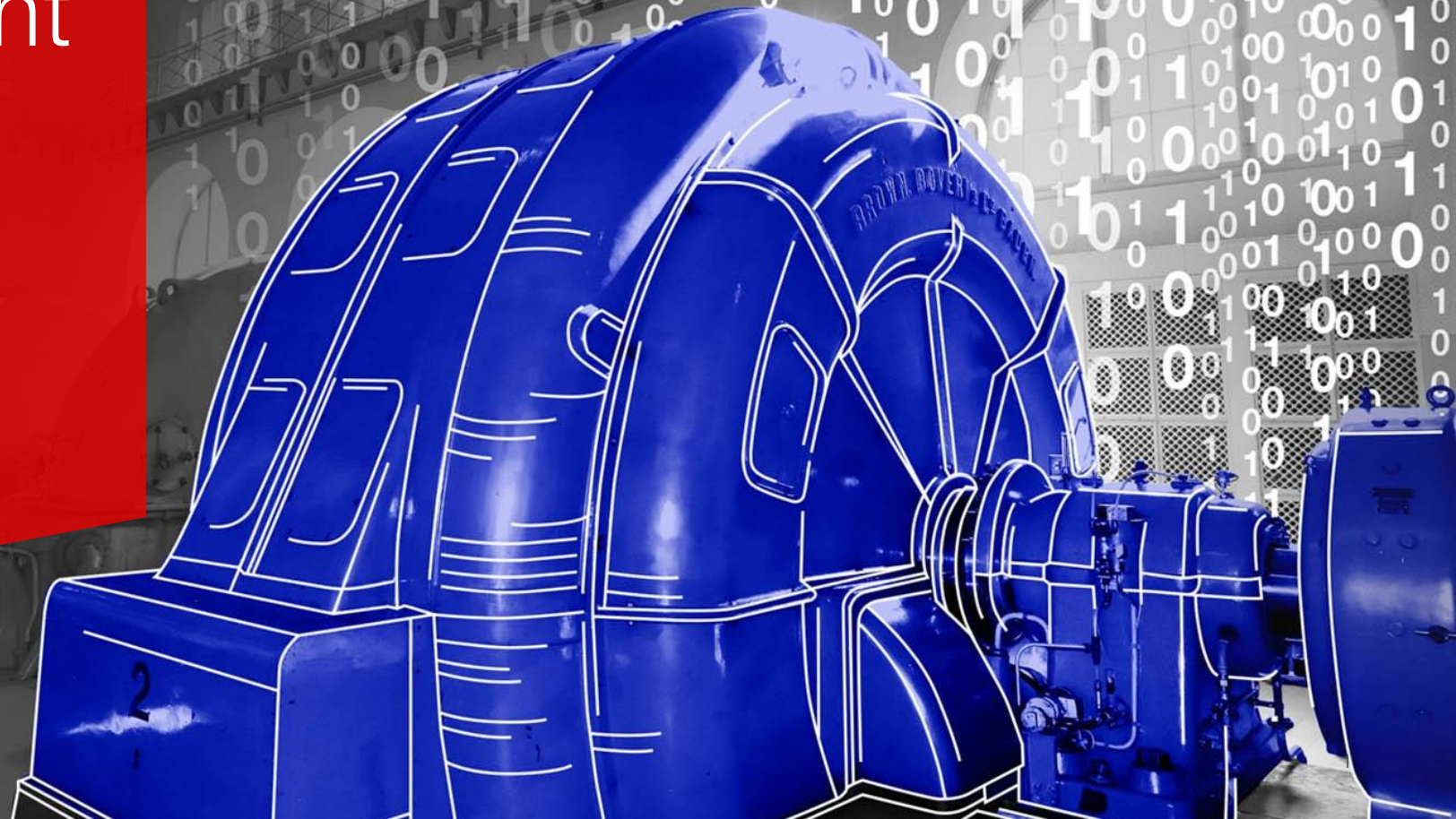


Load Management – Smart Grid at SBB.

