

Rolling stock for successful rail passenger services (not only) under PSO

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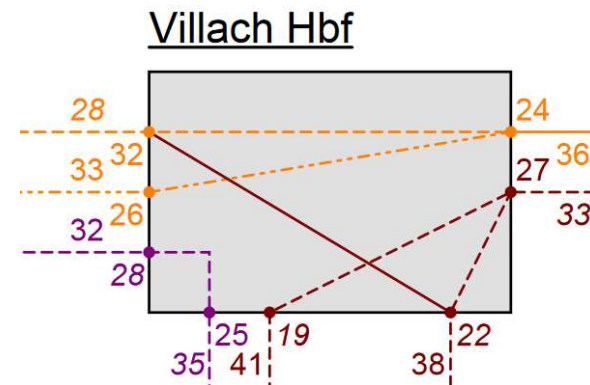
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Who is SCHIG?

- Established in 1996 as a financing agency for rail infrastructure projects
- Changed to a public company for „rail infrastructure services“ in 2005
- Owned by: Federal Ministry for Climate Action, Environment, Energy, **Mobility**, Innovation and Technology (BMK)
 - Operational support to the ministry in various fields
 - Independent from state railways (both IM and incumbent RU)
- Over 130 Employees
 - about 50 of them involved in PSO administration and strategic infrastructure & timetable development
- Nearly no public appearance

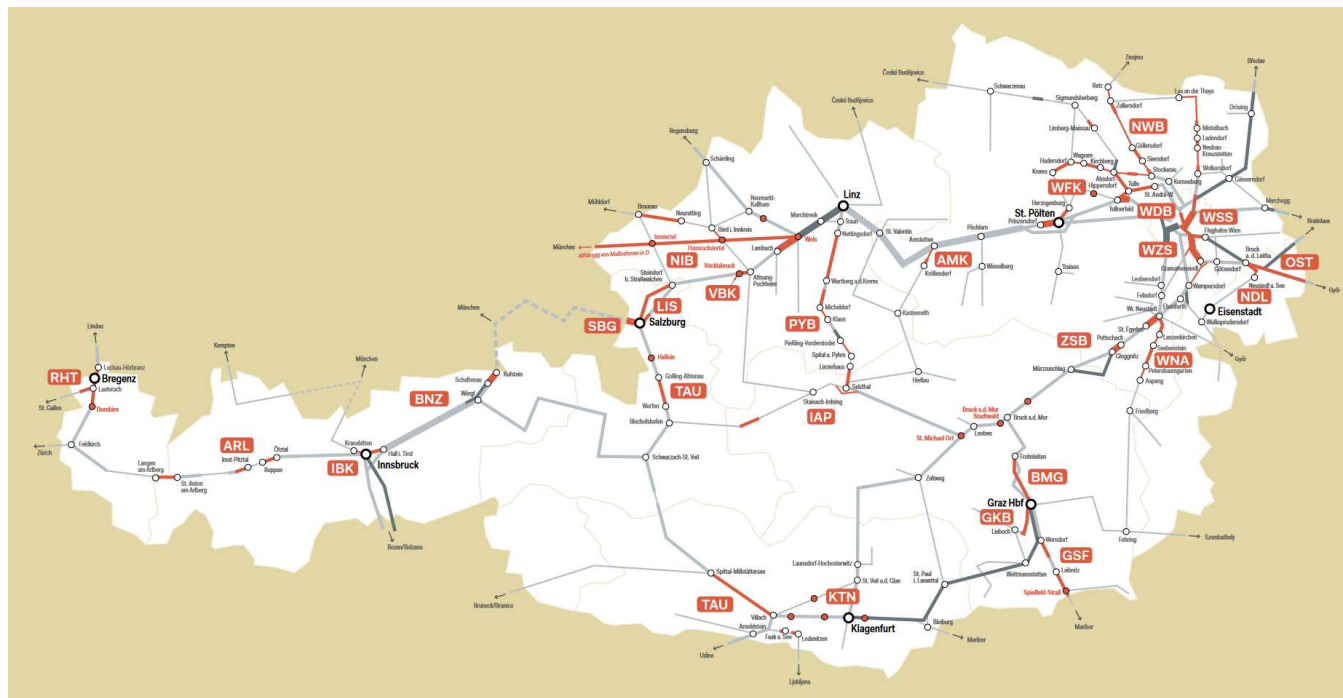
Our Goals and Philosophy

- Goals:
 - Reduction of greenhouse gas emissions by modal shift to low-carbon transport
 - Public transport coverage and car-free accessibility on a regional level
 - Efficient use of taxpayer's money
- Philosophy:
 - Integrated clock-face timetable
 - Node-to-node instead of border-to-border



