



Korteriühistute suveülikool Haapsalus 04.08 , Urmas Laine

In 2021, one in five new vehicle registrations in Europe was electric

European EV sales annual history
Millions

EE – 2020 1500 täiselektrilist sõidukit
2021 2400 täiselektrilist sõidukit
2022 3200 prognoos



Source:
1. The European Automobile Manufacturers Association (ACEA), accessed 5 January 2022

Uutele hoonetele peab paigaldama elektriautode laadimistaristu

Ehitusseadustik pg 65

Sellise hoone püstitamisel, mille teenindamiseks on ette nähtud rohkem kui kümme parkimiskohta, paigaldatakse:

- 1) juhtmetaristu igale parkimiskohale, kui tegemist on elamuga;
 - 2) juhtmetaristu vähemalt igale viiendale parkimiskohale ja elektriauto laadimispunkt vähemalt ühele parkimiskohale, kui tegemist on mitteelamuga.
- (7) Kui mitteelamu teenindamiseks on ette nähtud rohkem kui 20 parkimiskohta, tuleb vähemalt ühele parkimiskohale paigaldada laadimispunkt

Mis saab olemasolevatest hoonetest?

- Olulisel rekonstrueerimisel kehtivad sama reeglid, mis uute hoonete püstitamisel, aga taristu tuleb paigaldada juhul, kui rekonstrueerimine hõlmab ka parklat või hoone/parkla elektrisüsteemi.
- Juba olemasolevatele mitteelamutele, mida pole plaanis renoveerida, on määratud üleminekuaeg. Kui hoone teenindamiseks on ette nähtud rohkem kui 20 parkimiskohta, peavad olema varustatud vähemalt ühe laadimispunktiga 2025. aasta alguseks.

Laadimistaristu paigaldamist reguleerib ehitusseadustik ning selle täitmist hakkavad jälgima kohalikud omavalitsused ehituslubade menetlemisel.

Laadimislahendused

Laadimislahendused

AC sihtkoha laadija

3-22 kW

4-16 hours



DC sihtkoha laadija

20-25 kW

1-3 hours



DC (and AC) kiirlaadija

50-180 kW

20-90 min



Depoo lahendused

Several units 50 to 175 kW+

hours



DC HP, ülikiired laadijad

150 to 350 kW+

10-20 min

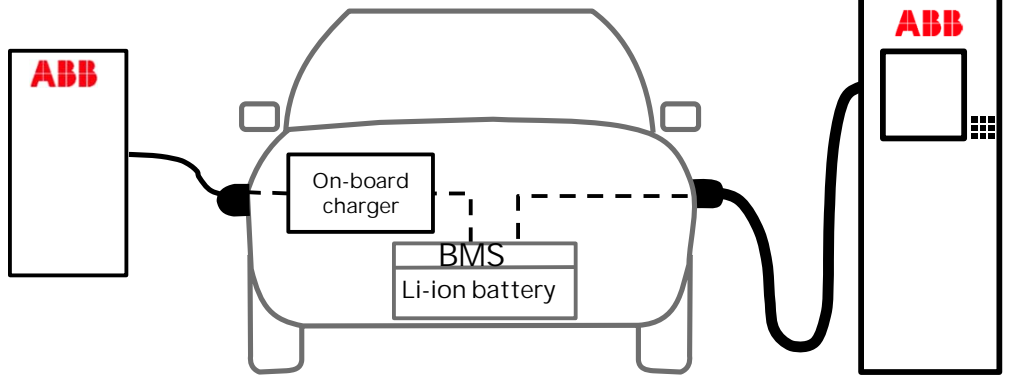


----- Alternate use-cases for depots

Mis on vahet AC laadijal versus DC laadijal

On-board versus off-board equipment

AC Charging



Type of charger	Power delivered	... charges a 40kWh battery in	Driving range delivered per hour
AC Level 1	2.2 -3 kW	13- 18 hrs	c. 11 – 15 km
AC Level 2	3.7 kW	c. 11 hrs	c. 19 km
	7,4 kW	c. 6 hrs	c. 35 km
	11kW	c. 4 hrs	c. 55 km
	22 kW	c. 2 hrs	c. 110 km
Fast chargers („DCFC“)	50 kW	c. 50 min *80% of the battery	c. 290 km *speed for charging to 80%
	150 kW	c. 20 – 30 min *80% of the battery	c. 860 km *speed for charging to 80%



