

# ACTIVE UTILITY CONTROL (AUC)

**Auto Idle and “Green Mode” reduces utility and consumable costs.**

Our customer is a major European semiconductor manufacturer. The patented solution is an auto-idle monitoring system for vacuum and abatement systems that was jointly developed by Edwards and a semiconductor research facility.

After thorough testing the solution was accepted by the customer for implementation in multiple facilities. It has been installed on more than 15 tools from different OEMs in 3 different sub-fabs and multiple processes. Roll out continues.

“Green Mode”, also known as Active Utility Control (AUC), is a standard feature offered within all new pumping systems.

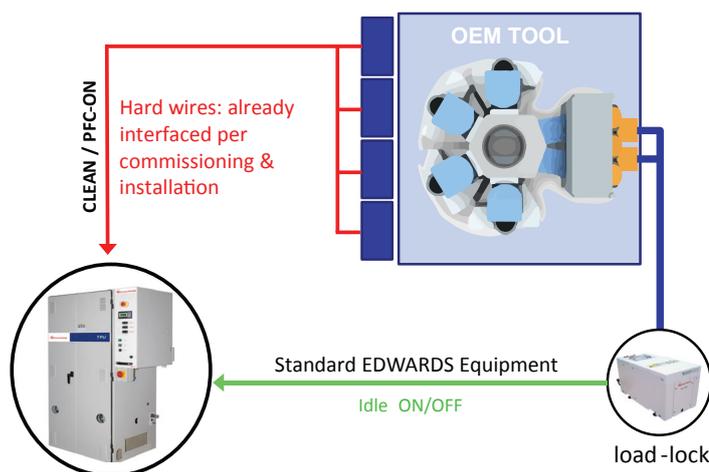
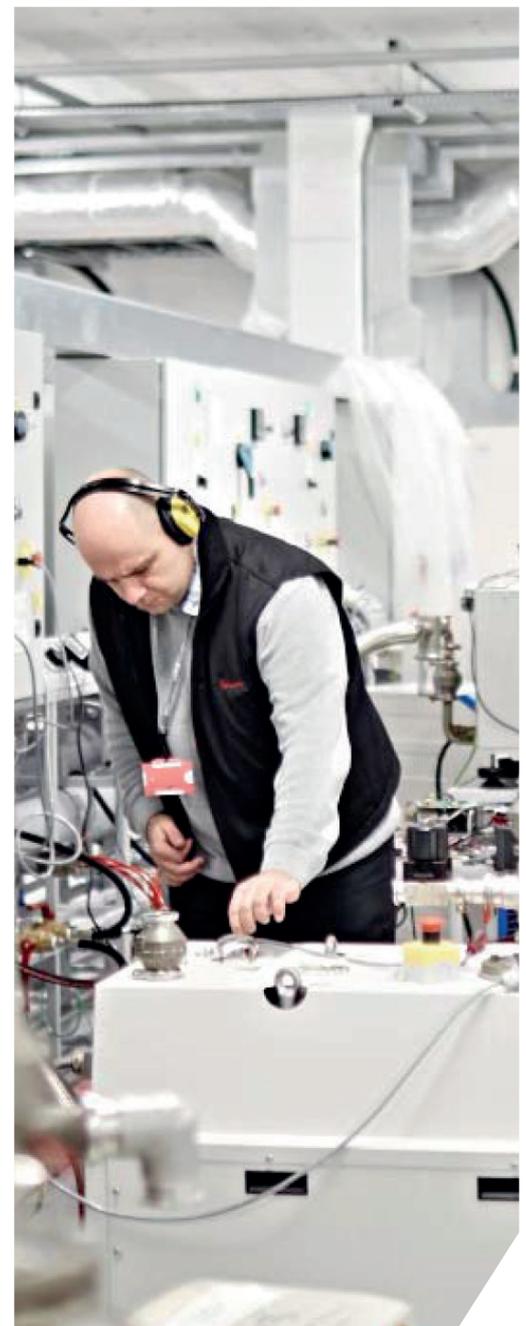
## KEY FACTS

Customer: Major Semiconductor Manufacturer

Region: Europe

Sector: Semiconductor

**Benefit: Utility Savings of up to \$20,000/System Annually**





# 1 CHALLENGE

The customer was seeking a reliable way to reduce utility costs for vacuum and abatement systems, reduce adverse environmental impact and attain ISO 50001 certification for energy management.

