




# Valorize your electrical flexibility

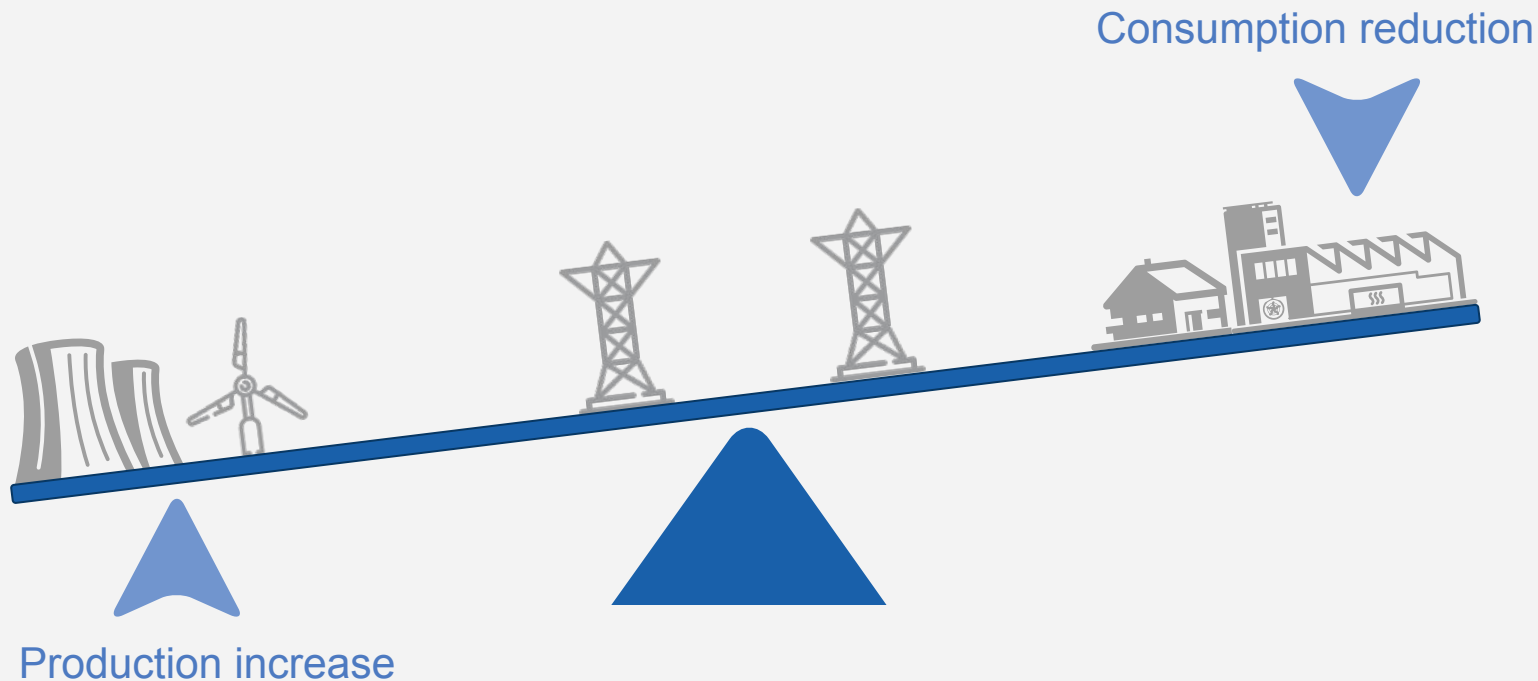
*General presentation  
June 2021*



operated by  VEOLIA

# The electrical grid must always be balanced

In order to keep the lights on...



# Why should you participate in the balancing of the grid?

## 3 reasons to engage in demand response programs



### REDUCE THE GREENHOUSE GAS EMISSIONS & CONTRIBUTE TO THE ENERGY TRANSITION

By enabling the integration of intermittent and hard-to-predict renewables into the energy mix, the electrical flexibility helps to decarbonize the energy supply.



### BENEFIT FROM AN ADDITIONAL REVENUE

By monetizing the flexibility of your consumption.



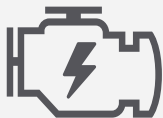
### PARTICIPATE IN THE SECURITY OF SUPPLY

By maintaining a reliable and affordable energy access, an essential condition for our quality of life

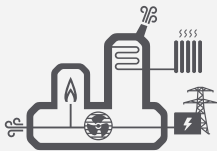


# Which assets are eligible ?

Flexibility can be found everywhere: in consumption or production assets!



**Generators**



**CHP**



**Cold and Heat**



**Electrolysis**



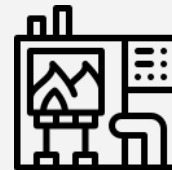
**Pumps**



**Batteries**



**Renewables**



**Furnaces**

...

## Flexcity, a european flexibility leader

Integrated into the VEOLIA group since 2019

### > 1 GW

Our flexible power - a virtual nuclear plant

### > 10 000 sites valorized

From 2 kW to 120 MW

### A european actor

Belgium, Spain, France, Italy, Netherlands, Czech Republic





# Flexibility aggregator

## Our added value



### OPTIMIZE YOUR REVENUES AND LOWER THE RISKS THANKS TO OUR PORTFOLIO EFFECT

By aggregating your sites capacity with our other partners, you can benefit from better valorizations and reduce your risk of penalties



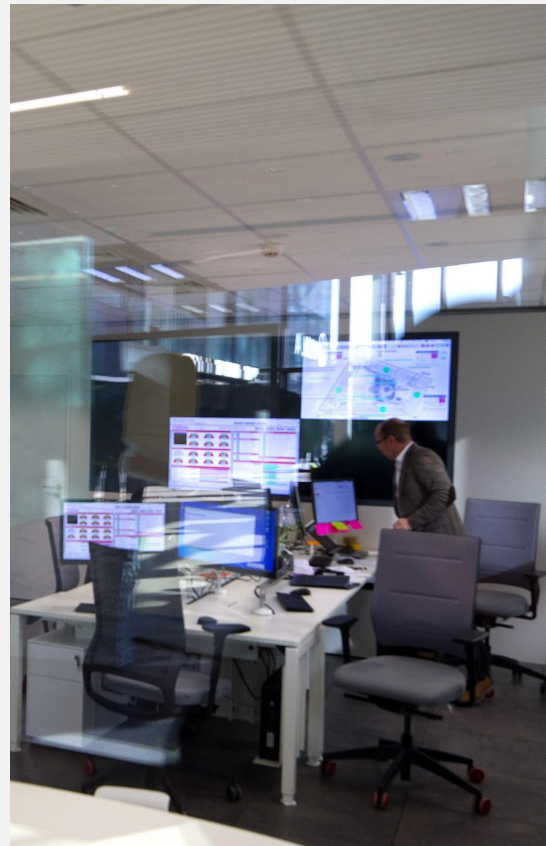
### REGULATORY AND TECHNOLOGICAL COMPLIANCE

All the certification processes are taken care of by Flexcity, guaranteeing your compliance.



### FOCUS ON YOUR CORE ACTIVITIES

Flexcity takes care of the daily management, access to energy markets, activation dispatching while respecting your operational constraints.



# Work with Flexcity

## Our identity



### STRONG TECHNOLOGICAL EXPERTISE AND KNOWLEDGE OF FLEXIBLE PROCESS

Active since 2012, Flexcity is now a leader in the modelization of flexible processes, IoT and data analysis thanks to its dedicated R&D team. The developed algorithms ensure very limited impacts on your own process during the operation of the flexible services.



### INTERNATIONAL PRESENCE AND STRENGTH OF THE VEOLIA GROUP

Previously known as Actility Energy, Flexcity has joined the Veolia group in 2019 and can benefit from a network of european partners as well as new levels of financial strength



