

DATE
2024

Winter analysis

CO₂ emissions from residential sector in Paris



A study by
origins.earth



Public policy study

Objective?

Residential emissions account for 35 to 45 % of yearly emission in Paris. These emissions are varying significantly between winter and summer time. During winter, heating the dwellings dramatically increases energy consumption, which is where the greatest potential for reduction lies.

We aimed to:

- Analyse the variations per day of emissions during winter season
- Be able to compare one winter to another in order to explain significant differences year to year on the total amount of emissions
- Understand the impact of behaviors and the potential for optimizing CO₂ emission during the season.

What did we get ?

-42 000

TCO₂

It's the amount of TCO₂ that was not emitted during the winter 2024 compared to winter 2023. The causes of such a reduction (-4,4 % on the emissions that occurs in winter) were identified. Each winter can be compared to the others.

-17%

Between 2 years

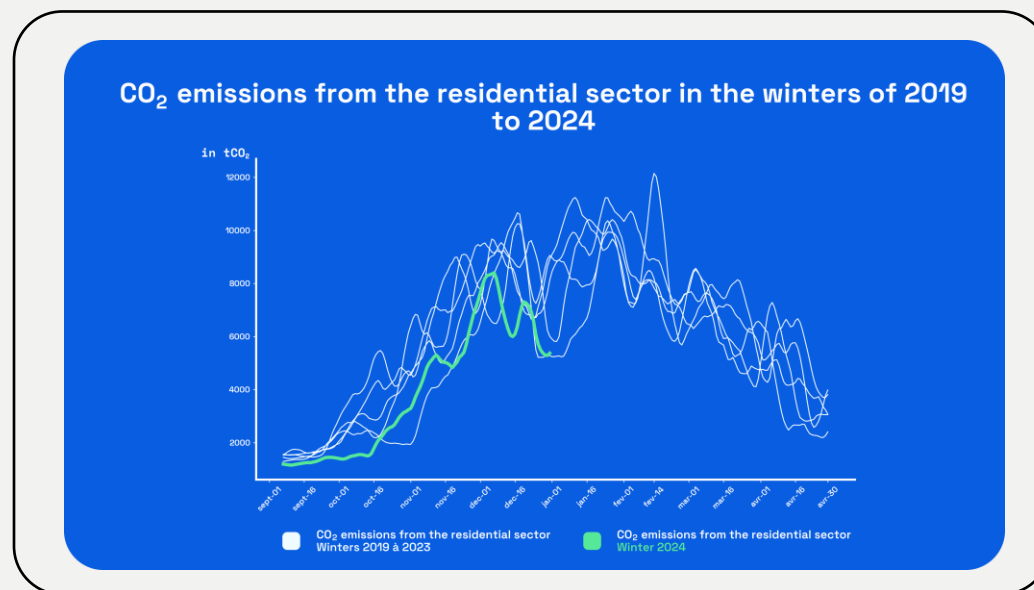
That's the difference in total emission of winter 2022-2023 compared to winter 2021-2022. A combination of sobriety and mild temperatures has led to the most significant reduction over 8 years.