Utility costs associated with vacuum and abatement include electrical power, combustible fuel, waste water treatment, purge gases and other consumables. The vacuum and abatement systems are designed to perform reliably 24 hours a day, seven days a week. However, significant utility cost savings can be achieved by putting sub-fab equipment into a low power "Green Mode" when process tools are idle.

The challenge was not with the equipment but more the ability to find a reliable, universal way of communicating status changes from process tools to sub-fab systems to start and end "Green Mode" operation. Challenges included risks to expensive process equipment and wafer products, as well as the safety of personnel.

# 2 SOLUTION

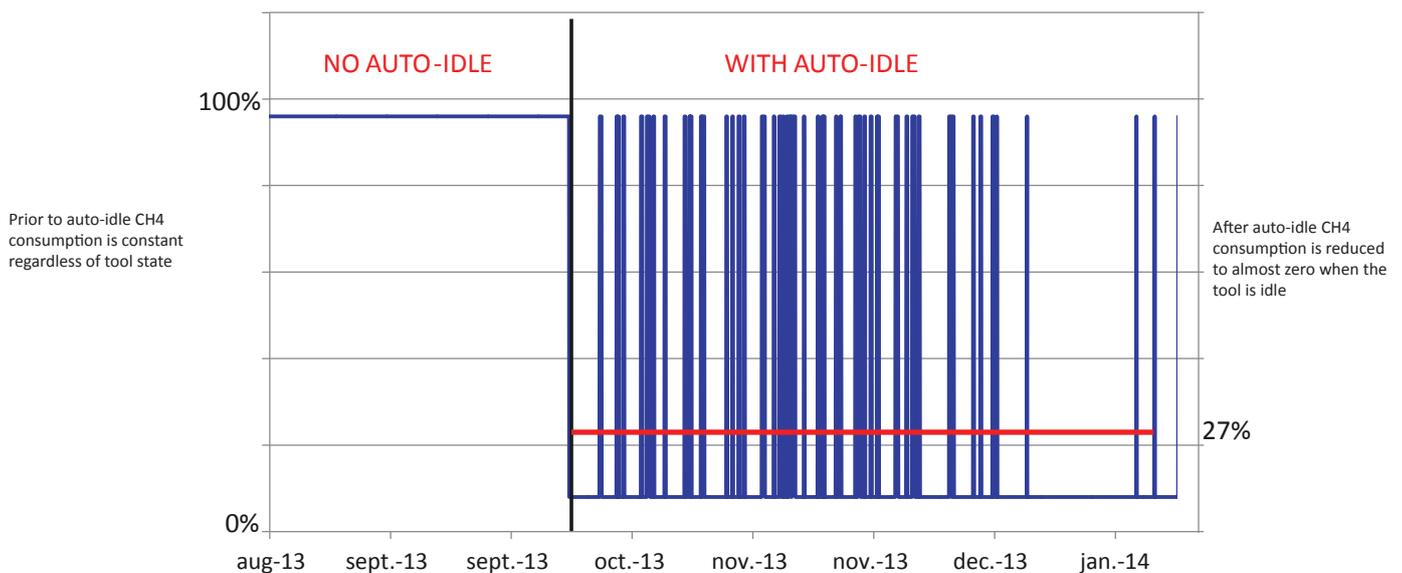
Our engineers developed a reliable solution that uses the load-lock vacuum pump on the process tool as a sensor. They realized that by monitoring the power consumption variations by the pump, they could reliably determine the operating status of the process tool. When there is no activity, the monitoring system signals the sub-fab pumps and abatement systems to enter low power "Green Mode". (fig 1).

- Simple - 2-wire interface.
- Configurable – adjustable delay time before sending the idle signal.
- Universal - implemented on the load-lock pump and requires no other interface with the process tool.
- Fail safe - In the event of a failure, the system defaults to 'always on' mode.
- Reliable - Optimises cycling of valves to reduce wear and avoid costly damage.

# 3 OUTCOME

- Up to 75% reduction in fuel and water use, depending on production load. The figure below shows actual data where the monitoring system reduced average fuel consumption by 83%. (fig 2).
- 58% reduction in water consumption (and its treatment by the waste treatment station).
- Cost savings up to \$20,000 per system per year.\*
- Works with all OEMs/all tools supported by standard Edwards (iGX, iXH and iXL) pumps and abatement systems.
- Installation and setup are easy and inexpensive, do not interrupt production, and savings begin to accrue immediately.
- Interface configuration is per standard Edwards commissioning procedures.

CH4 consumption before / after auto-idle (metal etch production tool)



**REDUCED AVERAGE CH4 CONSUMPTION by ~83%**