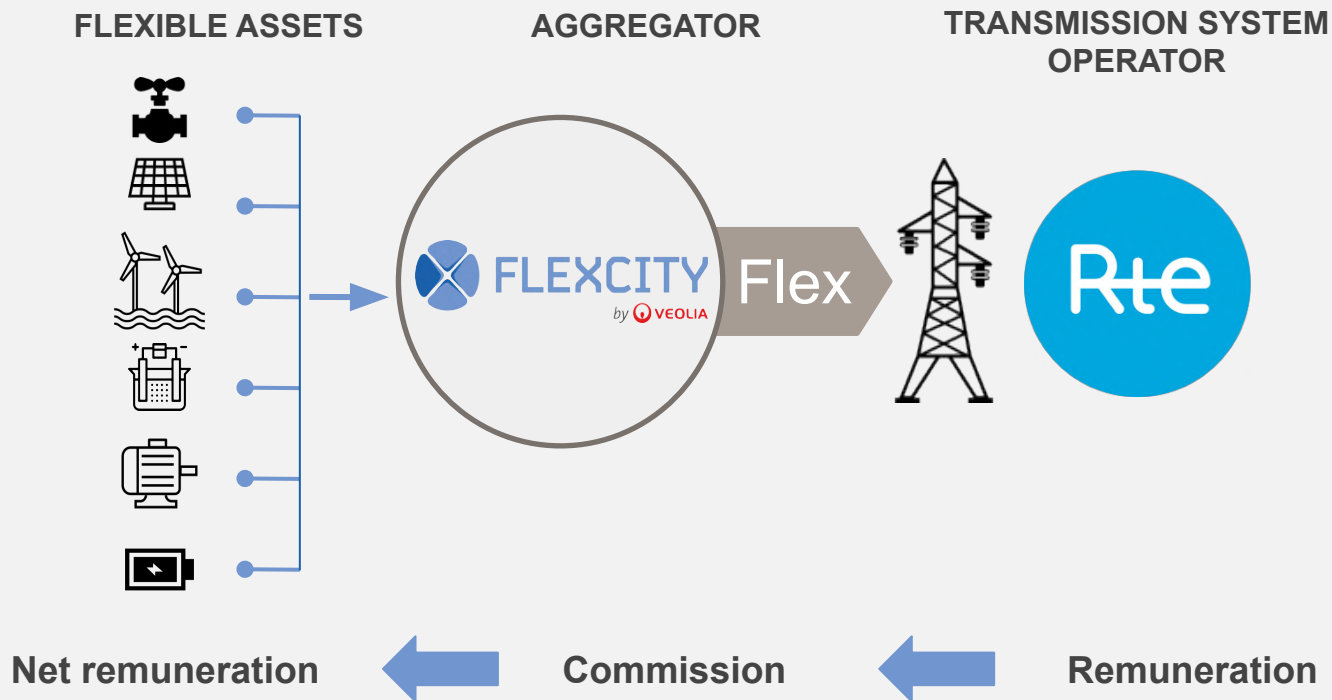
### TRANSPARENCY

We guarantee a complete transparency of our calculation methods to valorize your assets and a regular report of your performance and activations.



## Our business model

Who are the stakeholders and where does the value come from?





# Work with Flexcity

## Which steps toward valorization?

A complete service



**Technical  
analysis**



**Flexcity  
proposal**



**Administrative  
prequalification**



**Installation**  
*(Flexcity Box)*



**Valorization  
by Flexcity**



**Remuneration**

# They trust us

Some of our client references



Assistance Publique  
Hôpitaux de Marseille






## CONTACT US

[contact@flexcity.energy](mailto:contact@flexcity.energy)  
[www.flexcity.energy](http://www.flexcity.energy)



operated by  VEOLIA

# ORANGE BACK UP BATTERIES MONETIZATION

## Commercial, Demand Response

*Orange uses Flexcity's platform to monetize its backup batteries: create value on French Demand Response (DR) services from connected devices and operating them with Flexcity's smart algorithms.*

### | The context

Orange is one of the largest operators of mobile and internet services in Europe and Africa. To operate their network for fixed and mobile phones as well as broadband internet Orange operates thousands of sites across the country. The operation of these sites is critical and must support delivery of a 24/7 telecommunication service.

Continuous operation is guaranteed during power outages, thanks to backup batteries installed at each site. The batteries store sufficient energy to keep the site operational for an extended period without external power supply. To be aware that the backup will not be down in case of an incident on the grid, Orange monitors the state of charge of the batteries on more than 8,000 sites via their in-house monitoring platform.

### | Flexcity's solution

Orange chose Flexcity and its platform, to connect, manage, control the fleet of batteries. This storage capacity is monetized on the most adequate **Demand Response services** of RTE (the French Transmission System Operator of the grid) while ensuring the security of power supply of these sites.

Flexcity's Platform makes use of a high performing algorithms to control a distributed group of assets, As such, Orange delivers the required amount of energy to the grid operator, while respecting each individual technical limits and availability.



