



Activity

Success Story

- Utilities - Energy -



VPK MONETIZES ENERGY FLEXIBILITY THANKS TO DEMAND RESPONSE SERVICES

It takes an expert duet of a heavy industry leader and its loyal energy aggregator to find which flexible process to monetize on the energy markets. This is how we, Activity and VPK Paper did it!

Reduce the energy bill for heavy industry processes

VPK Packaging Group is a pioneering Western European packaging company. Since 1935, it has been producing protective cardboard packaging for logistics. Its two paper mills in Belgium and France produce 900,000 tons of paper each year, exclusively made from 100% recycled paper.

“Through a transparent partnership with Activity, VPK Paper can further improve the economical efficiency of the investment in its gas turbine”
Johan Dhaese, Group Energy & Environment Manager VPK Packaging Group

Since 2015, Activity and VPK Paper, the Belgian packaging paper mill, have partnered to add flexibility to the energy management strategy of VPK. Paper

 890.000 tons: paper production

 Dendermonde: VPK Paper mill in Belgium

 1935: packaging group

VPK KEY FIGURES

production is an energy-intensive industry. Indeed, producing paper involves heavy electrical machinery and large amounts of steam and heat... which result in substantial electricity bills!

As a heavy industrial in Europe, VPK Group has to comply with stringent energy management constraints on Demand Response services. In-depth process optimization, use of efficient, state-of-the-art technologies, renewable energy and cogeneration of power and heat are key elements of this strategy. Using Activity's Demand Response (DR) services, VPK Paper has been valorizing its power on reserve markets for two years now and is now looking for new processes to monetize.

Leveraging the flexibility of a CHP on primary reserve

The benefits of implementing this new DR service with Activity are:

- Easy, secured and seamless set-up of the Activity box on-site...

And no upfront investment needed! The box automatically builds a secure VPN access towards Activity with two majors benefits for VPK's IT teams: no need for their intervention and no unnecessary network risk due to Ethernet points opening.

- Generate revenues on some of the most gainful DR services in Europe
- Contribute to electricity grid balancing, security of electricity supply and security of the electricity grid, which results in a cut in CO2 emissions

“Thanks to our partnership with Activity and our CHP supplier, we deliver the R1 service fully automated without any need for intervention from our site operators”
Johan Dhaese, Group Energy & Environment Manager VPK Packaging Group



Implementing Demand Response in the Cogeneration process



Leveraging its expertise in industrial process monetization on Demand Response services, Actility studied VPK Paper's machinery as well as the Belgian mill's technical constraints to secure the paper production. It became clear that cogeneration of power and heat using a combined heat and power plant (CHP) was the best process to monetize. Why?

Elementary... As Mr. Holmes would have said! The CHPs on-site act as the **beating heart of the site**, running continuously at full load day and night, while providing both electricity and heat for the various processes on the production site.

In addition to producing energy, the gas turbine CHP can be used to support the electrical grid by reacting to frequency deviations within a few seconds, major power plant outages or unexpected consumption peaks. Furthermore, some paper machines can be stopped to reduce the stress on the electricity grid when planned in advance.

The Belgian utility Elia requires the R1 DR service to control and contain the frequency of the European electricity grid. Using Actility's advanced DR services, the CHP is equipped with a smart control device, the Actility box.

“Together with VPK Paper, we identified two revenue streams, with frequency containment reserves (Primary Reserve or R1) as an ideal method to generate additional revenues with the CHP and Capacity management reserves for the less reactive paper machines”

Arnout Aertgeerts, Energy Portfolio Manager at Actility

Actility worked closely with VPK Paper as well as the supplier of the CHP to securely connect the generator to the box. Based on frequency measurement, this device modulates the CHP's power output only when necessary, severely limiting the impact on the CHP as well as on the paper production. This Actility box runs a local algorithm to deliver the R1 service in a **continuous, automatic and decentralized way** since the service requires an immediate response to frequency deviations.

The implementation steps for delivering R1 with the CHP are shown here:

