WHY?
• Reducing costs for electricity production or purchase by reducing power peaks
• In case of failure of a critical component or thermal alarms, power offtake is limited
• Increase capacity of tracks by optimising the usage of available power
• Optimise exchange of regenerative energy
• Use thermal and kinetic inertia of railways to support stability in European electricity transmission grid

WHAT?
• Adjust power consumption of trains to available power on location and time

REMARKS
• Reasons/benefits depend on railway power supply system
• It might be that part of regenerative energy is still lost in rheostats.

**Diagram Description**
- **Train**: Calculation of consumption and regeneration expected for the next 5 to 15 minutes (also taking into account flexibility in HVAC consumptions).
- **TMS (with power module)**: Collection of expectations of all trains and calculation of amount of regenerative braking that can be reused by other trains. TMS can also simulate these values.
- **Other Trains**: Calculation of consumption and regeneration expected for the next 5 to 15 minutes (also taking into account flexibility in HVAC consumptions).
- **Power Supply**: Request to reduce traction power offtake due to balancing of electricity network (public grid or railway grid) or limited availability of some devices (or warnings from these devices).

- **Key**:
  - Flow originated by constraints of power supply
  - Flow following status report of one train
  - Flow optimising regenerative braking
  - Flow adding temporary constraints by TMS

- **Linked to core use cases graph**

- **IRS 90940 (SFERA Project)**
- Stakeholder Workshop - 06/11/2018