

ONLINE, OKTOBER 2021

PREPARED FOR

Green Batteries Conference 2021

RE-USE OF BEV-BATTERIES IN A MEGAWATT SCALE BETTER THAN RECYCLING?

DR. JÜRGEN KÖLCH

STRATEGY AND INNOVATION



YOUR GLOBAL FULL-SERVICE
BATTERY SOLUTIONS PROVIDER

EVA FAHRZEUGTECHNIK
FEV GROUP

FEV BATTERY



FEV BATTERY DEVELOPMENT IN

AACHEN (DE)
MUNICH (DE)
BREHNA (DE)
KRAKOW (PL)
COVENTRY (UK)
TRAPPES (FR)
TURIN (IT)
ISTANBUL (TR)

FEV GROUP
FOUNDED IN

1978

EVA
FOUNDED IN


1994



6.300+
EMPLOYEES GLOBALLY

WORLDWIDE **40+**
FEV GROUP OFFICES
IN EUROPE, NORTH AMERICA,
SOUTH AMERICA
AND ASIA

BATTERY TALENTS

 **550+**
IN EUROPE
220+
AT EVA IN MUNICH

Battery Development at EVA Fahrzeugtechnik



4 ★
KEY FACTS

EVA FAHRZEUGTECHNIK
GMBH

History

1994 founded
in Munich

FEV Group

Proud Member
since 2017

MANAGEMENT

M. Mülleneisen &
M. Björnsson

Total Output

In 2020: 40 Mio €



LOCATIONS

E-MOBILITY EXPERTS IN MUNICH



MUNICH



HEADQUARTER

Heidemannstraße 41a

FLAGSHIP OFFICE

Ingolstädter Straße 49

BRANCH OFFICE

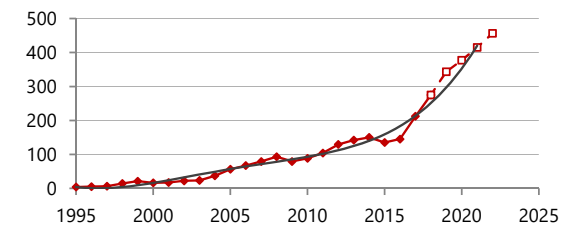
Taunusstraße 38

OUR POWER FOR THE MOBILITY OF TOMORROW

380+

Talents

220+



Agenda



Introduction on climate change

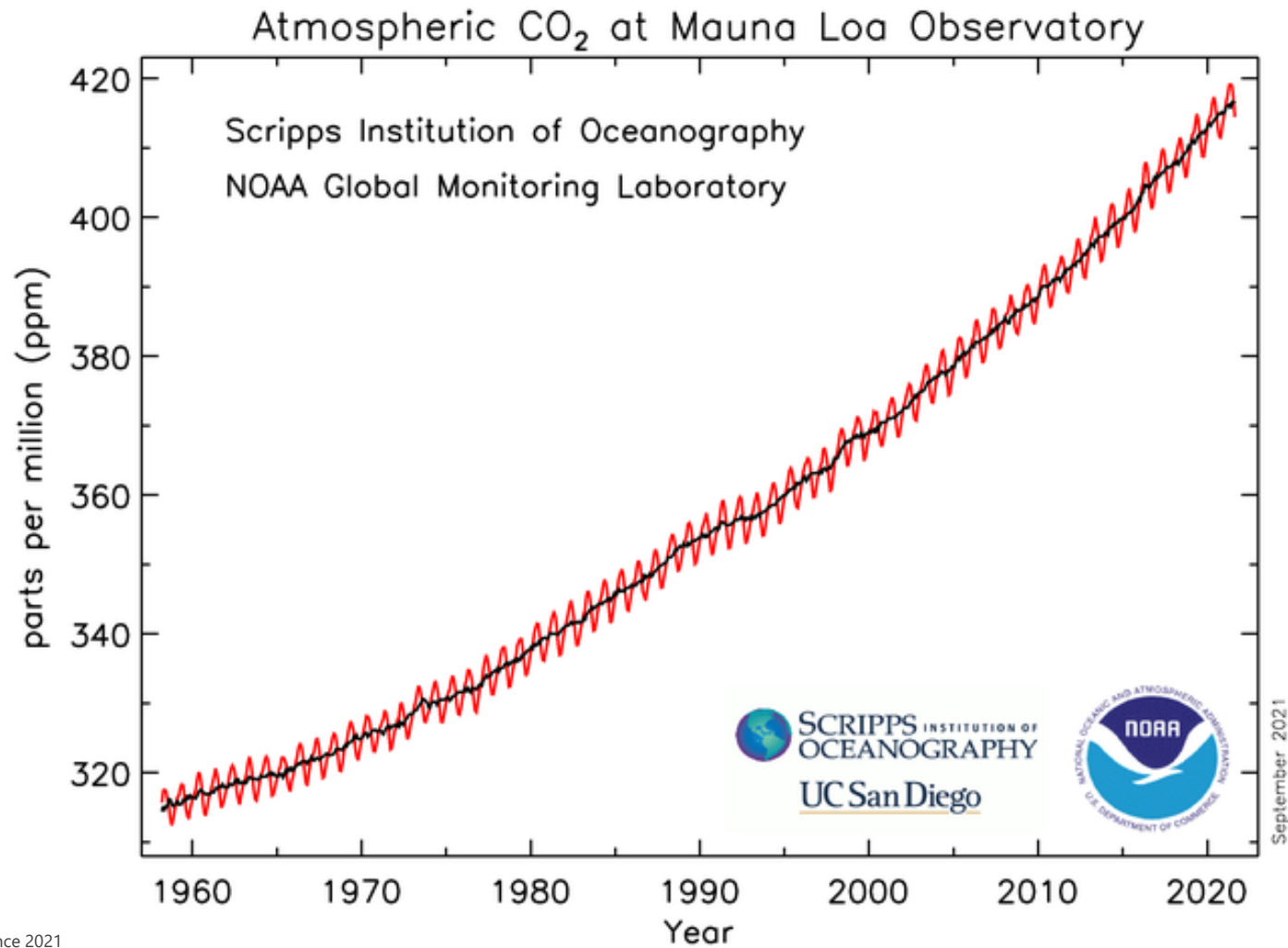
Statistics of new registrations electric vehicles in Germany

