



# BORALEX

## Repowering for a better distribution on territories : first rex in France



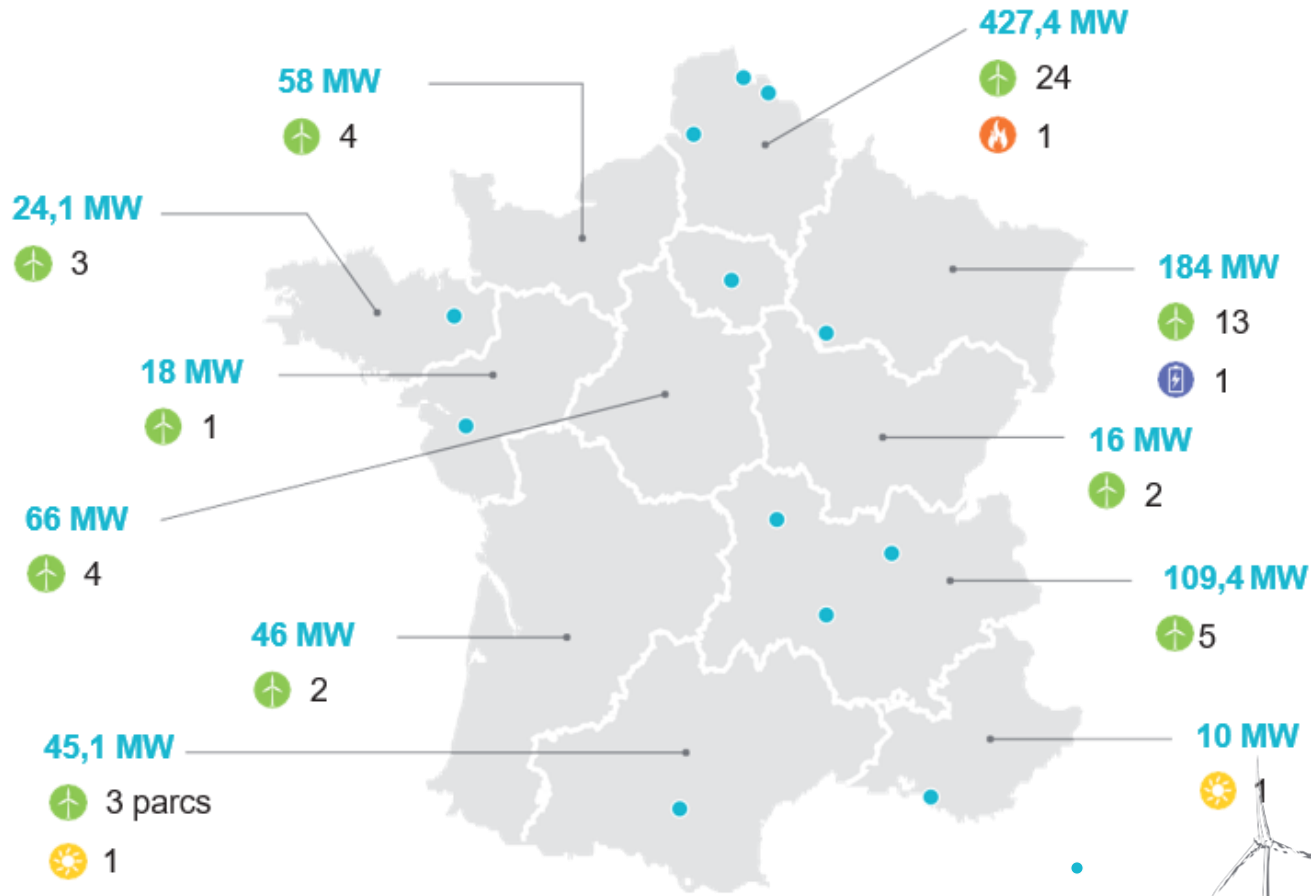
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## Sites in operation & Offices in France



