

VPK PAPER MONETIZES ENERGY FLEXIBILITY THANKS TO DEMAND RESPONSE SERVICES

Industry, Packaging manufacturing

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, Flexcity and VPK Paper did it!

Reduce the energy bill for heavy industry processes.

| The challenge

VPK Group is a pioneering Western European packaging company. Since 1935, it has been producing protective cardboard packaging for logistics. The paper division of VPK Group produces 1 000 000 tons of paper each year, exclusively made from 100% recycled paper. 530 000 tons are produced in Dendermonde, Belgium by VPK Paper.

Since 2015, Flexcity and VPK Paper have partnered to add flexibility services to the energy management strategy of VPK. Paper 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 Paper has to comply with stringent energy management constraints on Demand Response services. In-depth process optimization, state-of-the-art technologies and cogeneration of power and heat are key elements of this strategy.

Using Flexcity's Demand Response (DR) services, VPK Paper has been valorizing its power on reserve markets for several years and is now looking for new processes to monetize.

| Flexcity's solution: implementing Demand Response (DR) in the cogeneration process

Leveraging its expertise in industrial processes, Flexcity studied VPK Paper's machinery as well as the constraints to secure the paper production. It became clear that the gas turbine cogeneration of power and heat (CHP) was an ideal process to monetize.



Valorized asset: Belgium, Dendermonde



Asset:

Gas turbine CHP

Type: R2 (aFRR)

Active in Demand Response
since 2015

530K tons
paper production



The gas turbine CHP on-site acts as the beating heart of the site, running mainly at full load, while providing both electricity and heat for the various processes. In addition to producing electricity, the gas turbine CHP can be used to support the electrical grid by reacting to grid imbalances within a few minutes. Furthermore, some paper machines can be stopped to reduce the stress on the electricity grid when planned in advance.

The Belgian grid operator Elia requires the R2 (aFRR) service to restore the balance on the grid. Using Flexcity's advanced DR services, the CHP is equipped with a smart control device, **the Flexcity Box**.

Flexcity worked closely with VPK Paper as well as the supplier of the gas turbine CHP to securely connect the unit to the box. Based on changing setpoints, this device modulates the gas turbine CHP's power output only when necessary, respecting the operational limits of the gas turbine CHP as well as the paper production. This Flexcity Box runs a local algorithm to deliver the aFRR service in a continuous, automatic and decentralized way in line with the grid operator's specifications.



Secure connection
Ethernet, 4G
Interfaces
Modbus, TIC, pulse, P1,
analog and digital I/O

| The benefits: Leveraging the flexibility of a gas turbine CHP via the secondary reserve market

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

- Easy, secured and seamless set-up of the Flexcity box on-site. The box automatically builds a secure access towards Flexcity
- Generate revenues on the most gainful DR services from day 1.
- Contribute to electricity grid balancing, security of electricity supply and reduction in CO₂ emissions

Process - Flexcity takes the lead on each step:



<https://www.flexcity.energy/en>

“Thanks to our partnership with Flexcity and our CHP supplier, we deliver the R2 service fully automated without any need for intervention from our site operators.”

Johan Dhaese, Group Energy & Environment Manager
VPK Group



PLANET

Flexcity brings intelligence into the energy system to drive the energy transition.

“Together with VPK Paper, we participate in the Secondary Reserves (aFRR) as an ideal method to generate additional revenues with the CHP.”

Cedric Weyns, country manager at Flexcity Belgium