



Dalkia

Industry:
ENERGY

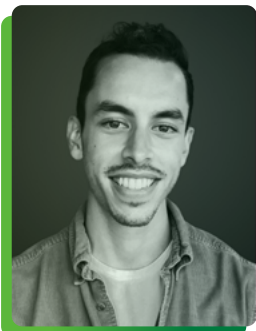
The Challenge

Based in Massachusetts, [Dalkia](#) is on a mission to help companies and institutions around the world decarbonize their buildings to meet climate change goals and regulations. A subsidiary of the global Dalkia EDF Group, the company specializes in combined heat and power (CHP) systems, which use low-emission fuel sources to provide highly efficient electricity and heating to large buildings. Dalkia also offers all-encompassing energy-efficient solutions at the scale of a building, factory, district or territory – providing services in design and construction, operations, maintenance and management.

In 2017, the Dalkia team sought to modernize its product development processes. Much of the company's legacy designs were created in 2D CAD and were documented with paper drawings stored in physical binders. To streamline manufacturing and collaborate effectively with vendors and clients, Dalkia needed a more efficient and reliable approach to design file management.

Results

- Dalkia credits cloud-native CAD and PDM for reducing its time-to-market by 25% to 50%. Using Onshape, a small team of engineers produced a complex heating and power system (with thousands of parts and hundreds of assemblies) in just 18 months – a project that would typically require two to three years.
- Onshape's built-in Product Data Management (PDM) system eliminated version control issues for the engineering and manufacturing teams, which had previously relied on paper binders for file management. Design changes now instantly update across the organization, reducing the likelihood of human error.
- Onshape's real-time collaboration tools allow the core design team to easily share and modify product designs with external partners and vendors – even when teams work in different file formats.
- Internal company stakeholders – such as executives, marketing and sales – can easily access the latest product designs in Onshape even if they are non-CAD users.



"With Onshape, our department has been able to run very lean and accomplish everything much faster than I think we could have done with any other CAD system."

– **Xavier Pereira**, Product Development Engineer, *Dalkia*

DALKIA HELPS CITIES REDUCE THEIR CARBON FOOTPRINT

Industry leader in low-emissions power systems credits Onshape for reducing its time-to-market by up to 50%

When you visit big cities, it's natural to assume that vehicle exhaust creates most of the carbon emissions polluting the air. However, commercial and apartment buildings actually produce far more greenhouse gasses. In New York City, for example, energy use by buildings is responsible for nearly [80% of citywide emissions](#).

In an effort to address climate change, major metropolitan areas have begun to [regulate the carbon footprints](#) of their large buildings. In the coming months and years, business and property owners must find ways to significantly cut the emissions coming from their heating and electric systems or face large fines.

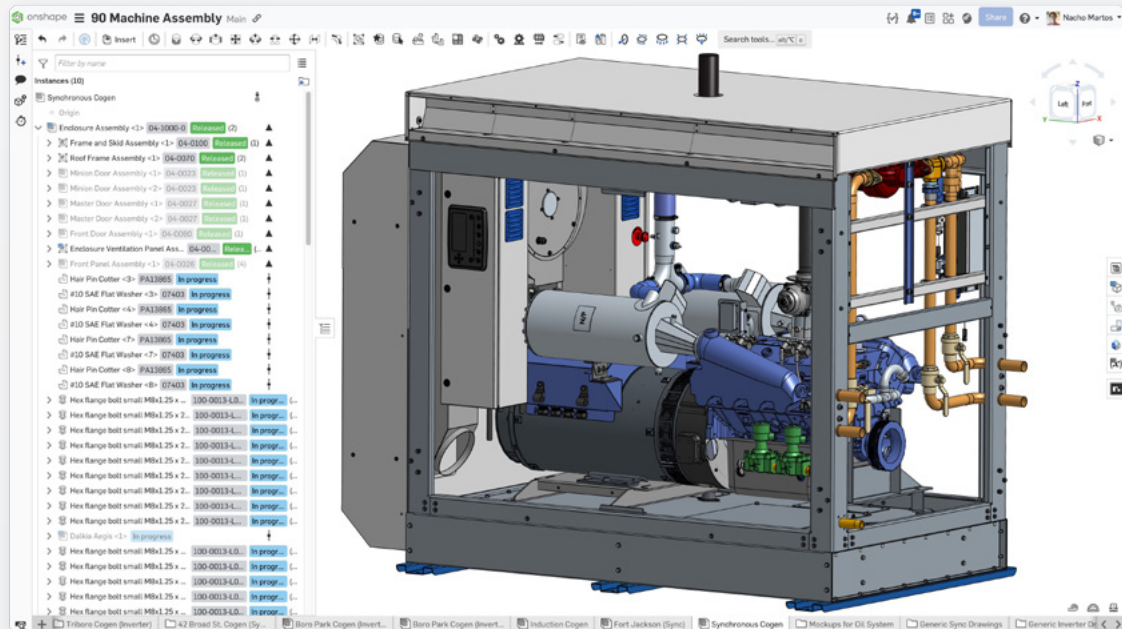
Based in Massachusetts, [Dalkia](#) is an energy technology company specializing in eco-friendly combined heat and power (CHP) systems that ensure buildings comply with new ordinances. CHP, sometimes called "cogeneration," generates power using clean fuel sources such as natural gas. Because energy is generated on location, versus being delivered from an offsite power plant, CHP systems are able to utilize energy that typically gets wasted.

According to the [U.S. Department of Energy](#), CHP systems operate at 75% efficiency versus the national average of 50% efficiency for buildings that use separate sources of heat and electricity. The systems enable facilities to operate independently from the grid, produce significantly lower emissions, and cost significantly less than traditional utilities.

An industry leader in CHP technology, Dalkia has been designing, manufacturing, installing and maintaining these systems since 1985 – so far helping more than 1,000 clients be compliant with ever-changing environmental regulations. Dalkia also offers all-encompassing [energy-efficient solutions](#) at the scale of a building, factory, district or territory – providing services in design and construction, operations, maintenance and management.



Moving From Paper Files to Digital Data Management



To design and build its combined heat and power (CHP) systems, Dalkia relies on cloud-native Onshape's CAD and PDM with real-time collaboration tools.

Although Dalkia has been an early adopter of new technologies in the CHP industry, its product development team was ironically using some outdated processes – particularly the practice of using paper files to archive its legacy designs.

“When I first joined the company in 2017, all of our documentation was in 2D, which was kind of crazy,” says Xavier Pereira, product development engineer at Dalkia. “One of the primary missions of my group was to get us out of the dark ages.”

“Everything was in binders– printed copies thrown in binders. So if a fabricator needed the latest drawings, we had to go to our shop manager’s office and pull out the binder. We had to search through physical pages to find the drawing photocopy and send it over,” he recalls.

One of Pereira’s first goals was to recreate all of the company’s designs in 3D, but the team would first need to choose a modern 3D CAD system. Both Pereira and his manager had previously worked with SOLIDWORKS at other companies, but as they explored alternatives, they saw several advantages to cloud-native Onshape’s combined CAD and Product Data Management (PDM) system.



For starters, traditional product design software ties licenses to a single computer. But with cloud-native CAD and PDM, Dalkia would be able to work from anywhere in a web browser.



The Dalkia factory floor no longer relies on paper documentation. Replacing paper files with Onshape delivered automatic version control, minimizing the likelihood of human error.

The team was also impressed by Onshape's development schedule. "That was something that gave us the warm fuzzies," says Pereira. "Every three weeks we were seeing monumental new features, like improvements to sheet metal and configurations."

Adopting Onshape, the Dalkia team began remodeling all of the company's legacy products in 3D. "There was a lot of going to the shop floor, taking measurements, going off of 2D drawings, and building stuff, all while working on new products," he recalls.

Equally impactful was the way Onshape quickly resolved their data management challenges of working with archaic paper files.

"We no longer worry about file organization, version control, or sharing designs," says Pereira. "Onshape's browser-based design workflow keeps track of all of our design data. You don't even have to think about it. It's all so organic and natural at this point."



CHP systems enable large facilities to operate independently from the grid, reduce carbon emissions, and cost significantly less than traditional utilities.

From Concept Design to Real-World Machinery

With the company's data management issues resolved, Pereira says his team's biggest challenge is a rather common one: How do they efficiently turn concept designs into real-world manufactured products? Typically, design engineers utilize design-for-manufacturing expertise to prevent any unnecessary delays or expenses in the process. For example, engineers might customize components or design a part that can be easily assembled with standard automated processes.

Onshape helps teams improve their iteration process by enabling engineers to better communicate their design ideas with vendors, who then ensure parts and materials are manufacturable and cost effective. Because the data is all on the cloud, vendors can instantly access the latest designs and quickly provide feedback.

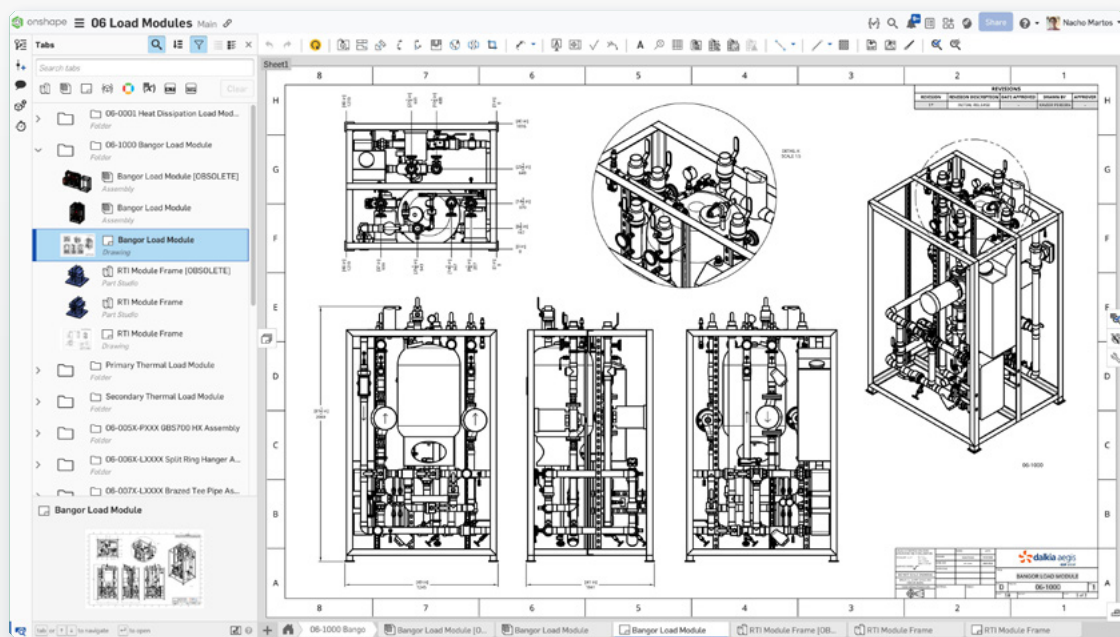
On the Dalkia shop floor, Pereira says it's imperative that "a technician without a large amount of experience building these things can easily read and build the product solely from drawings." Onshape simplifies this process by relaying easy-to-read configurations, bills of materials, and exploded views to anyone who needs to assemble equipment. Designs are accessible from any computer, tablet or phone ([iOS](#) or [Android](#)).

Pereira credits cloud-native Onshape for accelerating Dalkia's time-to-market by 25-to-50%, referring to a recent CHP system his team built that involved thousands of parts and hundreds of subassemblies.

“We did it all – from the concept all the way to a manufactured, built, and tested product – in just a year and a half,” he says. “Think of all the drawings and all of the quotes that have to get sent out. And all of the design iterations that are required to flesh out a product and have it work.”

“Then think of all the things that go into actually having a CHP system be physically built. And specifically in the way that you want it. A project like that would normally take two to three years,” Pereira adds.

Streamlining Collaboration With Manufacturing Partners



Cloud-native Onshape's accessibility on any computer (PC, Mac, Linux) or mobile device (iOS or Android) ensures that suppliers and manufacturing partners are always looking at the latest design changes.

Moving forward, Dalkia has begun to use outsourced CHP equipment while focusing on their other areas of expertise, including installation, service, maintenance, and operation of machines throughout the entire lifecycle. Ironically, competing CHP vendors now commission Dalkia to help them modify their machines. For example, other manufacturers may ask Dalkia engineers to retrofit CHP systems by increasing the oil capacity.

Onshape's easy accessibility on any device provides the flexibility to make these collaborations work smoothly. Vendors can export their design files to a neutral format (such as STEP or IGES), while Dalkia engineers load the files into Onshape and begin work on the vendor's geometry. “The integration between what the vendor is doing and our own CAD platform has been super simple, very easy,” says Pereira.



Beyond manufacturing and installing combined heat and power systems, Dalkia provides expertise in product design and construction, operations, maintenance and management.

Furthermore, vendors can access all of Dalkia's design data without downloading or purchasing any special software. "I've given them links to Onshape where they've opened up view-only links and can play with the model and make measurements," Pereira says. "Vendors can export sheet metal flat patterns. Or create drawing sets for fabricators to build."

Onshape streamlines the process of modifying and retrofitting CHP equipment for vendors while shortening project timelines and ensuring accuracy and efficiency.

Onshape Helps Dalkia Achieve its Mission

As Dalkia pursues its mission to reduce building emissions, Pereira envisions that Onshape will continue to be a key contributor to the company's success. He notes that cloud-native CAD and PDM are easy to access, simplify collaboration internally and with manufacturing partners, and provide more powerful tools for product design.

"My entire workflow runs much faster with Onshape," Pereira says.

"Our department has been able to run very lean and accomplish everything much faster than I think we could have done with any other system," he adds. "I would 100% recommend Onshape to any other product developer."

The Onshape Discovery Program

Learn how qualified CAD professionals can get Onshape Professional for up to 6 months - at no cost!

DISCOVER ONSHAPE TODAY

