	Other benefits
Hospital	LPG	1500kW	c.$1m	4-5 years
Olympic Pool (South Australia)	Sawdust	500kW	c.$0.5m	8-10 years
Beaufort Hospital	LPG	100kW	c.$0.4m	8-10 years

Case Study 8 : Beaufort Hospital

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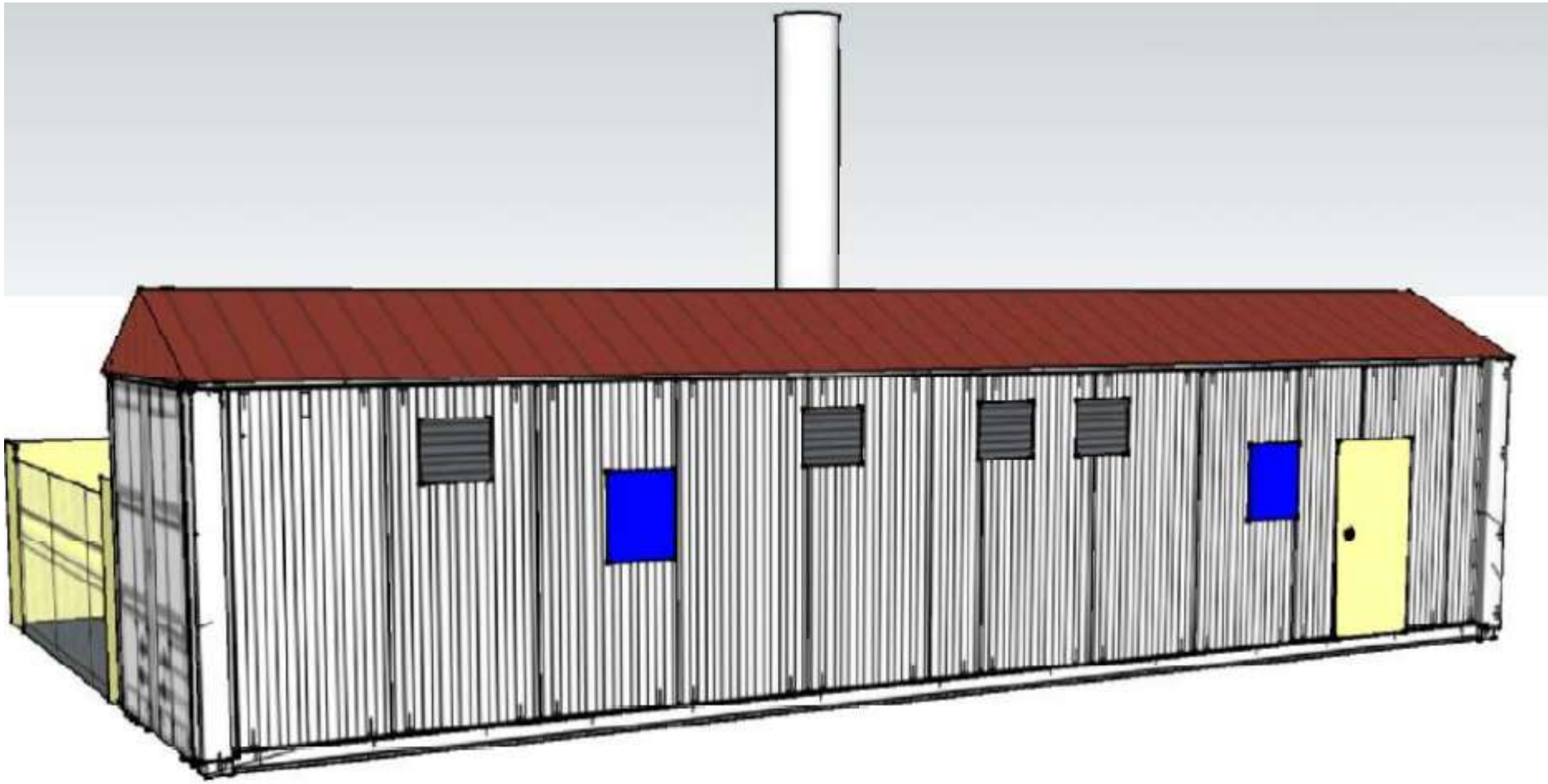
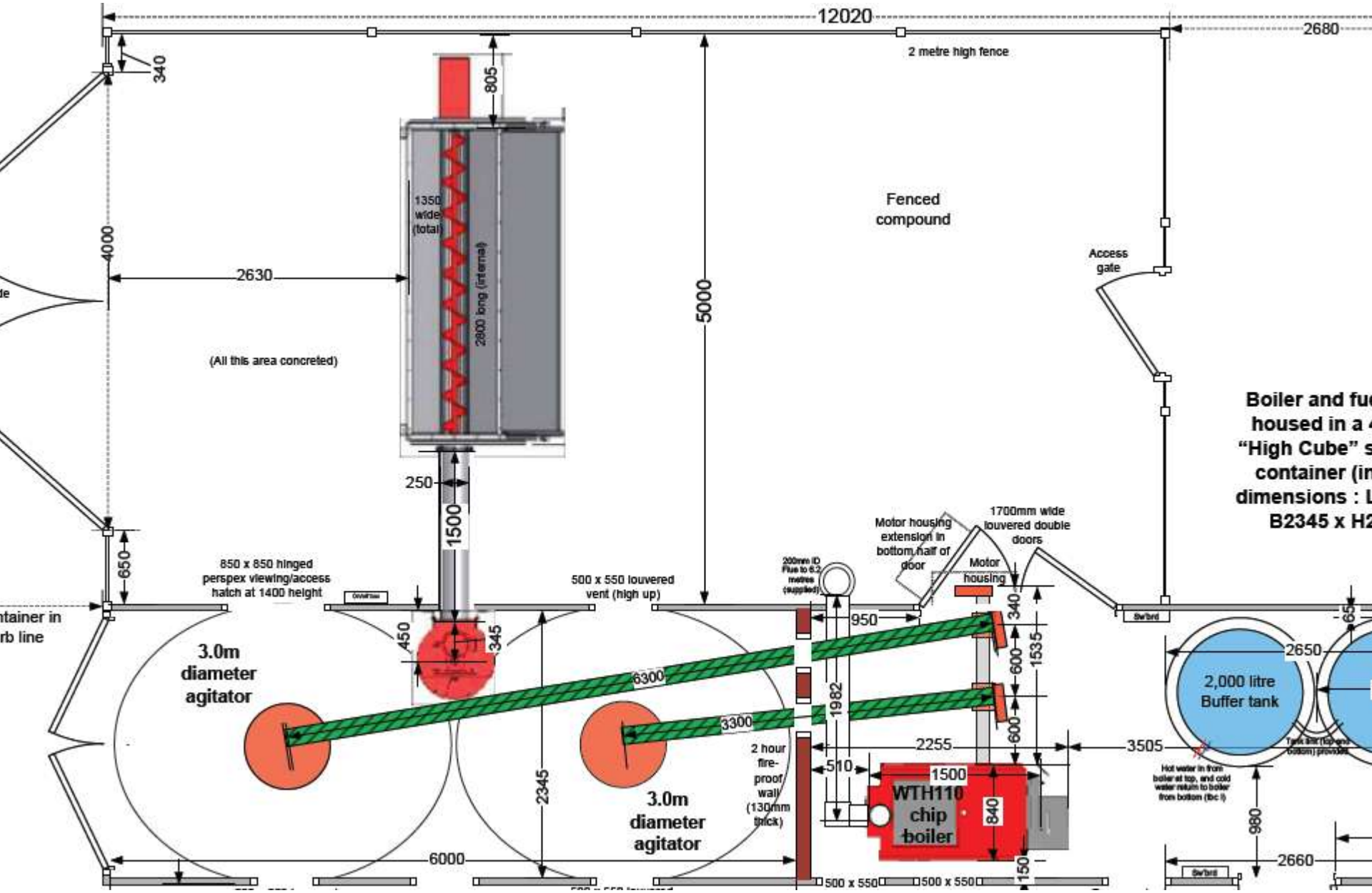
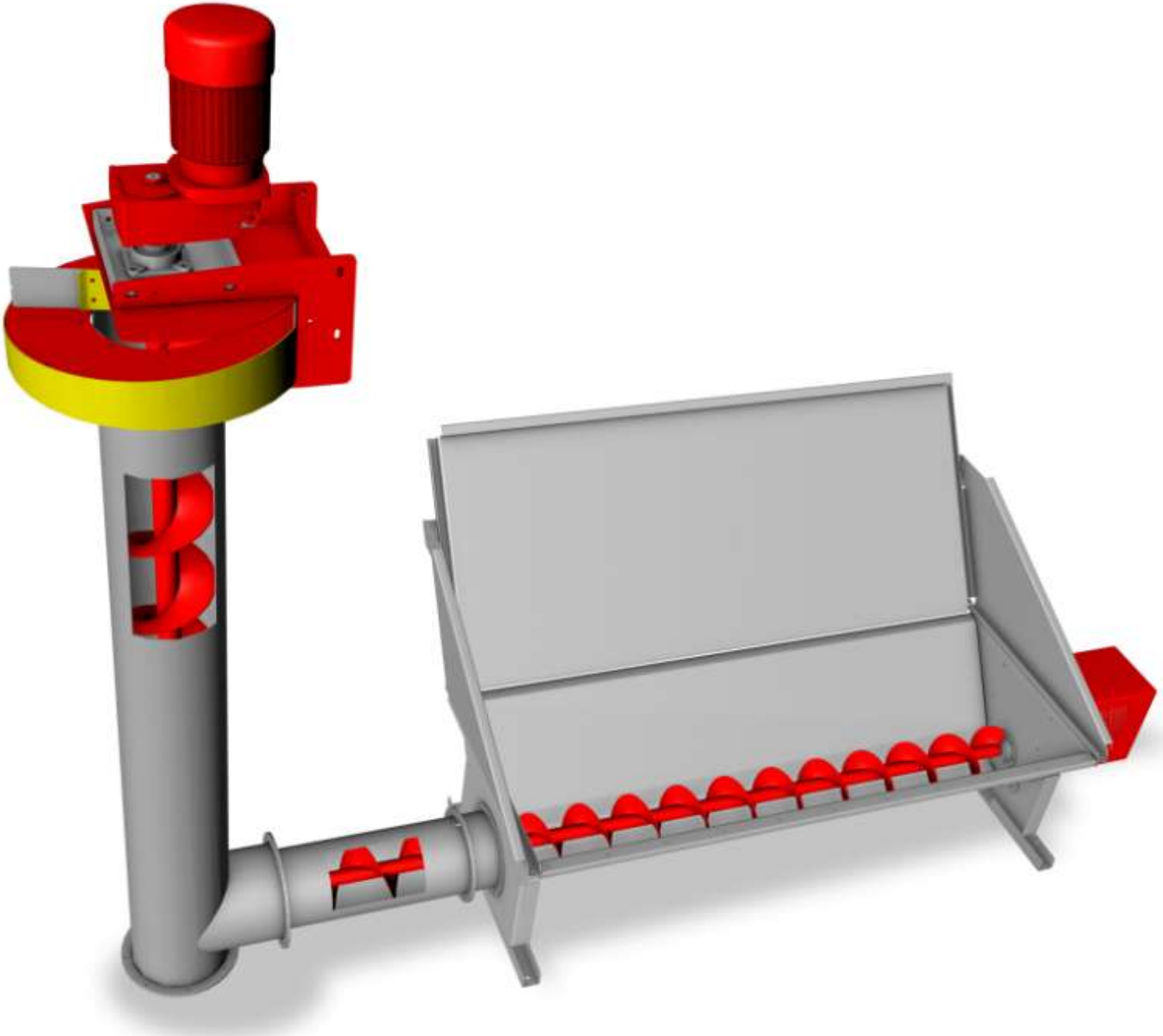
Beaufort, Victoria

