

## Providing fuel for Kielder wood-fired community heating



Kielder is a commercial forest producing mainly softwood timber for building, fencing, furniture and fuel. Every time a tree is cut down in Kielder Forest, a new one is planted. Growing trees lock up CO<sub>2</sub> which is released by burning the wood and locked up again by new trees. During felling operations, wind blown and low quality timber is kept to one side to be used for woodchip fuel. The logs are stacked in an open windy position by the roadside. In six to twelve months they will have dried to about 35% moisture which is suitable for the Kielder wood boiler. Drying them in the open saves handling the timber twice and is cheaper than using heat to dry the wood.

### How does it work?

When they are ready for fuel, the logs are usually moved using a skeleton timber wagon to the Forestry Commission depot in Kielder Village. The logs are manually fed into the Finnish tractor powered Junkkari disc chipper supplied by a local contractor. The chipper has to be carefully sharpened and set to give the right size of chips for the boiler's feed system. Woodchips are blown into the large shed, built to protect the woodchips from the weather, for storage before being transported to the boiler-house.

The depot holds enough woodchip for 13 weeks in mid winter. When woodchip fuel is required at the boiler-house a special

push-off trailer (Fleigl) is used to transport it. The roller shutter door of the fuel store has been designed to allow the trailer to discharge straight into the store. The trailer is backed into the doorway and fuel is offloaded by hydraulic rams, which push the chips out. An alternative would have been to excavate a below-ground store so that woodchip could be tipped in. This would have avoided the cost of a special trailer but was discounted as the site is very near the river and the cost of excavation and waterproofing (tanking) was prohibitive.

The floor of the fuel store is designed to move mechanically to convey the chips to an auger sunk in a trough in the floor; from here they are transported by another auger to the boiler. This is because woodchips, unlike grain, sand or wood pellets, do not flow, and without the moving floor the boiler would soon go out.

### Installation and costs

The Junkkari chipper is not owned by the Forestry Commission, as the chipping is

done by a sub-contractor, but a new chipper would cost approximately £6,300. The Fleigl trailer was about £13,000 and is towed by a redundant tractor. The cost of the main fuel depot was £32,000. The Forestry Commission sells the woodchip at £11 per cubic metre (2007).

### Environmental impact

Using wood locally instead of transporting it to the board mill in Hexham saves on transport fuel. The Kielder wood fired community heating saves, on average, 200 tonnes of CO<sub>2</sub> emissions, compared to heating with oil.

### Further information

Visit the other renewable energy sites shown on the map overleaf.

Kielder Castle renewable energy exhibition is open from Easter to October.

[www.tynedalerenewableenergy.org.uk](http://www.tynedalerenewableenergy.org.uk)  
[www.forestry.gov.uk/northeastengland](http://www.forestry.gov.uk/northeastengland)

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