When the residents of the village center in Koivulahti, a town in western Finland, learned that a small biomass district-heating plant was being built in the midst of their village, they were worried. And they said so.

“There were some in Koivulahti who said it would smell and it would create smoke and be a nuisance in town,” says Mikael Mehlin, one of two local farmers who contract with the owners to operate the heating plant.

“They were so concerned that they came to me and asked when it would start up,” Mehlin goes on. “My answer was: ‘It’s been operating all the time for the last two months.’ They never noticed.

“After that, no one was worried.”

The plant is owned by Koivulahti Värmaservice, a shareholder company that includes the owners of the five village buildings that the district system heats—a health clinic, three apartment buildings, and a mini-mall, along with the bank that financed most of the project’s capital costs. The building owners formed Värmaservice to install and own the heating system, which arrived on trucks as two modular units. Made by Mega-kone, the plant has a heating capacity of 325 thermal kW (1.1 MMBtu/hour).

“We weren’t the only ones that bid on the contract to operate this little plant—there were four others,” Mehlin says. “We were the low bidder. I would say it worked out well for us. Our only real investment was to buy a chipper and a trailer for delivering fuel.”

The operators also provide the fuel, paying €9 per cubic meter ($35 US per US ton) for woodchips. The modular unit’s storage bin has an angled roof that opens up, and the delivery truck backs up a gently sloped concrete ramp to dump the chips. A rotating flail in the base of the storage bin turns to move the fuel with sweeping arms. As the arms push the chips over an open slot, the fuel drops through that slot to the bottom of the bin, where an auger moves it into the firebox for combustion as needed.

“This little plant has an oil burner and an oil tank,” Mehlin notes. “We filled up the tank, but we plan never to use the oil.”

‘This Is Pretty Easy for Us’

Near the city of Vasa, Koivulahti is largely a bedroom community in an affluent region of Finland that is populated largely by Swedes. A federal government incentive program covered 20 percent of Koivulahti Värmaservice’s budget for buying and installing the heating plant, and for installing underground pipes to distribute the heated
water it produces. The company borrowed the rest from the bank that maintains an ownership share in the firm.

“We can usually help our clients get financing. We have a good relationship with one finance company,” says Jari Luoma, owner of Megakone. “Generally, they like to see 30 percent down and financing over five to seven years. In Finland, the lenders know district heating and they are comfortable with it.”

Mehlin and his partner bill Värmaservice €32 per MW hour ($12.50 US per MMBtu) for the heat the five building owners use—covering fuel and labor, but excluding the financing costs for the system capital, which Värmaservice pays directly to its lender.

As a modular system, Koivulahti’s has limited capacity for expansion, which suits the system owners, who basically wanted to provide heat to their buildings. The system is working well, with few if any headaches for those involved.

“We’re farmers,” says Mikael Mehlin. “My partner raises pigs. I grow grain and produce eggs. Operating a district heating plant is a good match for us. We sell woodchips from our own woodlands, buy chips from others, and get paid to run the plant.

“This is pretty easy for us, for me and my partner,” he adds. “We just keep the bin full of chips and send our customers, the Värmaservice building owners, one bill every month. Then they pay us. It’s a simple business. We would like to do a few more just like this.”