Energy efficiency with Easy Advanced Control on screw compressors for poultry refrigeration

ECEEE – Industrial Efficiency – 2016 Berlin

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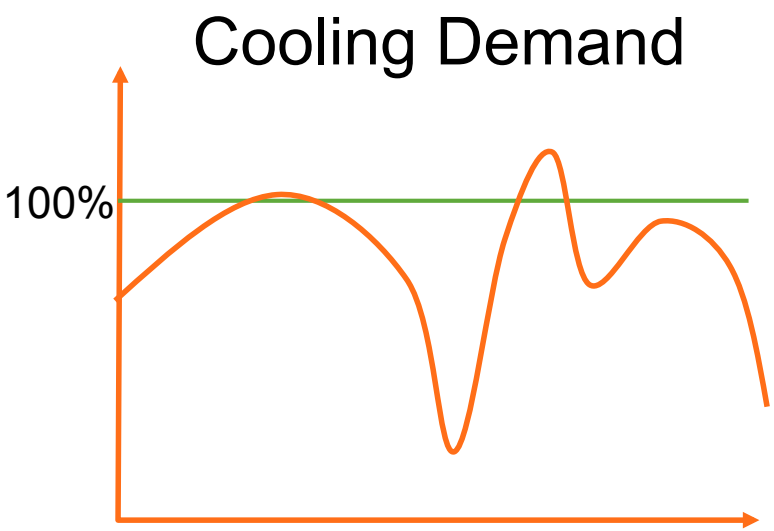
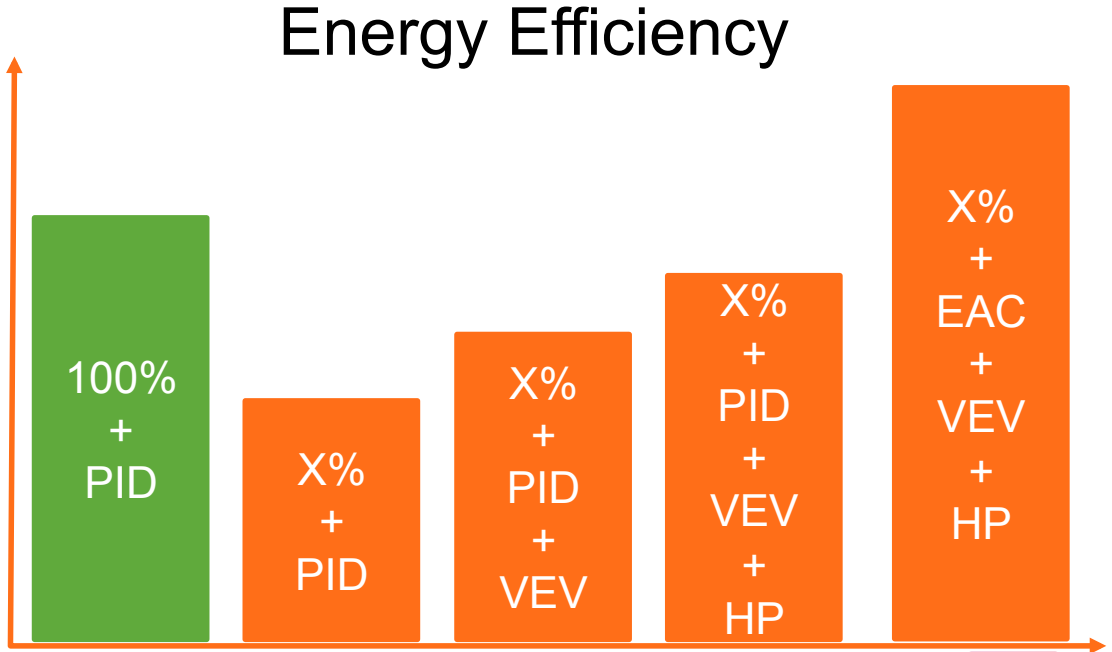
INTRODUCTION