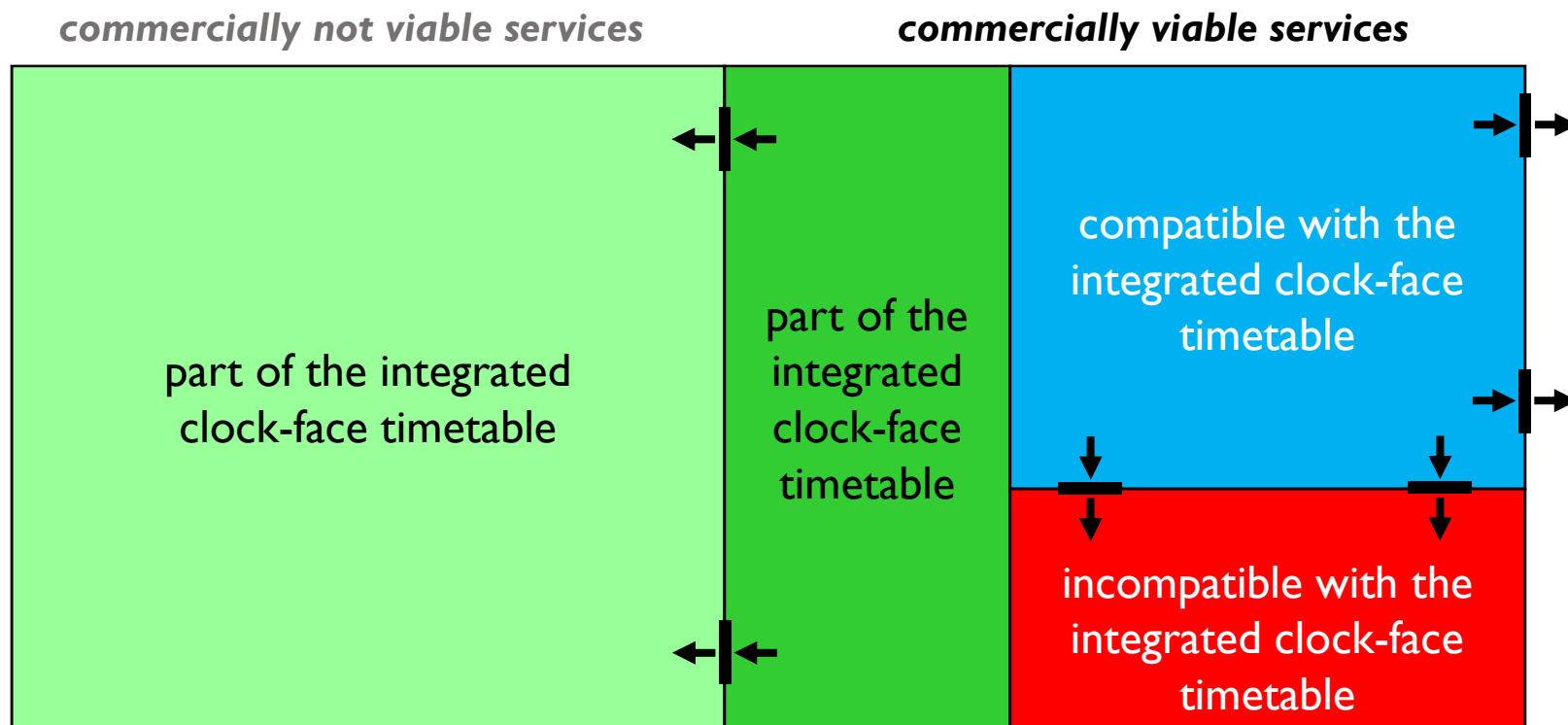
Our Tools

- Contribution to timetable-based infrastructure development
 - Joint elaboration of long-term infrastructure concepts with IM and ministry
 - Future rail infrastructure fitting for at least one reasonable timetable concept (+ freight capacity & resilience)



