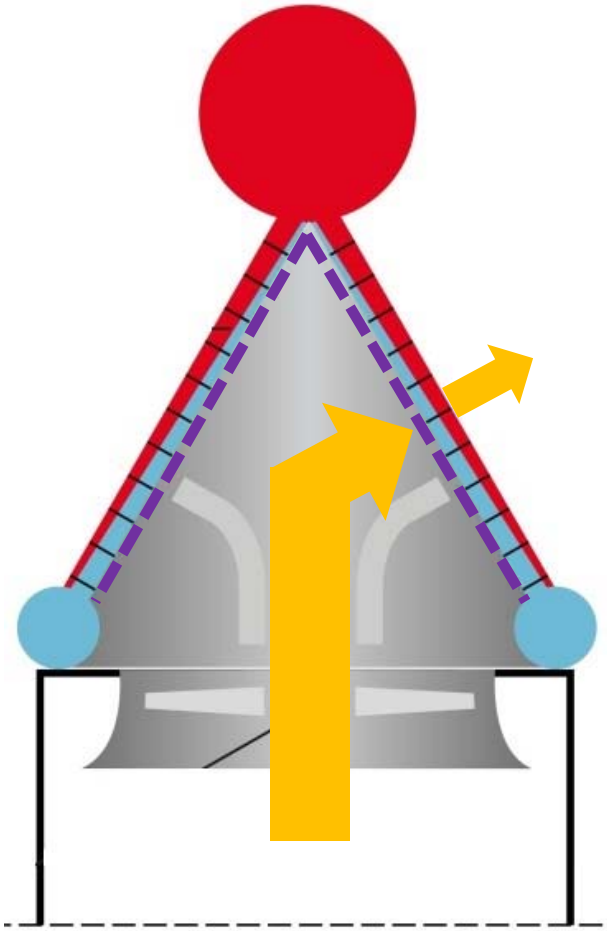
ACC Cleaning :
Why and How to clean?

FOULING Origin & Effects on Performances

Where does the fouling come from?

- Pollen
- Bird droppings
- Sand
- Oil spillage
- Fiber dust
- Limescale/ calcium

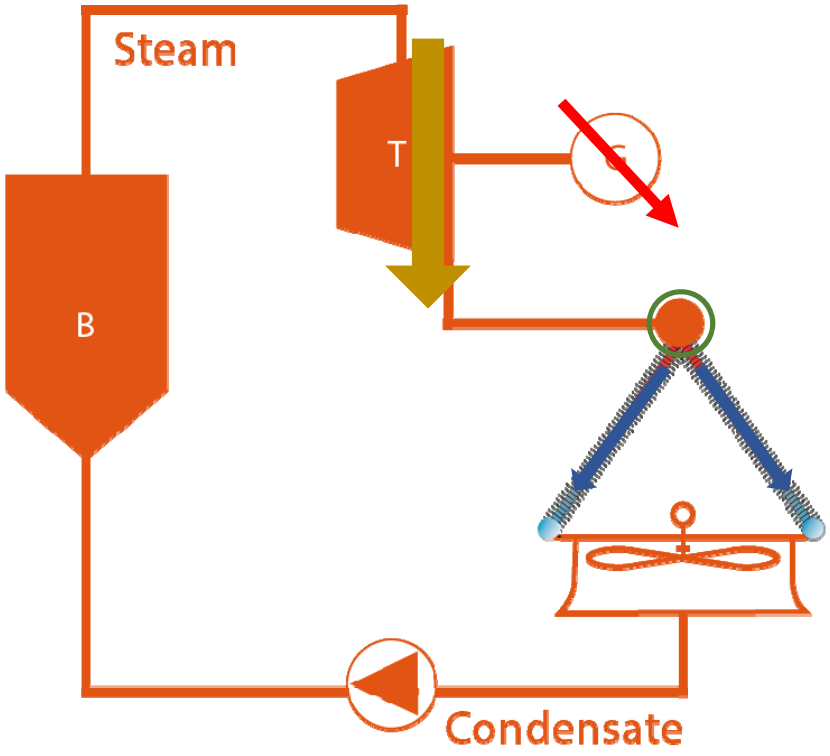
Fouling’s effect on performances (1/2)



- Create an isolation film
- Reduce the Air Flow trough the fins

→Heat transfer is dropping

Fouling's effect on performances (2/2)



