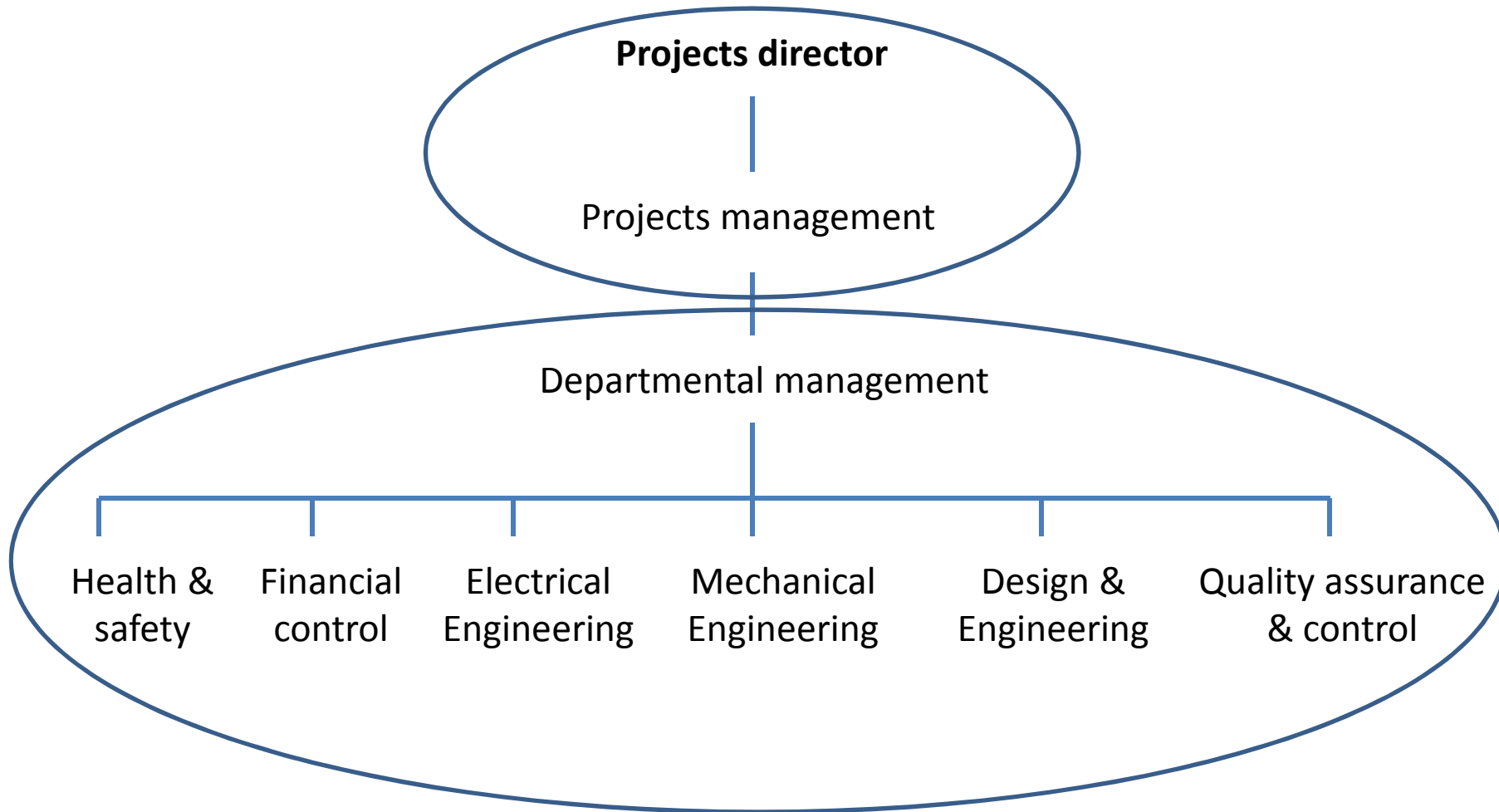




# Projects Organisation





# Project Management

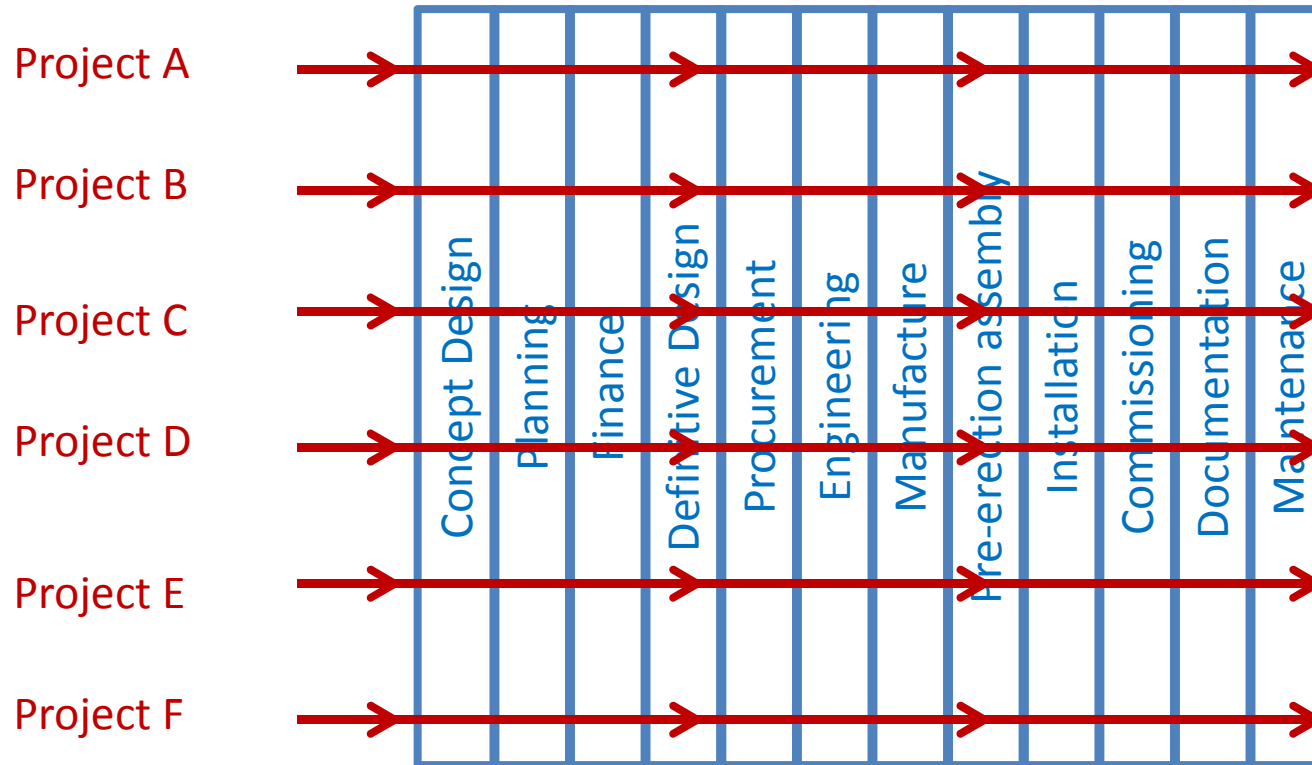
- Manage each contract from enquiry through design, engineering, procurement, manufacture, pre-erection assembly, installation, commissioning through to life cycle service.
- Financial planning and cost control
- Time planning and control
- Quality assurance and control