Current electric vehicle models with larger capacity

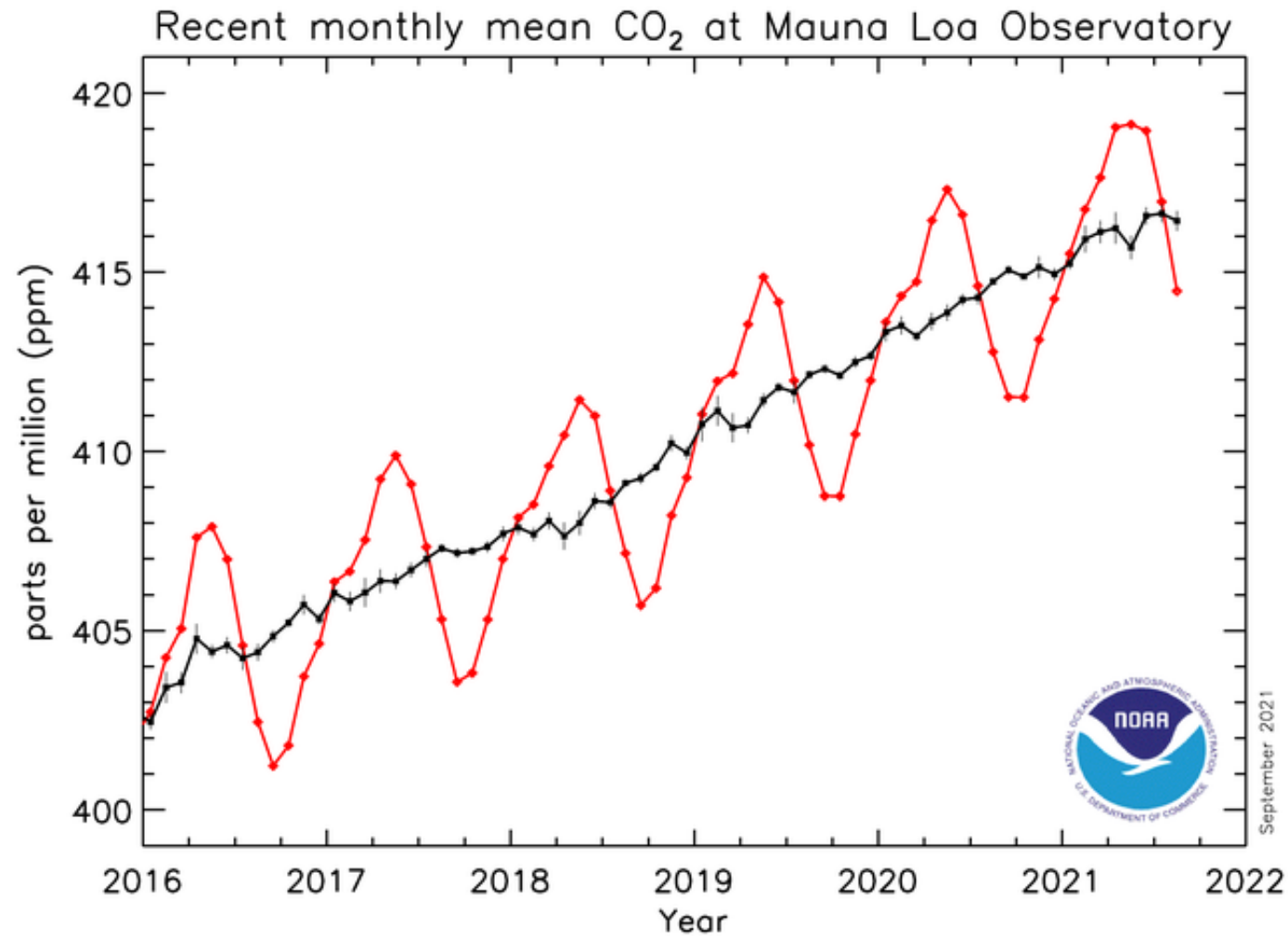