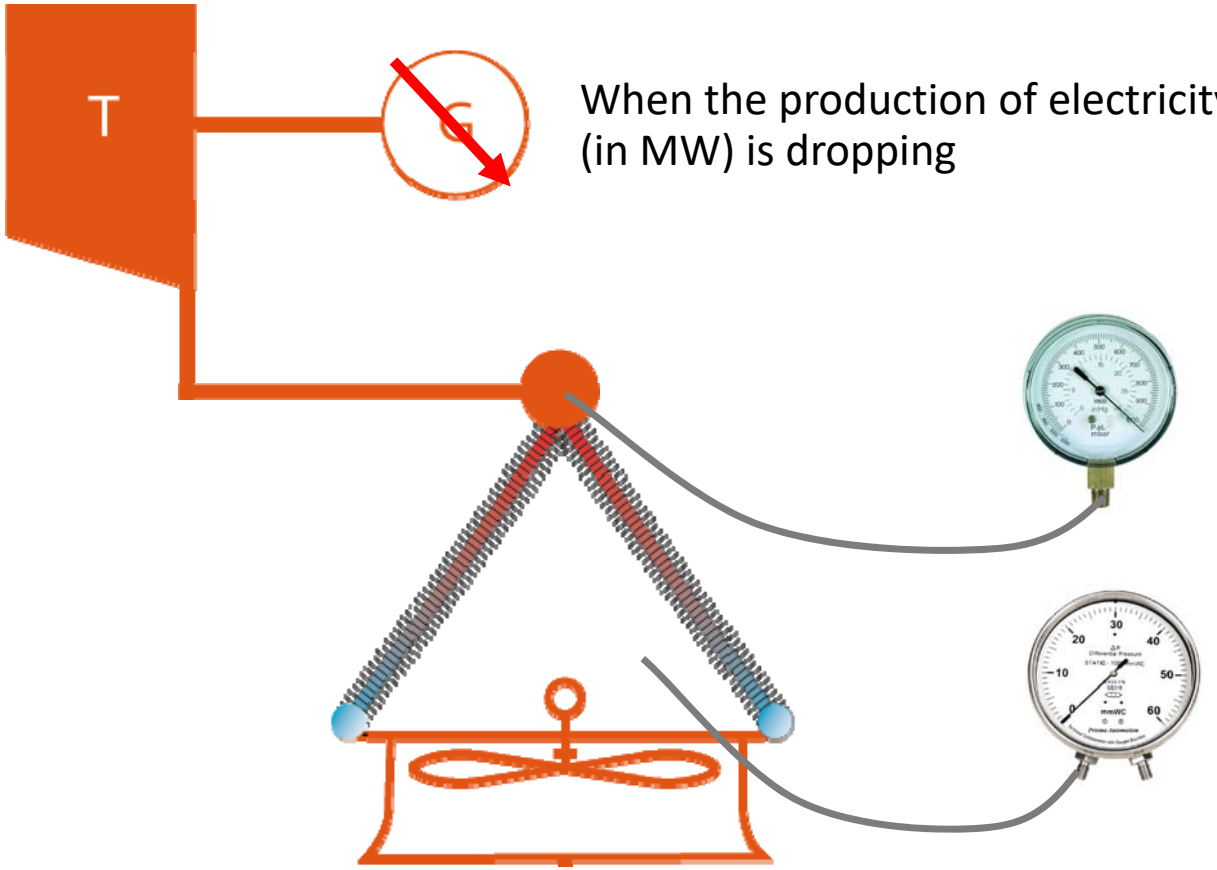
- Vapor condensates into water slower.
- Vaccum level in ACC drops
- Vapor flow rate in the turbine drops
- Turbine turns slower and produces less electricity

→The plant is LOOSING MONEY

CLEANING

When to clean? (1/2)

