



Microgeneration  
Installation  
Proposal for -  
Perins School &  
Community Sports College

## FREE Biomass Pellet Boiler Offer



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## *1. Introduction Summary*

Perins already has shown commitment to Sustainable Energy by the adoption of two Solar PV installations on school buildings.

As an aid to Perins, PSECC have sourced a FREE Biomass Pellet Boiler for the replacement of the old oil fired boiler system in the Stephenson's Block and Sports Hall area.

Key Benefits:

Compared to all fossil fuel based heating there is a wood fuel equivalent that delivers a significant saving, of at least 25%, usually more our financial model will give you a 15% saving. There will be no need for new piping in the boiler house as the existing pipework will be utilized and a new Biomass storage tank will be supplied in place of the old oil tank storage.

### **SOLARFOCUS Company Profile**

SOLARFOCUS develops, manufactures and supplies cutting edge technology solutions for sustainable building heat management solutions for domestic to medium scale projects (2.9-420 kW). The Austrian company with its headquarters in Steyr has almost 20 years experience in the combination of solar and biomass heating technologies for space heating, hot water preparation and pool heating. The company has set new standards in terms of efficiency, intelligent controls and easy to use and functional product design. With our highly trained distribution and service partners we ensure you a nationwide service network all over the UK.

The SOLARFOCUS product range: The all in one solution for your complete building heat management

#### **Biomass boilers:**

- Pellet boilers (2.9-70 kW)
- Log wood boilers (13.4-60 kW)
- Dual fuel boilers: logs + pellets (6.3-60 kW)
- Wood chip boilers (11.4-60 kW)
- Cascades and clusters up to 420 kW

SOLARFOCUS biomass boilers are equipped with intelligent controls which are easy to use for complete building heat management.

The cutting edge technology (e.g. down-firing combustion patented automatic heat exchanger cleaning and much more) inside the boilers guarantees highest efficiencies and lowest emissions. This will result in low life-time costs and fuel savings for you.

All SOLARFOCUS boilers are MCS accredited which will ensure that they are supported by RHI grants.

### **Solar thermal collectors**

- SOLARFOCUS CPC collectors ensure a consistent high output and are completely maintenance free.
- Highest quality flat collectors
- Swimming pool absorbers

### **Storage and fresh water technology**

The wood-fuelled heating cycle is environmentally sustainable for two main reasons. Wood fuel is a renewable resource. For each tree used for fuel another can be grown to replace it. Secondly, as trees grow they absorb carbon dioxide from the atmosphere, the same carbon dioxide which is released when combusted in the SOLARFOCUS boiler.

The result is a virtuous circle of energy and carbon dioxide captured in the fuel, which is released during combustion and then captured again as the resource is grown. As such, we call wood-fuelled heating a carbon neutral form of energy generation.

## 2. Background

### Where cutting-edge pellet boiler technology meets mature usability

**SOLARFOCUS, the Austrian expert in combining biomass boilers with solar thermal solutions, presents a new pellet boiler model with outstanding control technology – let's draw the curtain for the innovations 2012!**

The pellet boiler **pellet<sup>top</sup>** (15 and 25 kW) has been proven for years in the market for smaller applications now. SOLARFOCUS used the gained experience and the mature pellet technology to come up with a bigger sized pellet boiler in the power ranges of 35, 49 and 70 kW and the possibility of cascading up to 420 kW.

#### More power for your money

The new and big size **pellet<sup>top</sup>** complements the range from 15 to now 70kW. The boiler is ideal for hotels, multi-storey residential buildings, and any commercial and public applications – particularly with the easy, very cost-effective and long term efficient possibility of cascading up to 420kW. The advantages of cascading are obvious: Minimized run-time costs due to optimum combustion conditions and lower fuel consumption as well as flexibility in space are only some of them.



With the

- patented automatic heat exchanger cleaning that keeps the boiler efficiency high over the years,
- the automatic deashing,
- and the integrated intermediate pellet store for automatic vacuum pellet supply over distances up to 20m,

the boiler provides the convenience and flexibility SOLARFOCUS products are known for.

