



## Goonhilly Earth Station

*315Kw Wood Pellet Heating System – December 2015*

Scheme	Supply of heating to the main building of the Goonhilly Earth Station
Boiler and plant	Fröling 315kW wood pellet biomass system, installed with an existing oil backup system. The plant room and fuel store were built in bespoke energy centres, matching an existing site building in the same location.
Fuel	The boilers are expected to use around 101 tonnes of wood pellet per annum, producing around 480,000kWh of heat to the site. The system is designed to run on wood pellets, keeping the storage space to a minimum.
Chip storage	Dunster utilised a brand new 30ft shipping container as a store, and then installed three pellet augers along its length, maximising available space and providing 21 tonnes of storage.
Grant / Funding	The system was funded by the Goonhilly Earth Station, and is accredited under the Non-Domestic Renewable Heat Incentive scheme.
Savings / Investment	Switching from oil to biomass heating is providing significant savings on heating bills. The income from RHI payments will pay off the capital expenditure of the system.
CO <sub>2</sub> saving	Compared to oil heating, our wood pellet system reduces CO <sub>2</sub> emissions by over 95%.



## Project overview

Goonhilly Earth Station in Cornwall is a space science centre, famous for its satellite communication, space educational resources and community engagement activities. The earth station sought to enhance its green credentials and reduce energy costs by switching from oil to biomass heating for their main building. The main building is 3,500m<sup>2</sup> in size, with an annual heat demand of approximately 420,000kWh.

## Fuel supply and chip handling

In order to avoid additional construction costs and disruption, Dunster built a unique, containerised pellet store off-site, which was then easily installed. The steel store has been completely insulated and then finished internally with phenolic ply, helping to ensure the free flow of pellet. Being long and narrow we installed three pellet injection connections to ensure that maximum capacity can be used. Wood pellet is being purchased from a local supplier.

## System design and installation

As mentioned, Dunster designed the biomass system and fuel store to fit within new ISO containers; this was built to match the original construction, with an added twist of colour to brighten up the site.

The system was designed to take on 100% of the heat load for the main building. Three P4, 105kW boilers were installed in cascade with a 6,500Ltr accumulator tank, providing excellent modulation and built-in backup.

The Fröling control system has been connected to the internet to enable remote monitoring and access, meaning even the most remote locations such as this one are visible at the touch of a button.

## Benefits

Compared to their previous oil heating system, the biomass scheme is much more efficient and has provided a cleaner, greener source of heating. Biomass heating at Goonhilly Earth Station has allowed the organisation to reduce energy costs and CO<sub>2</sub> emissions.

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