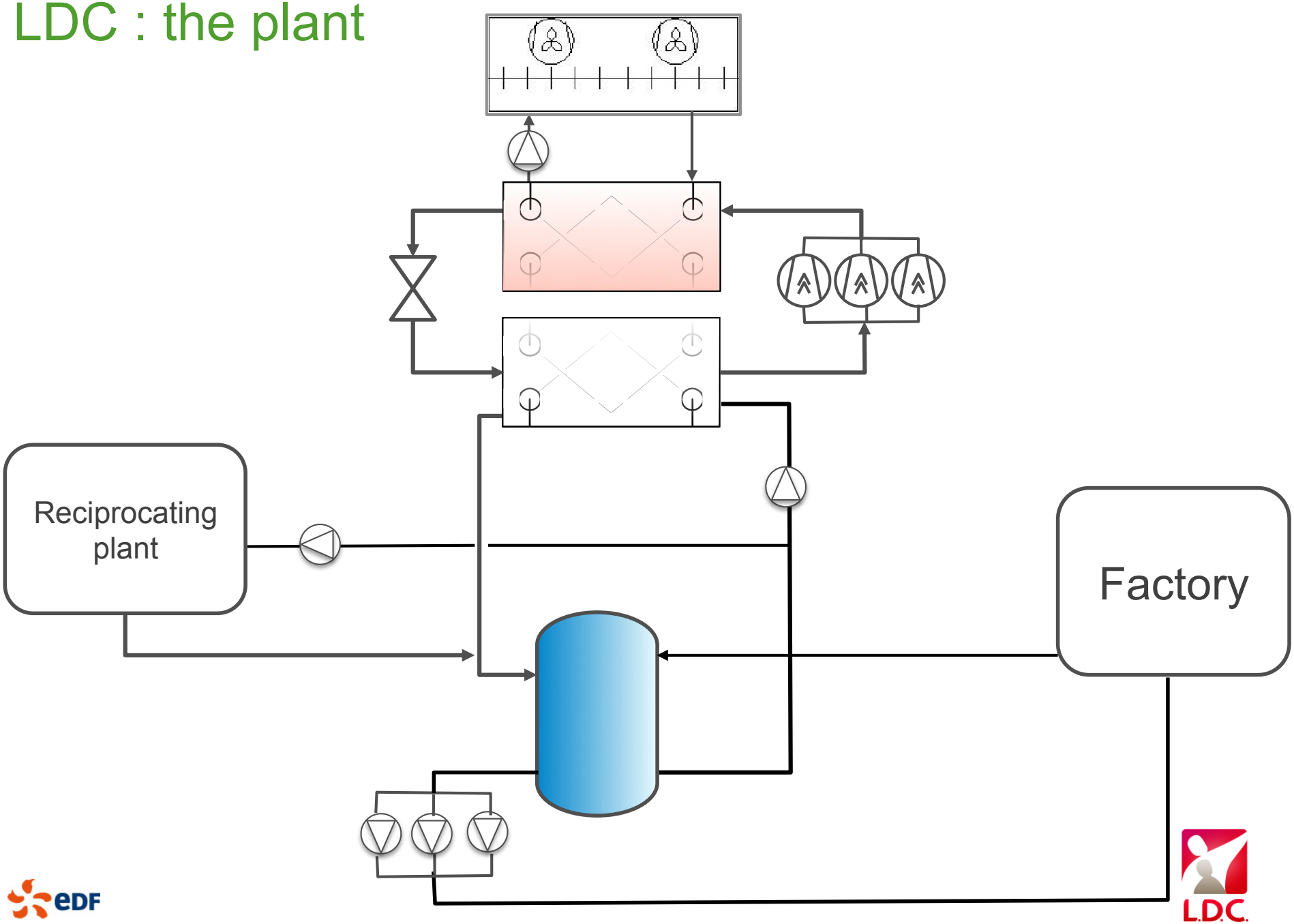
What is EAC?