The new boiler has already proven itself in several applications, like the 52-bed-hotel "Stoderhof", located in an Austrian winter sports resort. Two **pellet<sup>top</sup>70S** cascade replace an old oil boiler, integrating a well sized solar thermal system, and controlling 8 weather-compensated heating circuits as well as instantaneous DHW preparation with two big size fresh water modules. This solution saves 17,000 Euros on fuel and impressive 84.3 tones CO<sub>2</sub> per year.

### ***3. Proposal***

#### **Biomass Heat Supply Contracts for the supply and installation of free boilers for heat sale using biomass as a fuel source.**

##### **Background**

The Biomass boiler market has become much more mainstream in the past 5 years due to the increases in oil and gas prices.

While to date it has often been large private estates with several houses to heat using a district heating system that has chosen this heat system, with the introduction of more sophisticated boilers which require a smaller footprint the whole process has become more automated and easier and quicker to install and manage.

##### **The Triggers for Biomass**

On its own the capital cost of a biomass boiler is far too expensive to be installed and achieve a realistic payback period. The government acknowledges this and have developed the Renewable Heat Incentive (RHI) which ensures that each KWh of heat generated from a biomass boiler attracts a payment on a sliding scale.

##### **Who we are.**

British Heat is formed for the purpose of owning and operating the Biomass boilers allowing free installation of boilers in the end users property.

This company would be responsible for sourcing the fuel supply and ensuring the heat meters are read and submitted on a regular basis to secure the prompt payment of the End users bills. British Heat Limited will also ensure all the boilers are maintained to the highest standard with a maintenance contract which would be undertaken by the boiler installer and renewed annually. This contract would cover both parts and labour for the first 5 years.

The company will be owned and operated by Martin Roberts and all our installations will be carried out by a competent MCS registered Installer.

Martin Roberts has over 20 years experience in the construction industry and has extensive knowledge of installing plant in manufacturing plants. Qualifications include a BSc in Quantity Surveying from the University of Ulster, an MSc in Construction Management from Heriot Watt University and a former member of the Royal Institute of Chartered Surveyors. He is currently involved in a start-up manufacturing wood Pellets for Biomass boilers.

##### **The Market Sector**

As a company our primary market sectors are charities, schools and municipal buildings. These sectors have a consistent heat requirement on an on-going basis ensuring the uptake of heat. As a company the objective is to install boilers in order to reduce fuel bills, but ensuring these savings are directed where in our opinion they can have the greatest effect.



## **The Technology**

We have researched the market and believe we have located one of the best boilers for efficiency, reliability and value for money in the Austrian made boiler. Their boilers incorporate technology which is well developed and user friendly. Each boiler is networked via the internet which allows remote fault finding and correction ensuring quick response times.

These boilers are fuelled using wood pellets which are automatically fed in to the boiler and incorporates automatic ash disposal.

The Main Advantages are outlined below

- No Capital Costs for the school.
- No on-going maintenance for the school.
- All fuel supplied by British Heat ensuring a constant supply.
- Any efficiency loss in the boilers going forward is not at the schools cost.
- The price of Fuel is more stable and wood pellets are not traded on the stock exchange as a commodity.
- A reduction in heating costs by up to 10%
- Reduction in Carbon Emissions some 46 tonnes.
- A sustainable fuel source.
- The fuel is all manufactured within the UK.

## **In Summary**

We as an organisation are interested in protecting our environment and see this as one effective way to implement significant carbon reductions in a relatively short time frame. It also allows us to encourage UK manufacturing and thereby create jobs both from fuel supply and boiler installation and maintenance.

The savings we achieve for our clients can be directly used by them as they see fit and offer us all to make a very real difference to people's lives albeit it in a small way.