Visual control :
if the fouling is visible



When the production of electricity (in MW) is dropping

When the vaccum level (in bar) in ACC is dropping

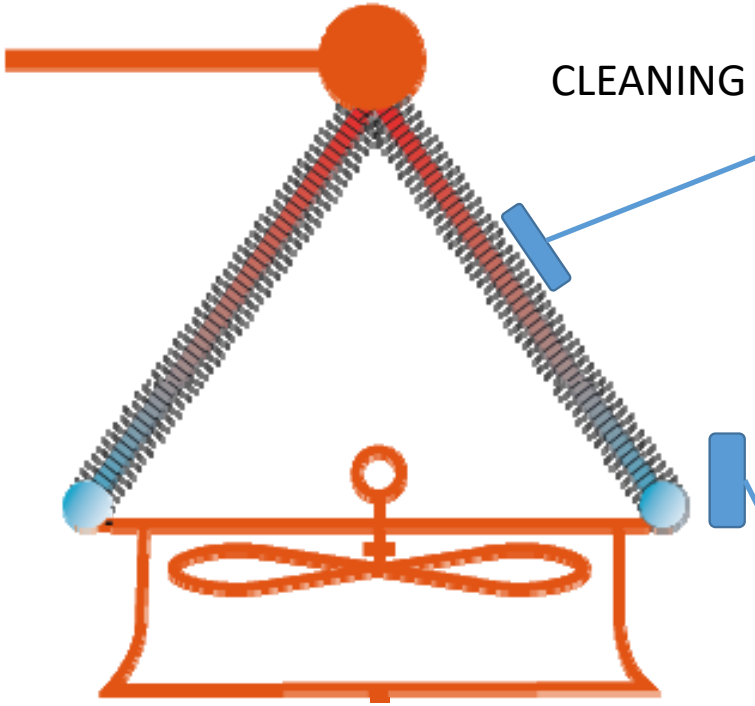
When internal static pressure rises (measured by a differencial pressure recorder)

When to clean? (2/2)

But we recommand to clean:

- Periodically: more often you clean, easier it is!
- At least once a year, after pollen season (depending on the area and environnement)