**Contract Facts:**  
Active since 2017  
Type: Demand Response  
(Reserves & Capacity)

Approx. **8 000 batteries**

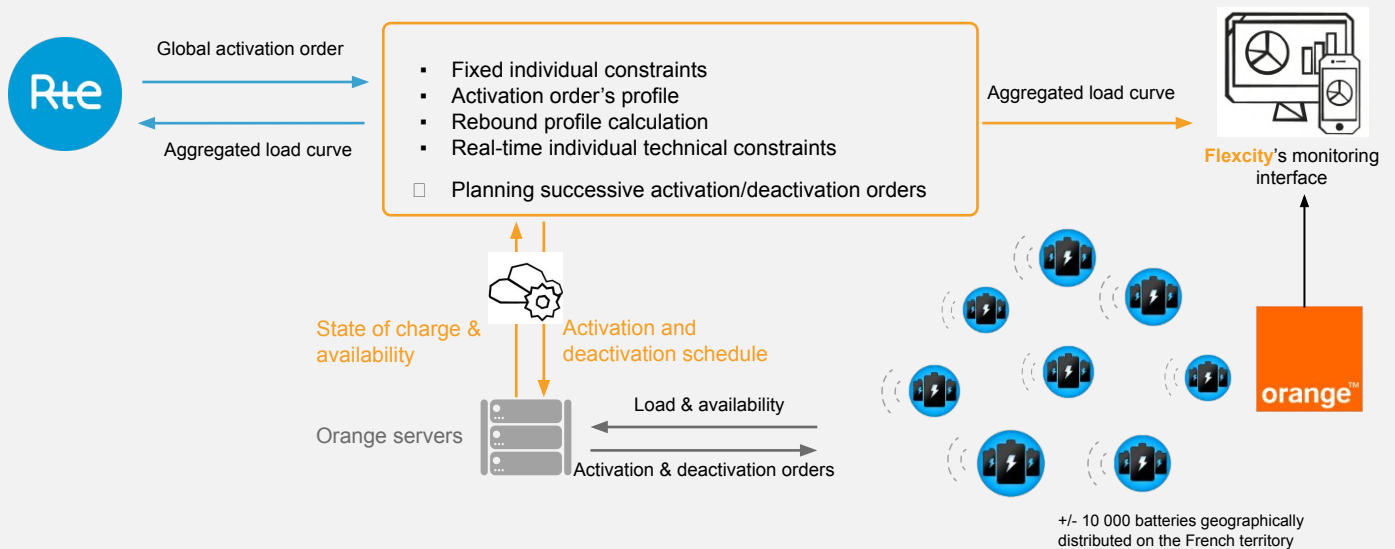
Technology Innovation Award  
Paris Smart Energy Expo 2017



## Controlling distributed flexibility, generating gains

To pilot more than 8 000 batteries of Orange, Flexcity brings additional remote control functions to Orange's monitoring systems by connecting it to Flexcity's Platform. This connection allows Flexcity's Platform to receive real-time availability and state of charge of batteries. It activates and deactivates groups of batteries to successfully deliver grid support during a Demand Response activation by RTE, the french power grid transmission operator. Flexcity has transformed a passive monitoring interface into an active platform delivering energy services and generating revenue.

Via this project it was the first time in France that a metering system of distributed sites was validated for load measurement by the grid operator. This has leveraged the potential of the batteries with a near-zero investment in metering & control equipment from Orange.



## | The benefits

Flexcity's solution for large-scale Automated Demand Response with small flexible units offers multiple benefits to Orange:

- Creating additional revenues with back-up capacities
- Monitoring and active remote control of its fleet of batteries
- Contributing to security of supply and CO2 emission reduction with "green" curtailments.

Flexcity interacts with Orange's technical manager to gain insight regarding critical operational limits. Also the behavior of the batteries and the rebound effect of the sites is correctly modelled. Thanks to the meters and monitoring system of the sites, Flexcity's solution offers a very low CAPEX for software development. Flexcity also interacts with the grid operator on required changes in market regulation. Energy market expertise combined with high-performance technology has resulted in an immediate profit by monetizing more than 20 MW on grid services.

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



"We are very proud of this smart grid world premiere that contributes to the French electricity grid's stability while creating immediate and substantial ROI".