# Management Matrix

Project management

Departmental management





## Advantages of project management organisation

- One point of contact for client
- Constant monitoring of each individual contract
- Pushes and guides each project through the design & build process
- Quick reaction to problem solving
- Achieving programme
- Quality assurance
- Financial planning & cost control



# Process

## Phase 1

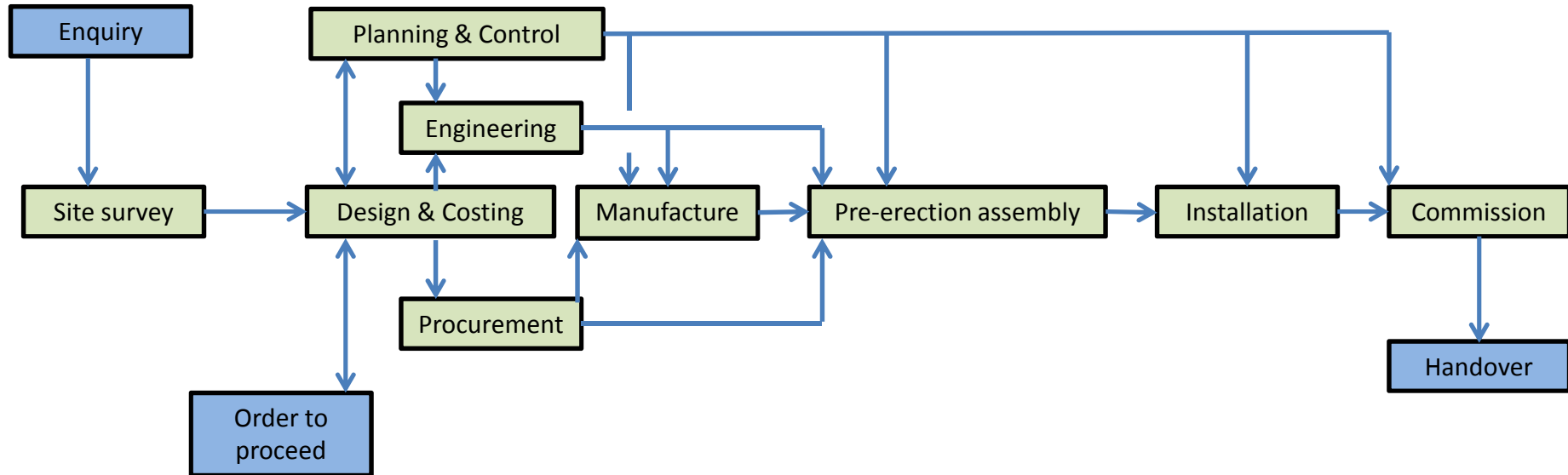
- **Stage 1 (initial contact)**
  - Enquiry
  - Advertising
  - Market research
  - Meetings
- **Stage 2 (concept design & planning)**
  - Site visits & survey
  - Client requirements
  - Specification & drawings
  - Key date programme
  - Financial plan
- **Stage 3 (definitive design & planning)**
  - Contract specification
  - Project master programme
  - Financial contract
  - Working drawings

## Phase 2

- **Stage 4 (production)**
  - Production engineering
  - Procurement
  - Manufacture
  - Pre-erection assembly
  - Installation
  - Testing
- **Stage 5 (commissioning and handover)**
  - Pre-commissioning checks
  - Set to work
  - documentation
- **Stage 6 (maintenance & servicing)**
  - Maintenance plan
  - Call out back up service