APRILL 2020

Terra AC

Elektriauto vahelduvvoolu laadimislahendus

Combined Charging System (CCS) for Europe

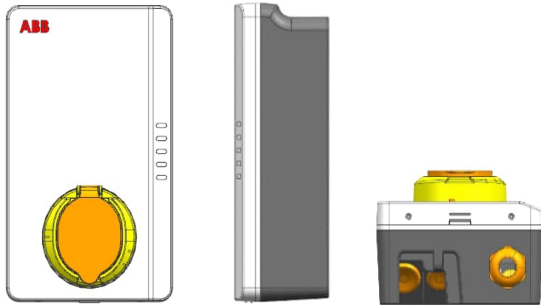
Also sometime referred to as "Combo", or CCS-2



Source of picture: Phoenix Contact

Terra AC Wallbox

Kuni 22kW laadija pistikupesaga või kaabliga



Built in safety

- Ülekoormuskaitse
- Üle- ja alapinge
- Rikkevoolu monitooring
- Piksekaitse
- Maavoolu jälgimine

Metering

- Sisse ehitatud kWh arvesti (1% accurate),
- *MID option*,
- Laadimisvõimsuse juhtimine / tark laadimine,

Connectivity

- 1x Ethernet,
- 1x Bluetooth 5.0
- Wi-Fi
- *4G option*
- OCPP1.6
- RS485 (Modbus)
- Configurable dry contacts

Authentication

- Nutiseadme abil,
- *RFID kaardiga*
- *vabakasutus*

APP

- audentimine & laadimise juhtimine
- Laadija konfigureerimine

Mechanics

- *BxHxD 195x320x110/143mm*
- *Below 2 kg (excluding cable)*
- *UL variants 25ft cable,*
- *CE variants 5m cable*

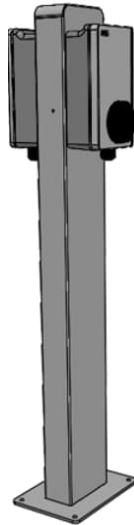
Later:

- 2x Ethernet (daisy chain)
- ISO 15118 (plug & charge and V2G)
- PTB certification
- Display

Jalandid laadijale

Basic Pedestal Back-to-Back

- Basic product
 - Indoor and outdoor
 - 2 chargers install
 - IK10
 - Profile + height dimensions (mm)
100x200x1403.
 - base plate dimensions (mm)
245x345
 - Pricing available



6AGC085684

TAC pedestal back-to-back



Terra AC staatiline ja dünaamiline laadimiskoormuse juhtimine

Static w/ single charger



Static w/ single charger



Hybrid w/ multiple chargers



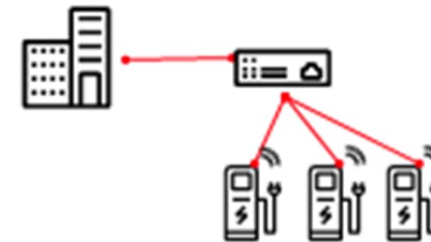
Dynamic w/ single charger



Dynamic w/ multiple chargers



Dynamic w/ multiple chargers via local controller



Staatiline koormuse juhtimine Terra AC

Terra AC Load Management

Static w/ single charger



Home / Single use case scenario

- 1 Terra AC
- No connectivity (WiFi, LAN, 4G) needed
- Connection via Bluetooth on TerraConfig App (Installer / Technical support)
- Configuration done when commissioning
Setting the current limit in accordance with the grid's remaining capacity for the charger
- Goal is to protect the fuse
- Solid configuration that can only be changed by another installer/ technical support engineer, therefore cannot be changed by the end user