Our Tools

- Ensuring efficient infrastructure use for high-quality rail passenger services
 - Conventional tool: Procurement and administration of PSO services
 - Upcoming tool: Involvement in strategic capacity guidance and framing conditions



Rolling stock in our PSO activities

Framing conditions for PSO services in Austria

- All services awarded directly (nationwide incumbent & local incumbents)
- Long-distance services:
 - Financed by federal ministry
 - Planned by SCHIG, ministry and operator
 - Procured via SCHIG
 - Net contract
- Regional services:
 - Financed jointly by federal ministry & federal states
 - Planned by regional authority, SCHIG, ministry and operator
 - Procured via SCHIG
 - Some regions with gross, some with net contracts

Rolling stock in our PSO activities

Responsibilities for rolling stock

- Operator:
 - Procurement
 - Ownership
 - Maintenance
 - Deployment planning (circulation, rostering planning)



Rolling stock in our PSO activities

Responsibilities for rolling stock

- SCHIG + Operator together: Definition of requirements
 - Propulsion (catenary / battery; suitability for different voltage & frequency)
 - Passenger capacity (seated / standing)
 - Number and width of doors
 - Top speed
 - Acceleration
 - Train control systems
 - Seat layout
 - Further features and facilities
- Sometimes requirements must be dropped later during procurement

