

Introduction ProRail

- Independent
- Railinfrastructure manager
- Railinfra network operator

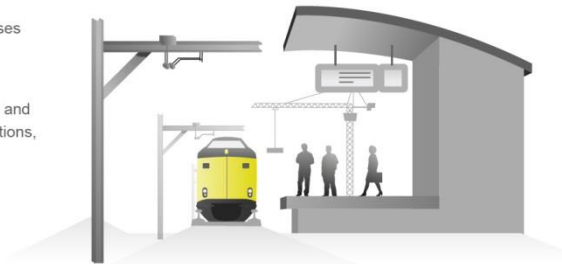
Our Mission

ProRail connects people, cities and businesses by a dense, intensively used rail network.

ProRail provides a secure, reliable, punctual and sustainable rail network and comfortable stations, in conjunction with operators and partners.

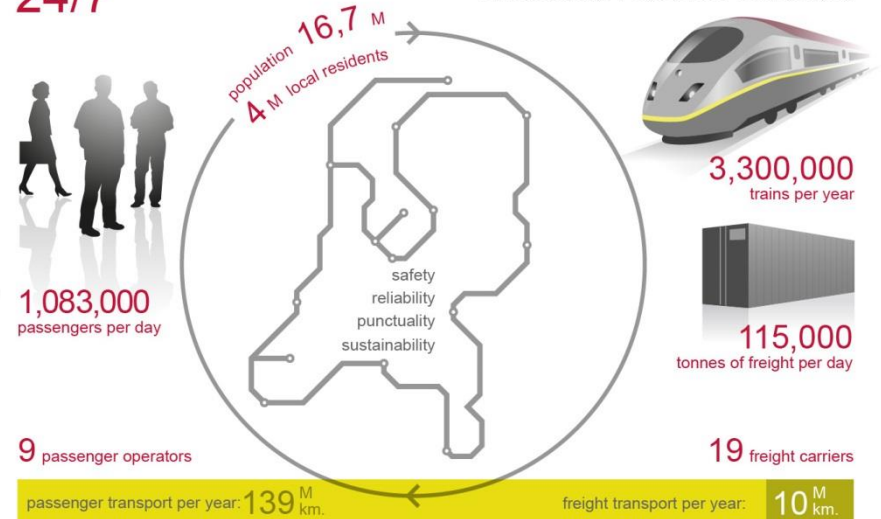
Our professionals work efficiently and cost-consciously on a rail network focused on pleasant passenger travel and unobstructed freight transport.

ProRail. Certainly on the track.



24/7

24 hours per day / 7 days a week / 365 days a year



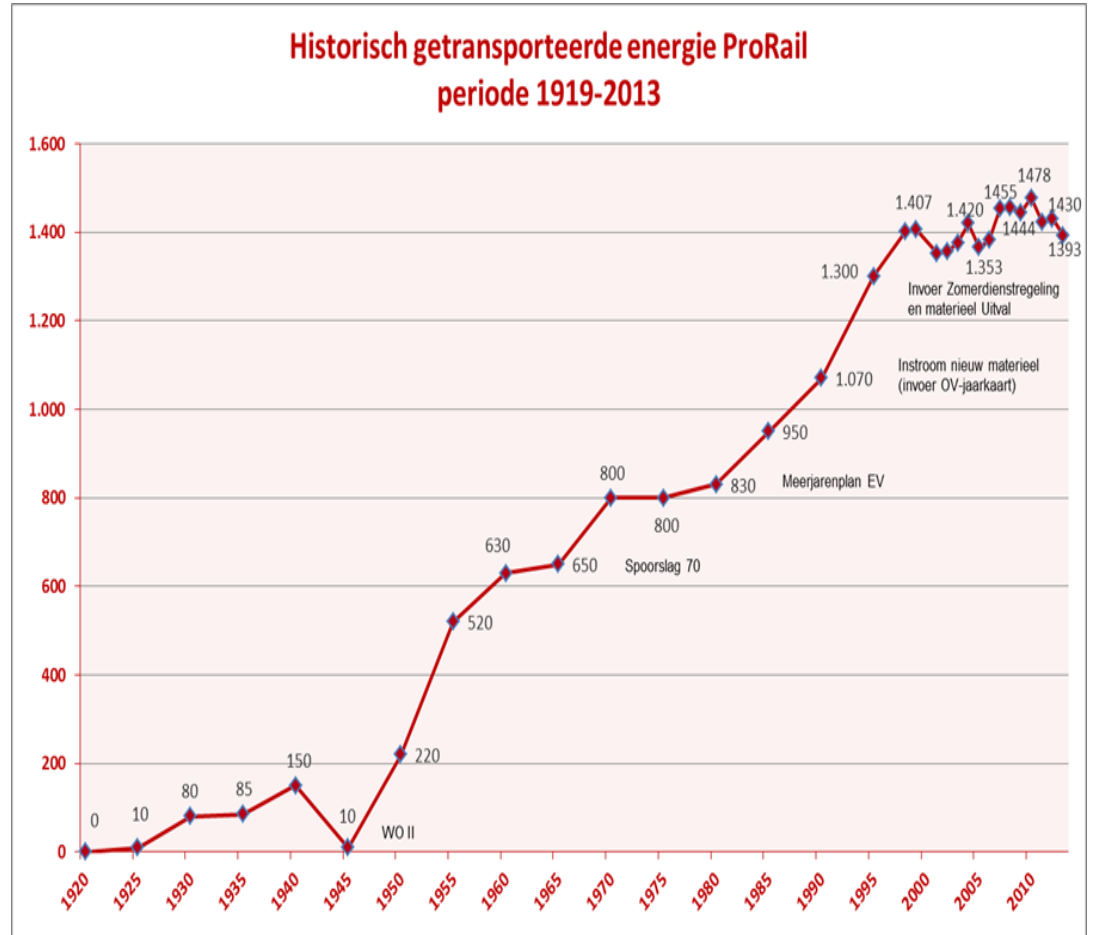
source: jaarverslag ProRail 2012



Facts & Figures

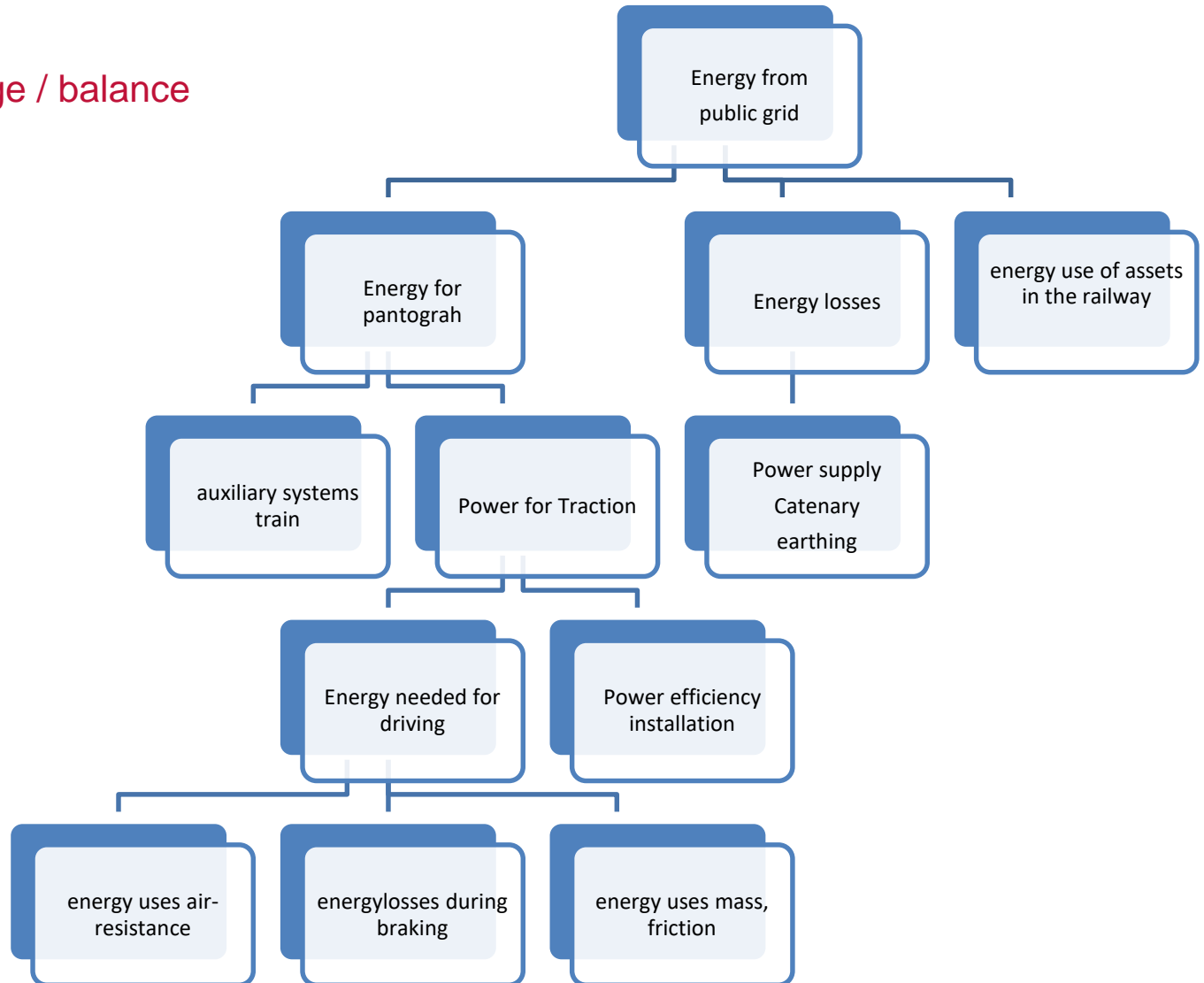
- 1500 V Power Supply
- 2100 km electrified.
- 243 substations (2.5 – 12 MVA).
- 130 track sectioning stations.
- Distance between substations 3 – 21 km, average 6 km.
- Trains max: 4000 A.
- Energy use yearly : 1400 GWh.