# Process flow chart



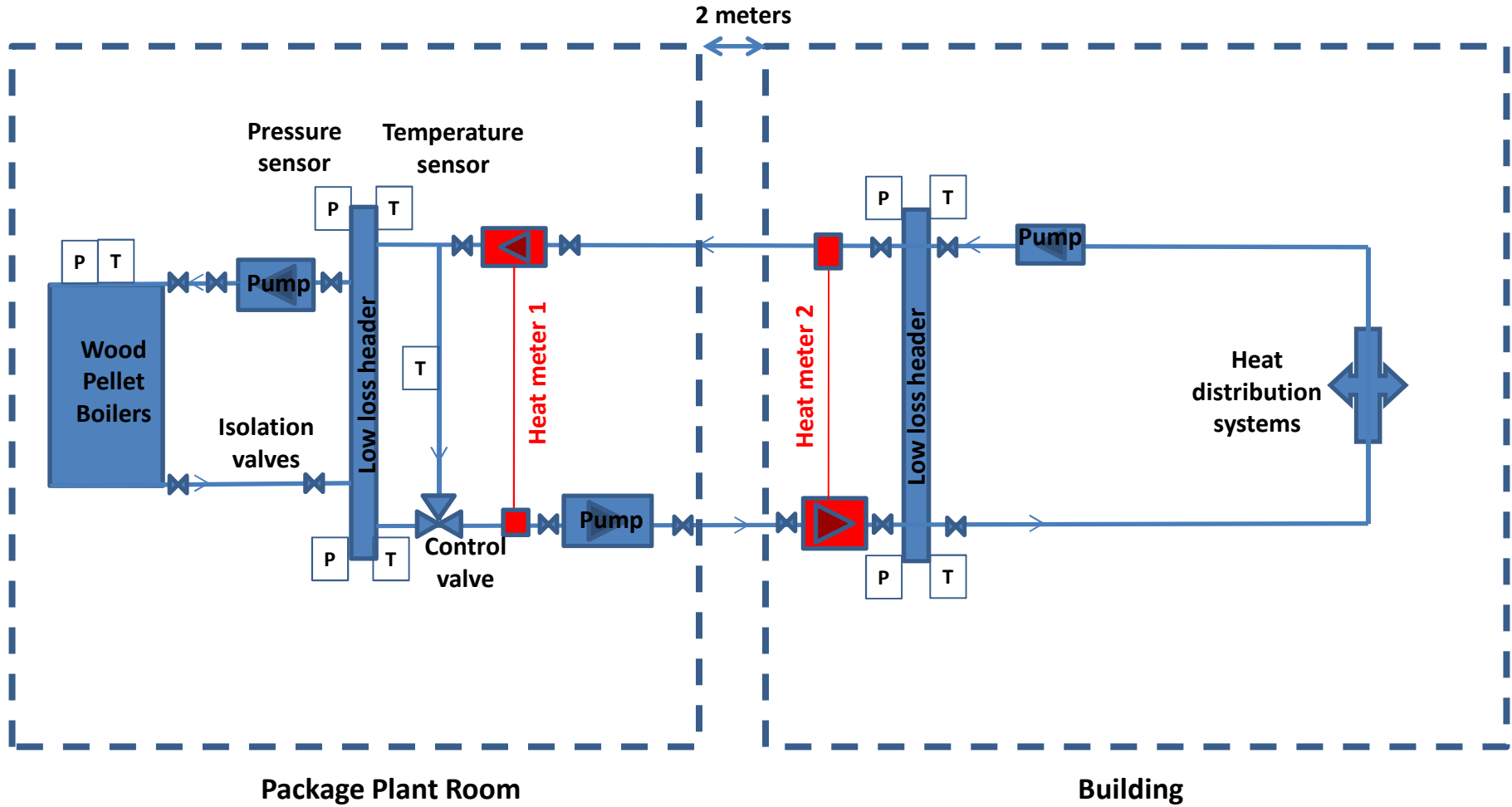


# RHI accreditation documentation

- Project over view
- Heat generation system schematic diagram
- Heat distribution system schematic diagram
- Application form
- Layout drawing
- Heat meter details
- Heat load profile
- Equipment schedule
- Specification criteria
- PPR layout drawing
- Co2 emissions profile
- Key date plan
- Local planning
- Building control