E for Easy

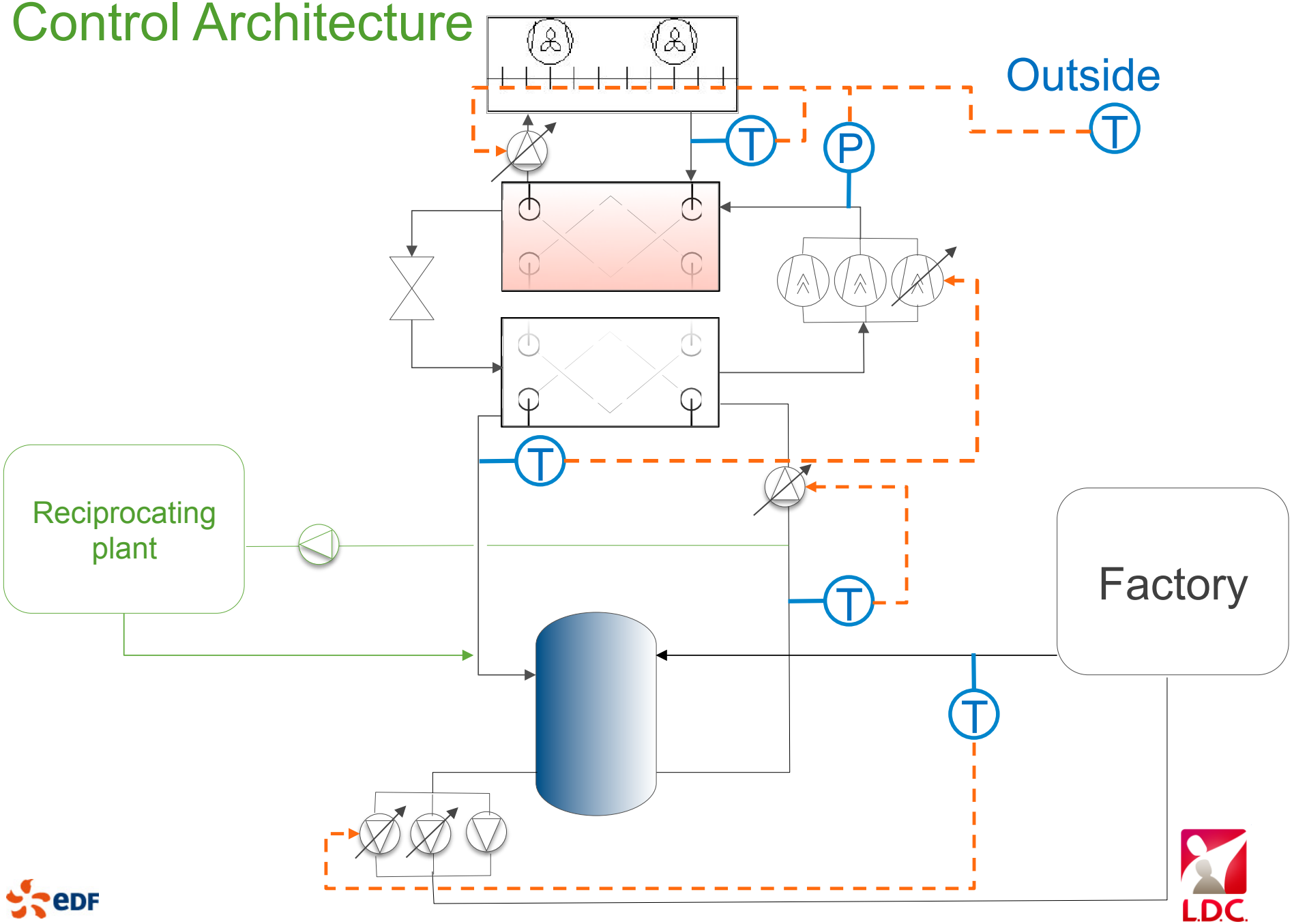
A for Advanced

C for Control

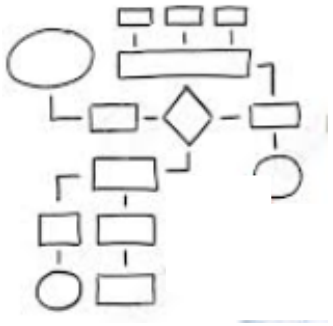
LDC : the plant



Control Architecture



EAC Implementation



Security CONTROL