Recycling or Second Life?

Summary

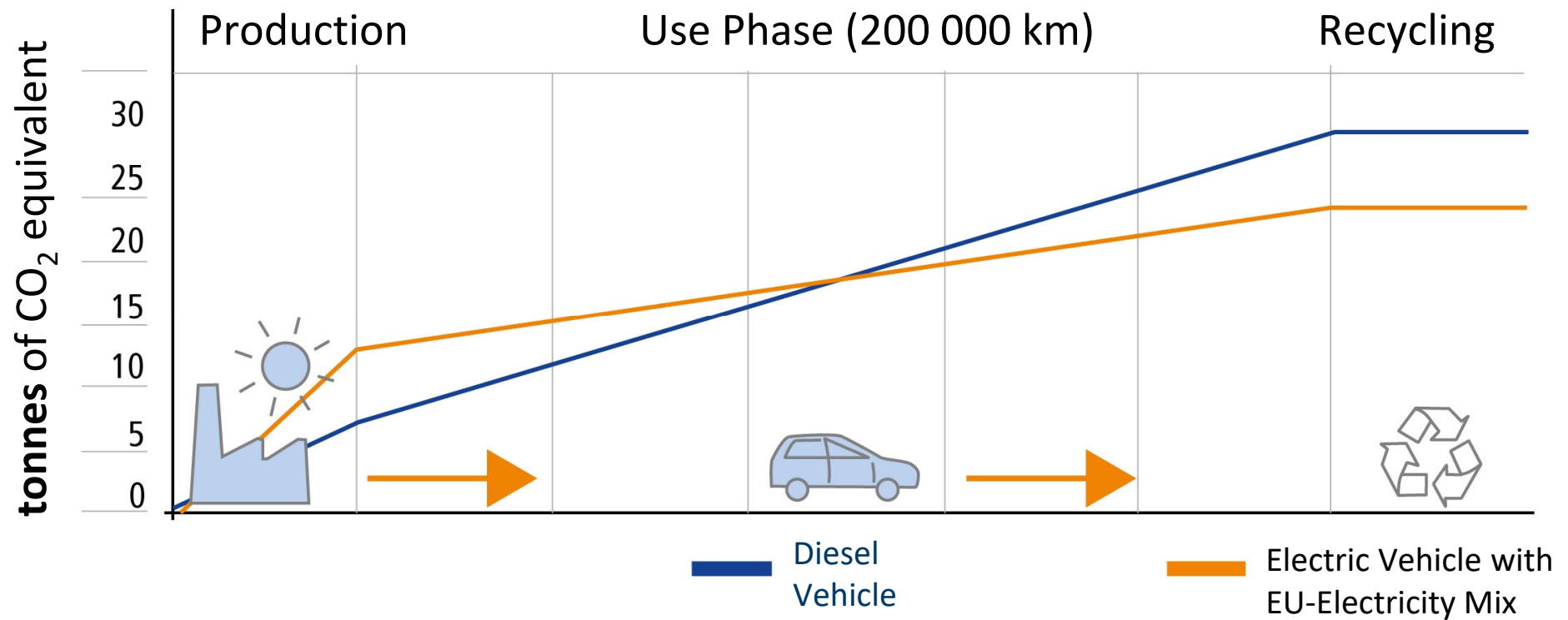
Keeling curve after Charles David Keeling



