

# Electrification of forestry transport in Sweden

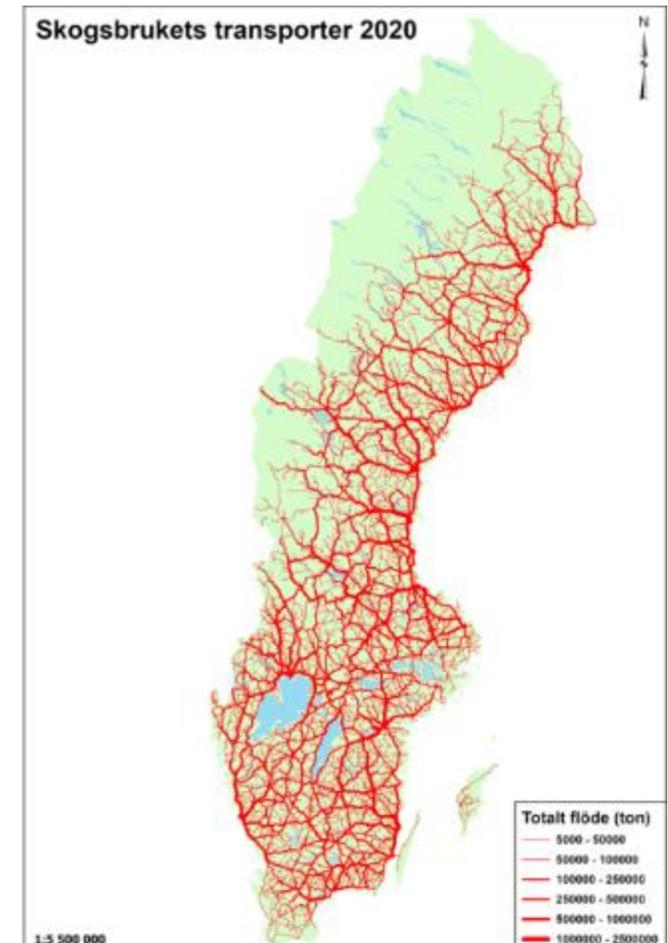
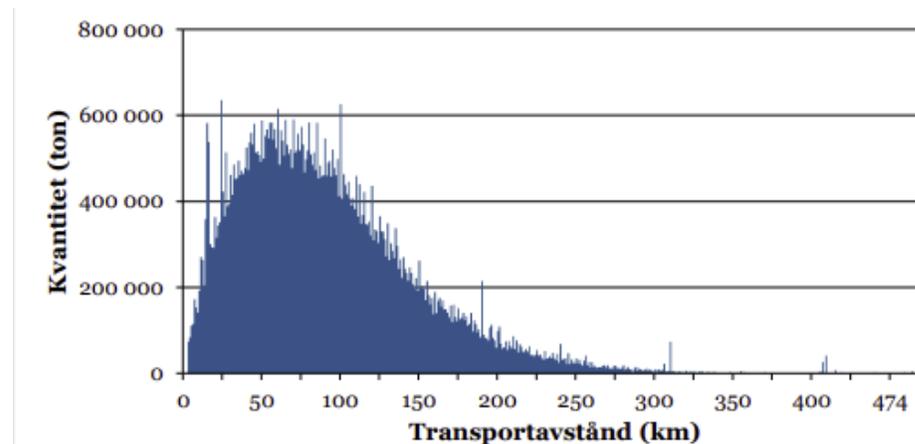
2025-04-02



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# Forestry sector's transports

- Nearly 20% of Swedish road freight transport
- 90 km average transport distance
- 50% of forestry industry's CO<sub>2</sub>
- 30% of forestry industry's costs
  
- Industry goal: Fossil free by 2040



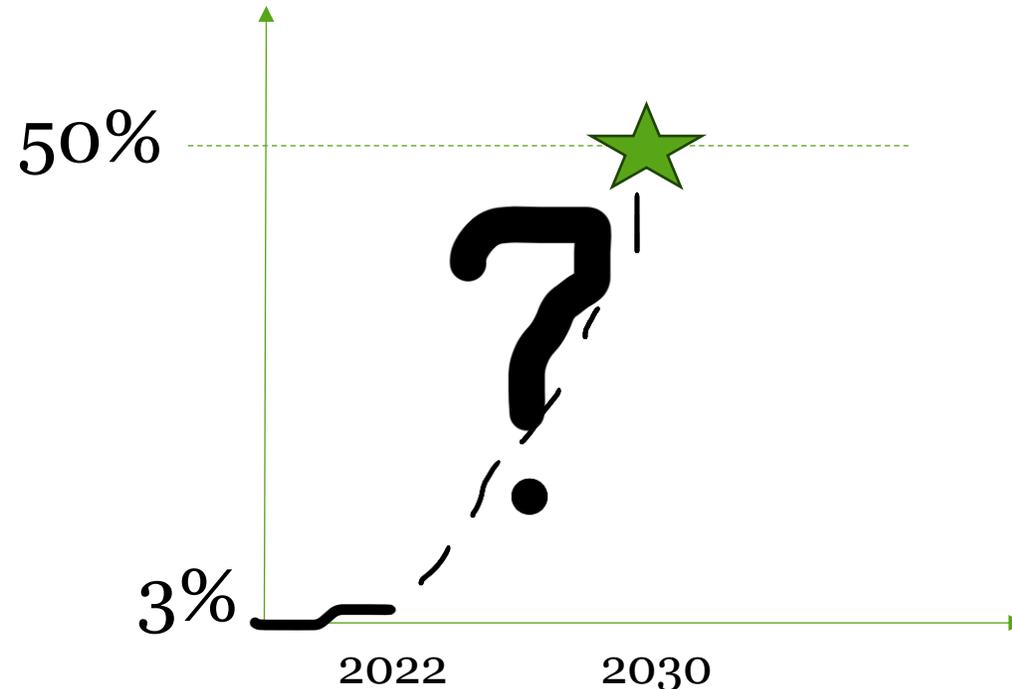
# Problem statement

Electrification will be key in road freight decarbonization.

In 2030 50% of new trucks should be electric

In 2023 3% was.

How can we speed up the transition?



# Agenda: Insights from 2 projects

**ElRutt** – a fleet  
planning tool



Is it feasible to electrify  
forestry transport?

**TREE** – Transition to  
Efficient Electrified  
Forestry Transport



How can we speed up  
the electrification?

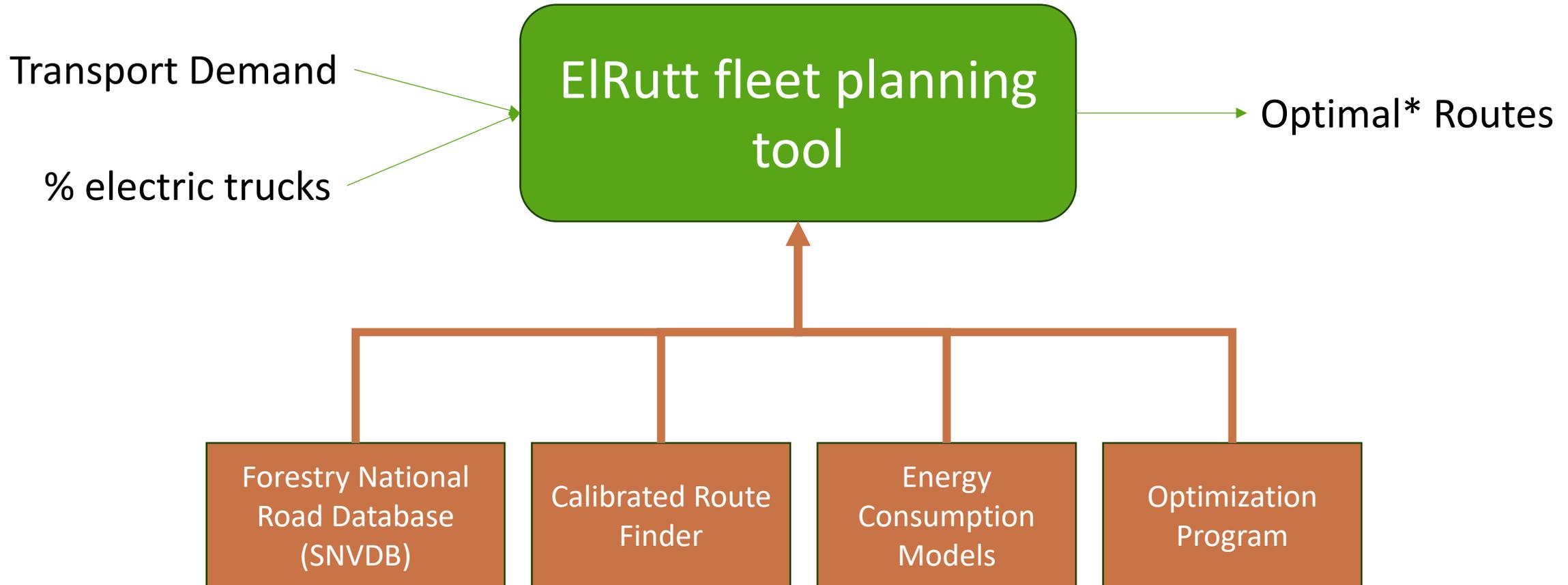
# ElRutt project

Is it feasible to electrify forestry transport?