Material to clean : AX CLEANER®

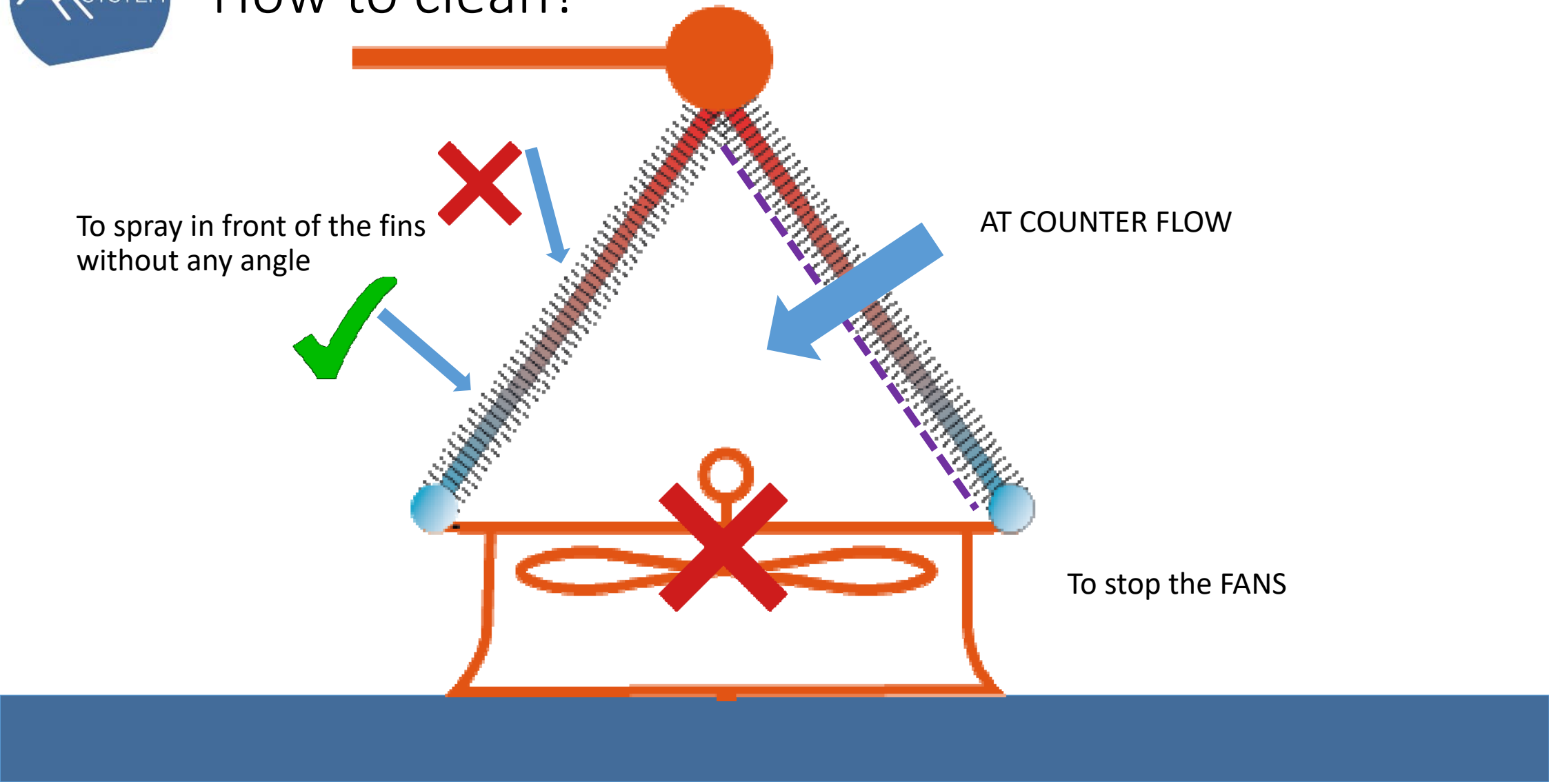


CLEANING HEAD

HIGH PRESSURE PUMP
22KW – 120 lpm – 130 bar

HOSE PUSHER WITH
SPOOLING DEVICE

How to clean?


To spray in front of the fins
without any angle
AT COUNTER FLOW
To stop the FANS

How not to clean and why?

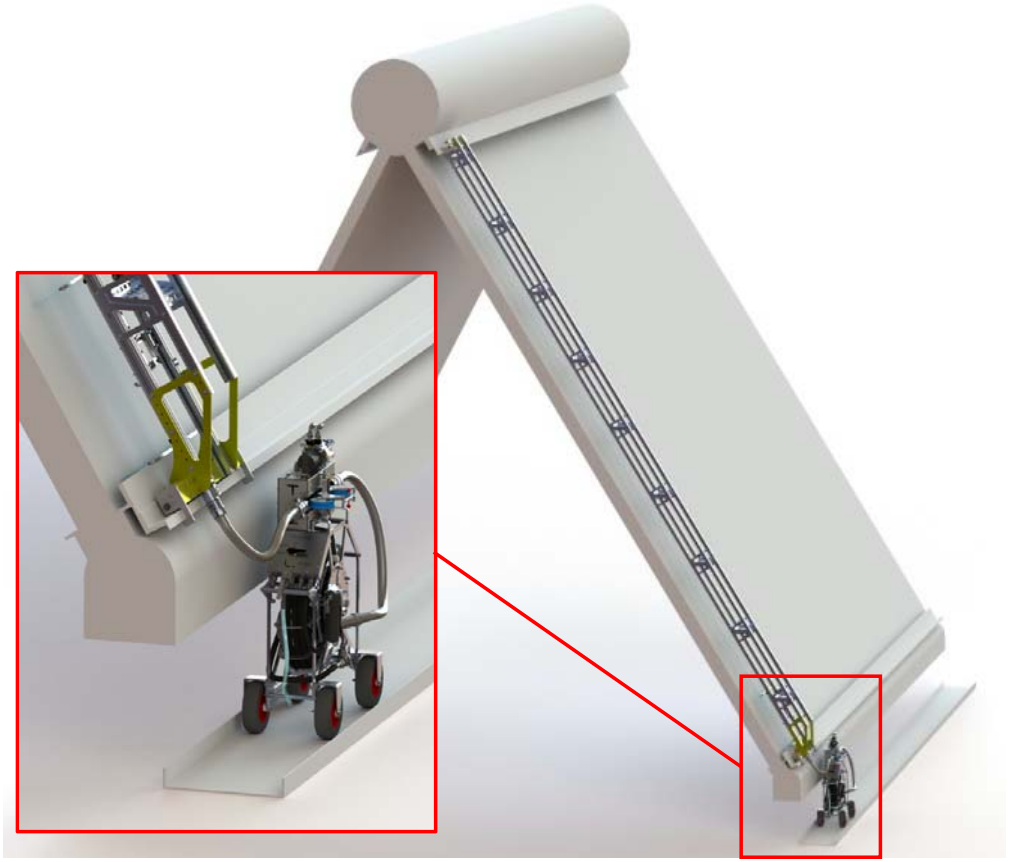
Manuel HP cleaner
→ risk to fold the fins.