# Heat meter strategy



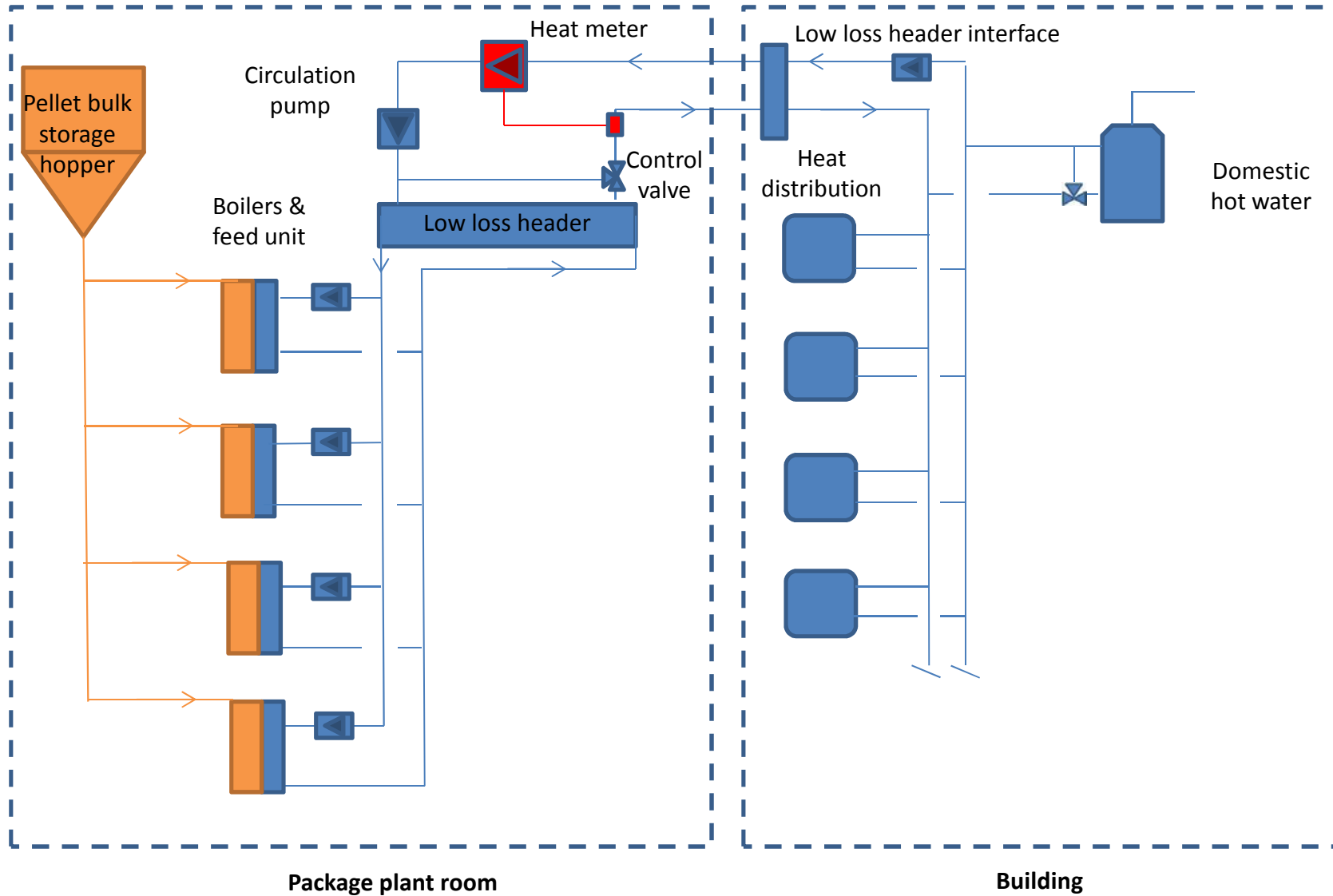
Package Plant Room

Building





# Heating system schematic diagram





## Definition of heat distribution system

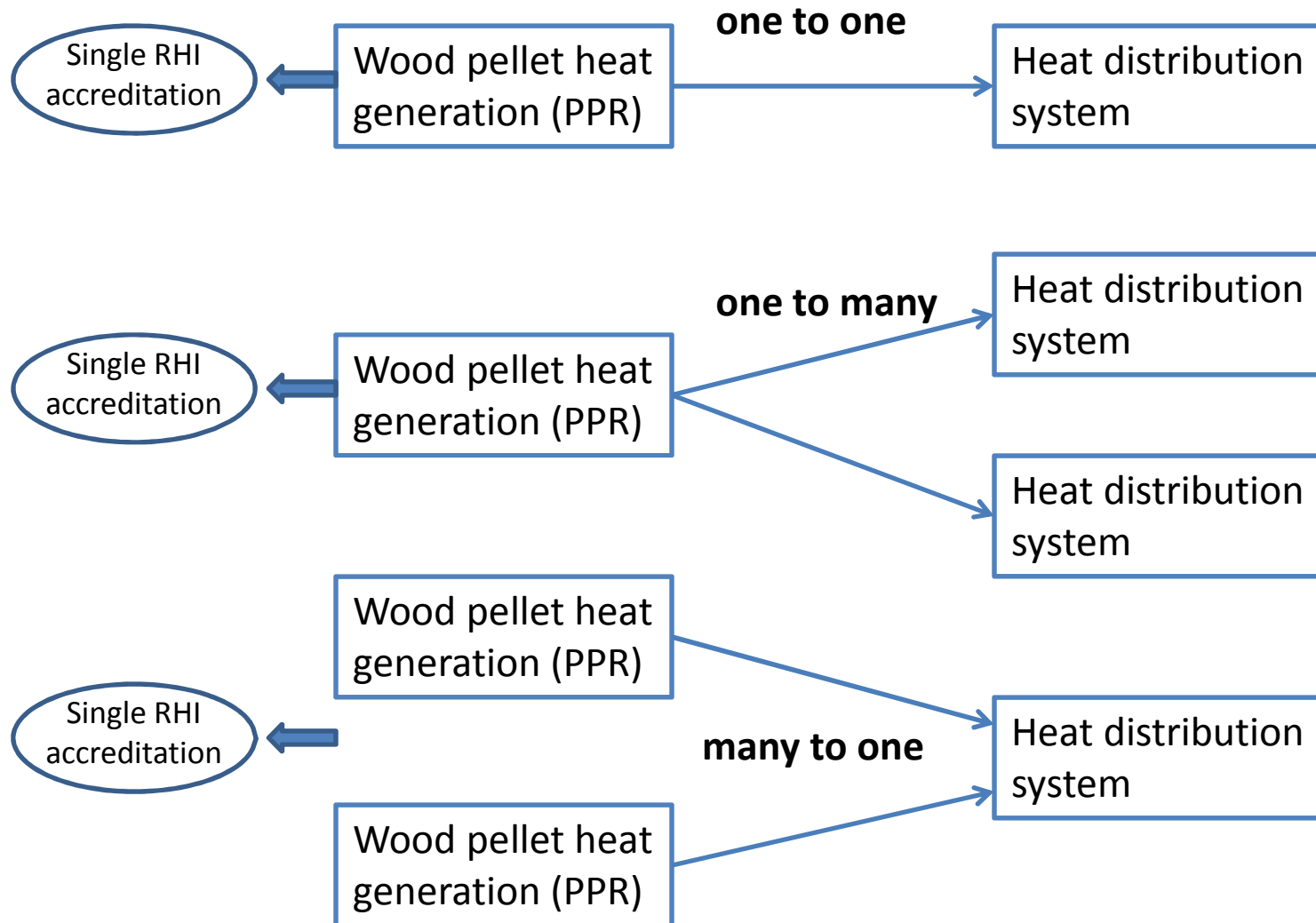
A closed heating system envelop that is not hydraulically linked to any other closed heating system envelop.

## Definition of heat generation system

A single fuel type heat/energy source system in a closed envelop.