Up to -100k

TCO₂ an achievable target

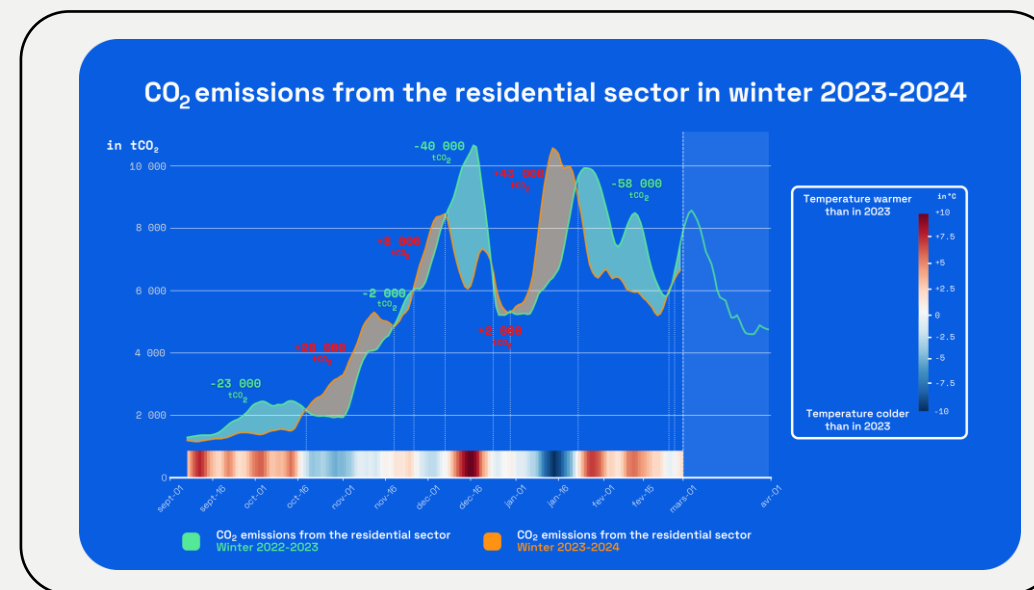
It's the potential maximum amount of TCO₂ that could be avoided on a city like Paris, on one year, if the heating in residential sector would be perfectly following the outside temperature (with thermal regulation).

How did we get it ?



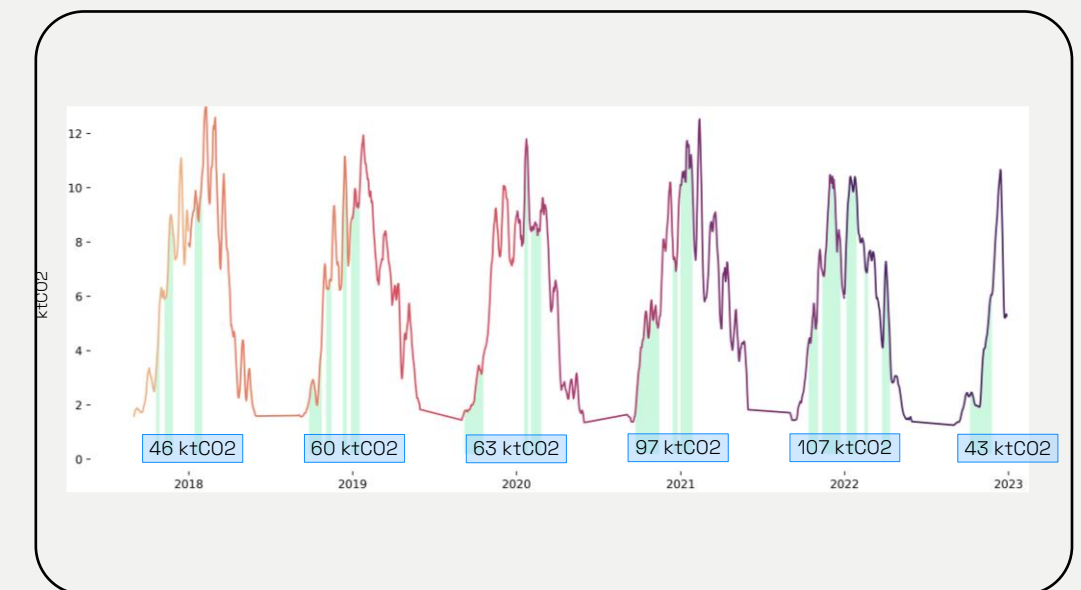
A continuous measurement since 2016

Thanks to the network installed since 2016 over Paris and the use of the technology chain over 8 years, we have a complete signature, day per day, of each winter for the residential sector



Big data and statistic analyses

Integrating data on long term enable us to calculate total amount of tons of CO₂ avoided per period. Adding some other specific data on the same period, help us to understand the main factors that drive the results.