In sand blasting → it can damage the fins, and remove the aluminium coated

In sodium bi-carbonate blasting → there's a risk of electrolyse effect between Aluminium and NAHCO3 which will damage the fins

EXAMPLE OF CONFIGURATIONS

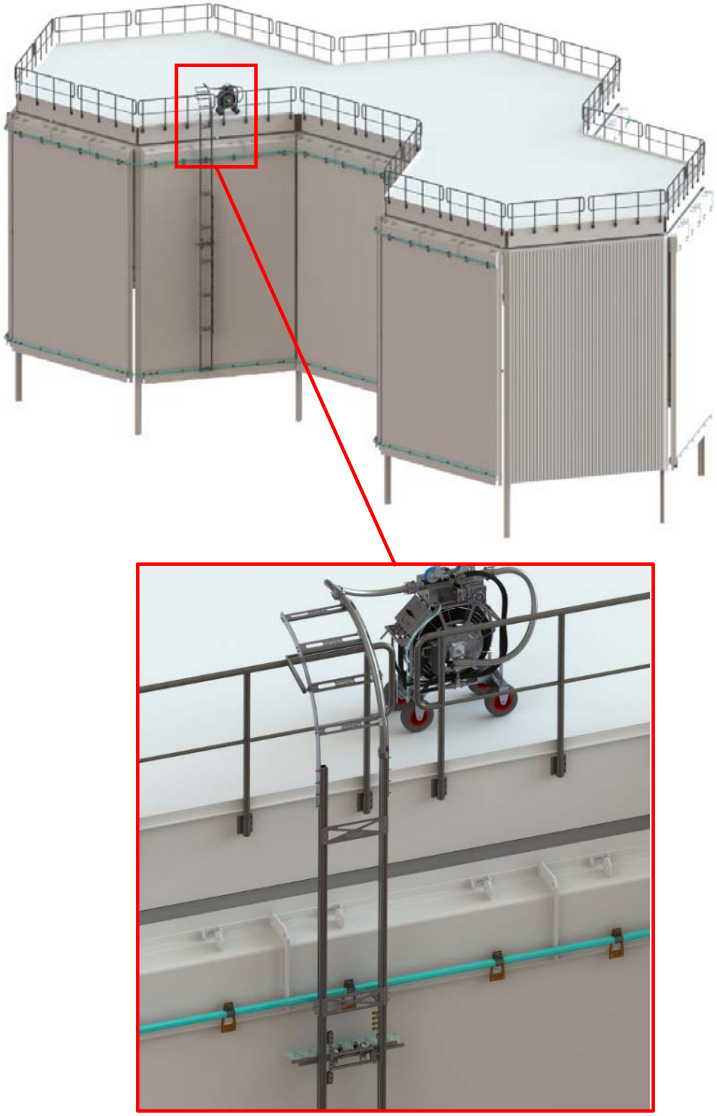
A-FRAME ACC



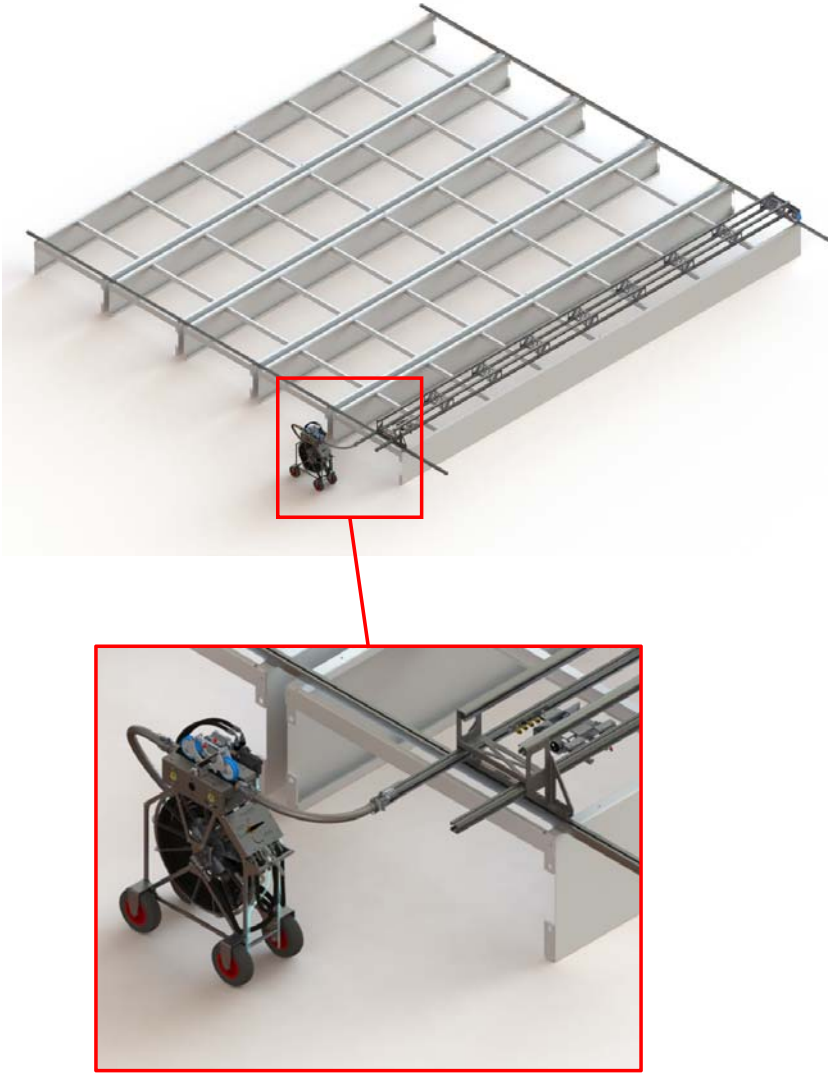
Single Raw

Multi Raw

Vertical ACC - Hexacool



Flat Heat Exchanger

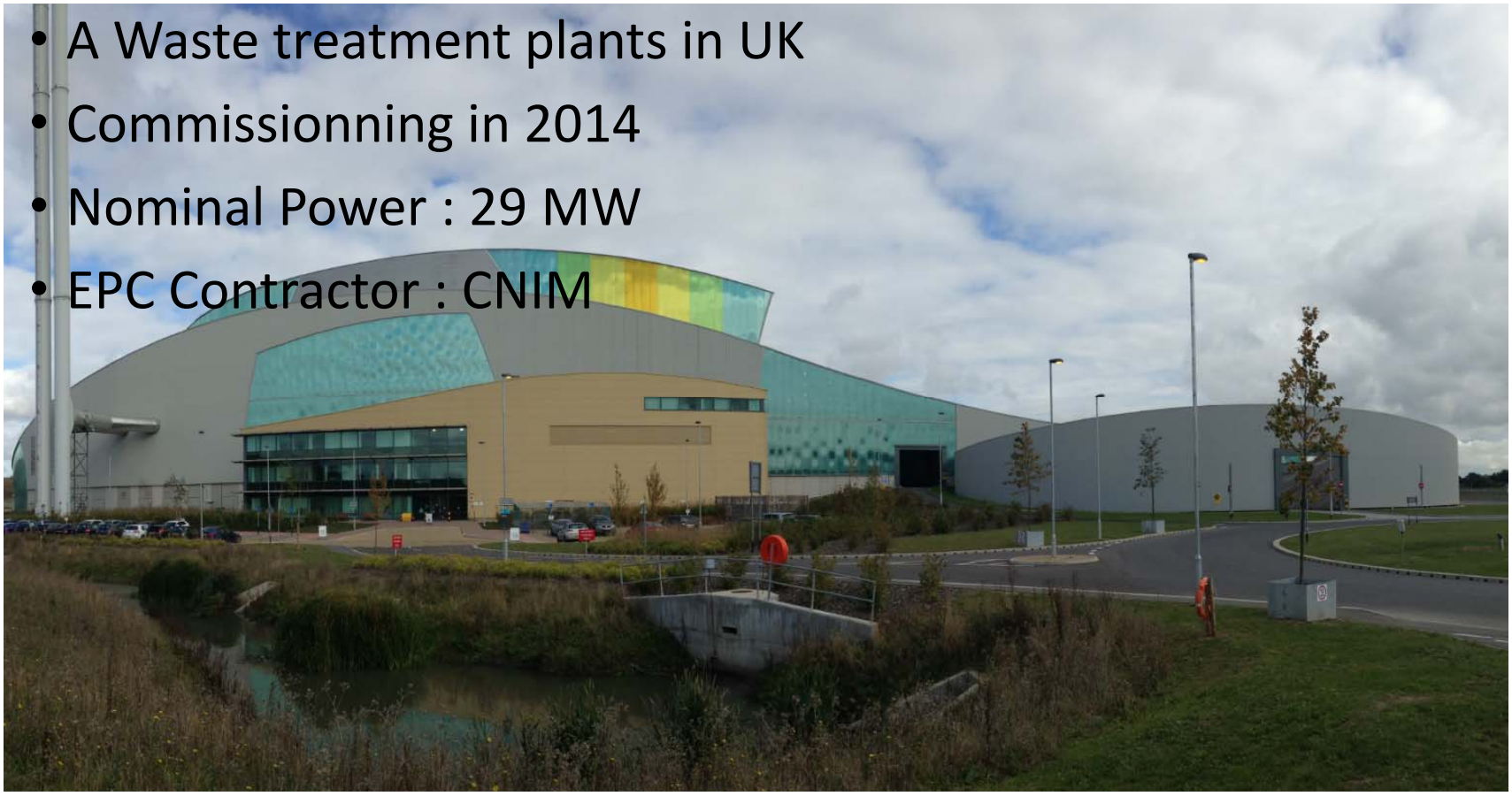


