

Using a CGS* to resolve the problem of insufficient power when expanding their plant in order to ensure a stable supply of high-quality feed

The feed manufacturing industry works hard to ensure both the safety and reliability of foods that go into the production of feed, which underpins the livestock industry. Nishinohon Feed Co., Ltd. manufactures mixed feeds in Kurashiki City, Okayama Prefecture, and it was planning to build a new plant with additional manufacturing lines in order to fully comply with the requirement to separate processes as per the Act on Safety Assurance and Quality Improvement of Feeds set forth by the Ministry of Agriculture, Forestry and Fisheries, in addition to the conventional requirement to separate the manufacturing processes for cattle feeds from those for chicken and pig feeds. In response, Hitachi Power Solutions proposed supplementing the shortfall of electricity with CGS, helping make it possible for the new plant to operate. We support the development of regional industries as a one-stop partner that steps up to fulfill the vision of our clients.

*CGS stands for Co-Generation System
Such systems can utilize a single source to generate more than one type of energy at a time, such as electricity and heat.



Challenges

Solutions

- 1** A new plant was required to achieve the separation of feed manufacturing processes, but it became clear a shortfall of electricity would result from the current power contract.

Solution: This shortfall was resolved without altering the high-voltage power contract, by supplementing with a CGS.
- 2** In addition to reducing the cost of electricity to run the plant, another issue was building an environmentally-friendly system.

Solution: Reductions in cost, energy use, and CO₂ were achieved by adopting very efficient gas engines. The steam that had previously been purchased from a supplier could now be generated from the CGS.
- 3** Steam is essential for feed production, but as the company didn't have knowledge of CGS installations, they were worried whether everything could be installed and in operation quickly enough.

Solution: With our extensive experience and knowhow, we provided one-stop support—from installation to operation and maintenance.

Project Background

Insufficient Power Was a Serious Impediment to the New Factory Construction Plan

Nishinohon Feed Co., Ltd. is based in Kurashiki City, Okayama Prefecture and serves as the center of feed production in the Chugoku, Shikoku, and Kansai regions. The company was planning to build a new plant with more production lines in order to provide safer, more reliable, and high-quality mixed feeds, but the issue of insufficient power was a major obstacle. Operating so many machines at the plant—such as debris removers, crushers, shifters, blenders, mixers, pelletizers and flakers—requires a lot of electricity. In addition to running these, the power supply from the power company alone could not run the new plant as well. Mr. Hiroyuki Kusaba, the Production Section Manager, was responsible for supervising and managing the project as its leader—he looked back on the early days of planning:

“The very first thing brought up when the seven members of the project met was ‘Will we have enough power?’ It quickly became clear we would need nearly twice as much power as the contract with the power company allowed for, so we decided to look for new ways to secure enough power. We looked at extra-high voltage power service, but decided

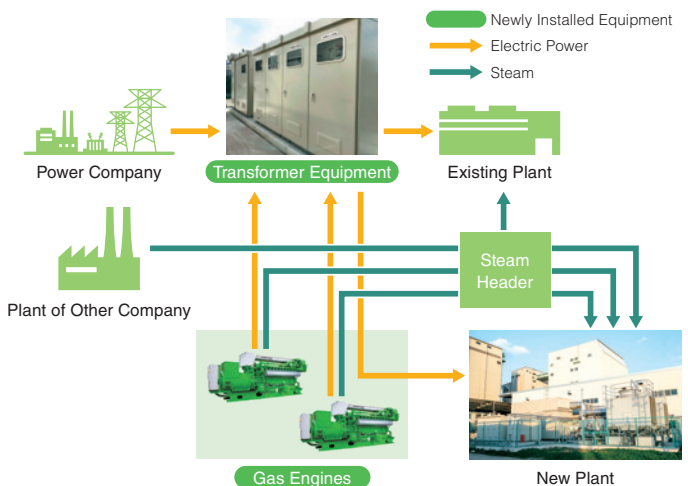
against it as being too difficult in terms of facilities, engineers, maintenance, and management, as well as the cost. Then our parent company introduced us to Hitachi Power Solutions and we started looking at a proposal for a CGS.”