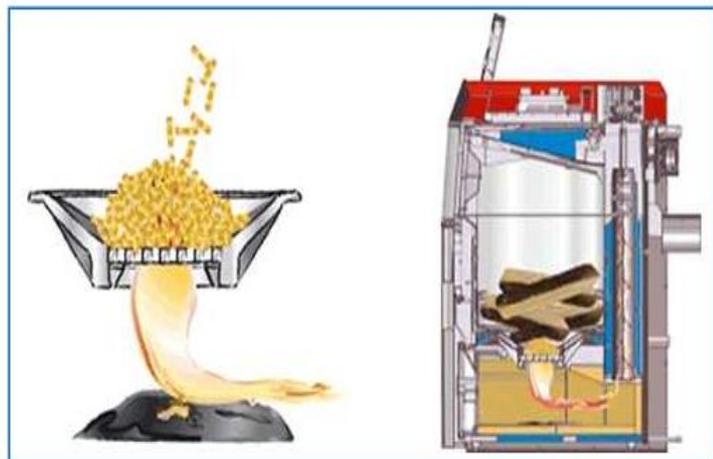


Sports Hall looking West



- ✓ Regulation **eco**<sup>manager-touch</sup> with touch-display
- ✓ Integrated pellets store for vacuum system
- ✓ Automatic heat exchanger cleaning and ash extraction
- ✓ Ideal for cascade systems up to 420 kW

**SOLARFOCUS Biomass Boilers** – downdraft gasification for maximum efficiency



#### 4. Current System

Please see below information on boiler at Stephenson Block that's serves the block & Sports Hall



Sports Hall heaters – wet system



## 5. *New Biomass Boiler control monitoring*

### Everything under control with one finger tip

#### Touch screen control **eco**<sup>manager-touch</sup>

The modern and user-friendly touch-screen-control **eco**<sup>manager-touch</sup> is the heart of the boiler and allows for complete building heat management. Solar thermal plant, pellet burner, heating control, DHW control and many more are coordinated by the modern touch-screen-control. With just a few finger tips you can easily regulate your complete heating system. This makes a manual almost unnecessary and gives you more time to enjoy your individual and comfortable climate.



Even more comfort offers the remote control of your heating system via your smartphone, PC or tablet computer. Whether you are traveling or simply out of your sofa you can access your heating system and make the desired settings.

#### Controller unit **eco**<sup>manager-touch</sup>

2012 comes up with another novelty: the innovative touch-screen-control **eco**<sup>manager-touch</sup> is also available as a stand-alone version. The controller unit **eco**<sup>manager-touch</sup> is compatible with different kinds of heat producers. With this clever unit you can coordinate all components of your solar system, DHW system and heating system no matter from which producer they come from.



The technology of the controller unit **eco**<sup>manager-touch</sup>:

- 5.7" VGA colour touch display
- Powerful microprocessor
- Up to 8 standard heating circuits (controlled by atmospheric conditions)
- Up to 4 domestic hot water charging circuits
- 2 adjustable solar circuits
- Control of fresh water module
- Buffer tank management
- USB interface for recording of ACTUAL values on a USB stick (optional)
- Ethernet interface for remote enquiry (optional)
- Remote control via mobile phone (optional)
- Error messages via SMS (text message) on your mobile phone (optional)
- Display available with on-wall box or in-wall box

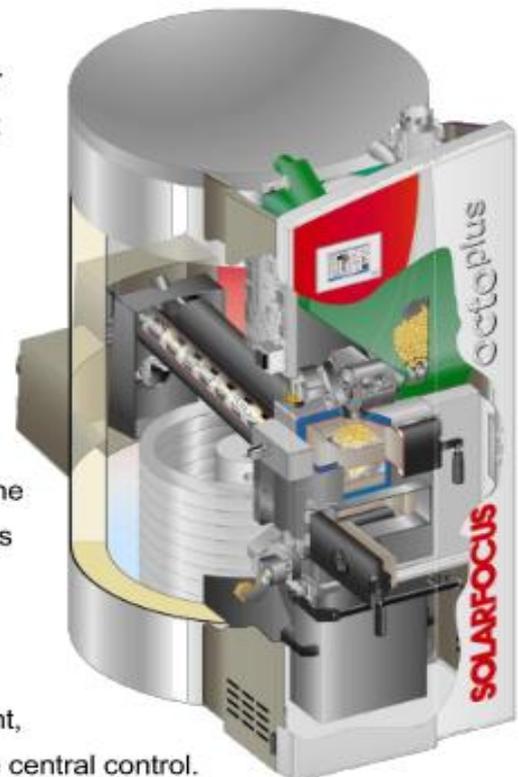
### Sun and pellets wisely combined - the pellet boiler octo<sup>plus</sup>