V-Frame ACC – MODULAR ACC…

CASE STUDY

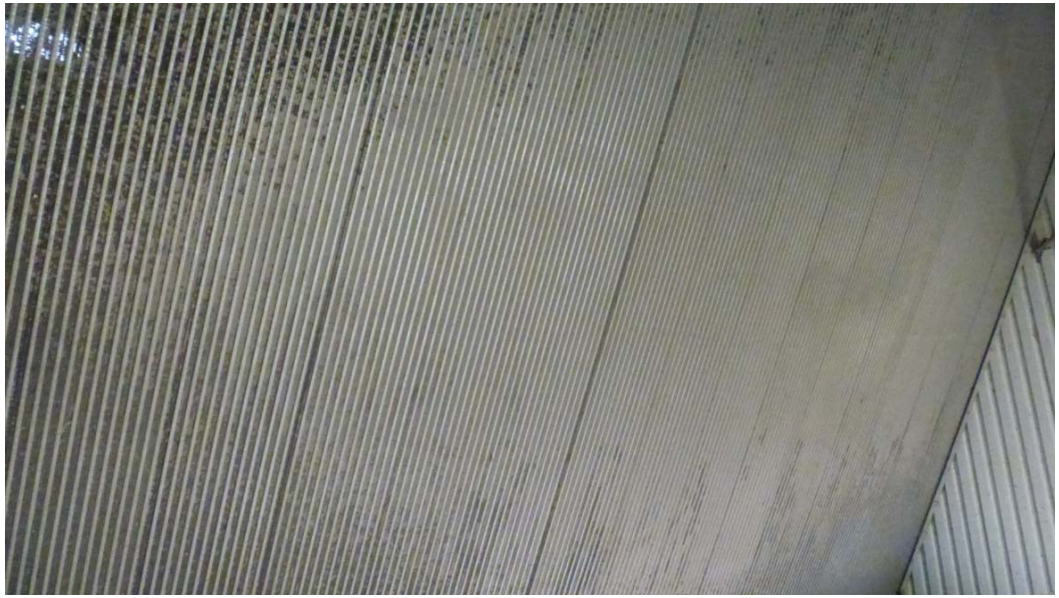
Presentation of the plant

- A Waste treatment plants in UK
- Commissionning in 2014
- Nominal Power : 29 MW
- EPC Contractor : CNIM