History of traction energy

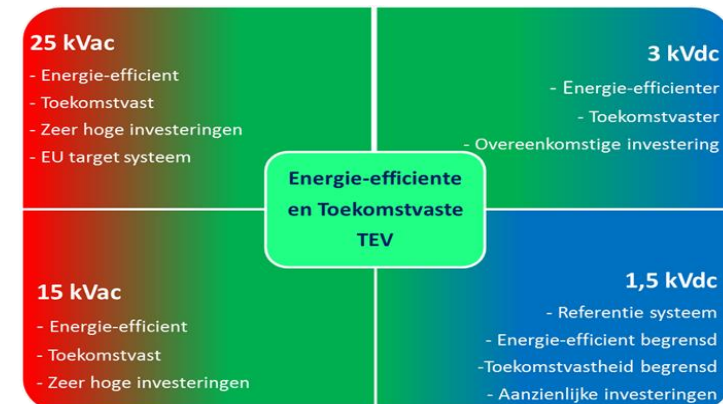
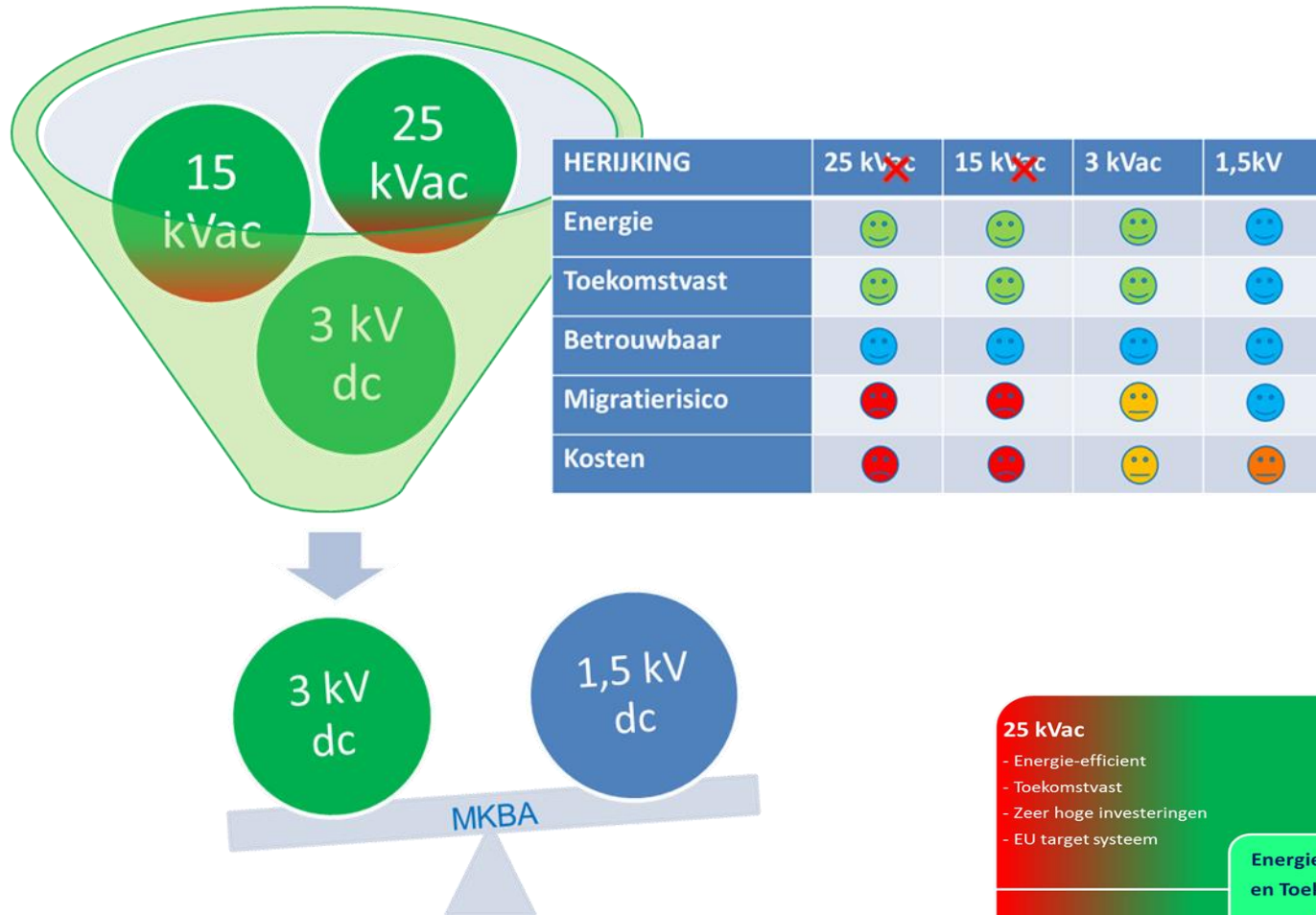


