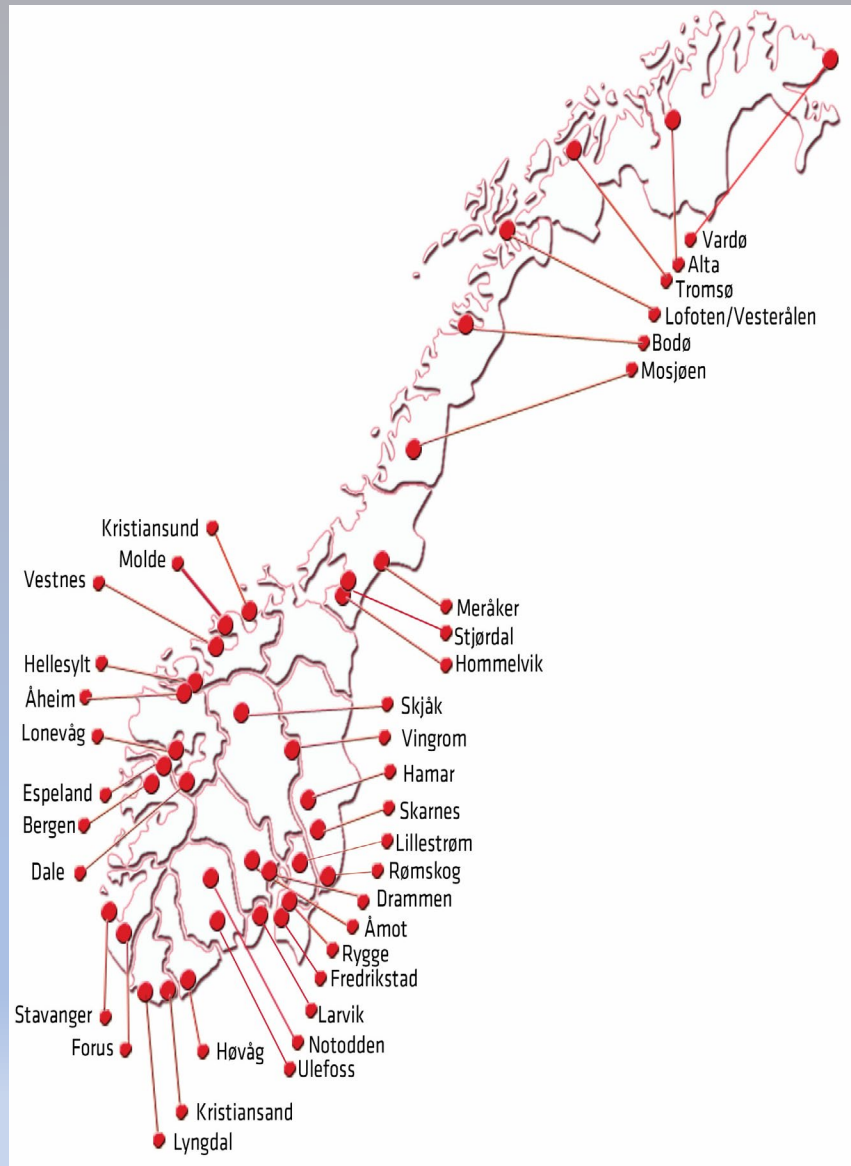


The Norwegian market for zero-emission construction machinery



About Nasta



HITACHI

Reliable solutions

- 1929 Established (Norwegian family-owned company)
- 1982 - Exclusive importer of HITACHI construction machinery in Norway
- Service points and departments, nationwide