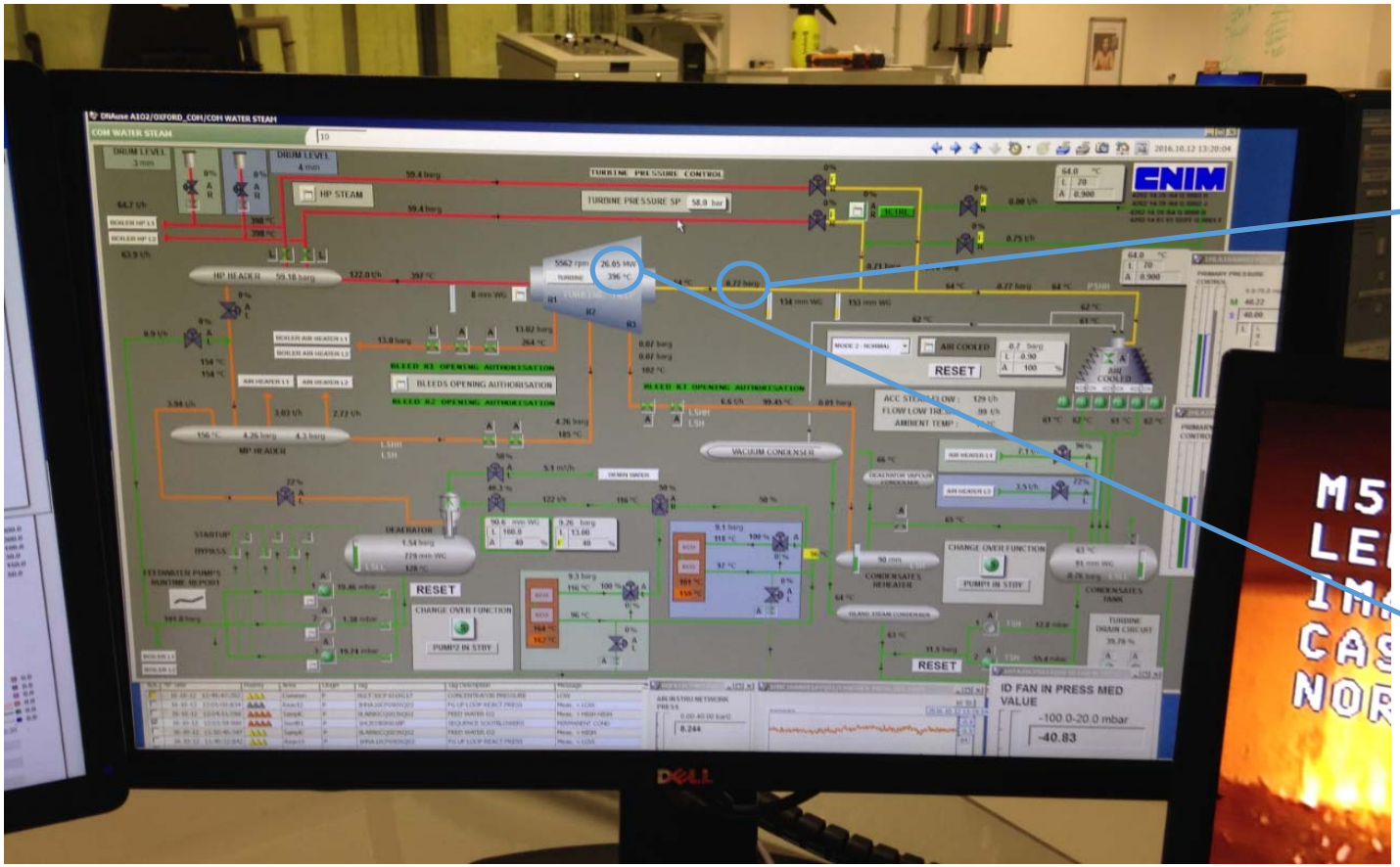


Presentation of the ACC

- ACC manufacturer : GEA
- ACC type : A Frame (quantity 2)
- Bundle Size: 12 m x 40 3 (quantity 4) -> 1900 sqm



Fouling’s effect on performances

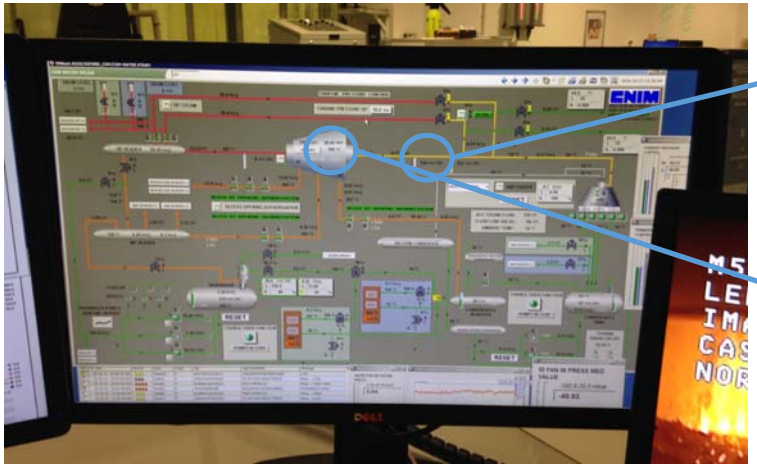


Vaccum level dropped to - 0,7 bar

Power dropped to 26,05 MW

What we did : AX CLEANER® installation

Performance after cleaning



Vaccum level
- 0,9 bar

Power dropped
to 28,29 MW

Theorical saving in those conditions :
1600 MWh per month → 100 000 EUR per month

AX SYSTEM