Analysis of Energy Effects

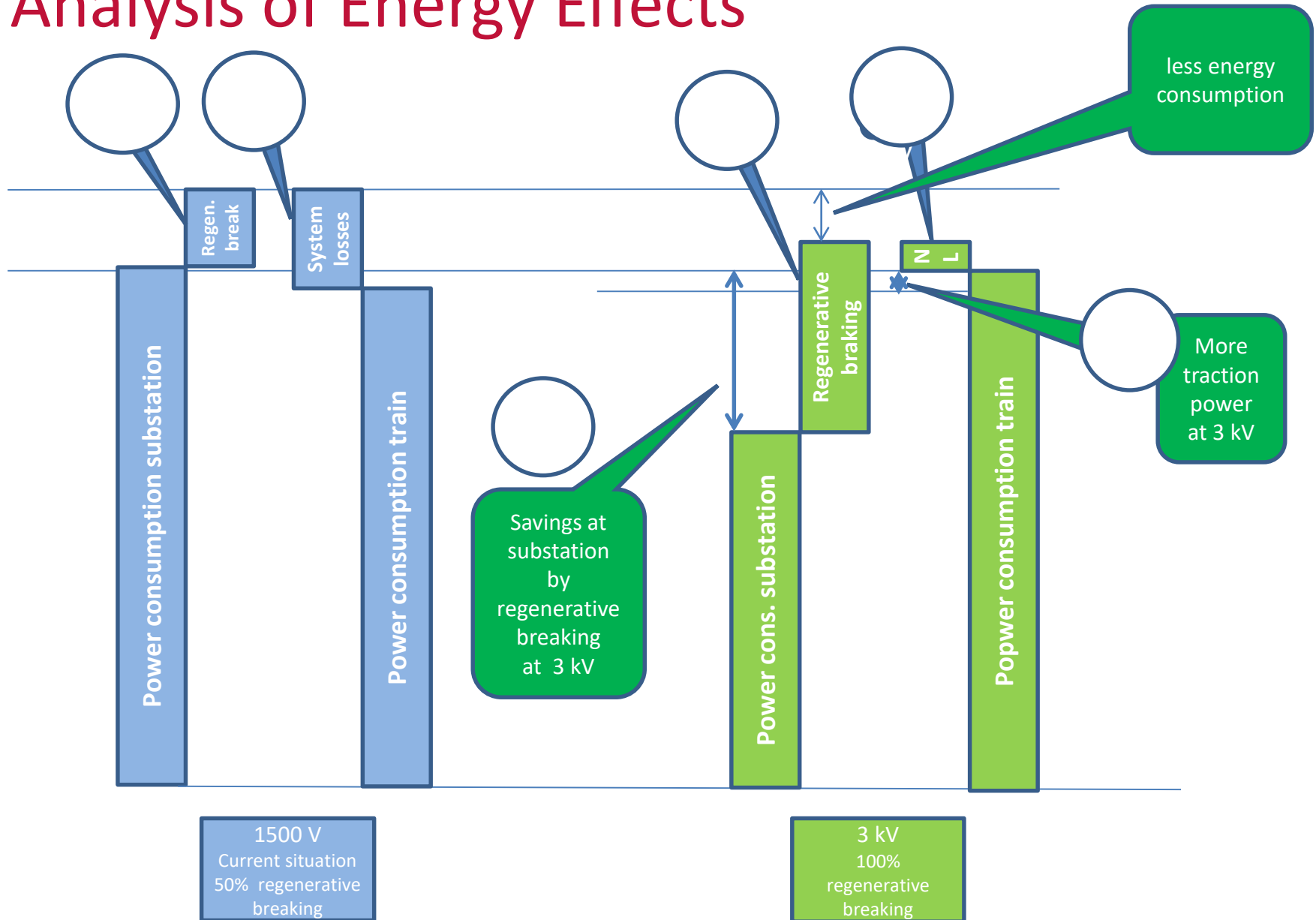
Energy usage / balance



Re-evaluation of traction system 2011/2012



Analysis of Energy Effects

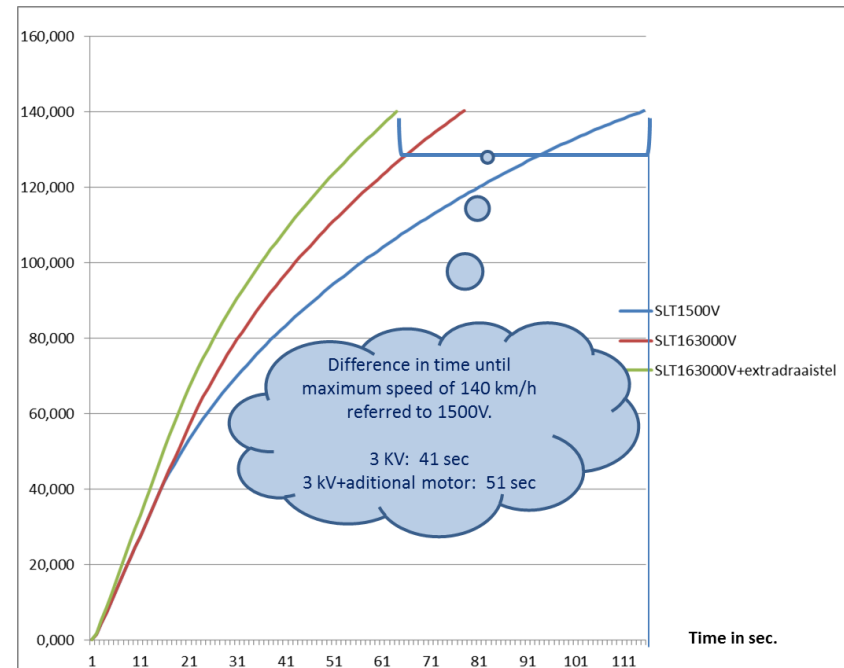
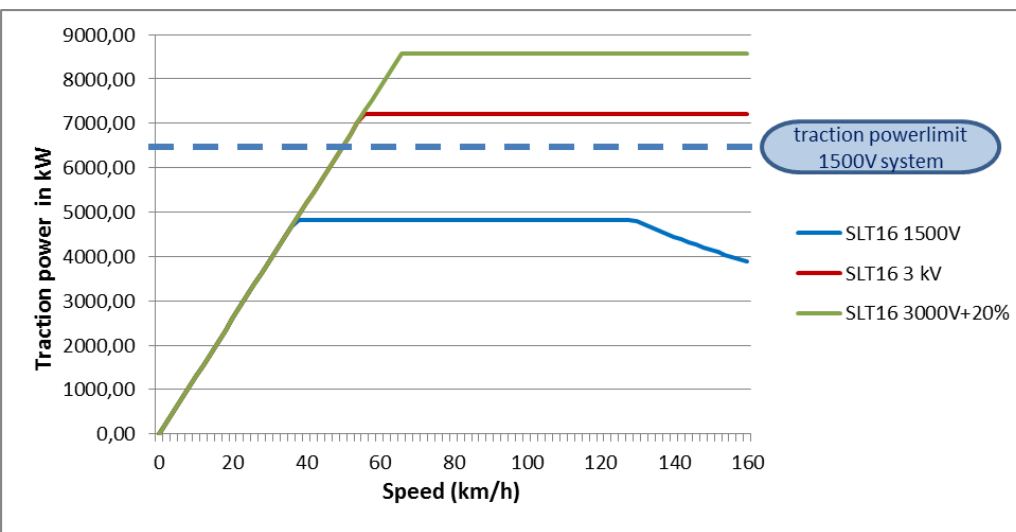


Analysis of Travel Time Savings Effect

Power per train



Achievable acceleration



Monetary Benefits (indicative)

Energy

- Efficiency
- More recuperation

- 20 - 22% saving
- 290 GWh/yr or 133 kton CO2/yr

€.. mio/yr

Travel time

- Travel time savings (passenger)
- Excl benefits intercity trains
- Rolling stock reduction