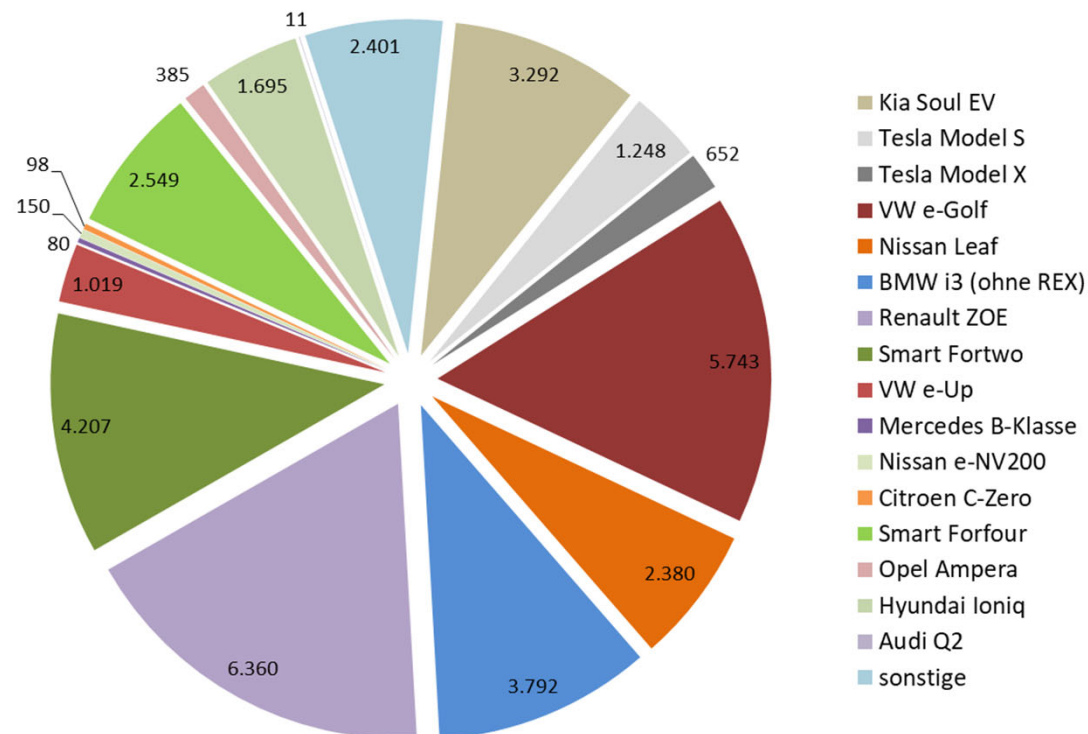
Keeling curve after Charles David Keeling