## 6. Replacement Technology Choice

**The dual system pellet boiler octo<sup>plus</sup> – Austrian manufacturer SOLARFOCUS' innovation – fully integrates buffer and solar thermal energy supply within one unit on less than 1 m<sup>2</sup> floorspace, a very compact combination yielding a maximum of pellets savings.**

The award-winning boiler combines a compact down-firing combustion pellets boiler unit with a clever buffer solution and latest solar engineering into one compact unit. Just in case the energy required for heating and domestic hot water preparation cannot be supplied by the sun, the integrated pellets boiler is topping up the necessary energy. This integrated concept of solar heat and pellets technology achieves a complete **system efficiency** of 94 % for pellets due to direct delivery of pellets heat from the boiler's heat exchangers into the centre of the buffer tank. Due to the compact design, the pellets boiler **octo<sup>plus</sup>** requires less than 1 m<sup>2</sup> of floorspace. Installation of the **octo<sup>plus</sup>** is easy and straight way forward as it is composed of compact modules. The touchscreen display allows for easy, intuitive and complete building heat management, including solar thermal, integrating everything into one central control.

The attractive design tops up the advantages of compactness, energy savings, innovative function and easy handling of the **octo<sup>plus</sup>**.

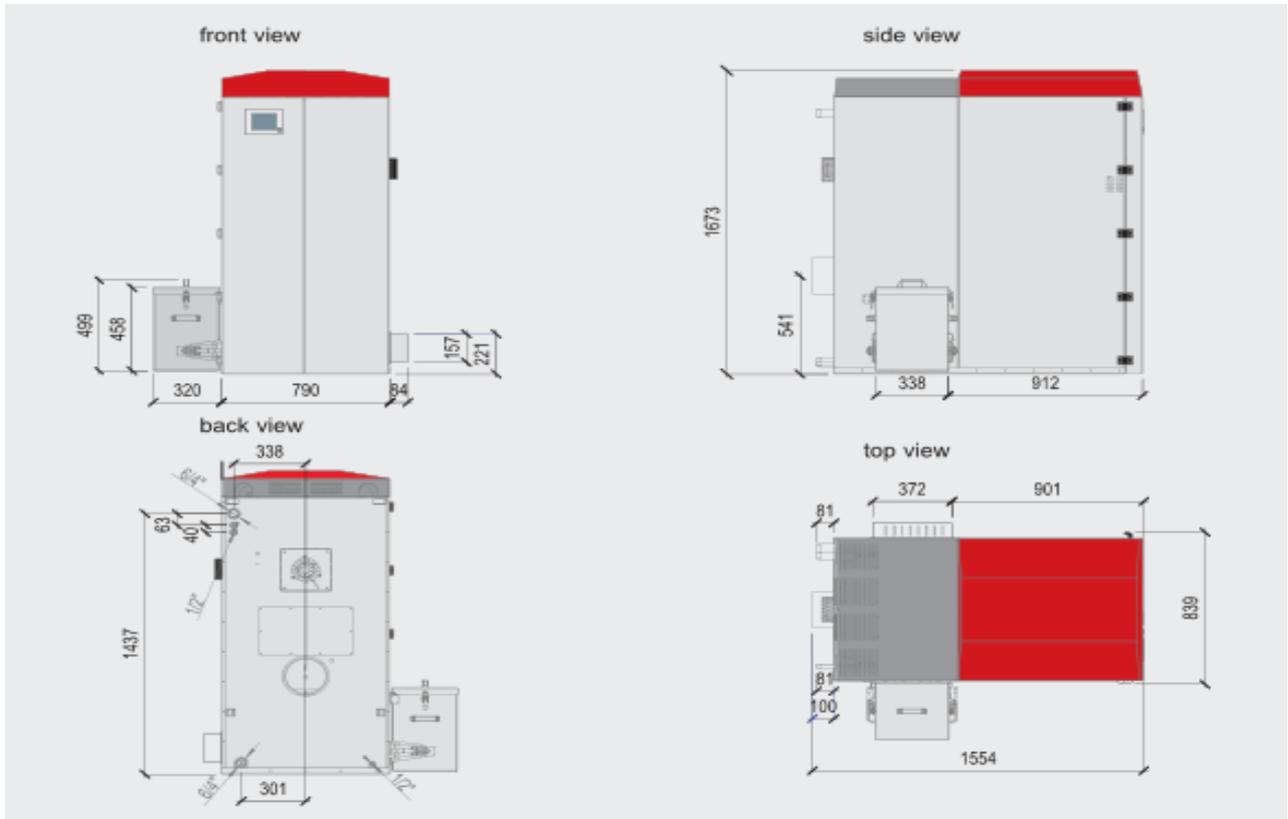
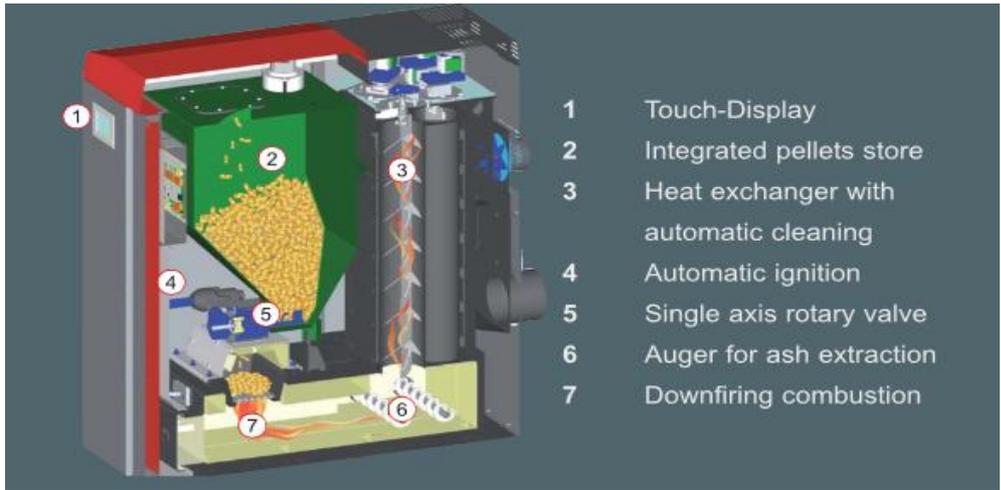


### Further information and contact

DI (FH) Marlene Pfeiffer, International Marketing

Phone: +43 (0)7252 / 50 002-32

e-Mail: [m.pfeiffer@solarfocus.at](mailto:m.pfeiffer@solarfocus.at)



|  | pellet <sup>top</sup> 49 kW<br>Art. No.: 67152 | pellet <sup>top</sup> 70 kW<br>Art.No.: 67172 |
|--|--|---|
| Power range (kW)   | 14,7 - 49                                      | 21 - 70                                       |
| Flue pipe ø  | 200  | 200   |
| Water jacket content (l)                                   | 130  | 130   |
| Width (mm)   | 790  | 790   |
| With (mm) incl. ash box and motor for ash extraction auger | 1194   | 1194  |
| Height (mm)  | 1673   | 1673  |
| Depth (mm)   | 1554   | 1554  |
| Weight (kg)  | 670  | 670   |

## 7. *Renewable Heat Incentive (RHI)*

### Renewable Heat Incentive

The Renewable Heat Incentive (RHI) is a government programme designed to help households and businesses finance, and adopt, environmentally sustainable forms of heating. The terms are established by the Department for Energy and Climate Change (DECC) and the programme is administered by OFGEM.

