



# Emission Free Heavy Logistics

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*Charging Solutions and Infrastructure*

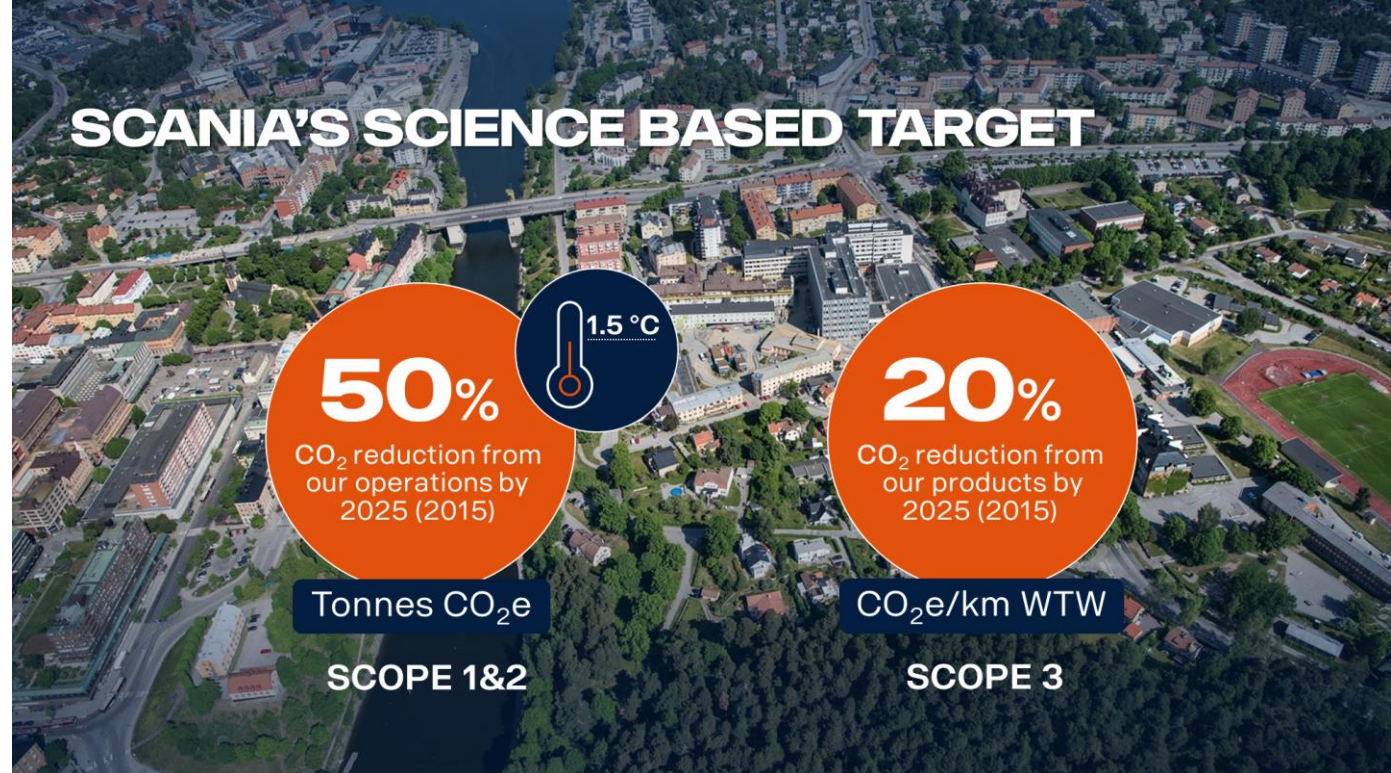
Scania





# Scania's targets

- Science based target
  - Sustainable production
  - Operation of sold products
- Sustainable transport solutions
  - Eco-system partnerships
  - Infrastructure
  - Policy
  - User acceptance
  - Business models







# Trends and business logic

- Over time, (almost) all heavy transportation will be electric
- The eco-system is complex and there is a need for system demonstrators, involving all stakeholders
- The technical development is fast and there is no single solution
- Ensuring a long term sustainable business logic, with good potential for all, is driving the change
- The shift is mainly managed by political decisions
- When green electricity is powering transportation it will have a wide and deep impact on industry and society



# Electrification



- Today – available Battery Electric vehicles (BEV)
  - Range 250-300km, fast battery development
  - Deployment of BEV / distribution trucks via;
    - Static depot charging for regional use
    - Public chargers for larger regions and inter-regional use
    - Charge when you stop – don not stop to charge
  - Coming (with + and -)
  - ERS – heavily loaded shuttle paths, many trucks
    - Tested and works
    - Dynamic charging – good for the grid
    - No stop/charging time
  - H2/FC
    - Range extender, heavy transport, sparse traffic
    - H2 good energy carrier for many applications





# Experiences from ERS



- Sweden (E16), 2016-06 to 2020-01
- 2 km, 3 hybrid trucks, - 2 700 visitors
- Germany, 5 km bidirectional (+7km 2022) south of Frankfurt
- In operation from 2019-05, 5 hybrids (7 more ordered) commercial use
- 2020-11-30, >20.000km under wire
- BEV, HEV and FC truck compatible
- Connect and disconnect at 90km/h and above
- 150kW, 300kW or 450kW possible to transfer
- Will be 1.200 V
- OEM, <€10k / pantograph



# Some thoughts...

- The competitive advantage will be based on combinations of solutions, tailored to deliver **both** good financial and environmental results
- Those who deploy and use will be profitable, those who do not will not
- BEV can be used now, development of batteries (capacity and weight) is fast
- The political objectives are positive **effects from** climate smart profitable heavy transportation, not the transportation itself
- Need for system demonstrators, involve all stakeholder
- Trust and security; green electricity –in the right places with enough capacity, Austria has a competitive advantage
- BEV solutions and charging infrastructure is available and will have good impact – use it.
- Where ERS is motivated - use it.
- **Prepare for success**; How will Austria gain benefits from emission free heavy logistics?







Vielen dank

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