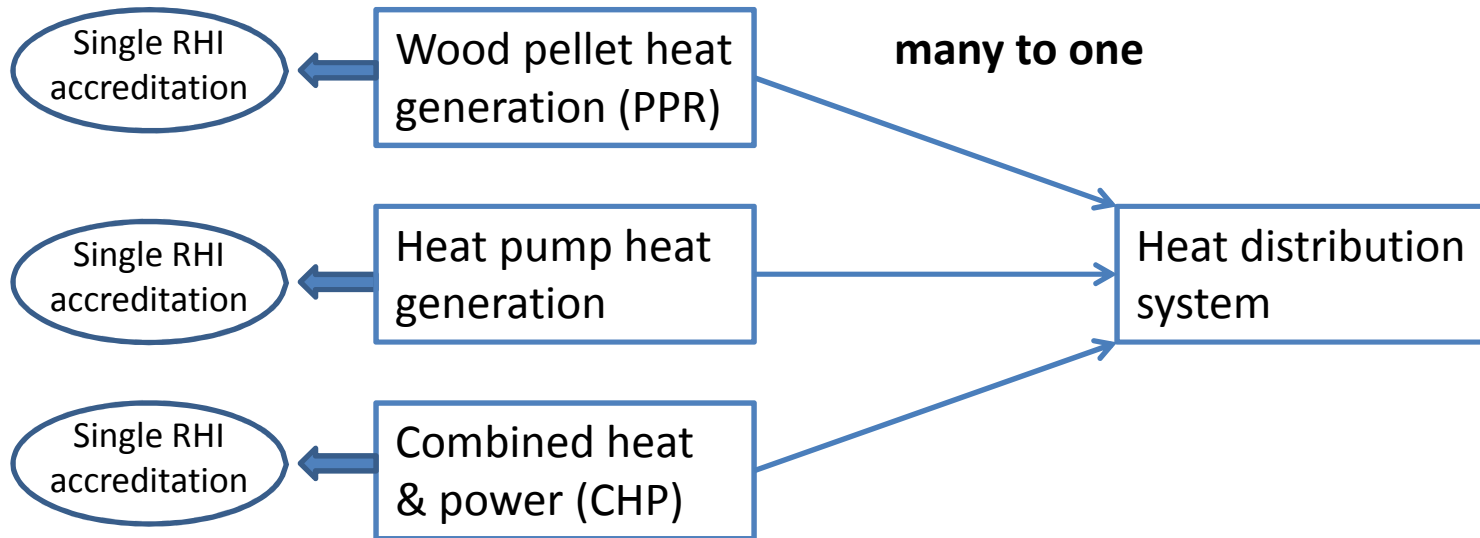


# RHI Accreditation formats for wood pellet heat generation system(s)



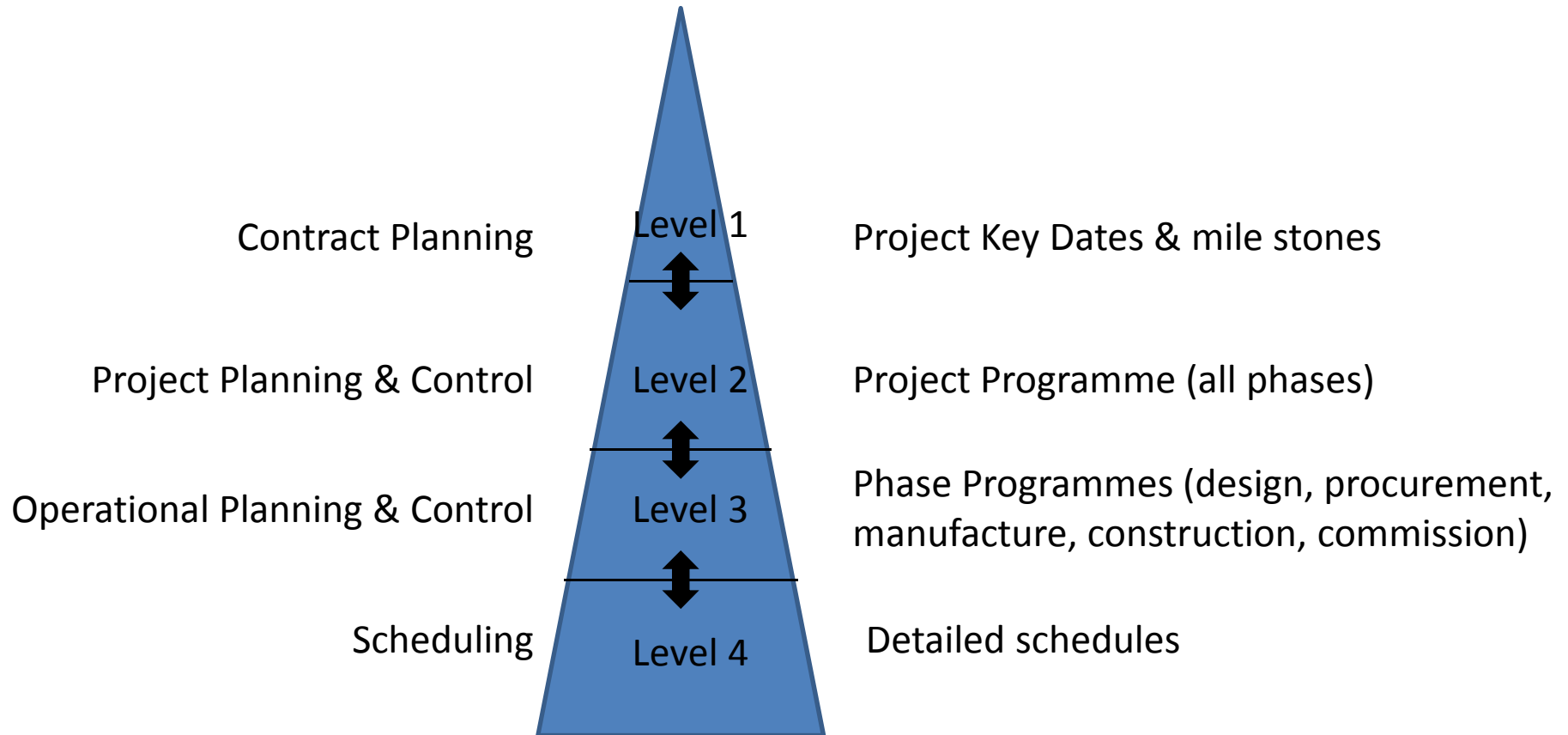


# RHI Accreditation formats for multi type heat generation systems





# Project Planning & Control





# Key dates/mile stones

Contract award

Design Freeze

Main plant ordered

Commence pre-erection assembly

Commence on site installation

Commission

Handover



# Standard Project Plan

Project						Project Plan																	
item	activity description	duration (days)	start date	finish date	status	wk 1	wk 2	wk 3	wk 4	wk 5	wk 6	wk 7	wk 8	wk 9	wk 10	wk 11	wk 12	wk 13	wk 14	wk 15	wk 16	wk 17	wk 18
1	site survey	5				█																	
2	concept design	5					█																
3	approval & order to proceed	5						█															
4	local planning approval	40						█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
5	building control approval	15						█	█	█													
6	definitive design	5							█														
7	approval & design freeze	5								█													
8	RHI preliminar application	5									█												
9	financial plan	5									█												
10	RHI preliminary approval	15										█	█	█									
11	approval & contract award	5												█									
12	pre-erection assembly	30													█	█	█	█	█	█	█	█	█
13	site preparation	1																			█		
14	erect package plant room	1																				█	
15	hook up & system integration	5																				█	█
16	RHI final approval	10																				█	█
17	commissioning	2																					█
18	set to work	1																					█
19	plant ownership handover	1																					█



# Fast track Project Plan

Project						Fast Track Project Plan											
item	activity description	duration (days)	start date	finish date	status	wk 1	wk 2	wk 3	wk 4	wk 5	wk 6	wk 7	wk 8	wk 9	wk 10	wk 11	wk 12
1	site survey	5															
2	concept design	5															
3	approval & order to proceed	5															
4	local planning approval	30															
5	building control approval	15															
6	definitive design	5															
7	approval & design freeze	5															
8	RHI preliminary application	5															
9	financial plan	5															
10	RHI preliminary approval	15															
11	approval & contract award	5															
12	pre-erection assembly	30															
13	site preparation	1															
14	erect package plant room	1															
15	hook up & system integration	5															
16	RHI final approval	5															
17	commissioning	1															
18	set to work	1															
19	plant ownership handover	1															