**Hervé Mallet**, Energy Director,  
Technical & IS Department, Orange  
France



### PLANET

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



### WOMEN & MEN

A team ensures 24/7 operation of the Flexcity platform.



# BENEO ORAFTI TRUSTS FLEXCITY TO VALORIZE ITS TURBINE

Industry, Agri-food

*The Oreya site of Beneo Orafti has decided to participate in the new market of the Belgian secondary reserve (aFRR) with its gas turbine and thanks to the Flexcity expertise. While creating a new revenue stream, this participation takes into account the site process to avoid any impacts on its activity.*

## | Beneo Orafti: an ambitious company

Beneo, part of the Südzucker group, produces functional ingredients principally dedicated to the agri-food industry.

The Beneo Oreya site is engaged in a long-term energy efficiency program. Their main target is being carbon neutral by 2050 and they have already achieved to reduce their CO<sub>2</sub> emissions by 40% since 2010. This engagement also led to an investment in a new gas turbine with heat recovery: it enables the electrical autonomy of the site and even the export of a part of its electrical power into the grid.

## | Flexcity's solution

In this context of energy efforts, the innovative Flexcity solutions **optimizes the Beneo Oreya electric installations** and make them participate in the support of the Belgian and European power grid. From the Flexcity's analysis and thanks to its modularity, the gas turbine fulfilled the different criteria to be valorized by electrical flexibility services without impacting on the site process.

The valorization consists in a participation in the secondary reserve of the Belgian electrical grid, known as **aFRR or R2**. The aFRR enables the balancing between the electrical supply and demand on the grid in case of electricity shortages but also of electricity surplus.



Beneo in Europe



### Concerned installations:

Gas turbine with heat recovery

**aFRR**  
(or R2)

Since  
**2020**

For more details, contact Flexcity or Beneo Orafti Oreya through :  
Guillaume Poncelet, Power Plant Engineer  
[guillaume.poncelet@beneo.com](mailto:guillaume.poncelet@beneo.com)



Lien Van Schepdael, Technical Account Manager at Flexcity, next to the gas turbine of Beneo Orafti Oreya and with **Guillaume Poncelet**, Power Plant Engineer at Beneo.



Thanks to Flexcity's technology and market expertise, the Beneo Oreye gas turbine can be activated several times a day to produce less electricity for a few minutes. **These activations** help to relieve the electrical grid in case of electricity surplus and happen only when the turbine is available to produce less. The modern system of the heat recovery also plays a role by offsetting the electricity production loss and avoiding any impact on the industrial process. Flexcity remunerates Beneo for making its own installation available for the needs of the electrical grid. The Oreye site benefits from a new revenue stream and could dedicate it to their energy efficiency program for instance.



To operate the activations, Flexcity equipped the gas turbine with a smart control system, the **Flexcity Box**. The box reduces the electricity production of the gas turbine, following a signal sent every 4 seconds during a few minutes.

#### Secure connection

Ethernet, 4G

#### Interfaces

Modbus, TIC, pulse, P1,  
analog and digital I/O

## | Benefits: supplementary revenues that facilitate the energy transition

Beneo Orafti benefits from different aspects by participating to the Flexcity services:

- Optimization of the gas turbine: Flexcity analyzes the availability of the turbine to make it flexible.
- Creation of new revenues.
- Supplementary action added to Beneo energy efficiency program.
- Contribution to the Belgian and European balancing of the electrical grid.
- Support to the energy transition and inclusion of renewables.

Thus, Flexcity proposes to Beneo Orafti Oreye a new solution to reduce their energy costs and they now join forces to create the electrical grids of tomorrow.

 Flexcity website: <https://www.flexcity.energy/fr>

 Beneo website: <https://www.beneo.com/>



*[...] When we invested in the new gas turbine, we naturally thought how to improve its profitability by participating in flexibility services.*

*Guillaume Poncelet, Power Plant Engineer à Beneo Orafti Oreye*



#### REGION & CITY

Participating in flexibility services enables the industrial sites, such as Beneo, to play a new role for the national and European electrical grid.



#### PLANET

Flexcity uses its energy expertise to support the energy transition.



*Flexcity has shown a keen interest and has been proactive to assist us for our first steps in the aFRR market.*

*Guillaume Poncelet,  
Power Plant Engineer Beneo*