	Prior	Now
Heat Source	LPG	Wood Chip
Annual Bill	$75,000	c. $25,000
Driver for replacement : Sustainability, Leadership		
Capital Cost c. $0.4m		
Payback : c. 8-10 years		
Competition : Stay on LPG		
Features : 100kW, containerised, 2 x chip agitators, 2 x 2000li buffer tanks.		

Case Study 8 : Beaufort Hospital




12020
2680
2 metre high fence
340
805
1350 wide (total)
2800 long (internal)
4000
2630
5000
Fenced compound
Access gate
(All this area concreted)
250
1500
650
850 x 850 hinged perspex viewing/access hatch at 1400 height
500 x 550 louvered vent (high up)
200mm ID Flue to 6.2 metres (supplied)
Motor housing extension in bottom half of door
1700mm wide louvered double doors
Motor housing
950
340
600
1535
450
345
3.0m diameter agitator
6300
3300
1982
600
2255
3505
510
1500
WTH110 chip boiler
840
2345
2 hour fire-proof wall (130mm thick)
3.0m diameter agitator
6000
500 x 550
500 x 550
150
2650
2,000 litre Buffer tank
980
2660
Boiler and fu
housed in a
"High Cube"
container (i
dimensions :
B2345 x H2

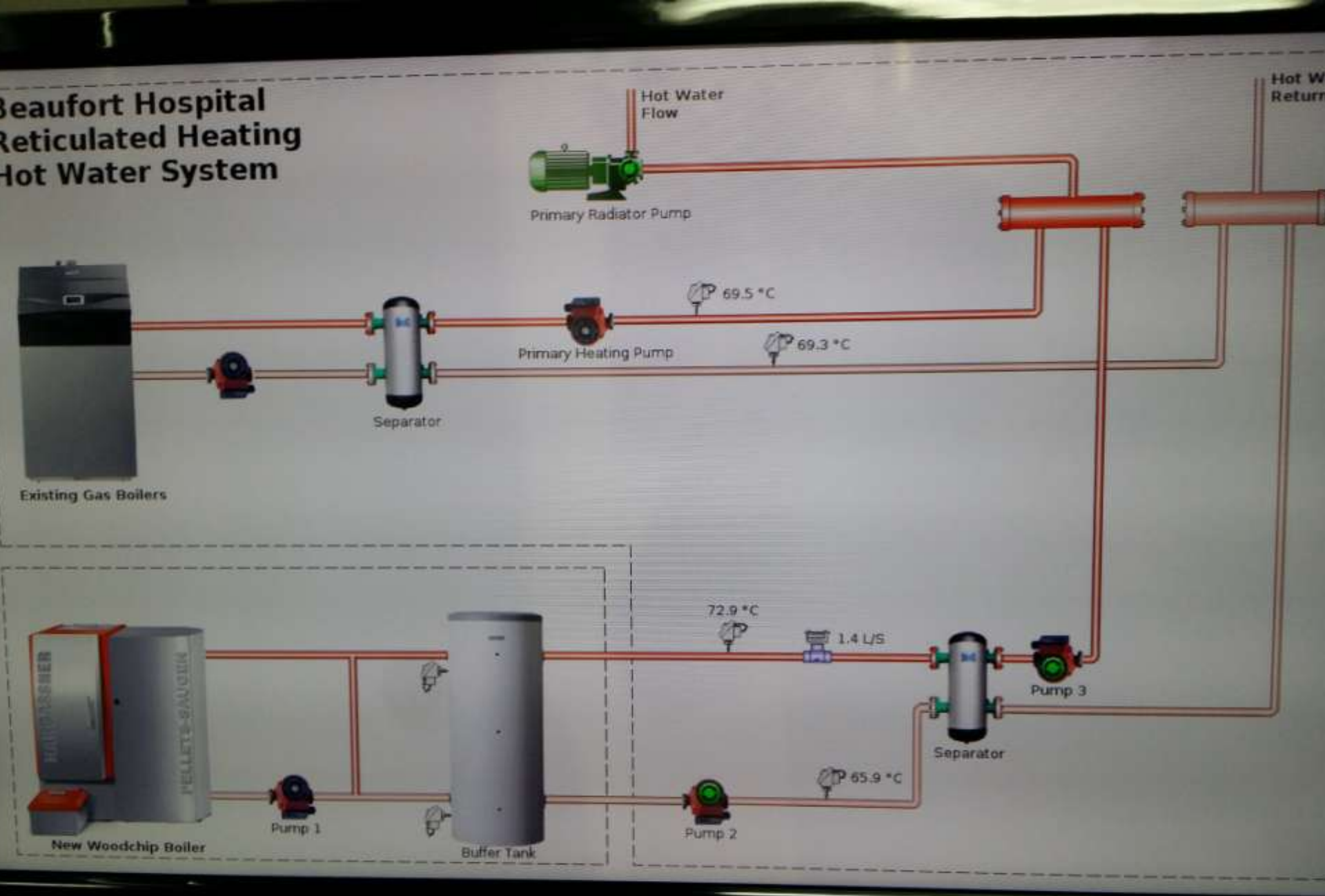



HAZCHEM


0437 484 637
ADVANCED


TIHU 540069 6
45G1
MAX. GROSS 30,480 KGS 67,200 LBS
TARE 3,890 KGS 8,575 LBS
NET 26,590 KGS 58,625 LBS
CU. CAP. 76.4 CU.M. 2,698 CU.FT


EMPTY LIFT ONLY


Beaufort Hospital
Reticulated Heating
Hot Water System
Hot Water
Flow
Primary Radiator Pump
Hot W
Return
69.5 °C
Primary Heating Pump
69.3 °C
Separator
Existing Gas Boilers
72.9 °C
1.4 L/S
Pump 3
Separator
65.9 °C
Pump 2
Pump 1
Buffer Tank
New Woodchip Boiler

7. Summary : Wood Energy is not just a Politician's Dream

1. It's proven and practical, and economic now, especially when all factors 'costed'
2. Wood energy reduces costs for large heat users, improving competitive advantage
3. It's Sustainable
4. It provides a beneficial use for by-products (waste to energy)
5. There's localised demand, matching localised resource
6. It creates local jobs, and supports rural communities
7. It helps improve air quality and water quality and soil quality (salinity)
8. It reduces reliance on finite fossil fuels, thereby building energy resilience
9. It's part of a sensible shift towards renewable, sustainable energy sources
10. It's a cost effective way to reduce CO2 emissions

When selecting new or replacement plant, should Government Procurement Policies include these broader factors in the selection criteria ?