# Documentation

Project				
item	process	deliverables	status	comments
1.1	site survey	survey report		
2.1	concept design	project over view document		
2.2	concept design	functional design diagram		
2.3	concept design	PPR layout drawing		
2.4	concept design	equipment schedule		
2.5	concept design	specification criteria		
3.1	approval & order to proceed	concept design approval		
4.1	local planning approval	application form		
4.2	local planning approval	layout drawing		
4.2	local planning approval	site plan		
5.1	building control approval	application form		
5.2	building control approval	layout drawing		
6.1	definitive design	schematic drawing		
6.2	definitive design	PPR layout drawing		
6.3	definitive design	equipment schedule		
6.4	definitive design	specification criteria		
6.5	definitive design	Co2 emission profile		
6.6	definitive design	heat load profile		
6.7	definitive design	fuel consumption profile		
6.8	definitive design	lifting arrangement		
7.1	approval & design freeze	definitive design approval		
8.1	RHI preliminary application	application form		
8.2	RHI preliminary application	schematic diagrams		
8.3	RHI preliminary application	PPR layout drawing		
8.4	RHI preliminary application	equipment schedule		
8.5	RHI preliminary application	specification criteria		
8.6	RHI preliminary application	Co2 emission profile		
8.7	RHI preliminary application	heat load profile		
9.1	financial plan	fuel consumption profile		
10.1	RHI preliminary approval	RHI approval		
11.1	approval & contract award	contract document		
12.1	pre-erection assembly	check sheet		
12.2	pre-erection assembly	test reports		
13.1	commence work on site	method statement		
13.2	commence work on site	risk assessments		
14.1	erect package plant room	check sheet		
15.1	hook up & system integration	check sheet		
15.2	hook up & system integration	test reports		
16.1	RHI final approval	as fitted schematic diagrams		
17.1	commissioning	as fitted layout drawings		
17.2	commissioning	as fitted system drawings		
17.3	commissioning	commissioning report data		
17.4	commissioning	certification		
17.5	commissioning	operation & maintenance manual		
18.1	set to work	quarterly performance reports		
19.1	plant ownership handover	contract document		



# What BS Holdings Ltd have to offer

- Efficient, high tech wood pellet, oil & gas boilers
- Modular system design & build
- Design & engineering services
- Feasibility survey & reporting
- Pre- erection assembly production engineering
- Package Plant Room design & build
- Expertise in heating systems (bio, oil & gas)
- Project management process
- Cost effective financial packages
- Ten year warranty
- Competitive pricing structures
- Commissioning expertise
- Quality after sales service
- Performance reporting



# Options

- Replace existing oil/gas heating system with new bio fuel heating system
- Interface new bio fuel heating system with existing oil/gas fuel heating system
- New bio fuel heating system with new oil/gas fuel backup heating system
- New bio fuel stand alone heating system
- Bulk storage of bio fuel
- Boiler house within building
- Package Plant Room interface to building
- Heat distribution strategy
- Funding strategy



# Financial Plan

- Plan 1 – total self funding
- Plan 2 – no capital cost – self running cost
- Plan 3 – no capital cost – percentage running cost
- Plan 3 – no capital cost – no running cost



# Free feasibility survey & report

## Objective of feasibility survey & reporting

- To significantly reduce the use of fossil fuel combustion as heat generation in Northern Ireland buildings
- To significantly reduce the running cost (fuel & maintenance) of heat generation in Northern Ireland buildings
- To significantly increase the use of Northern Ireland produced bio fuel (wood pellet) for heat generation in Northern Ireland buildings
- To produce a project strategy plan for consideration

## Considerations of feasibility survey & reporting to include

- Existing heat generation system
- Existing heat distribution systems
- Existing running costs
- Heat load requirements
- Package plant room & modular design & build technology
- Controls
- Local planning & building control
- Base load, top up modulating load & back up heat generation requirements
- Building infrastructure and layout
- Project planning & control
- Financial plans
- RNI & heat meter strategy
- Service & maintenance plan
- New running costs
- Fuel management plan
- health & safety



# Your next move

- Contact us
- Discuss your existing to new heating system
- Discuss your options
- Plan your way forward



# BS Holdings Ltd

# BIOFUEL HEATING SYSTEMS?

## • A NATURAL RESOURCE

Wood pellets are made from pure sawdust (a sawmill by-product)

## • A LOCAL FUEL SOURCE

In Co.Fermanagh, BioFuel supplier Balcas Ltd operates the largest BioFuel wood pellet mill in the British Isles.

## • GUARANTEED SUPPLY

Wood pellets can be delivered in bulk, palletized bags or sold as individual bags at retail outlets. Balcas Ltd guarantees wood pellet customer supply for the life of the pellet boiler (approx 20years).

## • ENVIRONMENTAL EFFICIENCY

High efficiency, high-tech wood pellet boilers, modular design & build systems will reduce Northern Ireland's carbon emission footprint.

## • COST EFFICIENCY

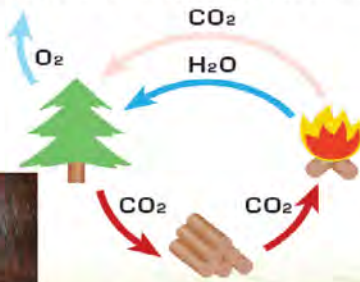
Wood pellet fuel can achieve up to 40% cost savings on fossil fuel for the same heat output. (Subject to latest fuel prices).

## • SUBSIDISED INSTALLATION

Subsidised funding is available via the Northern Ireland Renewable Heat Incentive scheme (RHI).

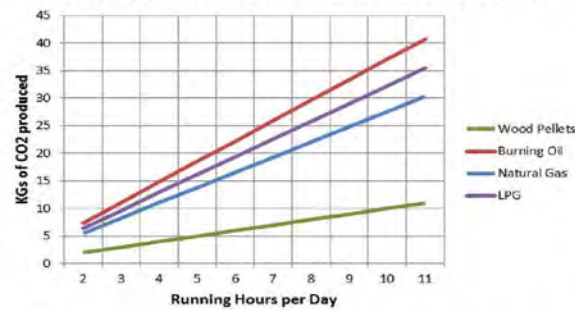
## • HEAT EFFICIENCY

Calorific value 4.8kilowatt hours per 1kg – (that's very good!)



# REDUCING NORTHERN IRELAND'S CARBON FOOTPRINT?

Typical NI household carbon emission comparisons



The evidence is clear – that BioFuel heating systems deliver much lower carbon emissions than other fuels – and savings of up to 40% on commercial and domestic heating bills.