With funding from TripleF (Swedish Transport Administration, Trafikverket)

# The ElRutt fleet planning tool



\* max 2% from optimal solution

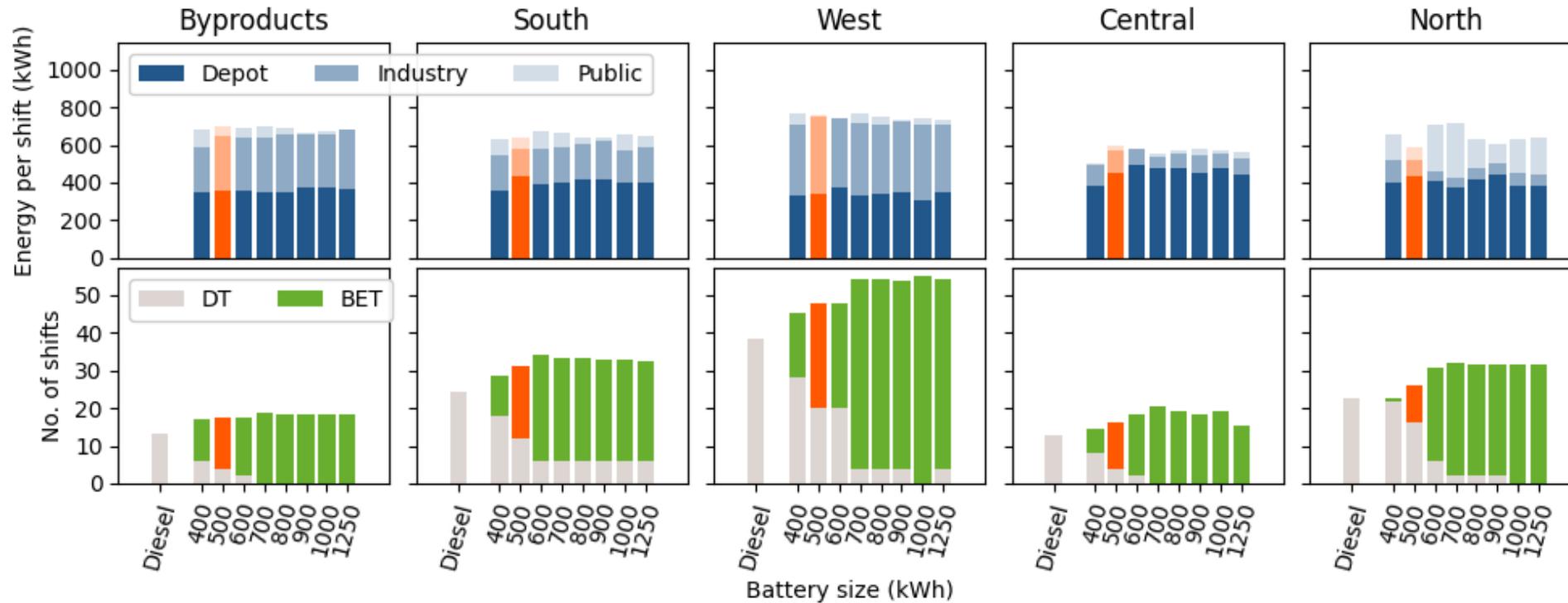
# The cases

- 1 week of operation for five fleets
- two 11-hour shifts / day

Case	Avg. transport distance (km)	Number of truck loads to be transported	No. of vehicles in 100% DT fleet
Byproducts	81.2	191	8
South	79.2	287	21
West	101.8	400	22
Central	51.7	203	14
North	109.6	206	18

