

On 20 May Met Hans Gulliksson of Energikontor Sydost at Evedal. Hans wanted to show me a small district heating plant near Ljunby west of Växjö that was having an open day. We drove through pleasant spring fields, in a rather open agricultural environment as contrasted with the more densely forested areas in Småland. So the parallels with the New Zealand countryside were greater. In fact, three farmers are behind this plant. One has been the driving force and it has been five years on the drawing board. The whole community 'owns' the plant as consultation has been high. Prior to design starting everyone in the village was consulted. An EU grant of NZ\$100k was obtained. The whole plant cost NZ\$500K so far but there is a lot of work in kind, as of the three farmers who own it one is a plumber, one an electrician and the third is the school caretaker too and pretty handy. Farming does not appear to be a full time occupation in Småland. When the community was canvassed, seven parties put their hand up and said they would become customers if it was built, and all seven have. The plant started with a second hand 1984 vintage pellet boiler which will remain as a peaker and back-up (required by law). It ran last winter, and went into service one week after the date scheduled for commencement of service. I wish all our projects ran that late! Anyway, the new boiler will handle chips at 50% moisture. The fuel feed will have a moving floor and auger feed, still under construction. The fuel store was impressive, entirely covered with enough height and space for tipping, drying and a tractor with loader to move about. The plant is 500KW and there is 1.9 km of reticulation. The local farmers will chip in forest and supply, which will give them yet another income stream apart from (beef cattle, plumbing and caretaking!) It seemed in fact the whole village was involved in some way. Ingela proudly told me she had spent a year on agricultural student exchange at a table pigeon farm near Melbourne in the early 1980s.

After leaving the village plant we drove to something at the other end of the scale in Ljungby town. As we drove Hans told me that chip is about 3 cents NZ a kWh, ranging up to 6. Pellets for residential can be 9 cents/kWh. Anyway, Ljungsjöverket is a waste to energy plant. They no longer talk about incineration round here, and don't have landfills. It's all W2E. Municipal waste (residential and commercial) is delivered at 19 SEK?? a tonne - but the plant is PAID to take it so for a start, they are making money before they even sell the energy. What about the environmental issues? Bo, the plant manager who showed Hans and me around, showed some pretty impressive emission performance statistics. Dioxin, for example, is below the error of measurement, effectively zero. Well, he would say that. However there is some pretty strict monitoring to back it up. Also, by law, every particle in the combustion chamber must have at least 2 seconds at 850 degrees C. If sensors detect that is not achieved, then two standby oil burners automatically swing into the chamber and inject additional heat. They have only been used in test so far. If they fail to get the required combustion, then the waste boiler starts to shut down.

The plant statistics:

- Waste boiler 18 MW, 25 m high (needed for height of waste combustion chamber) step grate.
- Automated crane 10 m³ per load feed, energy content ??

- Second boiler biomass (chip and peat) 6 MW currently burning 100 percent peat due to economics even with carbon tax on peat.
- 1 MW flue gas condenser. Backup gas and oil boiler 2x6.3 MW.
- Heat use - district industrial and residential process and space heating
- Network 100 km peaking 30 MW Shifts 7 - unmanned most of the time.