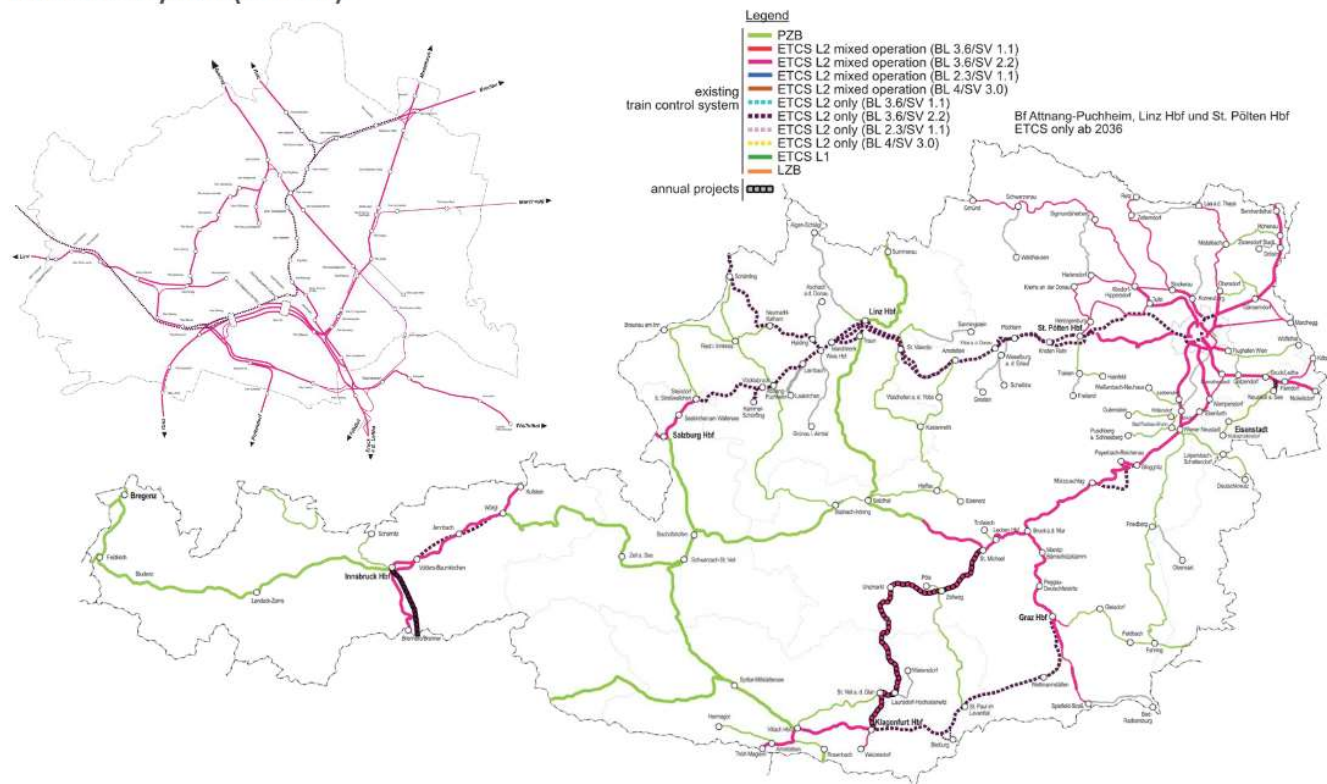
Rolling stock in our PSO activities

Relocation of rolling stock between regions

- Flexibility is indispensable because of unexpected changes

➤ Train control systems

Train Control Systems (EoY 2032)



Rolling stock in our PSO activities

Relocation of rolling stock between regions

- Flexibility is indispensable because of unexpectable changes
 - Train control systems
 - Top speed and/or acceleration requirements for timetabling
 - Seat capacity vs. platform length
 - Maintenance facilities
 - ...
- End of 2023: Conclusion of some new PSO contracts because of unforeseen need for vehicle exchange between regions caused by ECTS requirement on the Vienna S-Bahn backbone

Rolling stock in our PSO activities

Relocation of rolling stock between regions

- Sufficiently flexible behaviour of regional authorities?
- Resale value of rail rolling stock considered during procurement
- Interior design and layout by regional authority?
 - Interior responsibility by PSO authority logical in particular in gross contracts
 - But: has a Carinthian passenger really different needs than a Lower Austrian or even a Southern Moravian?
 - Improved cooperation between PSO authorities?

Rolling stock in our PSO activities

Early obsolescence and/or inadequate costs for refurbishment

- Electromechanical hardware: 30+ years lifespan
- IT hard- & software: 1-10 years lifespan
- Recertification and incompatibility issues caused by refurbishment