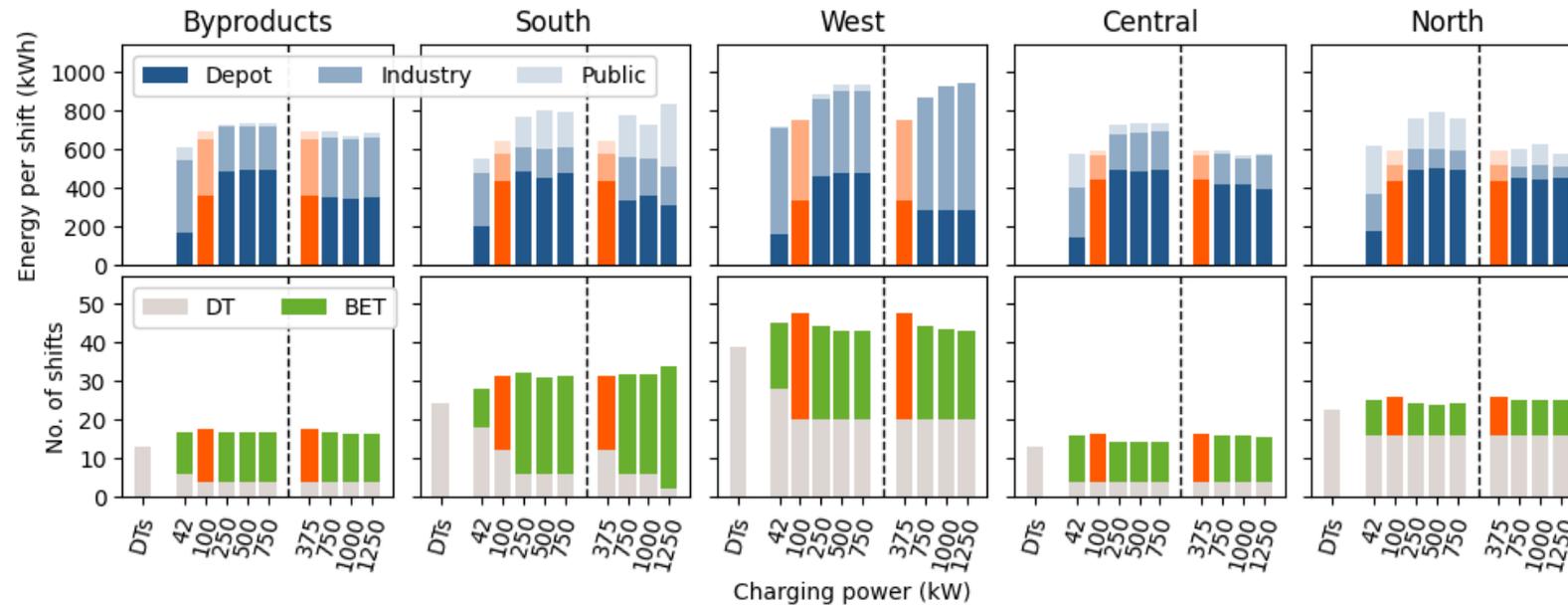


# Influence of battery size



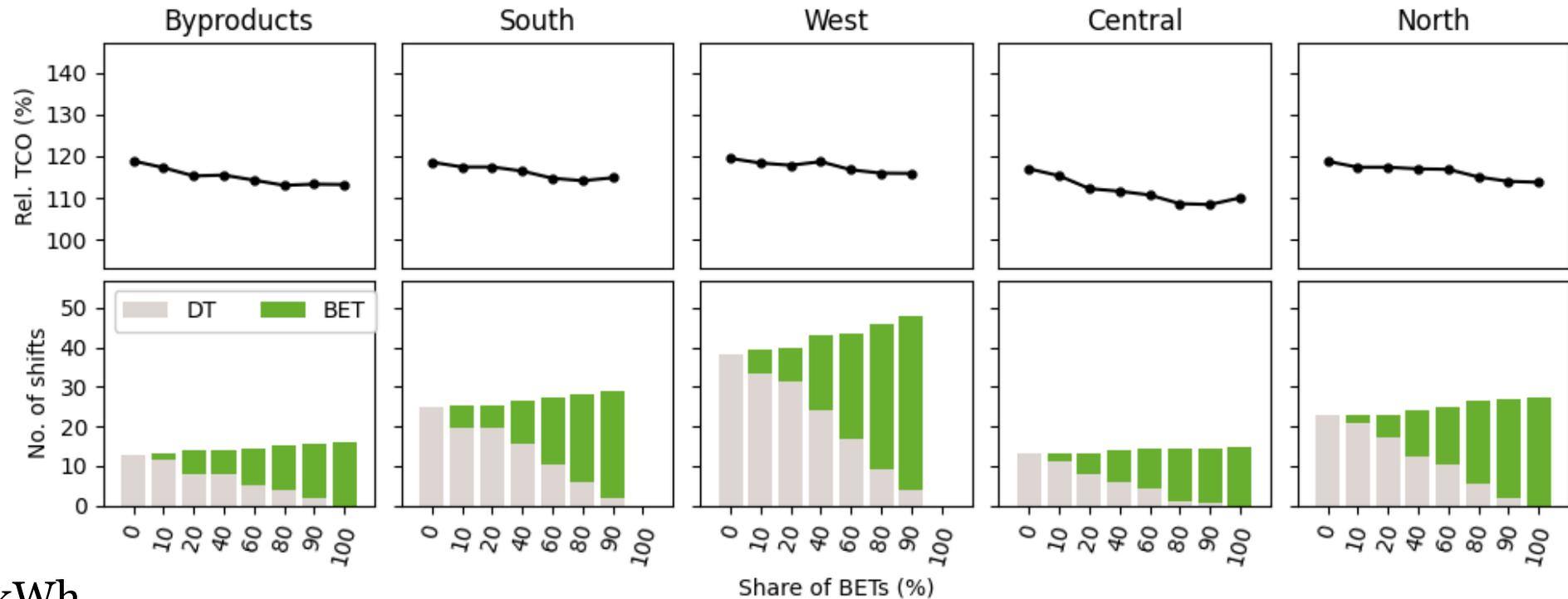
- Larger battery → More can be electrified
- Up to 700 kWh battery size

# Influence of charging power



- Higher charging power → better productivity

# Future scenario



Battery: 700 kWh

Depo Charging: 250 kW

Industry/public charging: 700 kW

Diesel Price = 150% of base scenario

■ TCO Parity with diesel expected in near future!