Contact us to discuss your "existing to new" heating system. Explore your options with experienced, expert professionals. Review RHI subsidy options and help us plan your way forward to cost and CO<sub>2</sub> efficient heating.

028 9073 2233



TEL: 028 9073 2233 (6 lines)

TEL: 028 9447 8686 FAX: 028 9073 9333

EMAIL: info@bsholdingsltd.com WEB: www.bsholdingsltd.com



BIOFUEL HEATING SERVICES

THE RELIABLE COST & CO<sub>2</sub> EFFICIENT HEATING SERVICES AND SUPPLY PROVIDER IN NORTHERN IRELAND

SAVE UP TO 40%\*

ON COMMERCIAL & DOMESTIC HEATING

(and even more with additional subsidies)

\*Saving calculated using energy saving trust oil prices as at 23.8.12

WIT-200024



Reviewed from Brian Heed (BS Holdings Ltd) on 10/01/2018  
Annotated by RHI Inquiry

# Savings & Funding via RHI?

(NI Renewable Heat Incentive scheme)

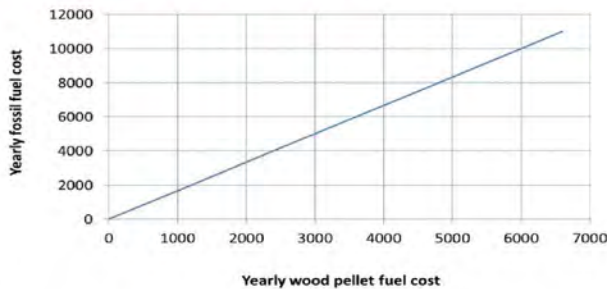
5.9 pence for every kilowatt hour of heat used.  
(up to a 99kw BioFuel system for 20 years).

A £1000 spend of pellet heating fuel produces  
25,000 kwh of heat.

$25,000\text{kwh} \times \text{£}0.059 = \text{£}1475$  funding every year

Domestic boiler installation grant of £2500

## Check your fuel bill



1.5 pence for every kilowatt hour of heat used.  
(for a 100kw to 999kw BioFuel system for 20 years).

A £10,000 spend of pellet heating fuel produces  
250,000 kwh of heat.

$250,000\text{kwh} \times \text{£}0.015 = \text{£}3750$  funding every year



# Options to suit your needs?

BSH BioFuel Heating Services (BFH) is not tied to a single system solution. Your specific requirements are met by a broad range of tailored options:

Replace an existing oil/gas heating system with our new modular BioFuel heating system.

Interface our new modular BioFuel heating system with an existing oil/gas fuel heating system.

New modular BioFuel heating system with a new oil/gas fuel backup heating system.

New modular BioFuel stand-alone heating system.

Bulk storage of BioFuel.

Boiler house within building.

Package Plant Room (PPR) interface to building.

Bespoke heat distribution strategy.

Bespoke funding strategy.



# The BSH BFH BIOFUEL HEATING SERVICES advantage?

As part of the BSH group, BSH BioFuel Heating Services (BFH) has a unique and extensive range of proven expertise, experience and in-house resources, offering cost effective heat generation and distribution solutions. BFH is THE reliable cost & CO<sub>2</sub> efficient heating services & supply provider in Northern Ireland.

Efficient, high tech wood pellet, oil & gas boilers.

Modular system design & build.

Pre-erection assembly production engineering.

Package Plant Room design & build.

Expertise in heating systems (bio, oil & gas).

Mechanical & Electrical Services.

Project management process.

Cost effective financial packages.

Ten year warranty.

Competitive pricing structures.

Commissioning expertise.

Quality after sales service.



WIT-200025

## Subject

Northern Ireland produced Bio Fuel (wood pellets), using Northern Ireland technology, for heat generation of Northern Ireland buildings, reducing the Northern Ireland carbon foot print and reducing Northern Ireland public & private sector heat generation overhead expenditure.

## Agenda

- 1. Potential Northern Ireland customers tabled questions & concerns**
- 2. Northern Ireland produced bio fuel (wood pellets) source and process.**
  - i. Product
  - ii. Price
  - iii. Promise
- 3. Environmental benefits to Northern Ireland.**
  - i. Carbon emissions comparisons
  - ii. Carbon tax
  - iii. Carbon neutral process
- 4. Financial benefits/savings to Northern Ireland public & private sectors.**
  - i. Running costs
  - ii. Government funding
  - iii. High heat users
- 5. Northern Ireland design & engineering of wood pellet heat generation systems.**
  - i. Boilers
  - ii. Storage of fuel
  - iii. Modulation
  - iv. Dual systems
  - v. Pre-erection assembly
  - vi. Package plant rooms
- 6. Implementation process for Northern Ireland companies.**
  - i. Feasibility survey & reporting
  - ii. Design & engineering
  - iii. Planning & control
  - iv. Project management
  - v. RHI accreditation
  - vi. Local planning & building control
  - vii. Installation & commissioning
  - viii. Through life maintenance
- 7. Financial strategies for Northern Ireland companies.**
  - i. Total self-funding
  - ii. No capital cost – self running cost
  - iii. No capital cost – percentage running cost
  - iv. No capital cost – no running cost
  - v. Renewable heat incentive scheme income
  - vi. Running cost savings income

**From:** Wayne Cullen  
**To:** [Brian BSH](#)  
**Subject:** Fw: Desertcreat heating strategy  
**Date:** 10 January 2018 15:09:36  
**Attachments:** [Heating of government buildings.msg](#)  
[desertcreat 28.11.12.pdf](#)

---

**From:** [Wayne Cullen](#)  
**Sent:** Monday, December 10, 2012 5:05 PM  
**To:** [sammy.wilson@mla.niassembly.gov.uk](mailto:sammy.wilson@mla.niassembly.gov.uk)  
**Cc:** [brian@bsholdingsltd.com](mailto:brian@bsholdingsltd.com)  
**Subject:** Fw: Desertcreat heating strategy

For the attention of Mr Sammy Wilson MP MLA Minister

Dear Mr Sammy Wilson

Following my email re Heating of government buildings 6th December 2012 (see attached email) please see below Desertcreat example of potential heating savings of tax payers money in the region of hundreds of thousands of pounds in capital installation costs and hundreds of thousands of pounds per year in overhead operational costs. (see attached letter)

In response to below question and answer

The main points that need to be considered include

- The potential savings of tax payers money of hundreds of thousands of pounds for our proposed wood pellet heat generation and heat distribution installation strategy.
- The potential savings of tax payers money of hundreds of thousands of pounds for our proposed wood pellet heat generation and heat distribution operational strategy.
- Growing of wood chip using 18 acres would be a very small percentage of the wood chip needed to operate existing proposed wood chip system which needs to be planted and processed.