Scenarisation

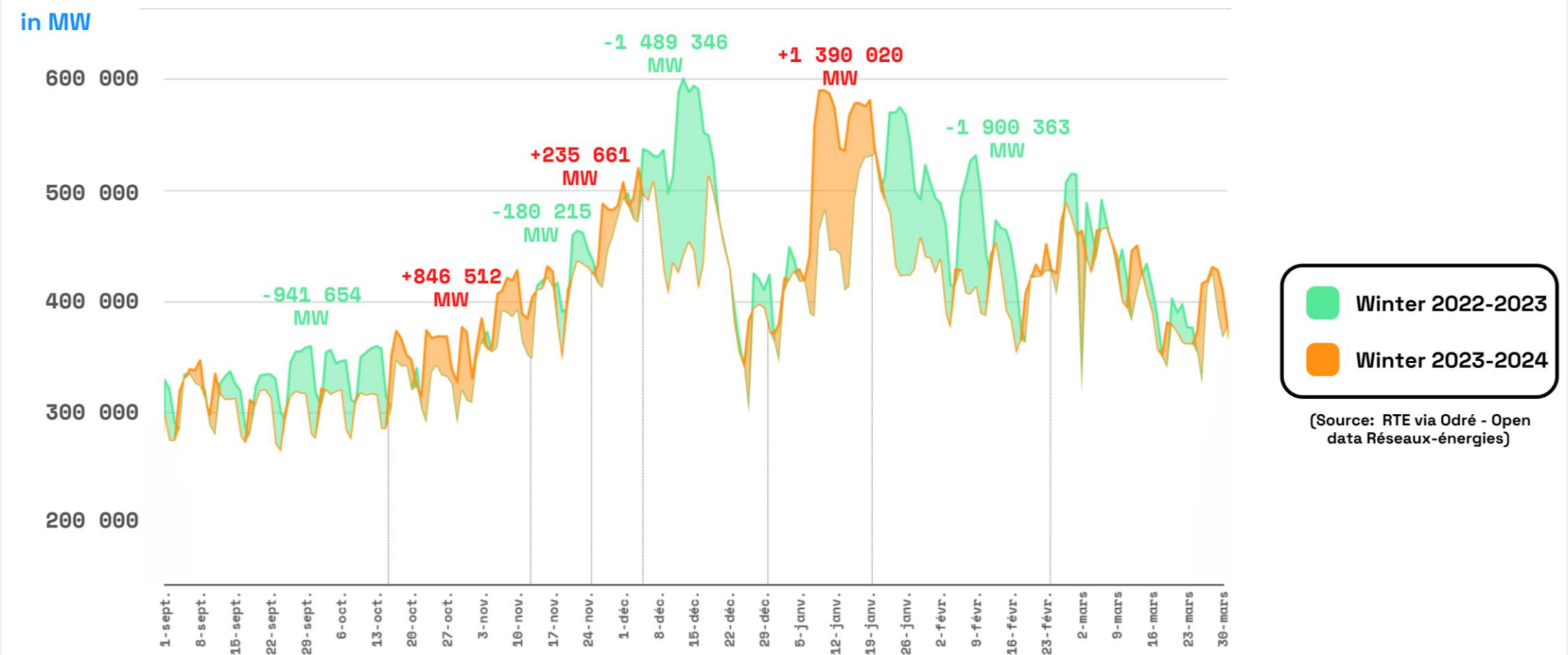
By crossing emissions per day and average temperatures we tried to isolate specific periods with the same temperature but completely different emissions. Applying the same behavior to these period allows us to quantify a maximum amount of savings that could be targeted

A little zoom

Add a scope 2 vision

By adding other datasets, we have enriched the study in order to cover all the emissions scopes. Here, a look at electricity consumption during the same period confirms the general trends and the conclusions.

Total daily electricity consumption in the Greater Paris Metropolis





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