# TREE

TRANSITION TO EFFICIENT  
ELECTRIFIED FORESTRY  
TRANSPORT

VINNOVA

Projektet genomförs med stöd från programmet Fordonsstrategisk  
Forskning och Innovation, FFI.



# TREE

## Transition to Efficient Electrified Forestry Transport



### Aim

Accelerate the electrification of forestry road transport through **removing system barriers**

### Overarching goal

Contribute to that **50%** of the forestry sector's new trucks are electric year 2030



## Projectpartners



Projektet genomförs med stöd från programmet Fordonsstrategisk Forskning och Innovation, FFI.

# TREE in numbers

**16**  
MEUR  
Project budget  
(+trucks & charging)

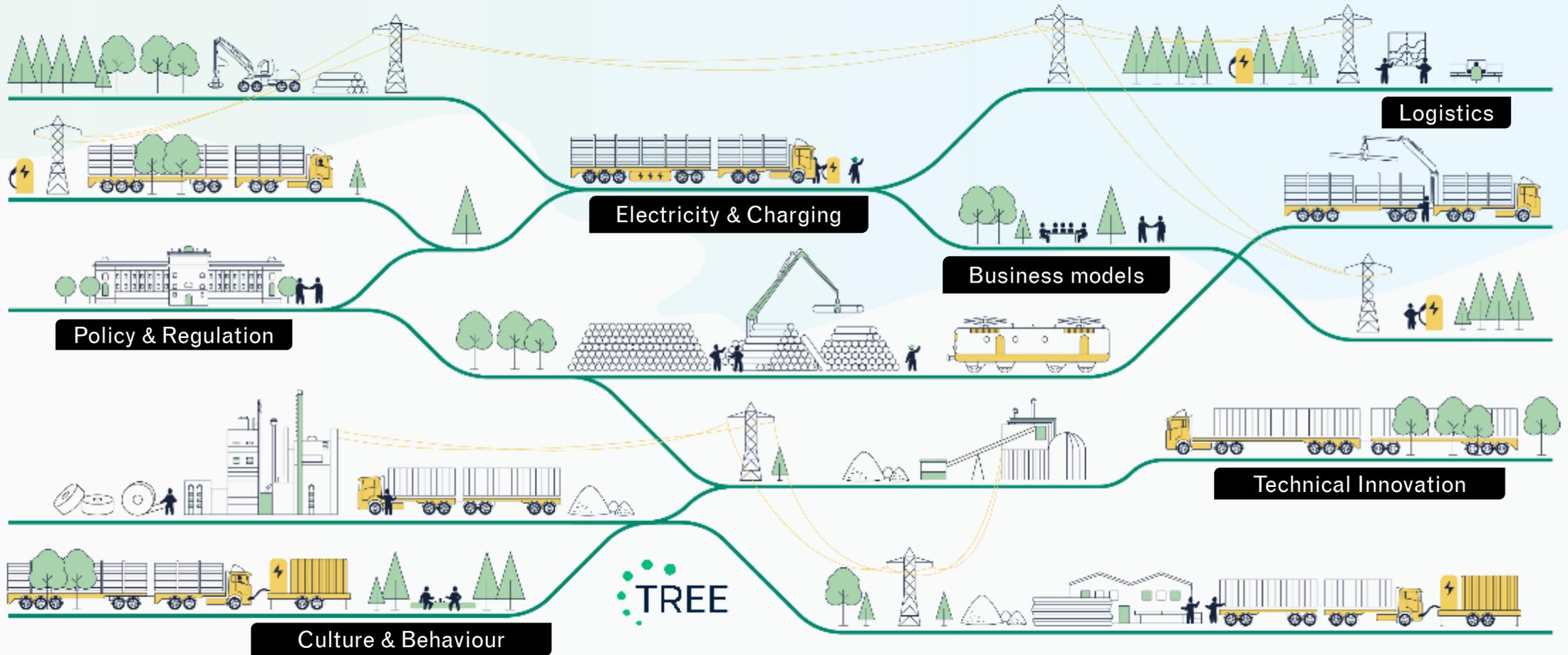
**48**  
Months

**7**  
Sites

**12**  
Electric trucks



# Electrified road freight transport requires a **system transformation**



## System demonstrator with sites as a nexus for knowledge creation

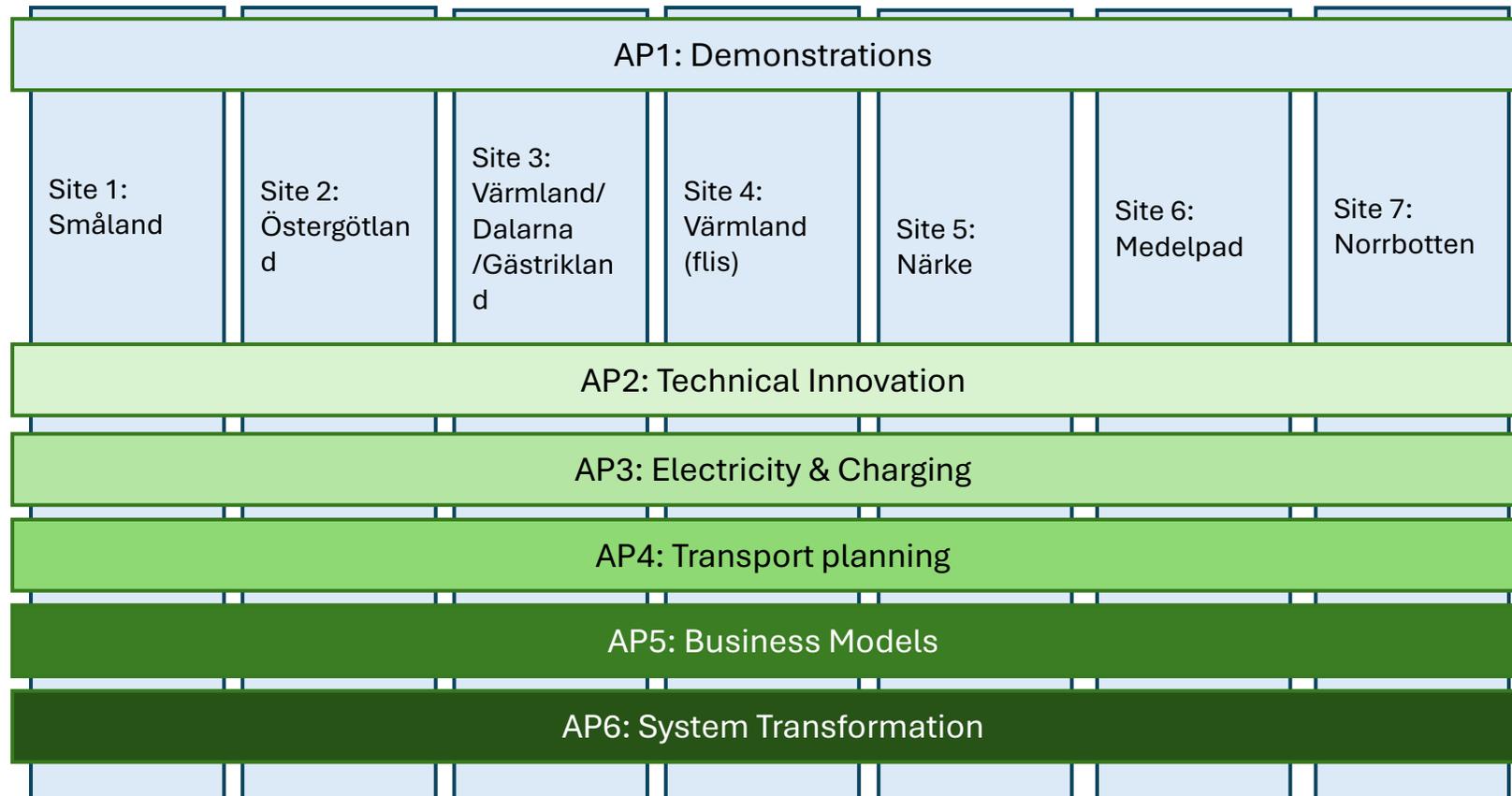
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12 electric trucks  
distributed over 7 sites