The main issue is the potential massive savings of tax payers money for the installation and operation of this project using our wood pellet heating fuel strategy against the existing wood chip heating fuel strategy.

Look forward to hearing from you

Regards//Wayne

Wayne Cullen  
**BS Holdings Ltd**  
Personal information  
redacted by the RHI Inquiry

[www.bsholdingsltd.com](http://www.bsholdingsltd.com)

**From:** [assembly.questions@niassembly.gov.uk](mailto:assembly.questions@niassembly.gov.uk) [<mailto:assembly.questions@niassembly.gov.uk>]

**Sent:** 05 December 2012 15:08

**Subject:** Written Answer AQW 17011/11-15 - Northern Ireland Community Safety College

To ask the Minister of Justice what assessment was carried out, during the tender process, on the potential use of biofuel at the Northern Ireland Community Safety College at Desertcreat.

The design team investigated various forms of biofuel during the design development stage, including biomass and biogas. It was subsequently determined that biomass was the most appropriate form of biofuel for this site, considering the environment we are creating.

Approximately 18 acres of the site will be used to grow biomass material, which will be available for harvesting by the appointed supplier.

The final design has all heating on site provided by biomass boilers fuelled by wood chips. There will be a back-up oil fired boiler system in case of failure.

# Sheridan & Hood

175 Ravenhill Avenue,  
Belfast, BT6 8LE  
Tel. (028) 90732233  
Fax. (028) 90739333  
Email [sales@sheridan-hood.com](mailto:sales@sheridan-hood.com)  
Reg No. NI 12649

**SPECIALISTS IN**  
Design & Build  
Electrical & Mechanical  
Heavy Engineering  
Renewables  
Warm Air Oil & Gas  
Boilers  
Office, Bank & Shop Fitting



a new brand; a new HVAC

27<sup>th</sup> November 2012

Mr D Ford  
Department of Justice  
Block B  
Castle Buildings  
Belfast BT4 3SG

Reference:- design weakness and cost overspend on Desertcreat training facility

Dear Mr Ford

Our company was asked to provide cost proposals for a tender submission on the above biomass energy centre. Regrettably, upon reading the documentation we could not comply with the specification as we use solely quality assured fuel sources being wood pellet whereas the consulting engineers had selected wood chip, a non quality assured product.

Quality assurance aside, because we could not meet the tender criteria laid down we had to decline to price the works. Upon our review of the energy proposals, within the documents in our opinion, severe weaknesses in the overall design compelled to explain our concerns. The weaknesses cause a needless and considerable capital expenditure as well as major running costs, the latter in our proposal could be turned into a profit rather than cost.

The biomass boilers selected in tender are 1Mw each therefore they fall outside of present scope for RHI support (we accept that future review of the RHI may encompass larger thresholds for biomass but there is no guarantee of that being raised). The running costs in respect of wood chip used for approximately 3000hrs per annum would be around £199,337.00 + VAT. We estimate the entire energy centre costs + extensive underground heating distribution pipe work but less the energy building itself, will be in excess of £1,500,000.00

Our proposal compliments the RHI (renewable heat incentive) scheme as well as encompassing major energy saving proposals using a quality assured fuel source being wood pellet and is based upon sound and proven engineering. Our proposal is to manufacture 99kw heating plants for ten of the twelve number buildings to be heated via the energy centre currently proposed. According to the engineering data we have received, 99kw will meet the largest proportion of demands for the ten buildings. The 99 models will be small in physical size and fit inside 3 car parking spaces, be of modern cladded construction (review [www.bsholdingsltd.com/ppr.html](http://www.bsholdingsltd.com/ppr.html)) and therefore not be unsightly to be located adjacent to each building requiring heat. They being small in footprint should not prove insurmountable for planning adjustment and are fully acceptable to building control. The remaining two buildings will require larger heating plants but again similar arrangements can be made. These larger units will again meet the RHI incentive arrangements.

To keep a straight forward basis for calculation we have only dealt with the 99 models herein;

Factoring in the running costs for the RHI systems based again on 3000 running hours we see a fuel cost increase over wood chip of £14,409.00 bringing our total fuel bill to £130,494.00 for the year. The RHI income of £175,230.00 makes an overall profit for the scheme each year of £44,740.00\*. The twenty year term for the RHI should yield an income of approximately £894,800.00 in the RHI lifetime. The present system proposed by the consultants (again only dealing with 990kw of heating load) will cost £116,084.00 per annum to run with no means for recovery. This over a 20 year term would see your department spending £2,321,000.00 on heating when it is possible to have made a profit\* of £894,000.00, by using a different heat strategy that reflects a commercial world's thinking but retains the department's ability to maintain carbon emissions..

#### Facts pertaining to our proposal

Ten 99 units will receive maximum RHI funding of 5.9ppkwh

Two larger units will receive RHI funding of 1.5ppkwh

Improved security of heating having multiple modular boiler arrangements in each package plant rather than two boilers as originally designed.

Improved warranties on our proposed biomass boilers (8 years normal extendable to 10 years)

Wood pellet is a quality assured fuel, wood chip is not.

Oil or gas backup/top up has been taken into our proposals

No underground heating pipe work is therefore needed saving circa £200,000.00 + civil works in construction.

No underground heating pipe work means large savings in energy each year which would have been lost over the length of heating pipe work buried in the ground in the consultants scheme.

No large biomass boilers or oil boiler at a cost of £800,000.00 including chimneys

If the consultants scheme energy centre costs circa £1,500,000.00 our scheme, can save in excess of £500,000.00 on that capital amount by using our technological advances.

We urge your department to speak with us for a greater understanding of how we see delivery of heat to this project to make these savings to the public purse.

\*subject to reductions which would be future system design dependant

Yours faithfully

For SHERIDAN & HOOD LTD

.....  
Brian S Hood

Cc Mr S Wilson finance minister  
Mr D Kinahan  
Mr P McGlone  
Mr R Hussey