Biomass and solar-thermal are two technologies approved under the RHI. The scheme has been divided into two phases. The first is the non-domestic market, launched in November 2011. The second is the domestic market, which will be launched in 2013.

The principal criteria of eligibility for the non-domestic RHI are as follows:

Space heating and Hot water for conventional and commercial applications.

Commercial and Industrial sites.

Residential sites where two or more houses (each registered with a different council tax code)

#### Key Benefits:

Compared to all fossil fuel based heating there is a wood fuel equivalent that delivers a significant saving, of at least 25%, usually more.

The RHI provides an ongoing twenty-year income stream that, in the case of a biomass system, should cover the costs of the initial capital expenditure within 8 years or less. The basic rule of thumb is £100 per year, per kW of installed biomass capacity. That means a 100kW biomass system should generally expect generate £10,000 a year.

Enhanced capital allowance: Businesses of any size can claim 100% FYAs on capital expenditure on new energy-saving plant or machinery.

#### How it works:

The incentive is provided to all approved systems based on ongoing, on-site consumption. For every kWh generated and consumed with an eligible use, a certain tariff is paid.

#### Biomass Systems:

The high tariff 8.3p/kWh is paid on the first 1,314 hours the boiler is used (which reflects an average use of 4 hours per day over the course of a year). After this point a lower tariff of 2.1p/kWh is paid.

## 8. Installation Company

*Oxford Renewables Ltd., The Old Dairy, Path Hill, Goring Heath, Oxon. RG8 7RE.*

*0845 – 2178970*

*Email - [contact@oxfordrenewables.co.uk](mailto:contact@oxfordrenewables.co.uk)*

*www.oxfordrenewables.co.uk*

*Registered Company No. 06618379. Vat Registration No. 930 3609 44. Registered in England & Wales.*



**INSTALLER PARTNER NETWORK:**

*Over the past couple of years we have been working hard to ensure that we are working with professional and experienced companies specialised in renewable energy. With our current group of partners we are confident of being no more than one hour away from any of our potential customers. To find out more about the companies we work with*

### Case Studies

## Commercial

#### [Brazier's Park](#)

Site profile: Rural Commercial  
System: 2 X 60kW THII chip & Log with 6000ltr buffer store  
Commissioned: 2010

#### [Court Hill Centre](#)

Site profile: Rural Commercial  
System: 60kW THII pellet & Log with distributed buffer storage  
Commissioned: 2011

#### Manor Farm

Site profile: Rural Commercial & Multi-property  
System: 60kW THII chip & log with 3000 ltr. buffer store  
Commissioned: 2010

#### Chissock Woodcraft

Site profile: Rural Commercial  
System: 36kW THII log with 2000 ltr. buffer store  
Commissioned: 2011

#### [The Energy Warehouse](#)

Site profile: Rural Commercial  
System: 15kW PelletTop with 8000 ltr. buffer store  
Commissioned: 2012

#### [Park United Reformed Church](#)

Site: Urban with social applications  
System: 60kW Therminator II Pellet & log in cascade with PelletTop 25kW with 3000 litres buffer storage.

## Our Services

| Service                  | H.R. | Track-record | P.R. | Training Centre | Show trailer | Installer network | Distribution | Strategic partnership |
|--------------------------|------|--------------|------|-----------------|--------------|-------------------|--------------|-----------------------|
| 1. Design                | ✓    | ✓            | ✓    | -               | -            | -                 | -            | -                     |
| 2. Supply                | ✓    | ✓            | ✓    | ✓               | ✓            | ✓                 | ✓            | ✓                     |
| 3. Install               | ✓    | ✓            | ✓    | ✓               | ✓            | ✓                 | ✓            | ✓                     |
| 4. Service & Maintenance | ✓    | ✓            | -    | ✓               | -            | ✓                 | -            | ✓                     |
| 5. Training              | ✓    | ✓            | ✓    | ✓               | ✓            | ✓                 | -            | ✓                     |
| 6. Financing             | ✓    | ✓            | ✓    | -               | -            | ✓                 | ✓            | ✓                     |