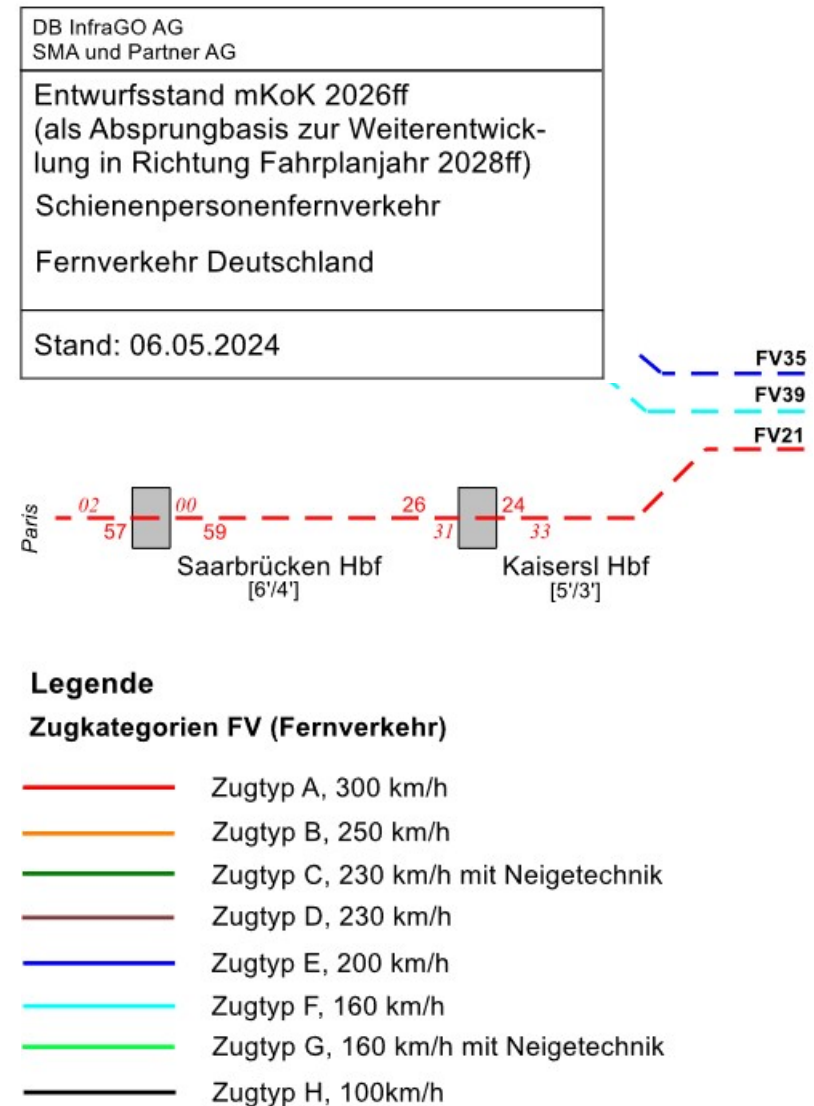


- Increased modularity and standardisation as a solution?

Non-PSO rolling stock topics

Europe-wide unified rolling stock categories for strategic capacity planning

- Consistent rolling stock requirements for cross-border long-distance connections
- Trainpaths for long direct services avoiding extreme requirements for short sections (e.g. direct Amsterdam-Budapest requiring both 250 km/h and tilting technology)
- Stimulus for rail industry to provide more standardized rolling stock



Non-PSO rolling stock topics

European rolling stock procurement monitoring

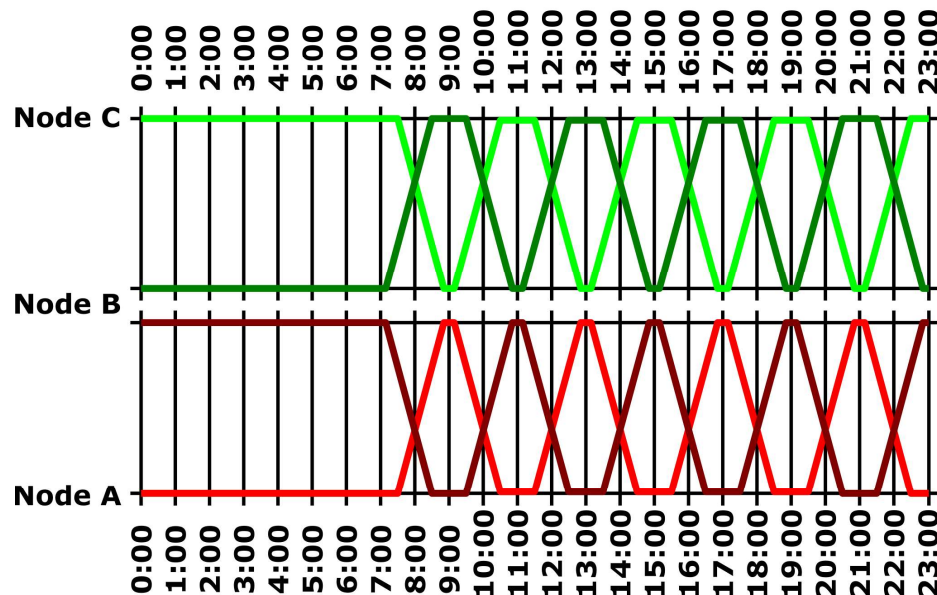
- Uncertainty about future development of the commercial rail services market:
 - How much will open-access services grow?
 - Which extent of PSO services will be needed?
- New or extended services require additional rolling stock to be procured some years in advance
 - Europe-wide monitoring of rolling stock procurement would improve predictability of market development