6 has started

# Learn through the sites



# 94 tonnes – world's heaviest BEV

- Energy efficiency is even more important for BEV!
- 36% more load

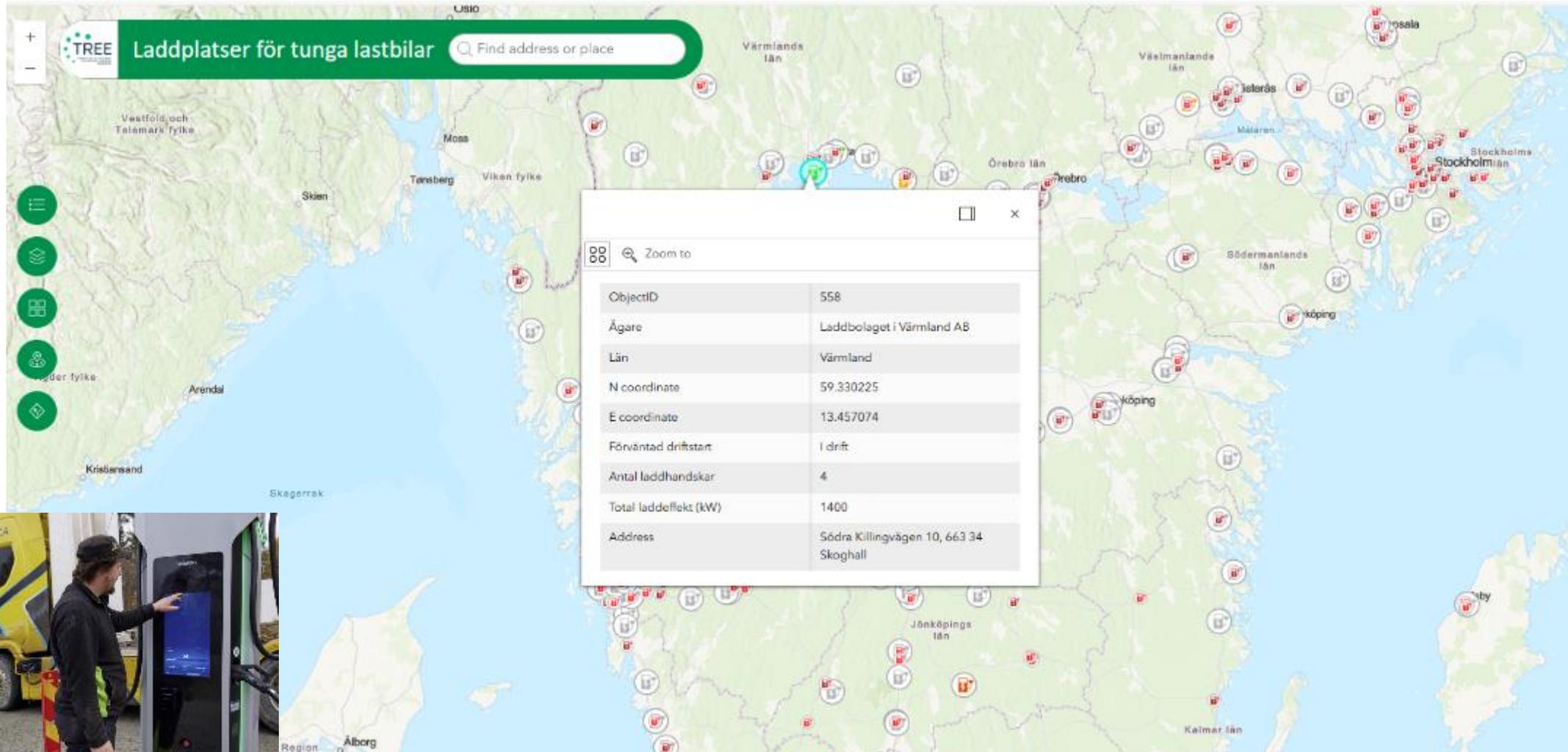


# Other technical innovations

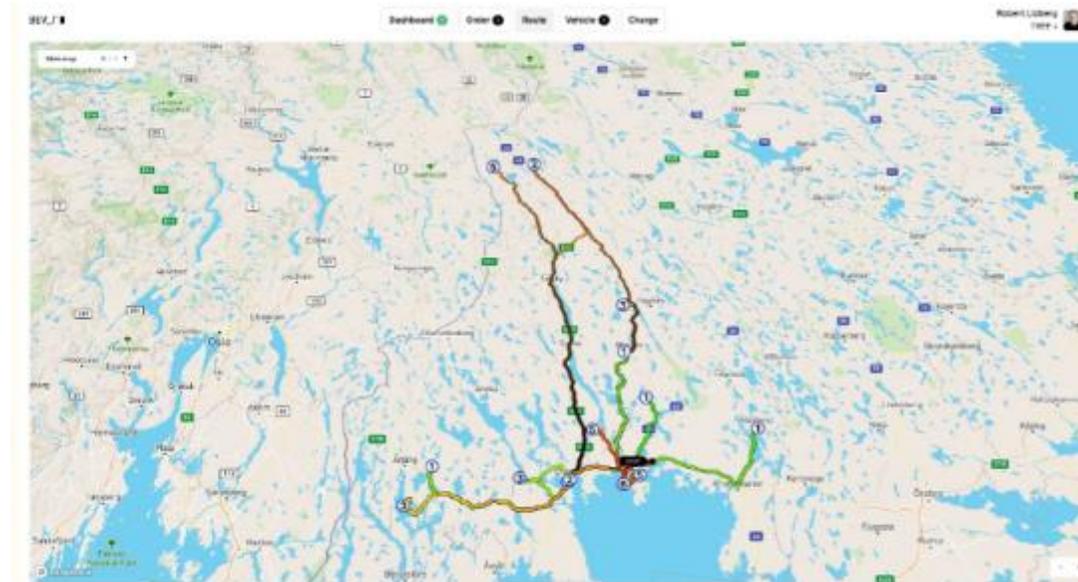
- E-trailer
  - "Hybridify" diesel trucks
  - Benefit from regeneration
  - Save up to 30% fuel
- Mobile Energy Storage System (MESS)
  - Charge where there is no grid
  - Use also for forestry machines?