November 2021

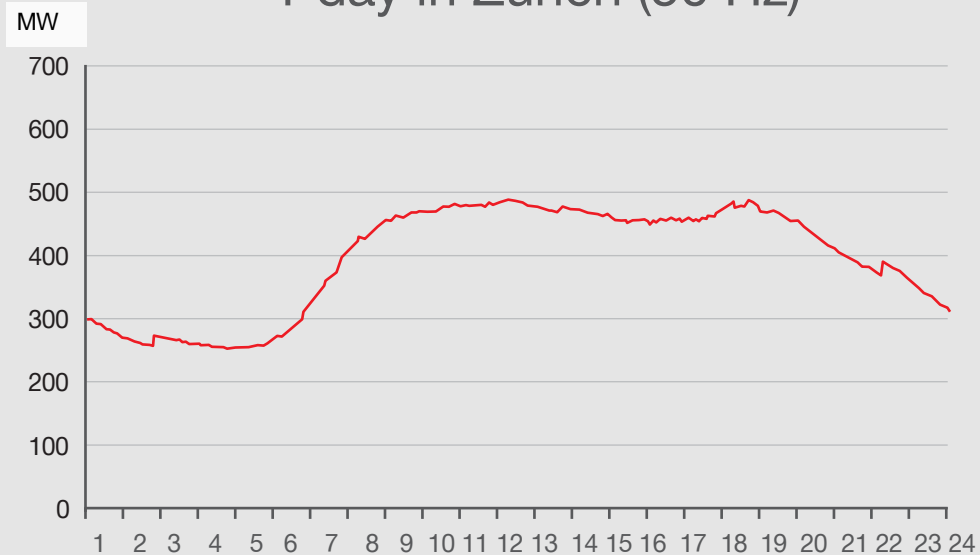
Markus Halder, SBB Energy



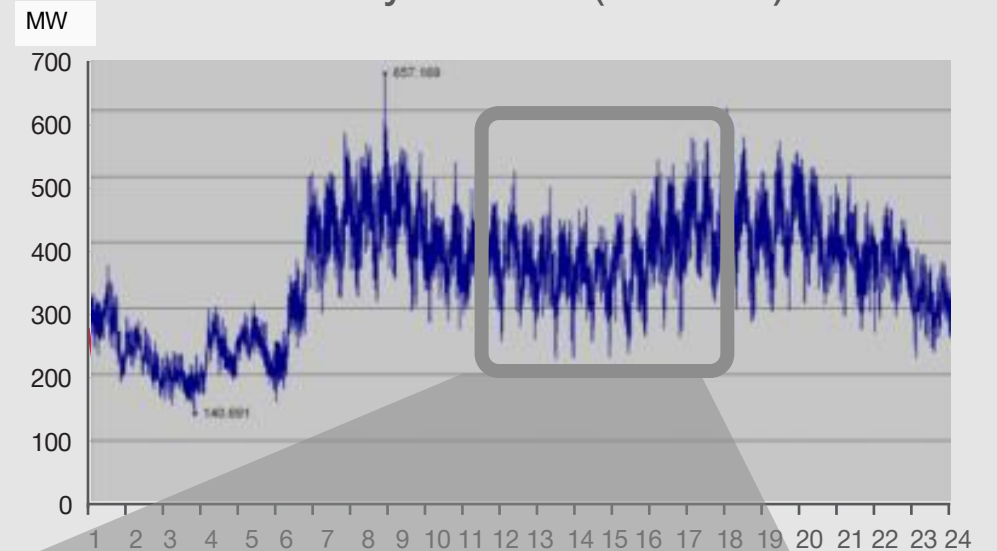
The challenge.

Dynamic load profile with short-term load peaks.

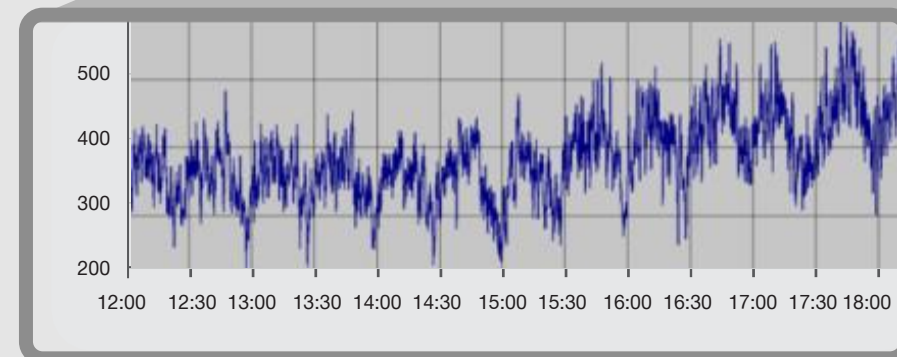
1 day in Zurich (50 Hz)



1 day at SBB (16.7 Hz)



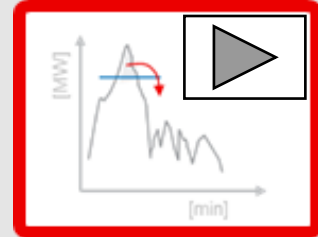
Load dynamics	Zurich city	SBB
Daily:	up to 250 MW	up to 500 MW
15 minutes:	up to 35 MW (7% of maximum load)	up to 300 MW (50% of maximum load)





Load management: SBB uses digitalisation potential via smart influencing of consumption demand.