Non-PSO rolling stock topics

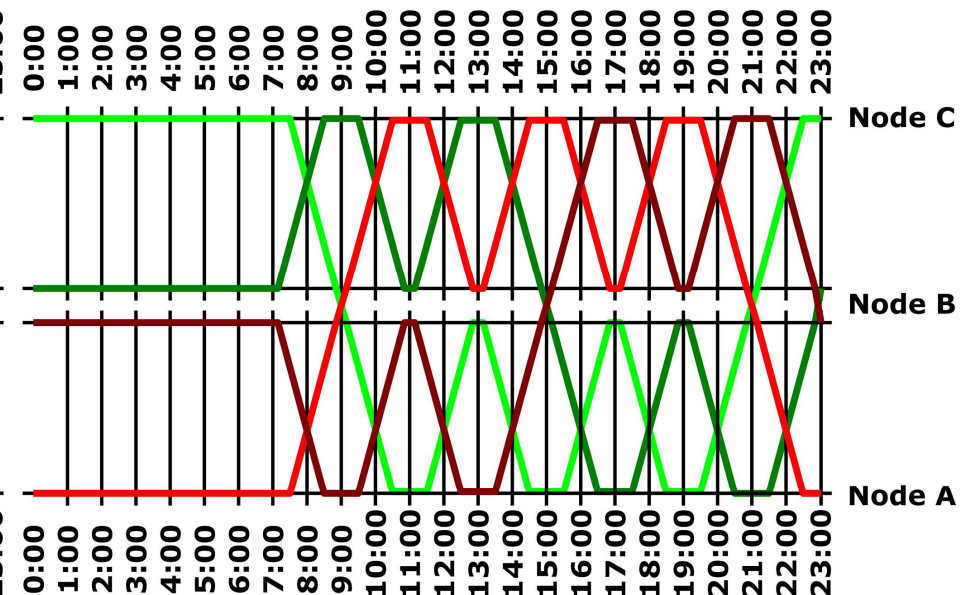
“Go-Everywhere” rolling stock

- Full interoperability as a standard instead of tailor-made network coverage
 - Risk mitigation through easy reuse of vehicles in case of commercial failure
 - Easier creation of direct cross-border long-distance connections by joining of national / medium-distance regular interval services