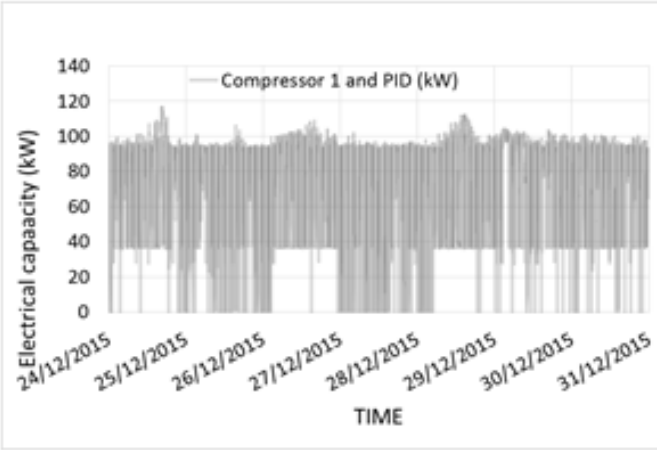
$$u = u_p + u_i + u_d$$

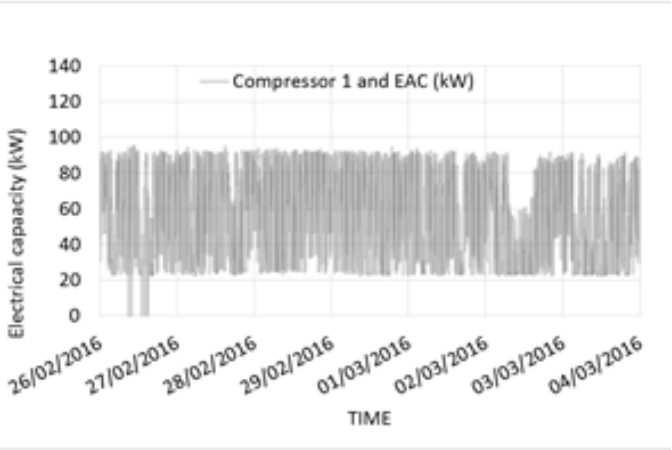
$$u_p = K\varepsilon$$

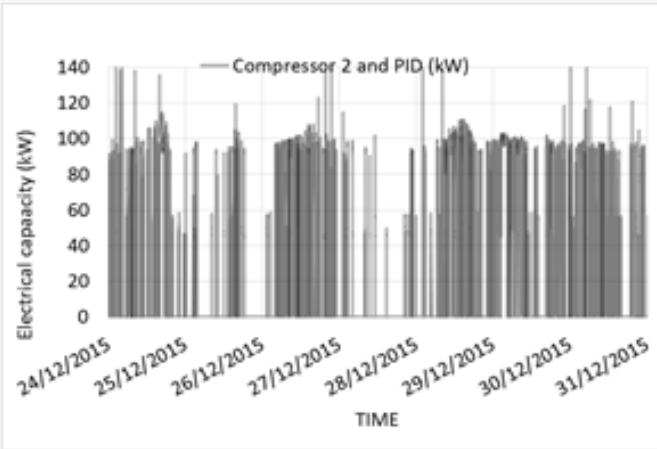
$$u_d = KT_d p\varepsilon$$

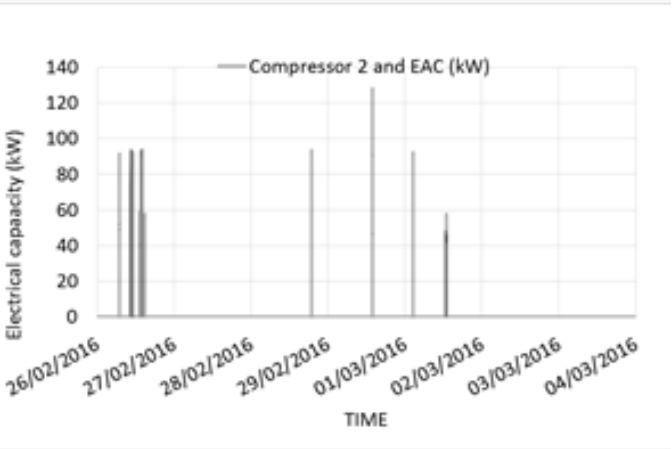