Delvator

HITACHI

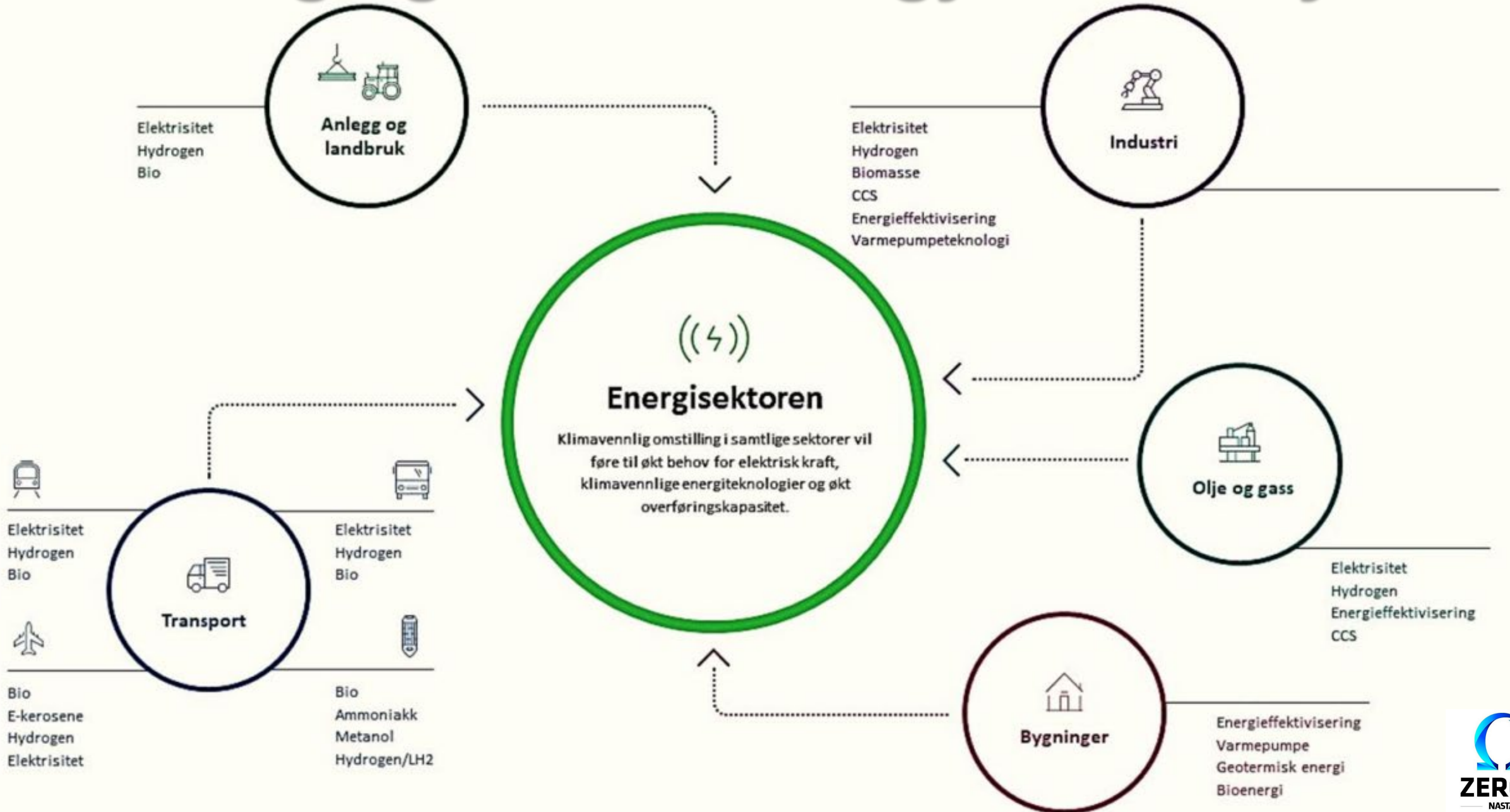
Reliable solutions





**"Everyone" wants to save the environment,
but no one wants windmills**

A changing world / Energy efficiency



40% - Industry

The construction industry accounts for 40 % of all energy use and Co2 emissions in the world.