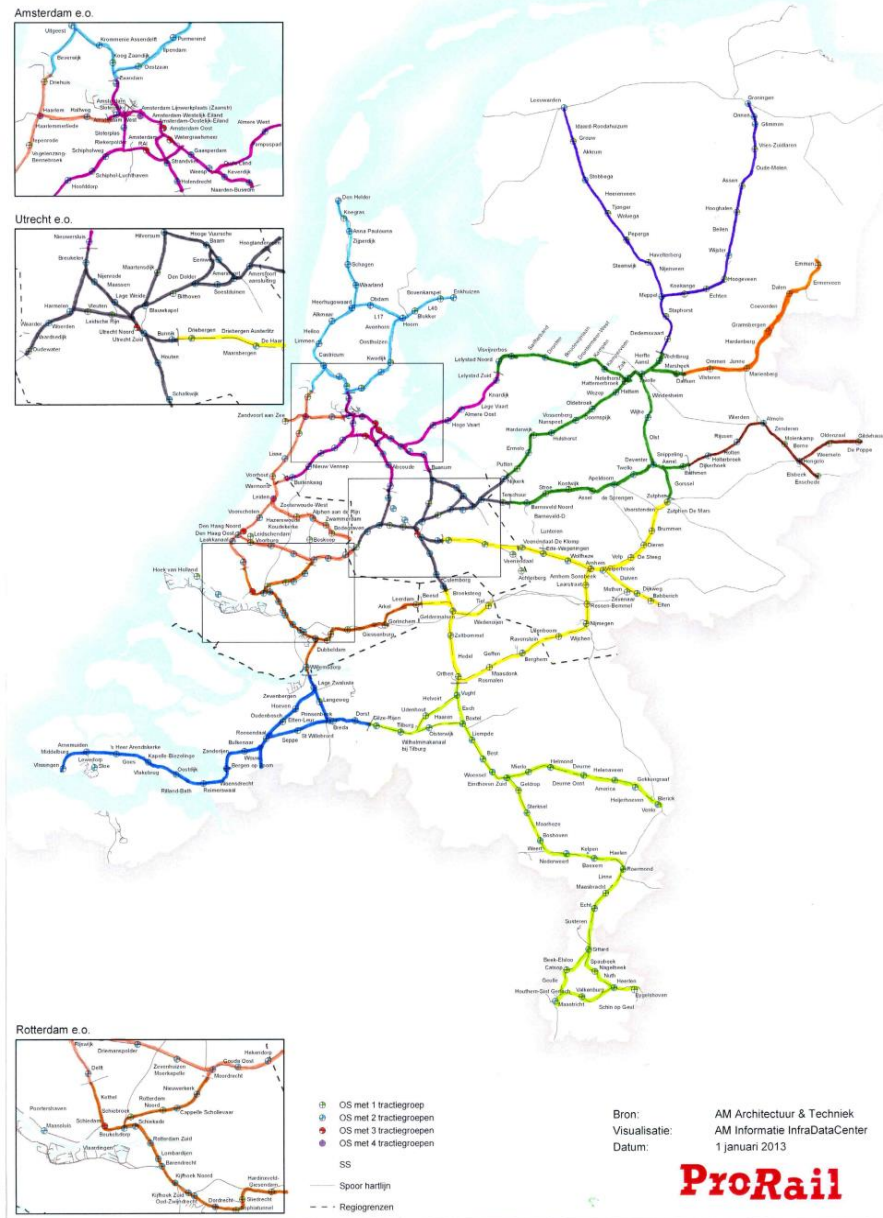
7 - 14 sec saving in timetable per stop

€.. mio/yr

- Excluding freight and regional traffic

Migration plan

Omschakelplan van 1500V naar 3kV



Costs (indicative)



.. mio*



.. mio



.. mio

❖ Excluding freight and regional traffic

Conclusion

- Increasing power supply voltage effects energy and travel time savings.
- A decision has not made yet