$$ke^{\uparrow -tp}/1+\theta p$$

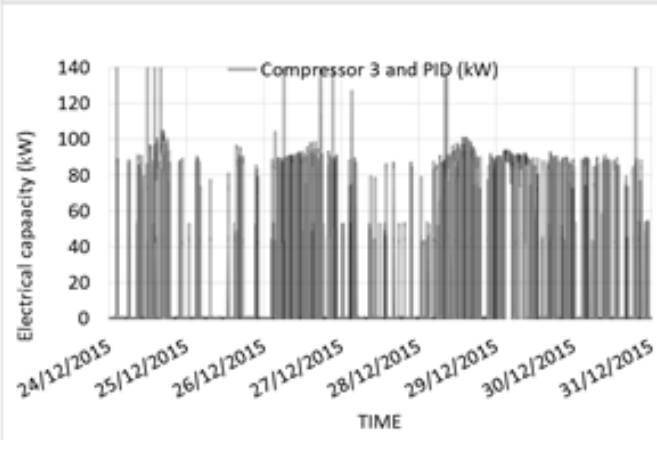
Results: starts and stops, compressors

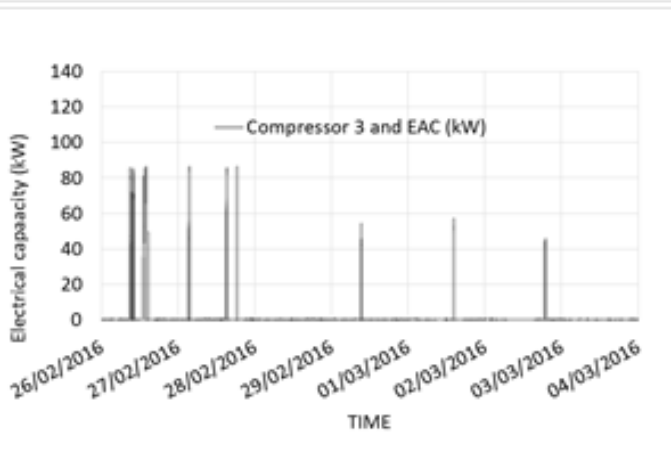




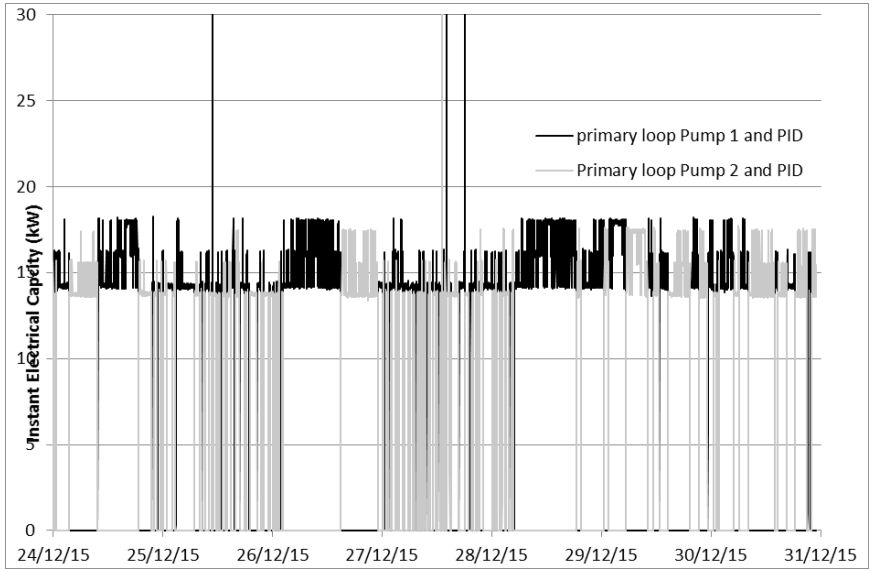


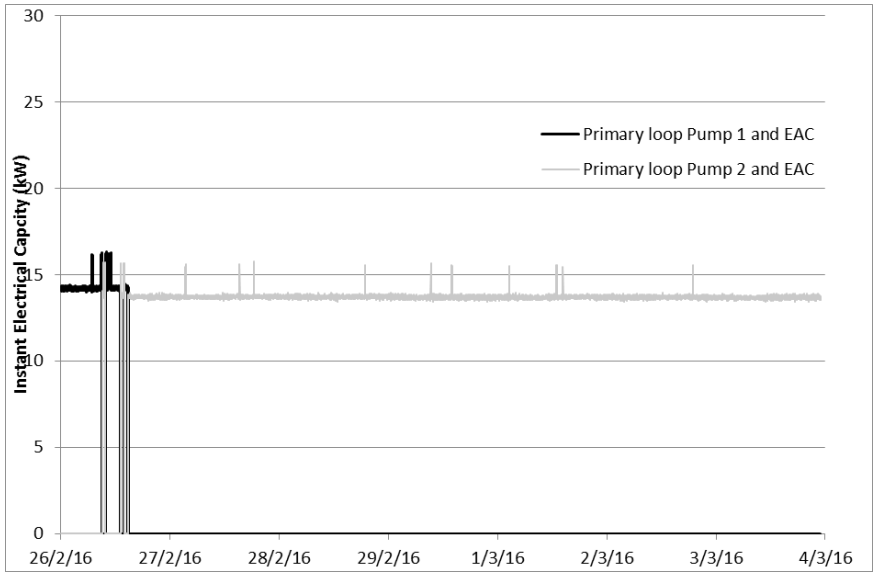