In Norway, the construction industry accounts for 15% of total emissions

55% reduction of Co2 by 2030 (50 tones per week)

Klimakur 2030 (70% of new non-road machines and vehicles will be electric in 2030)

The environment is weighted with at least 30% in all public procurement

Pilot projects / test phase

Support programs: Enova and Klimasats

Klimakur 2030

«Storbyerklæringen»

(The big city declaration)

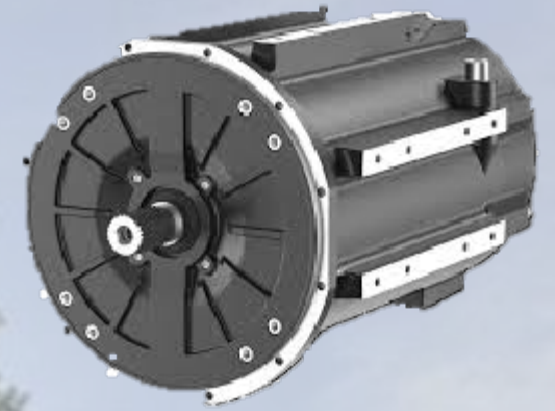
The seven municipalities Oslo, Bergen, Trondheim, Stavanger, Kristiansand, Drammen og Tromsø have committed to :

- **By end of 2021** all the construction activity within the municipality shall be fossil free. Which means that all fuel used shall be manufactured from renewable materials, biofuel (HVO100)
- **By end of 2025** all the municipality's construction activity shall be emission free
- **By end of 2030** all the construction activity within the municipality's shall be emission free

Emission free

Hydrogen

Electric



Fossil free

Biodiesel

Biogas



Fossil fuel

Diesel

Diesel

- 10,1 kWh/liter
- 2,66 kg CO₂/liter
- Efficiency 40%



Our machines

ZE19 – 2 tonn



ZE23 -2,5 tonn



ZE55 – 5,5 tonn



ZE85 – 10 tonn



ZE135 – 15 tonn



ZE160 – 18 tonn



Our machines

ZE210 – 25 tonn



ZE350 -38 tonn



ZE490 – 50 tonn



ZE890 – 90 tonn



HD10 E-power– 2,5 tonn



Large electric excavators from Hitachi

- EX2000-7E, 610kW
- EX2600-7E, 860kW
- EX3600-7E, 1200kW
- EX5600-7E, 2x860kW
- EX8000-7E, 2x1200kW

6000V on 50Hz or 6600V on 60Hz, 200-400A

Hitachi Zeron ZB310-7 Wheel loader

Nasta and Feiring join forces to deliver the country's first wheel loader on biogas.

Machine weight: Ca 28 000 kg

Engine power: 340 hk / 1600Nm /Euro 6

Gas tank package: 4x118dm³ CNG

Bucket size : Ca 5000 liter

FEIRING

Cabel electric – simple, safe and reliable

Peak power 200kW (400v/300A)

