

## Adiabatic pre-cooling of a data center (Netherlands)

by [Fernanda Perez](#) / © 2023-01-13 12:40:56 / International / 158 / EN



**Year of commitment** : 2019

**Green energies** : Energy Efficiency, Cool

**Digital services** : Data centers

### GENERAL INFORMATIONS

En français

When, during the construction of the new data centers of Equinix, the municipality of Amsterdam imposes restrictions on the consumption of electricity, the decides to find a solution so that their very demanding refrigeration machines can run more efficiently.

14 PreCool systems have been installed in 3 data centers in Amsterdam. The solution is also being developed in other countries: another Equinix data center in London has been equipped with adiabatic pre-cooling.

## Data centers - energy-intensive infrastructures

In principle, data centers already consume a lot of electricity to run their servers. In addition, refrigeration machines, which allow servers not to overheat under any circumstances, also consume a large amount of electricity. And when electricity consumption is restricted, it automatically means that for every kilowatt of electricity going to refrigeration machines, server capacity is reduced. In order to operate data centers in the most cost-effective way, Equinix decided to find a solution to reduce the peak current and power consumption of refrigeration machines and thus increase server capacity. In addition, it was also important to find a sustainable solution within the framework of overall energy savings.

## Tailor-made adiabatic pre-cooling for more efficient energy consumption

Together with cooling supplier Trane, Oxycom supplied adiabatic pre-cooling systems to three data centers in Amsterdam. Adding adiabatic pre-cooling reduced peak current by 14% and significantly increased server capacity.

Equinix servers are protected from overheating by introducing chilled water into the building to cool the hot air inside. This cooling is initially provided by a refrigeration machine (Jaeggi Hybrid). When this main refrigeration machine can no longer reach the desired temperature, Trane's backup cooling system activates. As it was particularly important with the high outside temperatures of recent years to reduce the peak current of the machines, Trane was tasked with finding an efficient and reliable solution for this purpose. Therefore, the firm, which does not produce adiabatic pre-cooling itself, approached Oxycom regarding the PreCool system.

The reliability of the combination of the two systems being extremely important, an endurance test was carried out in the Parisian test laboratory of Trane, where it was exposed to extreme conditions: 34°C with a humidity of 60% - a very unfavorable situation that has never happened in Amsterdam before. The results of the lab test exceeded expectations and thus the test proved to be successful.

Results of the tests in extreme conditions :

	Increased cooling capacity	Decrease in peak current	Increase in the ration E.E.R / Efficiency
Full load test	778 kW -> 872 kW (+12%)	215 kW -> 193 kW (-10%)	3.63 -> 4.51 (+24%)
Partial load test	247 kW -> 297 kW (+20%)	64 kW -> 55 kW (-13%)	3.88 -> 5.39 (+39%)

### Progress Status

Delivered

### Data Reliability

Self-declared

### Funding Type

Private

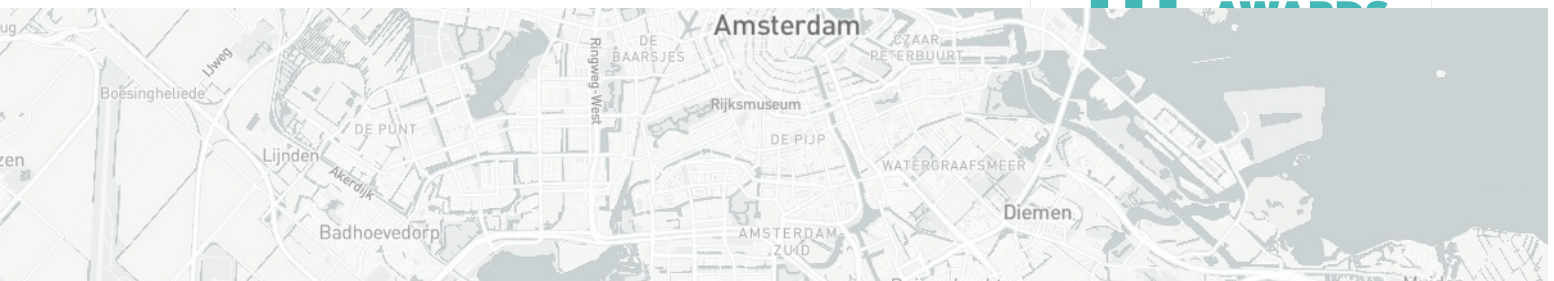
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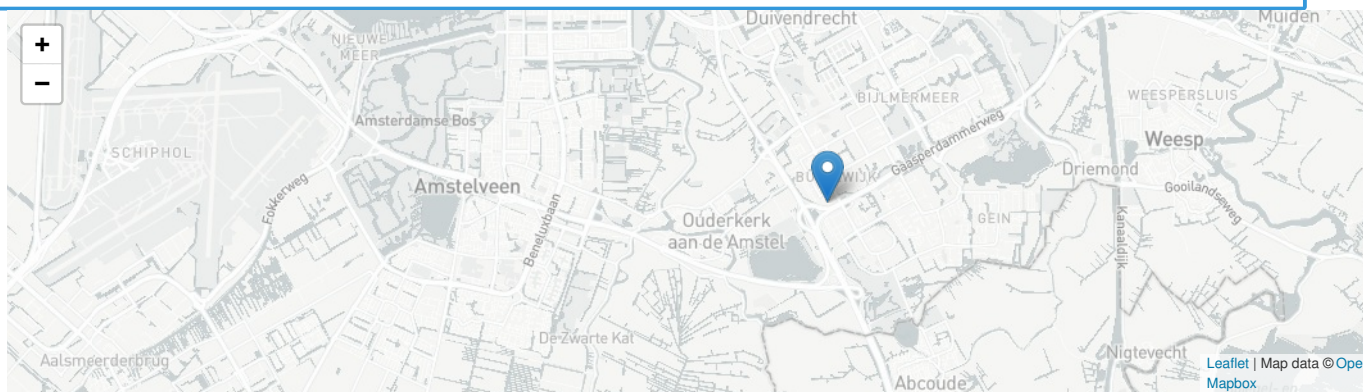
Oxycom

### Contest

## Reasons for participating in the competition(s)

How to reduce the energy consumption of digital technology? A central question for the city of tomorrow. This infrastructure implements a tailor-made solution offering a more efficient energy consumption for data centers.





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