List of Offices : Blendecques ( 62 ), Lille ( 59 ), Abbeville ( 80 ), Paris ( 75 ), Saint-Grégoire ( 35 ), Haute-Goulaine ( 44 ), Verrières ( 10 ), Gannat ( 03 ), Lyon ( 69 ), Chaspuzac ( 43 ), Marseille ( 13 ) et Avignonnet-Lauragais ( 31 )



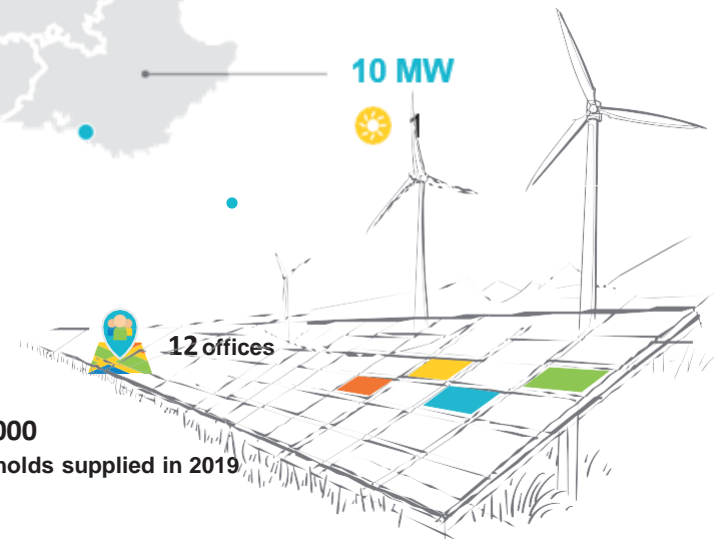
1004 MW In operation

65 sites

+ 230 employees

~180 000 tons of CO<sub>2</sub> avoided per year

~500 000 Households supplied in 2019



# End of a PPA

2 options to consider

Life extension thanks to preventive and corrective maintenance, by changing parts of WTG or other investments

Continued operation with a corporate PPA

Global renewal of the wind farm ("Repowering") by dismantling it and building a new farm which will optimize the site's production

Permitting process depends on the extent of the changes.

'Substantial modification' (new permit) vs 'significant change' (original permit)\*

New long-term contract (national tender of the Energy Regulatory Commission (CRE))

\* See Minister of Ecology, instruction of July 11, 2018 relating to the assessment of onshore wind energy repowering projects



# Ongoing Rex

Cham Longe (Ardèche) – New commissioning in December 2020

## Site characteristics

- Middle mountain environment - Highest wind farm in France (1500 m)
- 14 WTG (12 repowered)

## Repowering increases performance and local benefits

- 40 MW (vs 22 MW)
- 120 m (vs 100 m)
- Local tax to municipalities + 300 k€ / year
- Local crowdfunding + 450 k€
- Investments + 45 M€



## Permitting process

- « Porter à connaissance » process
- Authorized in March 2018



# Ongoing rex

Repowering with permits

## Bougainville (Somme)

- 6 WTG (same number)
- 150 m (vs 130 m)
- 23 MW (vs 12 MW)
- Environmental permit (2018)



## Mont de Bézard (Marne)

- 6 WTG (same number)
- 180 m (vs 120 m)
- 26 MW (vs 12 MW)
- Light process « *Porter à Connaissance* » (2020)



## Louville (Eure-et-Loire)

- 6 WTG (same number)
- 150 m (vs 115 m)
- 21 MW (vs 12 MW)
- Environmental permit (2020)





# A win / win operation with conditions

## From the State

- Increasing capacities need to be anticipated by operators but technical constraints must not evolve unfavorably (mainly radars and air sectors but also environmental areas or distance to infrastructures)
- Regulation could be improved
  - Standardization of the permitting process for 'significant change'
  - Reuse of electrical equipments to limit environmental impact on the ground

## From Operators

- Serious environmental monitoring and close relationships with local stakeholders are more than a plus
- Coordination between operators in areas with a lot of installed capacity is a way to explore to reduce the number of WTG

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