



“Pellets are living things”

RWE AG, a large European energy supply company, built one of the world's largest pellet production plants in the USA. ANDRITZ was a key supplier of the production technology for this 750,000 t/a plant. There are many process considerations involved in producing a high-quality pellet – as the material is organic and “alive.”

The state of Georgia has the largest forested area in the Southern USA, about 24 million acres. The managed forests feed pulpwood to several mills – and also to a very large pellet plant near Waycross, Georgia.

The pellets are a source of renewable fuel for power generation in Europe, and are also being sold to several industrial customers in North America, according to Ken Ciarletta, Commercial and Supply Chain Director for Georgia Biomass.

Ciarletta was Plant Manager when the facility was being built and started up. “Our target was to find a site where there would be enough virgin wood, growing as fast as possible, using sustainable forestry,” he says. “Georgia has the wood supply and also has the infrastructure to supply raw materials to the plant and to transport the pellets away.”

Whole-log mentality

“When designing a facility like this, it pays to have a ‘whole-log’ mentality,” Ciarletta says. “You need to think through what you are going to do with the logs, the bark, the chips and the dust.”

That is one of the reasons that ANDRITZ won such a large share of the project. ANDRITZ is a major player in supplying complete systems for wood processing and wood pelleting technology. The amount of CO₂ neutral fuel produced on equipment from ANDRITZ replaces almost three million tonnes of oil and gas per year.

ANDRITZ delivered the woodyard systems on an EPC basis. “We are in a very competitive region here when it comes to fiber procurement, and we use a large volume of wood (1.5 million t/a),” Ciarletta says. Tree-length logs are loaded into a PowerFeed conveyor and then the ANDRITZ debarking

drum where the bark is removed. The bark is screened, shredded, and conveyed to the plant's power boiler. Debarked logs are chipped in the HHQ-Chipper.

“They produce a mini-chip here,” says Bernard O’Connor, head of ANDRITZ’s North American wood processing organization, “which is ideal for their pellets. The chipper is set for an 11 mm long chip and we average about 2.4 mm thickness. This eliminates the need for green grinding, with its associated power consumption.”

“When we were building the plant, we thought that the woodyard would be the bottleneck, but it is not,” Ciarletta says. “The woodyard just runs, and runs without a lot of oversight. The operators know what they are doing, and they produce consistently.”

Ciarletta credits ANDRITZ with helping to train the operators in a very good way. “Our

“The woodyard just runs – and runs without a lot of oversight. The operators are well-trained and know what they are doing. ANDRITZ played a big part in this.”

Ken Ciarletta,
Commercial & Supply Chain Director,
Georgia Biomass



▲ Ken Ciarletta (left) of Georgia Biomass with Bernard O'Connor, ANDRITZ Wood Processing at the debarking drum in the woodyard.

operators were not experienced pulp and paper people,” he says. This is one of the reasons that Georgia Biomass has a service agreement with ANDRITZ for the woodyard. Timo Lintunen, Service Engineer, visits the plant regularly. “Timo has been a big help training and working with our guys in the woodyard,” Ciarletta says. “He checks to make sure that everything is set up cor-

rectly, and is a good sounding board for our people.”

One-stop-shop for pelleting

Once the chips are dried to the proper moisture content, they enter a two-stage hammer mill process which grinds them to the optimum size for the pelleting process. Ciarletta is impressed with the rugged de-

sign of the mills. “The ANDRITZ hammer mills are very reliable,” he says.

The next step is conditioning: mixing steam with the wood particles to activate the natural binder (lignin) just prior to pelleting. Georgia Biomass operates 22 ANDRITZ pellet mills. “They operate well,” Ciarletta says. “There were some issues at start-up,



◀ Georgia Biomass operates 22 large ANDRITZ pellet mills to produce 750,000 t/a of pellets.



▲ It was only 14 months from the first turn of a shovel to production of the first pellet. This view shows the thermal driers and power boiler in the foreground (right) and the pellet plant in the background.

Georgia Biomass is highly automated for safety, quality, and efficiency (only 16 people per shift). ▼



▲Timo Lintunen, ANDRITZ Service Engineer (left), reviews maintenance procedures for the chipper with Frankie Gamage, Woodyard Operator of Georgia Biomass. ANDRITZ has a maintenance service agreement with the plant for woodyard services and replacement parts.

“We have a maintenance agreement with ANDRITZ. Their specialists work with our guys in the woodyard to keep the equipment availability high.”

Ken Ciarletta,
Commercial & Supply Chain Director,
Georgia Biomass

but when ANDRITZ changed the lubrication systems, it helped tremendously. We also buy all our replacement dies from ANDRITZ.”

Fast track – and moving up

“Commissioning and start-up were on very steep curves here,” Ciarletta says. “It was only 14 months from the first turn of the shovel to production of the first pellet. Five months after that we were running at capacity.”

Ciarletta says that his company benchmarks their pellet quality against other world-class plants. “Moisture, pellet durability, fines content, and temperature are the most important criteria,” he explains. “Pellets are living things, so this must be taken into account. Their internal temperature will increase over a certain period of time. Too hot and it can cause a fire. That is why we cycle our inventory so carefully.”

Georgia Biomass is averaging about 2,200 t/d production. According to Ciarletta, that equals 24-26 railcars a day, one full train every 1.5 days, and one full ship (30,000 metric tonnes) from the harbor every nine to 10 days.

“You can see the numbers and still not grasp the magnitude of what is being produced here,” Ciarletta says. “I’ve been in the business 30 years and when I see the amount of green chips coming off the belt, or the amount of pellets coming out of those 22 pellet mills, it is overwhelming. Considering how lean we are (only 16 people per shift), it is quite an accomplishment.”

Wood pellets offer a standardized means of moving carbon-neutral energy around, at a relatively low cost. RWE had scientists analyze the entire chain from tree to power station. The result shows that RWE is producing 75% less CO₂ in its European power station using wood pellets, compared to those burning coal.

“RWE’s investment in Georgia Biomass was strategically important in securing a renewable and sustainable fuel base,” Ciarletta says. “If a sizeable market for wood biomass emerges in North America, it is likely to be in the form of a market for pellets.”

CONTACT
BioMass - North America
mike.curci@andritz.com
BioMass - Rest of the world
bengt.gothlin@andritz.com