no extra hardware needed

TerraConfig App




Terra AC Load Management

Static w/ single charger



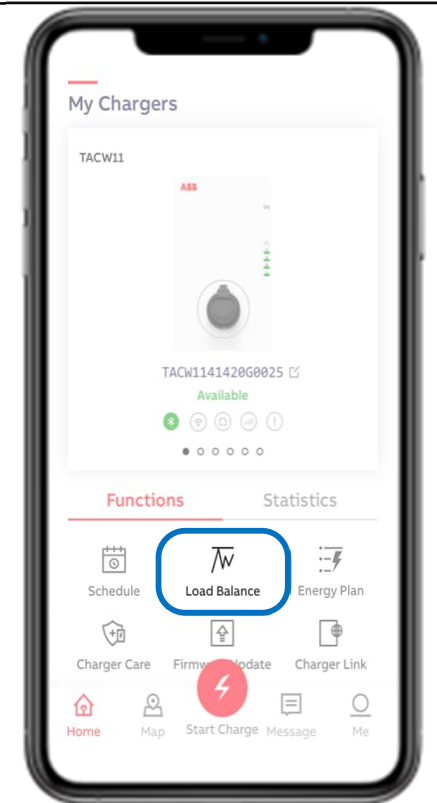
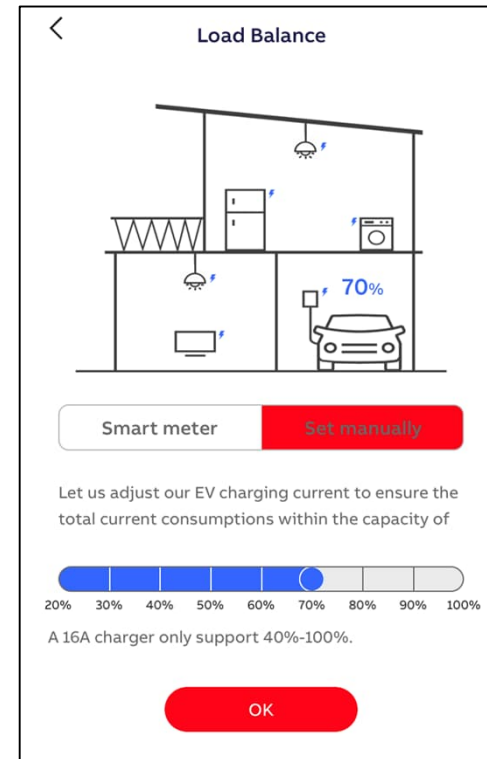
Home / Single use case scenario

- 1 Terra AC
- No connectivity (WiFi, LAN, 4G) needed
- Connection via Bluetooth on the ChargerSync App (EV driver)
- Configuration can be done at any time (even while there is an ongoing charging session)
- Goal is to let the EV driver decide the maximum value of current the EV will charge with*

 no extra hardware needed

*Depends on the EV's SoC

ChargerSync App



Terra AC Load Management

Static w/ single charger



Local business use case scenario

- x number of Terra ACs
- Connectivity (WiFi, LAN, 4G) to ABB backend/server needed
- Connection via internet on the ChargerSync Essentials Operational Portal
- Configuration can be done at any time (even while there is an ongoing charging session)
- Goal is to let the operator(s) of these accounts handle the maximum current of their chargers individually
- If hybrid load balancing feature is on, (static) load balance cannot be used anymore (it becomes grey)



no extra hardware needed

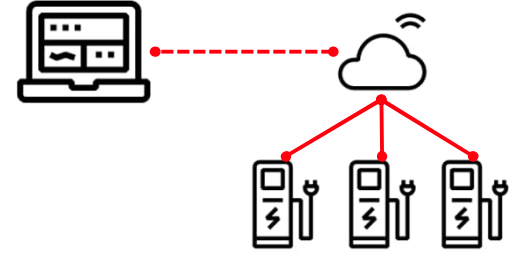
ChargerSync Essentials Operational Portal

NO.	Alias/SN	Connector	Phase	Network	Status	Derating	Current	Remote Control
1	TACW1141420G0025 TACW1141420G0025			4G	Available	70%	11.2A	
2	TACW741320G0018 TACW741320G0018			4G	Available	100%	32A	