Mr. Kusaba is also responsible for day-to-day operations of the Production Section, including managing the manufacturing site and meeting with vendors. It must have been a lot of work to take on the role of project leader of new plant construction as well. “I was really starting from scratch, so even just remembering all the terminology I’d never heard before was difficult,” he said. “A representative from Hitachi Power Solutions gave me a detailed explanation about CGS, and it convinced me that CGS was very efficient, and we could use the exhaust heat as well.” Hitachi Power Solutions has an extensive record of delivering CGS to the food industry, so we leveraged that knowhow to provide quick, thorough support.



Nishinohon Feed Co., Ltd.
Production Section Manager

Mr. Hiroyuki Kusaba



Project Outcomes

Ensured Power at Reduced Cost by Introducing a CGS

The new plant was constructed successfully, without incident or impact from the COVID-19 pandemic. The newly installed CGS ensured that there was enough power when the plant started operating. Mr. Kusaba told us, "We were surprised that we were able to cut costs even more than we expected before starting operations. The unit price for electricity is even lower than that from the power company. In addition to the immediate benefits of saving energy and reducing costs, we were able to reduce CO₂ emissions. That is a major added value for us as a company, as we work toward achieving a decarbonized society."

There were even more unexpected benefits that only a CGS can provide. Mr. Kusaba continued, "During the production of mixed feed, we use steam in the process of drying ingredients and in forming them into pellets."

Future Plans

Increasing Brand Appeal via Further Pursuit of Safety and Reliability

Most of the food services industry was hard hit by the COVID-19 pandemic over the last two years, but the mixed feed manufacturing industry saw no great impact. This is because despite reduced meat consumption, it's not an option to stop feeding the living cows, chickens, and pigs. However, Mr. Kusaba said he is not optimistic that demand will expand in the future unaffected by the pandemic:

"I think food-related industries in Japan will be impacted by the drop in population in coming years. Our mixed feed manufacturing business will likely face intensifying competition from other companies in the industry. Success in this competition will depend on how appealing we make our brand. The strength of our brand is all about safety, reliability, and high quality. Establishing a new plant is part of building a system to improve our brand appeal, and we are determined to be a company indispensable all of the livestock farmers who are our customers."

We are still purchasing steam from another company next to our plant, but in the future we feel that utilizing the steam generated from the exhaust of the gas engines will be a great way to use energy and not let it go to waste."

The CGS as installed includes two 735 kW engines, and Mr. Kusaba has high expectations, saying, "I hope an even more efficient, higher capacity system can be introduced to us when we're ready to update our system in 15 or 20 years." Apart from the system installed in this case, Hitachi Power Solutions offers a lineup of CGS of varying capacities. And in addition to providing the highly efficient CGS, we will continue to contribute to the development of Nishinihon Feed's business over the long term with proposals that meet their needs, such as providing systems that combine solar power generating equipment and storage batteries, which can be expected to reduce the environmental impact.

Finally, their commitment to safety, reliability, and high quality also extends to emergencies. Mr. Kusaba stressed that "We will use disaster-resistant CGS so we can continue to manufacture and supply our feeds even in the event of an earthquake or other disaster." Hitachi Power Solutions constantly utilizes its robust partnership of people and technologies to keep the thoughts and concerns of our customers in the forefront as we build our businesses together.



User's Profile



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Established in 1989 in Kurashiki City, Okayama Prefecture. Since then, we have played a central role in mixed feed production in the Chugoku, Shikoku, and Kansai regions, and we continue to provide safe, reliable, and high-quality products. The company received a commendation in 2010 from the director of the Chugoku Bureau of Economy, Trade and Industry (METI Chugoku) in recognition of its energy-saving initiatives, thanks to improved energy management.

Established: February 28, 1989
Capital: 490 million yen
Business: Manufacturing and sale of mixed feed, and accompanying/related business



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