Cradle to grave Analysis



New Registrations 2018 BEV in D



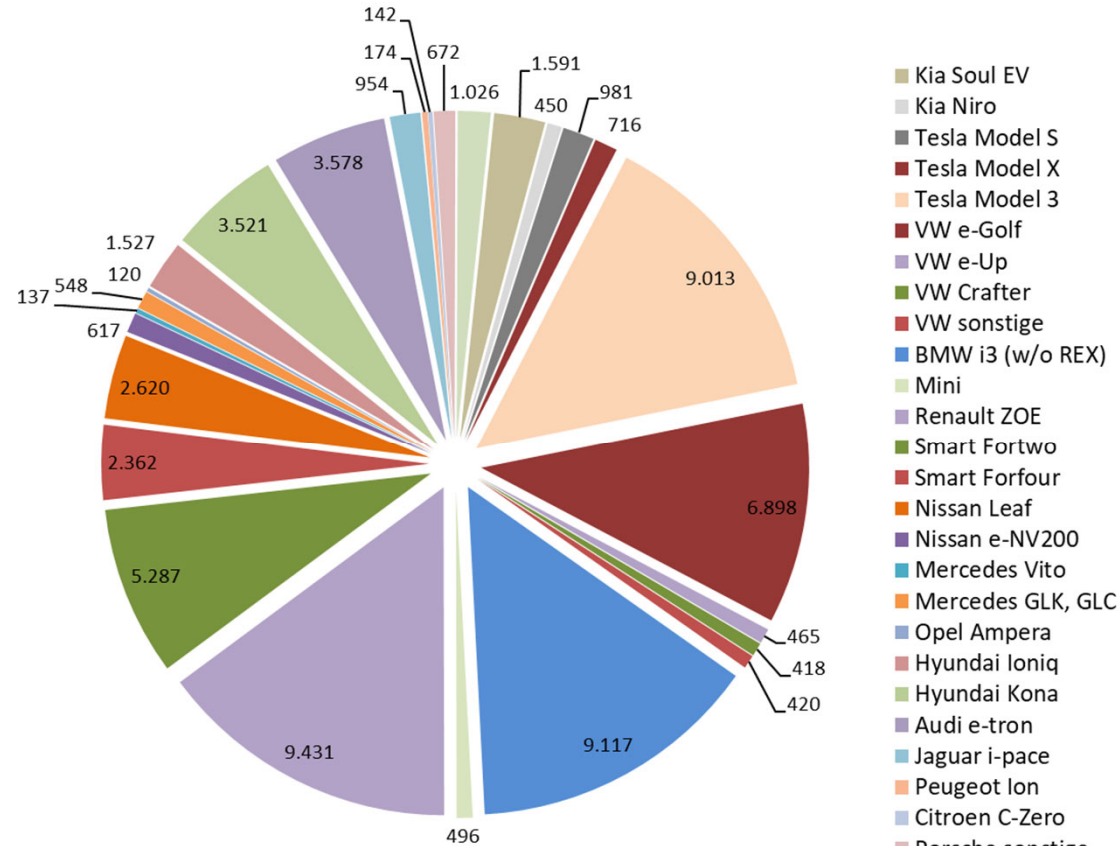
New all Light-Duty Vehicles:
3.44 Millions
BEV: 36,062 (1.05%)

Stock 2018/12/31: 83.175 (0,18%)