# Charger map with detailed information



# Digital fleet planning tools are important



Who needs which information when?

# What do the drivers think?

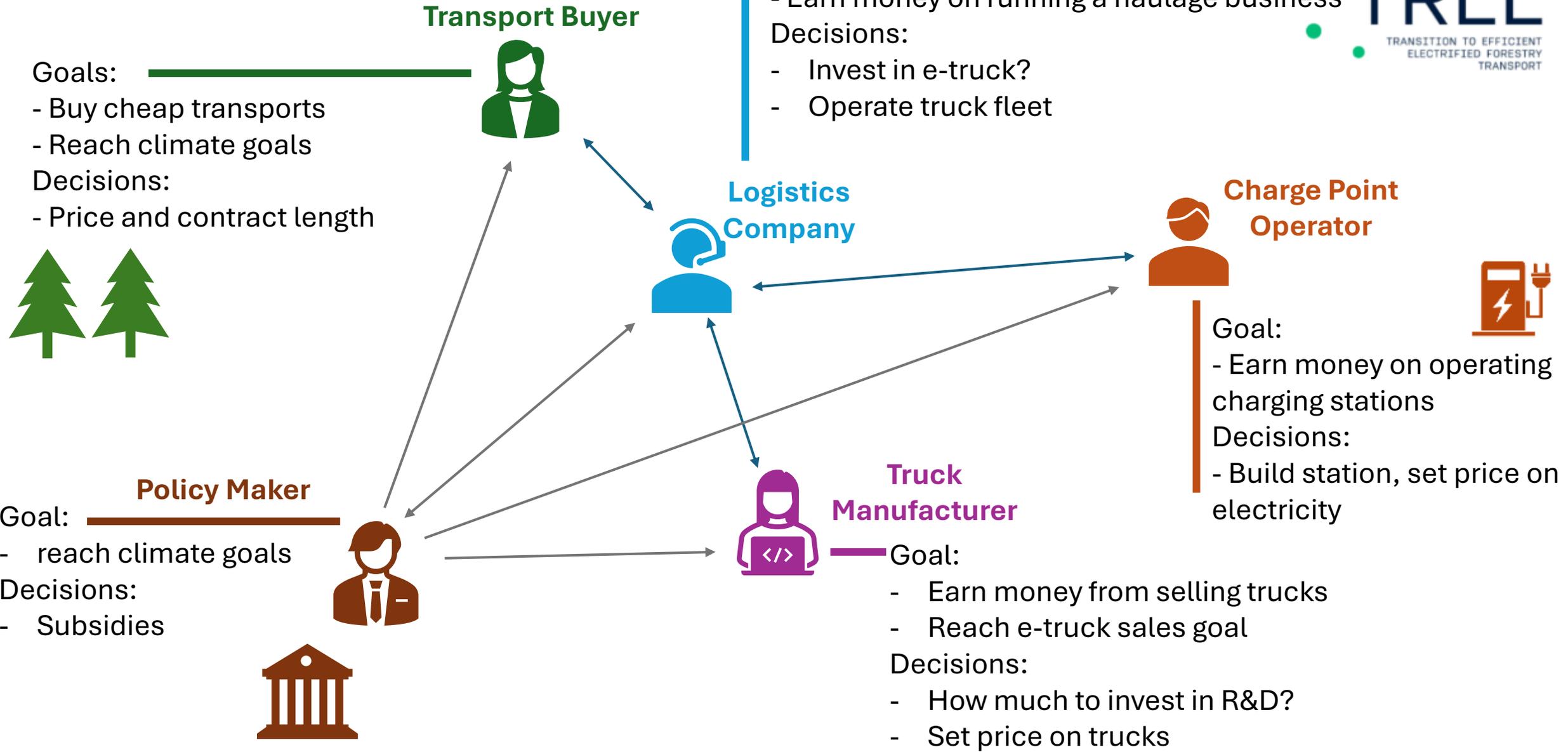
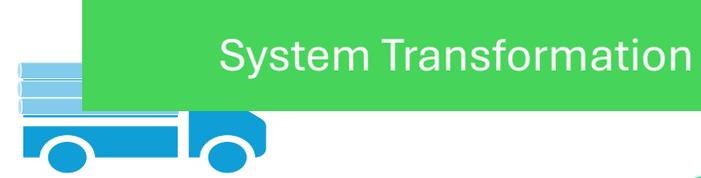


- Charging – where and when?
- The business – can it be profitable?
- Flows and logistics?
  
- Those who have tried don't want to stop!

# How to sell electric transports?



# Multi-actor system





Transition to electrified  
forestry transport  
- it is possible and  
necessary!



It is a complex system →  
together is the only way!

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