**Design:** We provide a thorough analysis of each site's requirements and design all elements of the heating system to ensure proper functioning. Our design capabilities include:

- Heat loss calculations
- Pipe and pump sizing
- Buffer store sizing
- Hydraulic schematics
- Electrical schematics
- Boiler room layouts
- Fuel store design

**Supply:** We have been SOLARFOCUS chosen distributors for five years now. This gives us access to all of the SOLARFOCUS catalogue with over 1000 different products available across the heating and domestic hot water spectrum. We supply principally through our installer partner network enabling to cover all of the south and south-east of England.

**Install:** With five years experience and over 60 installations to our name we are confident in our ability to determine the best way to install SOLARFOCUS boilers. Our in-house installation team has been with us for a number of years and has been trained on site and at the Austrian SOLARFOCUS factory. We project manage all our in-house installations and we also provide continuous project and technical support to our installer partner network on all SOLARFOCUS installations.

**Service & Maintenance:** We have a trained service team on call 365 days a year, throughout the south and south-east of England. We provide a contractual arrangement to ensure peace of mind that Oxford Renewables will be 100% available for any service or maintenance requirements. Furthermore, we offer ongoing training to our installer partner network to create a wider set of capabilities across the service area we manage.

**Training:** In 2011 we opened our training centre. We have complemented this with our show trailer that comes equipped with the same working boiler that we use to heat our offices. We run training sessions for novices through to experienced professionals throughout the year with the goal of building-up the technical capacity and capability to install and maintain small-scale renewable energy sites across the south and south-east of England.

**Financing:** Given the variety of requirements for each site we have developed our own financing offerings as well as teaming up with major players such as CPL (woodpellets2u.co.uk) so that, wherever possible, viable and quality projects are not left behind due to financial constraints.

## 8. Biomass Boiler Specifications

Proforma

**Oxford Renewables Ltd.**

The Old Dairy  
Path Hill  
Goring Heath  
Oxon  
RG8 7RE

0845 217 8970  
[www.oxfordrenewables.co.uk](http://www.oxfordrenewables.co.uk)

**Date:**  
**Client Name:**  
**Reference:**

**9th November, 2012**  
**School, Martin Roberts**  
**12.ROB.HAM.BO.02**



**Installation of a 189kW Cascade System with 10,000 litres of buffer storage and district heat main.**

**Materials:****Boiler**

189 PelletTop Cascade System  
500ltr Expansion Vessel  
5000ltr Buffer Store  
Flue Components

Includes: vacuum suction fuel delivery system,  
thermostatic return booster modules, cascade  
controls, 1 buffer store.

| Part No. | Quantity |
|----------|----------|
| 67152    | 1        |
| 1561H    | 2        |
|          | 2        |
| SPECFLUE | 3        |

**Fuel Storage and delivery**

Pellet Box S for vacuum extraction, height adjustable  
Storz couplings for Pellet Box  
Suction and Return Air Hoses, support shells and fixing clips

|                |   |
|----------------|---|
| 6685S          | 3 |
| 6675           | 3 |
| 6120/6125/6130 | 3 |

**Hydraulics**

Heat Main Pumpset  
Danfoss Valves DN40 AB-QM  
Water Meters

|  |   |
|--|---|
|  | 1 |
|  | 1 |
|  | 1 |

**Heat Main Interface Units**

|        |    |   |
|--------|----|---|
| School | OR | 1 |
|--------|----|---|

**Pipework & Integration**

|          |  |   |
|----------|--|---|
| Pipework |  | 1 |
|----------|--|---|

**Controls**

|             |  |   |
|-------------|--|---|
| Timed relay |  | 1 |
|-------------|--|---|

|                  |  |   |
|------------------|--|---|
| 7-day programmer |  | 1 |
|------------------|--|---|