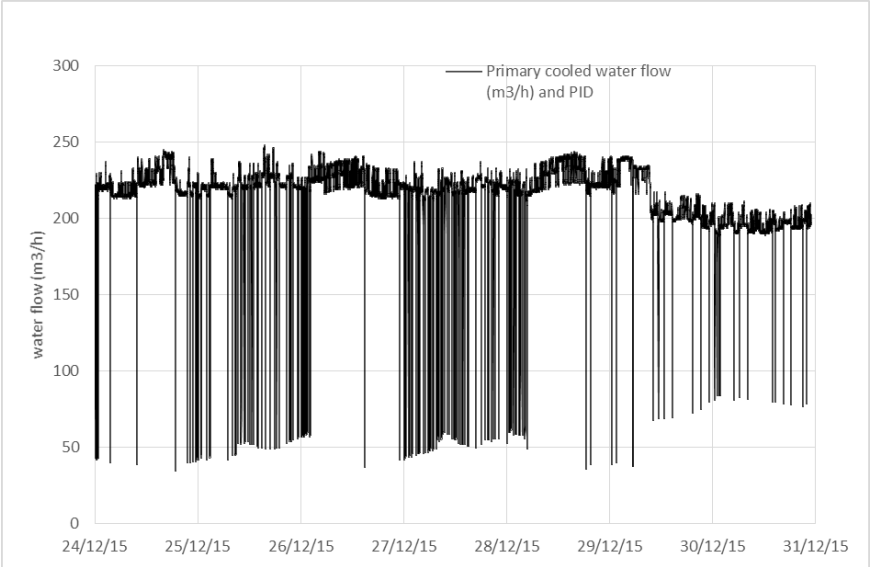


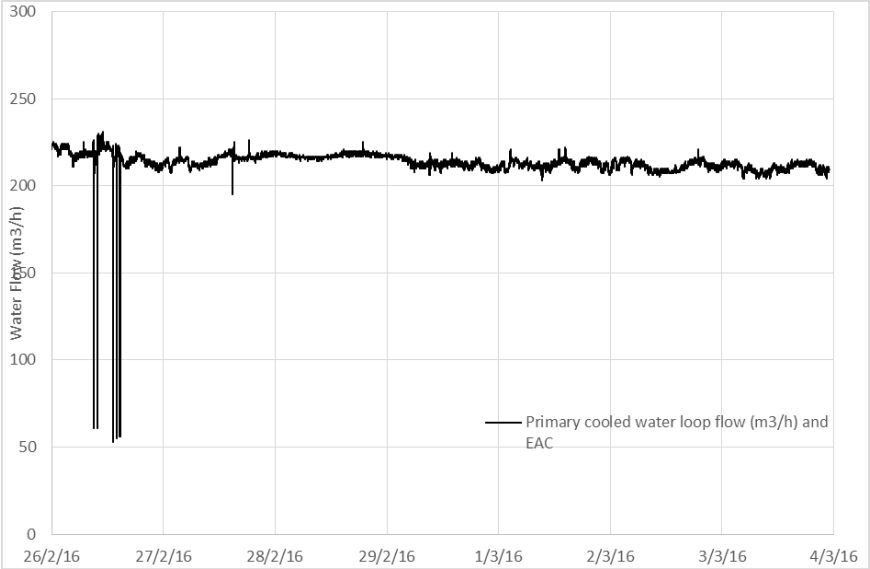
Results: starts and stops, pumps



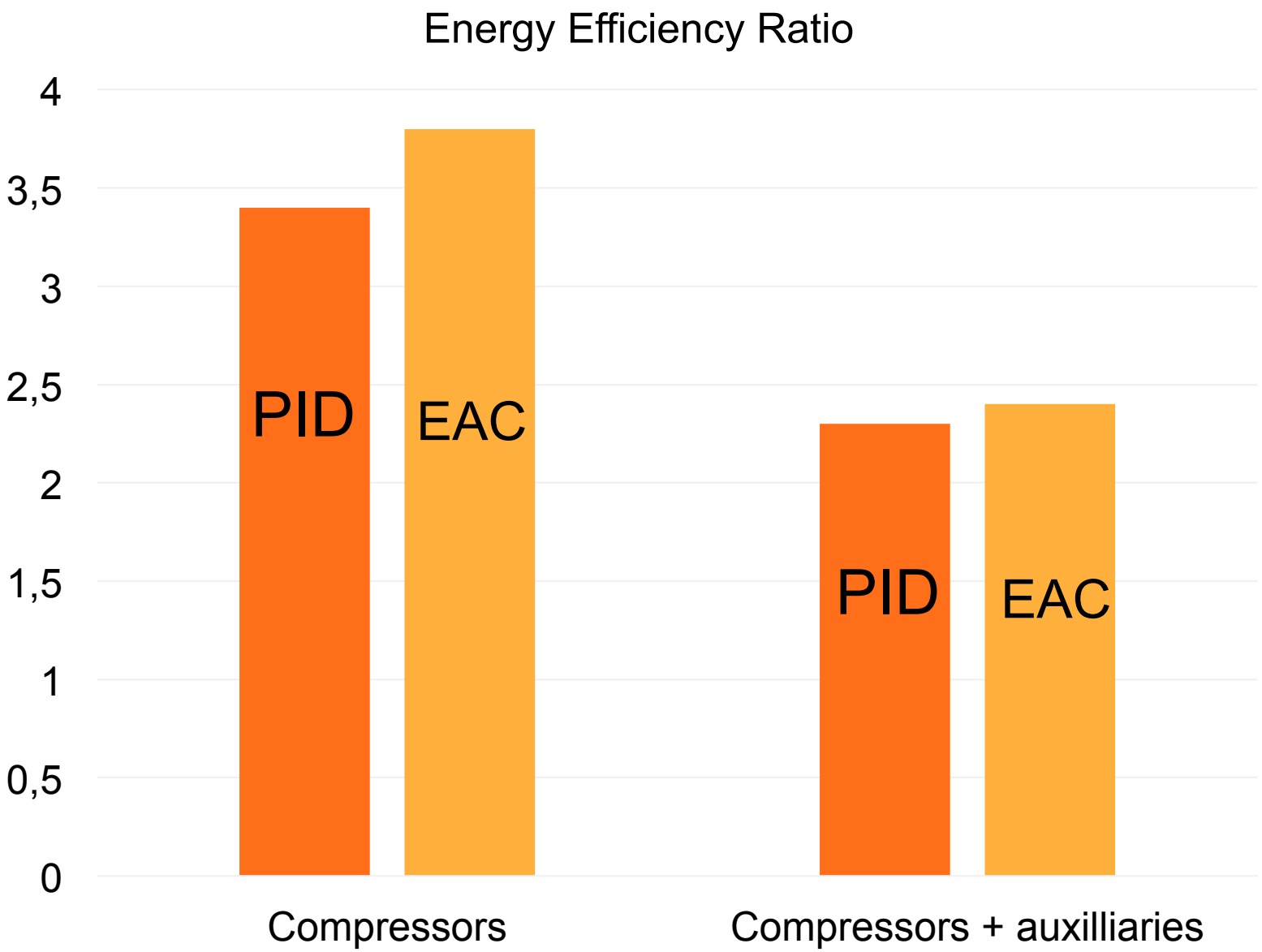


Results: steadiness

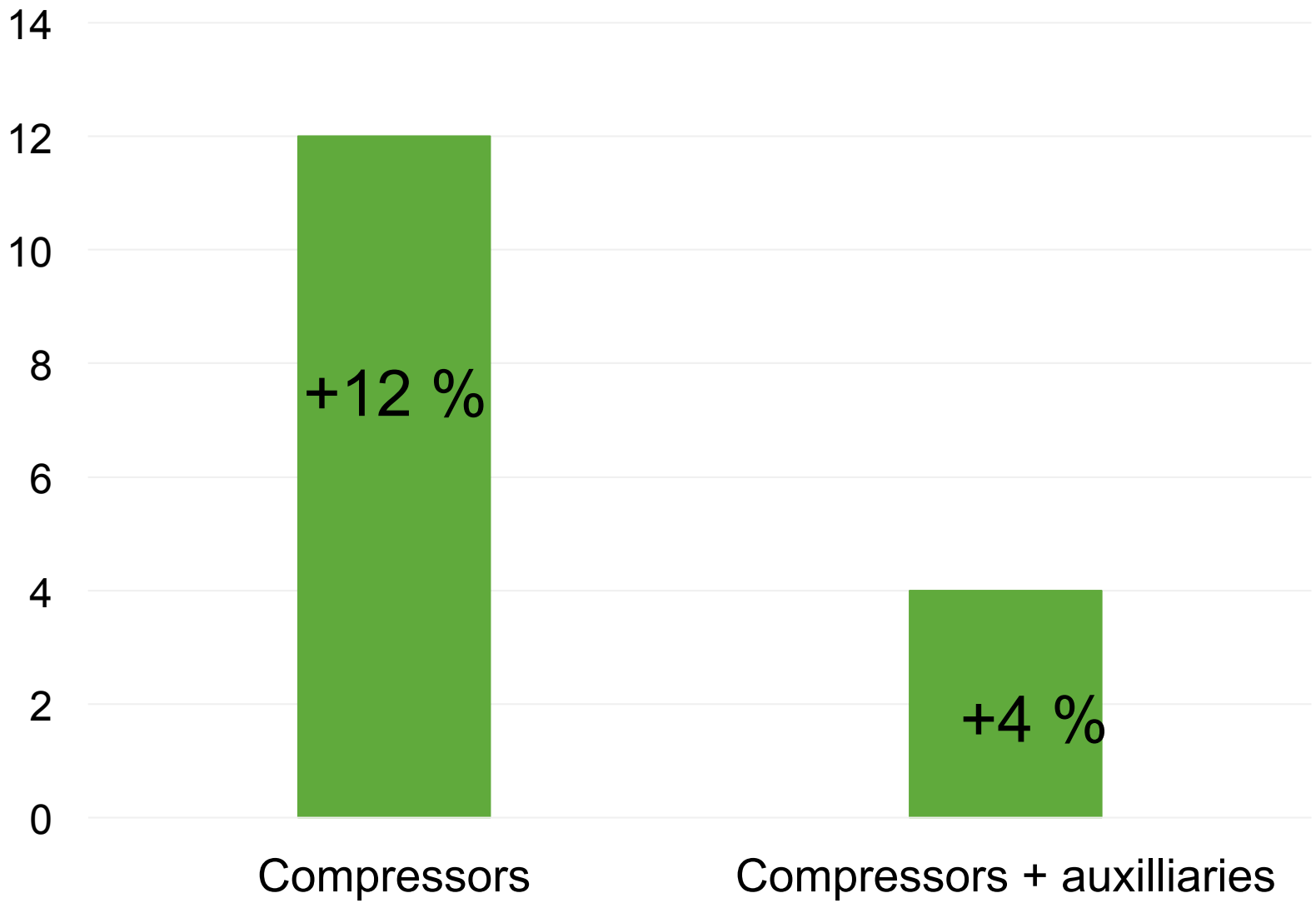




Results: EER improvement



Results: EER improvement (%)



Summary and Conclusion

- EDF developed a new control, easy to use
- EDF and LDC tested this new control
- We obtained a better steadiness of the flows, temperatures and pressures, a better start and stop management, and energy savings
- Plans : implement the 2 other refrigerating plants of the factory and the 20 factories of LDC in France.

Thank you for your attention