Optimised utilisation of capacity of traction current systems, improved security of supply, reduced reserve power requirement



Coach heating

Brief shutdowns during peak load periods without loss of comfort.



Points heaters

Brief shutdowns during peak load periods and predictive control.



Traction

Load reduction in overload situations via train drivers, automated in long term.



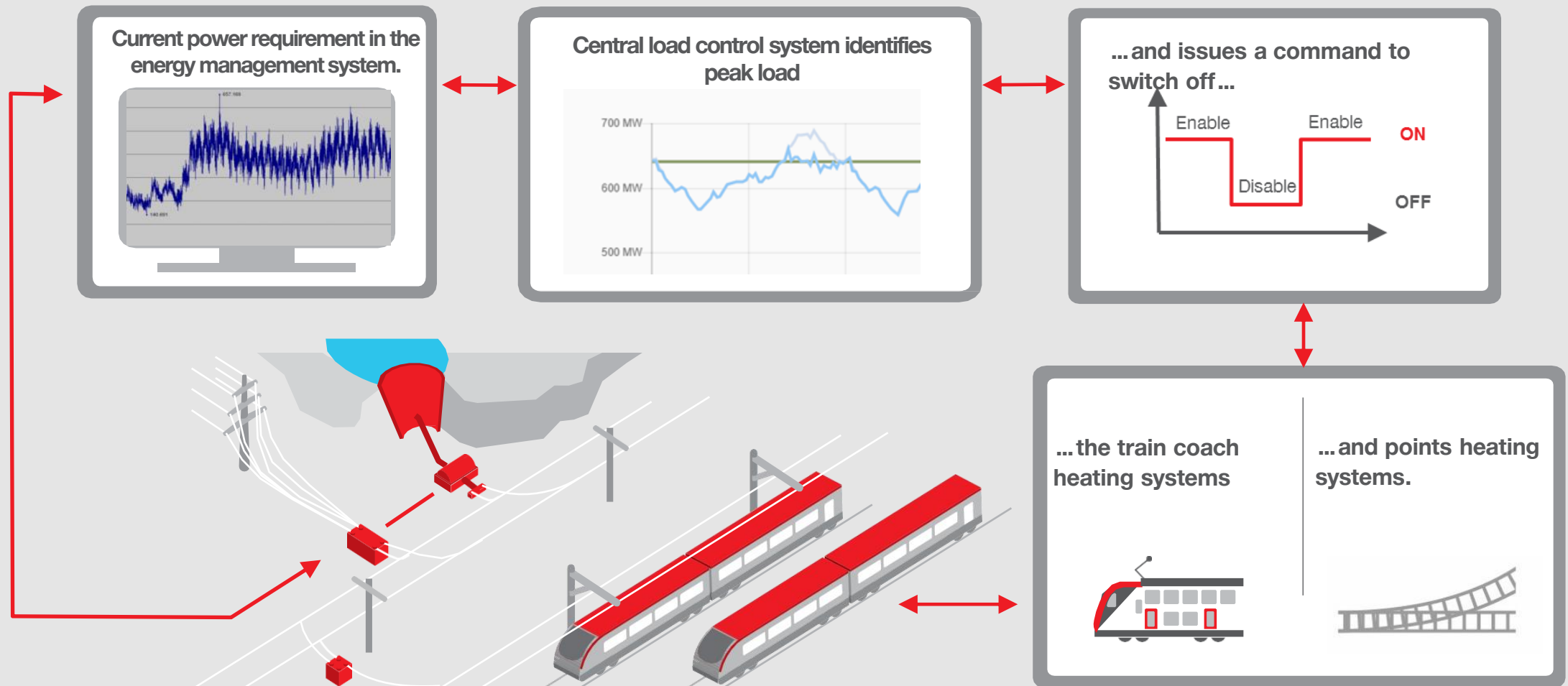
Batteries

Charging management for diesel locomotives due for electrification.



Load management/load control

Here's how load management works with heaters.



Load control system in use since December 2018.
Ramp-up of available heating capacity to 70 MW by 2023.