Hübriid koormusjuhtimine Terra AC

Terra AC Load Management

Hybrid w/ multiple chargers 1/4

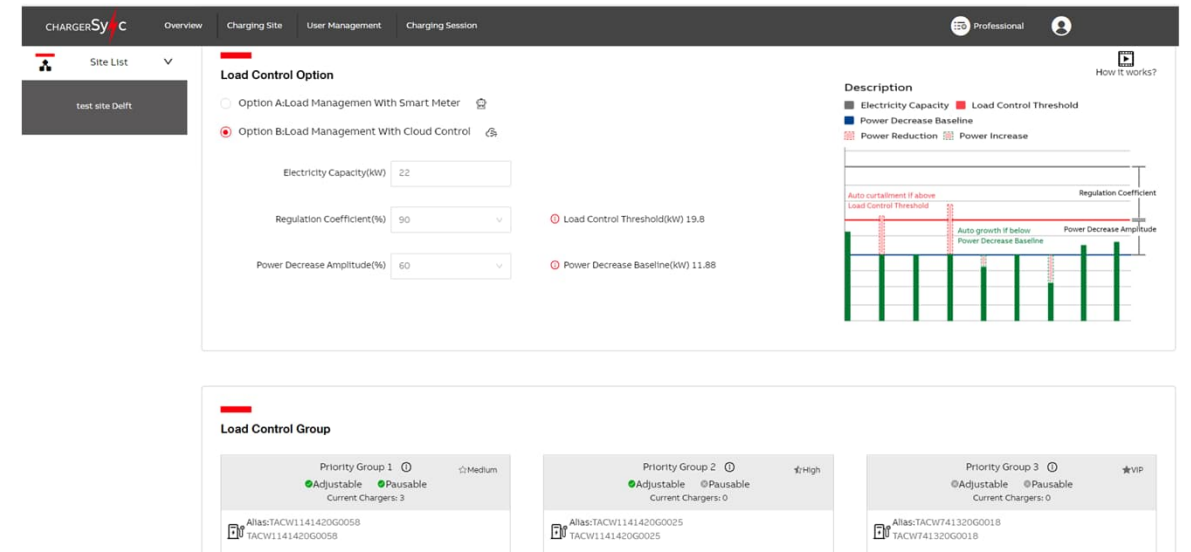


Big accounts use case scenario

- x number of Terra ACs in a charging site
- Connectivity (WiFi, LAN, 4G) to ABB backend/server needed
- Connection via internet on the ChargerSync Network Webportal
- 3 Priority groups for the chargers:
 - Medium (first to decrease current/power, delayed start charging);
 - High (second to decrease current/power, immediately start charging);
 - VIP (could not decrease, immediately start charging)
- Configuration can be done at any time
All chargers in a charging site must be entered in a priority group
- Goal is to let the operator(s) of big accounts handle their charging sites

*Not a free feature

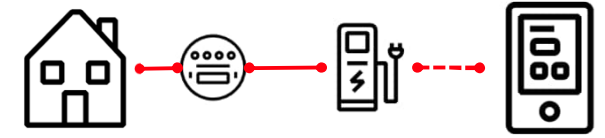
ChargerSync Network* Webportal Hybrid Load Management



Dünaamiline koormusjuhtimine Terra AC (DLM)