**Heat Meters**

|   |     |   |
|---|-----|---|
| Principal off buffer store (200kW) Qp15 | MWA | 1 |
|---|-----|---|

**Total Materials****Labour****Man Days**

|  |     |
|--|-----|
| Preliminaries (Systems design, specification and project management) | 2   |
| Mechanical Assembly of equipment on site                             | 3   |
| Boiler Room Installation   | 5   |
| Buffer and pipework Connection                                       | 2   |
| Integration of HMIU  | 2   |
| Erection of Flue   | 2   |
| Pump & Sensor Wiring   | 2   |
| Insulation of pipework   | 0.5 |
| Pellet Store Assembly  | 1   |
| Heat Meter Installation  | 1   |
| Commissioning  | 0   |
| Independent Heat Metering Report & RHI Administration support        | 0   |
| Training   | 0   |

|                     |             |
|---------------------|-------------|
| <b>Total Labour</b> | <b>18.5</b> |
|---------------------|-------------|

**Total Delivery**

**TOTAL:**

**VAT:** 5.00%

**GRAND TOTAL:**

Please note:

**System can be commissioned as 210kW to ensure heat loss of site is catered for.**

Price valid for 1 month.

Price does not include connection to mains electricity supply.

Price does not include any civil works or making good unless stated otherwise.

This is an indicative quotation and as such may not be complete at time of sending.

A formal quotation requires a site survey & system design.

From receipt of your order our current lead time for the delivery of equipment is 4 weeks.

The duration of the work will be approximately 19 days for four fitters.

This price does not include for PART P electrical work or making good.

Registered in England Company No. 06490218 VAT No. 930 3609 44.

**No cost to Perins**

**9. Draft  
Contract for heat  
Supply to Perins  
School**

**Draft Contract for Heat supply to Perins School.**

For Perins School  
Pound Hill  
Alresford SO24 9BS (hereafter referred to as “the Client”)

By British Heat (hereafter referred to as “ the Supplier”)

The Supplier proposes to supply heat to the Client using the boilers and specification detailed in the quotation (a signed copy to be appended to the contract, forming part of The Contract)

The Contract is for the duration of 20 years

The Client shall be supplied with heat as required to service their facility over a 20 year period.

1: This heat shall be paid for at 7.5 pence per Kilowatt hour as recorded on the Ofgem Approved heat meter installed by British Heat.

2: All usage above the minimum uptake shall be charged at 4.5 pence per KWH.

The minimum uptake in each year by the Client shall be 260,000 KWh. per calendar year.

The Supplier shall fix the price for the first 2 years only and after this period the increases will be in line with the RPI upwards only.

The Client shall allow access for emergency repairs to be carried out with 8 hours’ notice.

The Supplier will ensure all fuel and servicing and maintenance will be carried out by British Heat or their nominated contractor.

The Client shall ensure access by prearrangement to allow fuel deliveries, servicing and maintenance work to be carried out.

The Supplier shall ensure all heat interruptions are dealt with within a 15 hour period from notice of such an interruption.

The Client shall insure the boiler under their policy and be separately noted on their policy documents.

The payments for the fuel supply shall be paid by direct debit over a 12 month period.

50% of the total annual fuel cost shall be paid in instalment 1. The remainder payable over 11 equal monthly instalments payable on the first day of each month.

Title to the boiler and all ancillary equipment installed by the supplier remains the property of British Heat for the duration of the Contract

The maintenance of the buildings and enclosure to ensure weather tight and normal operation of the boiler is the responsibility of the client.

The operation and settings of the boiler shall only be changed by a competent engineer approved by British Heat.

All charges are excluding Vat at the current rate.

The contract is subject to necessary credit references.

Signed

Signed

Date

Date

On Behalf of Perins School  
Pound Hill  
Alresford SO24 9BS

On Behalf of British Heat