Distribution
11kV/22kV

Transform
and separate

Connect and meter

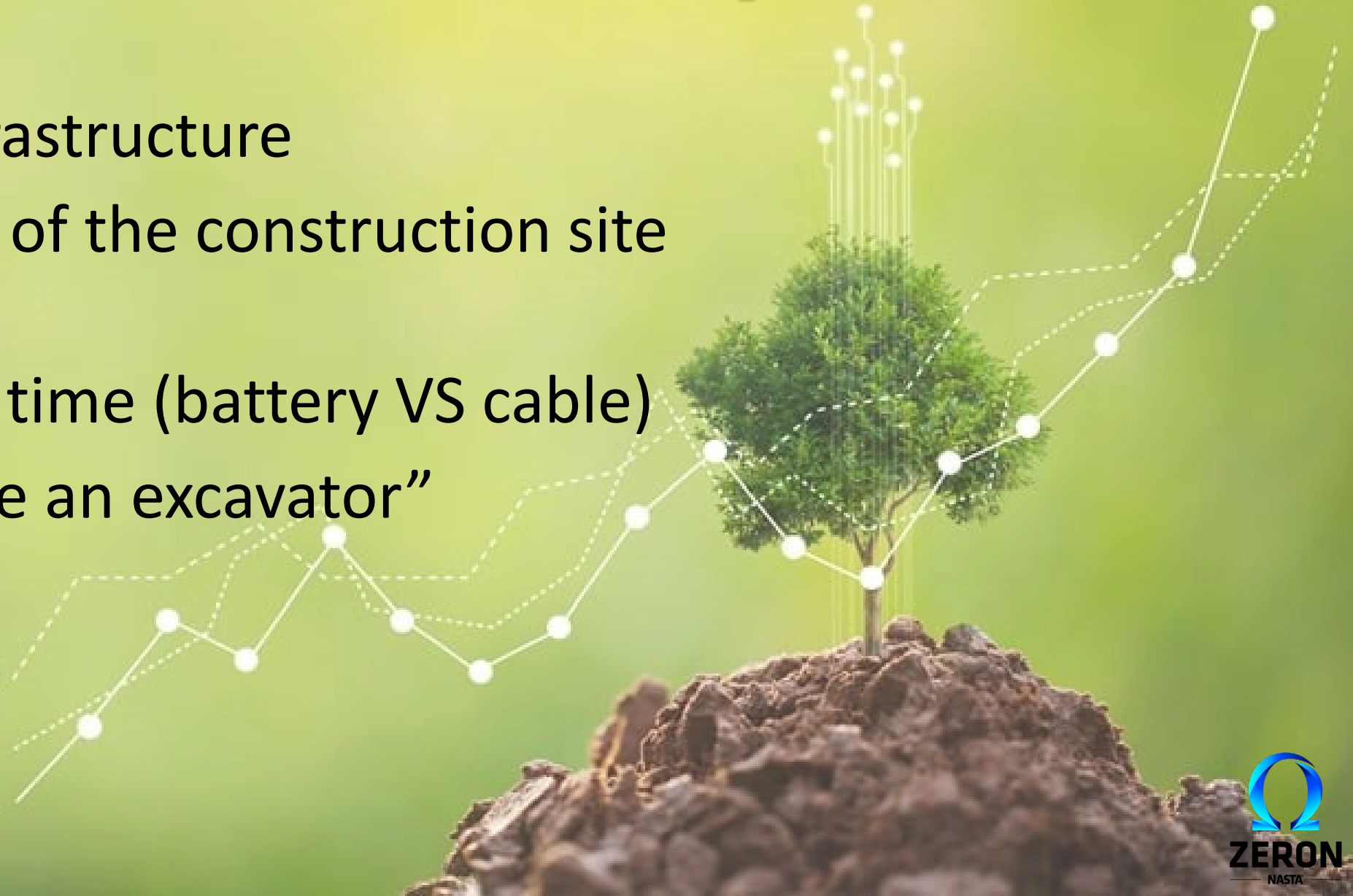
Cable reels
30m
+150m

Charging solutions



At construction site / experiences

- + Power infrastructure
- + Operation of the construction site (logistics)
- + Operating time (battery VS cable)
- + “Works like an excavator”



The market today

Delivered machines (Nasta)

2020: 16 units. (8)

2023/Q3: 650 units. (130)

2022 forecasts:

Number of construction machines sold	5.100
Number of excavators belt + wheels	1.600
Number of zero emission machines	250 (40-60)
Conclusion zero emission machines 2022	76

**Oslo municipality emission-free share of projects
per December 2022 was at 47 %**

The solution si simpel

Political suicide / Harakiri

- Government step down of all oil and gas production
- Escalation of co2 tax

In summary:

- We need to get a move on towards EU taksonomi
- We need demands and commitments, rather than goals and dreams



**Being different
is power!**