Terra AC Load Management

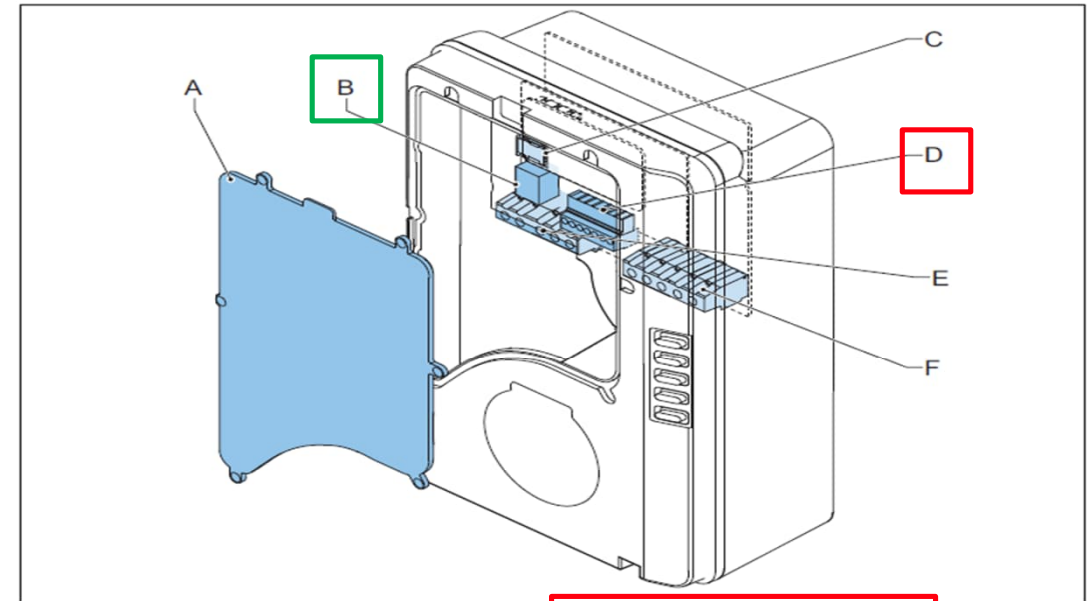
Local Dynamic w/ single charger 1/2



Home / Single use case scenario

- 1 Terra AC
- No connectivity (WiFi, LAN, 4G) needed
- Connection via Bluetooth on TerraConfig App (Installer) for setting the parameters of smart meter
- Connection via Bluetooth on Chargersync App (EV driver) for setting the parameters of the specific use case

Overview of the EVSE, inside

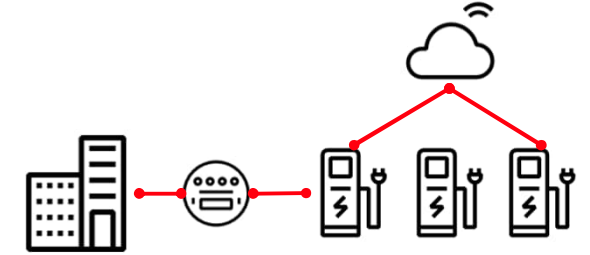


A Maintenance cover
B Ethernet connection
C Socket for a Nano-SIM card

D Smart meter connection
E Terminal block for the AC input
F Terminal block for the EV charge cable or the socket

Terra AC Load Management

Remote Dynamic w/ multiple chargers 1/2



Big accounts use case scenario

- x number of Terra ACs
- Connectivity (WiFi, LAN, 4G) to ABB backend/server needed
- Connection via Bluetooth on TerraConfig App (Installer) for setting the parameters of smart meter
- Connection via internet to Chargersync Network Web portal for setting the parameters of the specific use case
- Only 1 charger is connected to the smart meter.
The meter values are transmitted via the RS485 cable from the smart meter to the paired Terra AC and then to the cloud, which acts like a “master” and the Terra ACs as “slaves” (algorithm on cloud).
- Allocation of the chargers to priority groups (load control group)



extra hardware needed (smart meter)

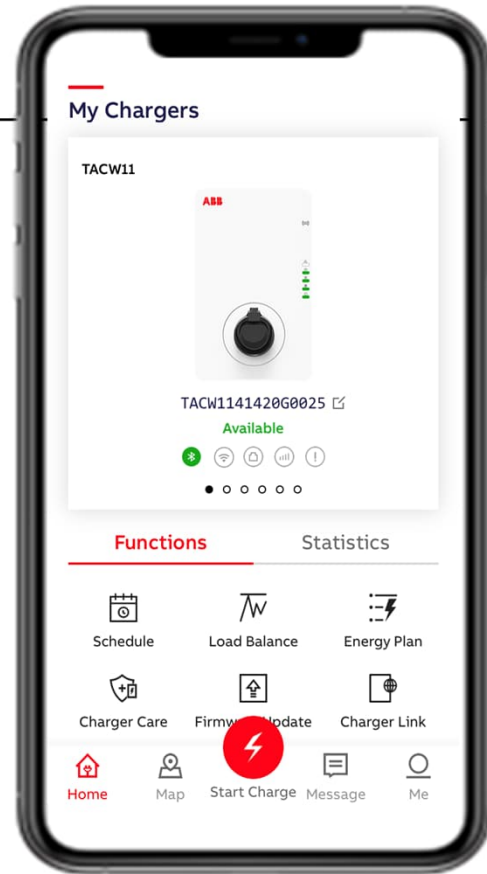
ChargerSync Network Web portal

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Digitaalsed tööriistad Terra AC