Isolated regular-interval services



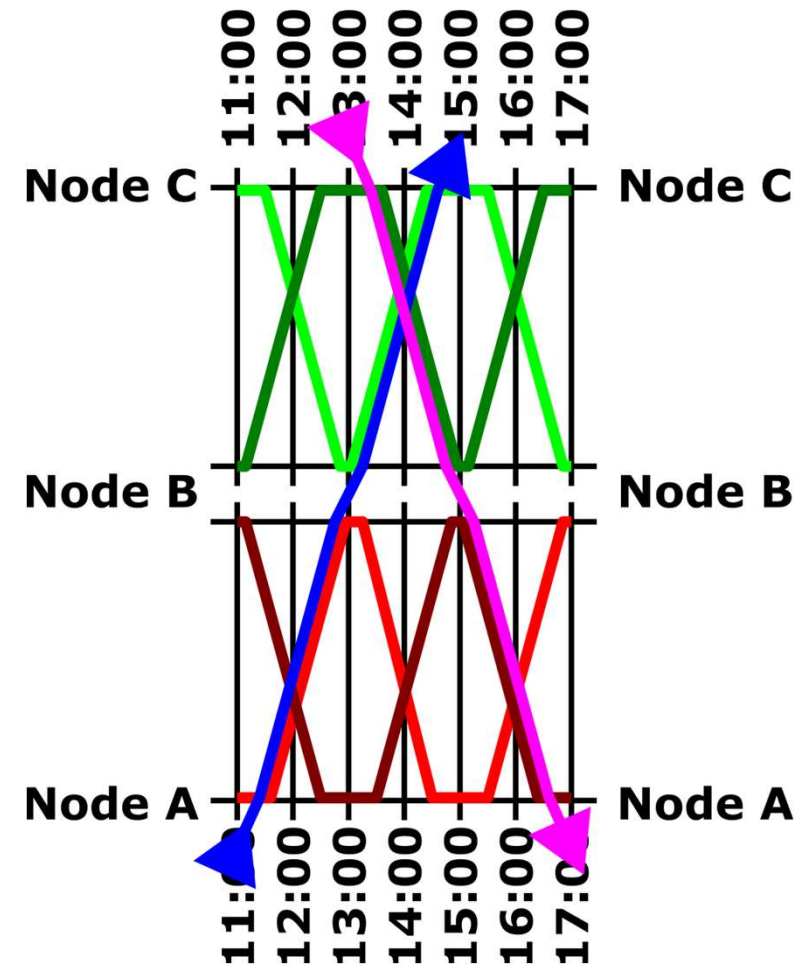
Interconnected services



Non-PSO rolling stock topics

Interoperability of couplers of different operators and manufacturers

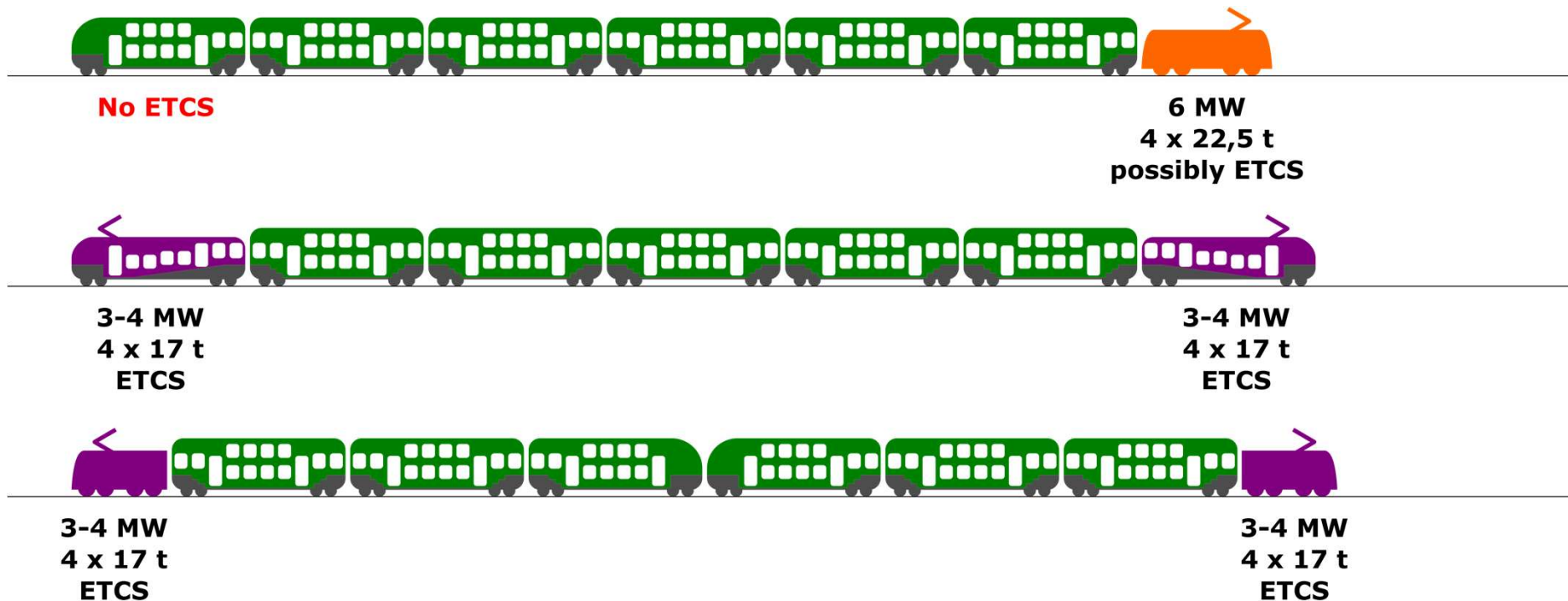
- Interoperable couplers and vehicle control for EMUs and high-speed trains
- New (very) long distance trains can run together with regular-interval trains without consuming extra line capacity
- Car-selective door control to allow the train to be longer than some platforms
- Delayed trains run separately, not affecting the punctuality of each other
- Co-benefit: compatibility between vehicle generations



Non-PSO rolling stock topics

Power cars or monocab locomotives in addition to existing railcars

- Avoiding obsolescence of existing push-pull sets not upgradeable with ETCS



Non-PSO rolling stock topics

Power cars or monocab locomotives in addition to existing railcars

- Avoiding obsolescence of existing push-pull sets not upgradeable with ETCS
- Allowing the use of conventional railcars on lines with low axle load limits