ChargerSync app

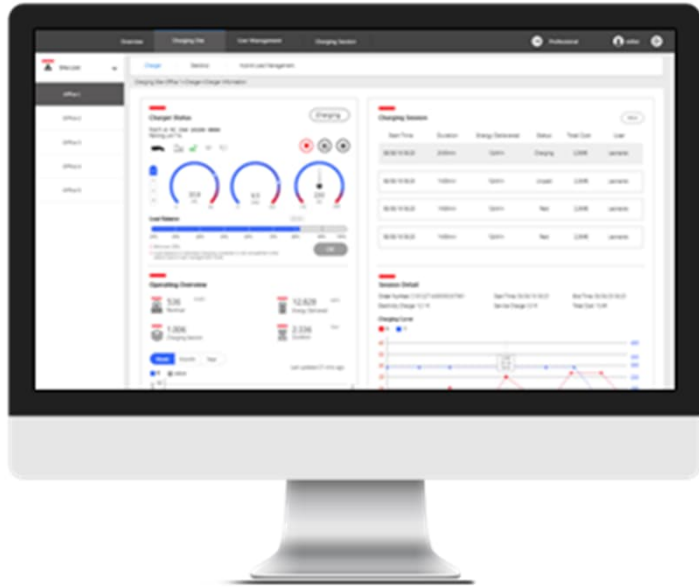
ChargerSync Smartphone App



- Kasutaja on n.ö. adminn ja laadija omanik. Selle app'i abil saab kasutaja laadija siduda enda app'i kontoga. Piirata käsitsi laadimivõimsust, sätestada laadimisgraafiku jms.

ChargerSync Web Portal

ChargerSync Essentials Operational portal (Backend)



Kasutaja on tavaliselt saidi / laadijate rühma kaugadministraator, kes loob konto ja lisab kontole mingi koguse laadijaid ja kasutajaid.

See on n.ö. pilvepõhise koormuse haldamise seadistamise ja jälgimise portaal. Lubades omanikul ühenduda laadijaga, kui laadija on võrgus (LAN / Wifi / 4G kaudu), teha täpsemat seadistamist, vaadata laadimise olekut, statistikat ja vigu.

Kasutatakse erinevate RFID-kaartide kaardistamiseks rühmadena ja kontode prioriteedina

Võimaldab täiendada iga kaarti virtuaalse rahaga ja määrata kulu kWh kohta.

KOKKUVÕTVALT:



- Ka vanemate kortermajade puhul pole veel kõik kadunud, dünaamiline koormusjuhtimine leevendab kuigivõrd kasinat võimsust
- Kindlasti on oluline korralik projekt ja hinnang elektritaristule hoones, eriti peakilbi juures
- Lahendusi laadimistaristu ülesehituseks on mitmeid
 - Individaalne otse korteri/ridamaja boksi jaotuskilbist
 - Korteramaja üldisest peakilbist kasutades seejuures haldamiseks backendi või tellida võtmed kätte teenus mõnelt laadimistaristu arendajalt/haldajalt
- ...



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Elektrisõidukite teemapäev ABB-s
8. september 2022

Kus?

ABB, Jüri

- 8. september 2022
- Kella 10-18
- ABB, Jüri
- Aruküla tee 83
- ABB peamaja, parkla ja territoorium



Kes?

Oodatavad ja kutsutavad

- Automüüjad
- Lõpptarbijad
- B2B kliendid
- Avalik sektor
- Erasektor



Seminar

Kõigile külastajatele

- Arvamusliidrid
- Valitsusametnikud
- Suunamudijad
- Ekspertid
- Välismaised ekspertid
- Lõppkliendid



Miks tasub just teil kohal olla?

Sa oled korteriühistu juhatuses või elad oma majas.

Kuidas elektriautodega seonduv sind puudutab?

Mida pidada silmas laadimiskohtade rajamisel?

Kas sa oled juba hiljaks jäänud?

Mida annab veel parandada?

Salapärane seadus ja selle lugemise oskus.

Kui palju see kõik maksma läheb?

Kust küsida ekspertnõu?

Kust taotleda finantseerimist?

Kas ettenägelikkus on kulutus või investeering?

Ole 8.09 Jüris kohal ja saad neile küsimustele põhjalikud vastused.



Kõik õpitoad

1. Ärid (pikaajaline peatumine)
2. Kommunaal (üleöö laadimine)
3. Taristuarendajad (kiirlaadimine)
4. Finantseerimine



Rohkem infot

Koduleht:
new.abb.com/ee/elektrisõidukite-teemapäev

Facebook: Elektrisõidukite teemapäev



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