Source: Own diagram according to Kraftfahrt-Bundesamt, Flensburg, 2019

Köln, Oct 5th 2021

New Registrations 2019 BEV in D



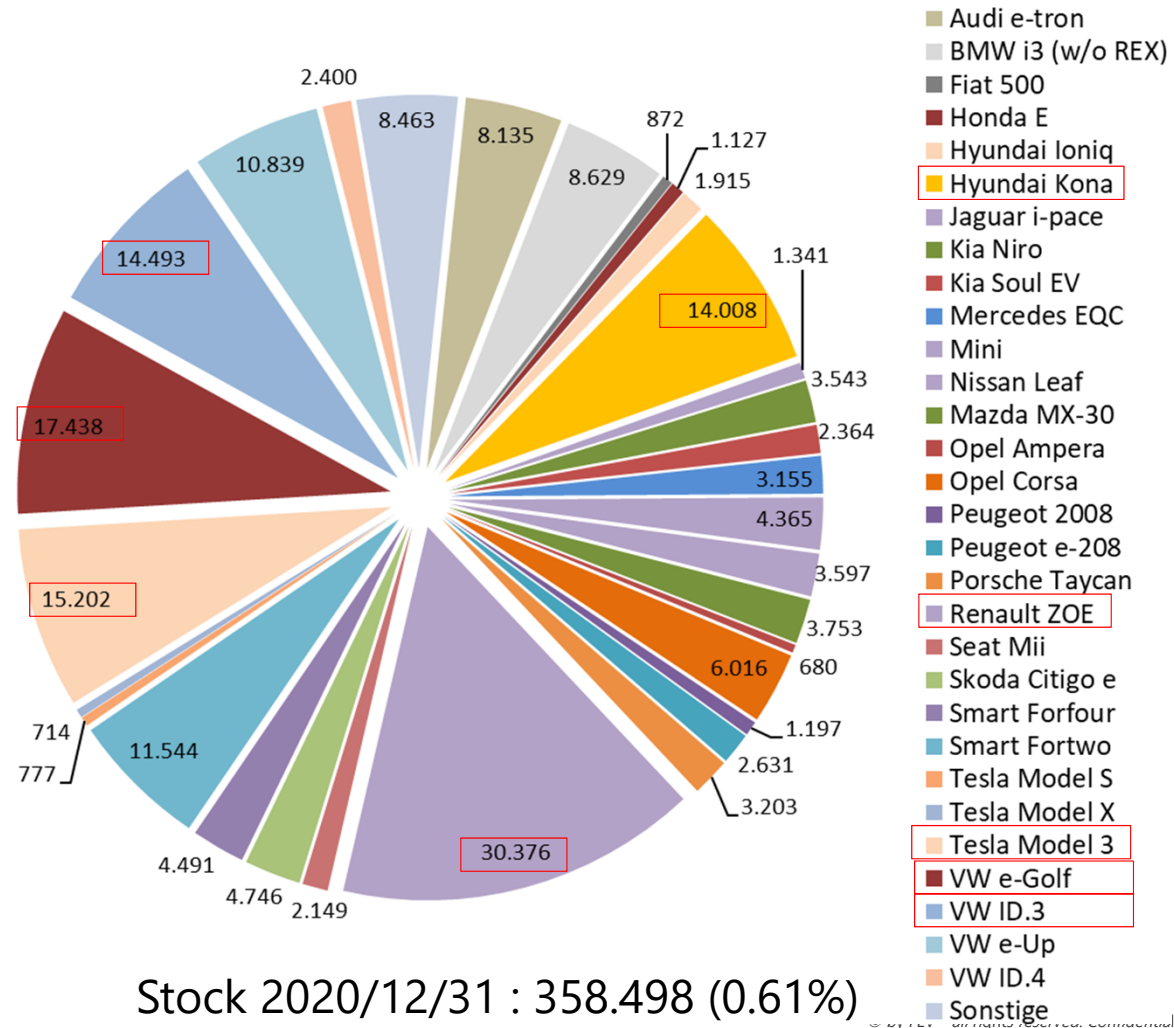
New all Light-Duty Vehicles:
3.61 Millions
BEV: 63,281 (1.75%)

Stock 2019/12/31 : 136.617 (0.28%)

Source: Own diagramm according to Kraftfahrt-Bundesamt, Flensburg, 2020

Kölch, Oct 5th 2021

New Registrations 2020 BEV in D



New all Light-Duty Vehicles:
2.92 Millions
BEV: 194,163 (6.65%)

Stock 2020/12/31 : 358.498 (0.61%)

Source: Own diagramm according to Kraftfahrt-Bundesamt, Flensburg, 2021

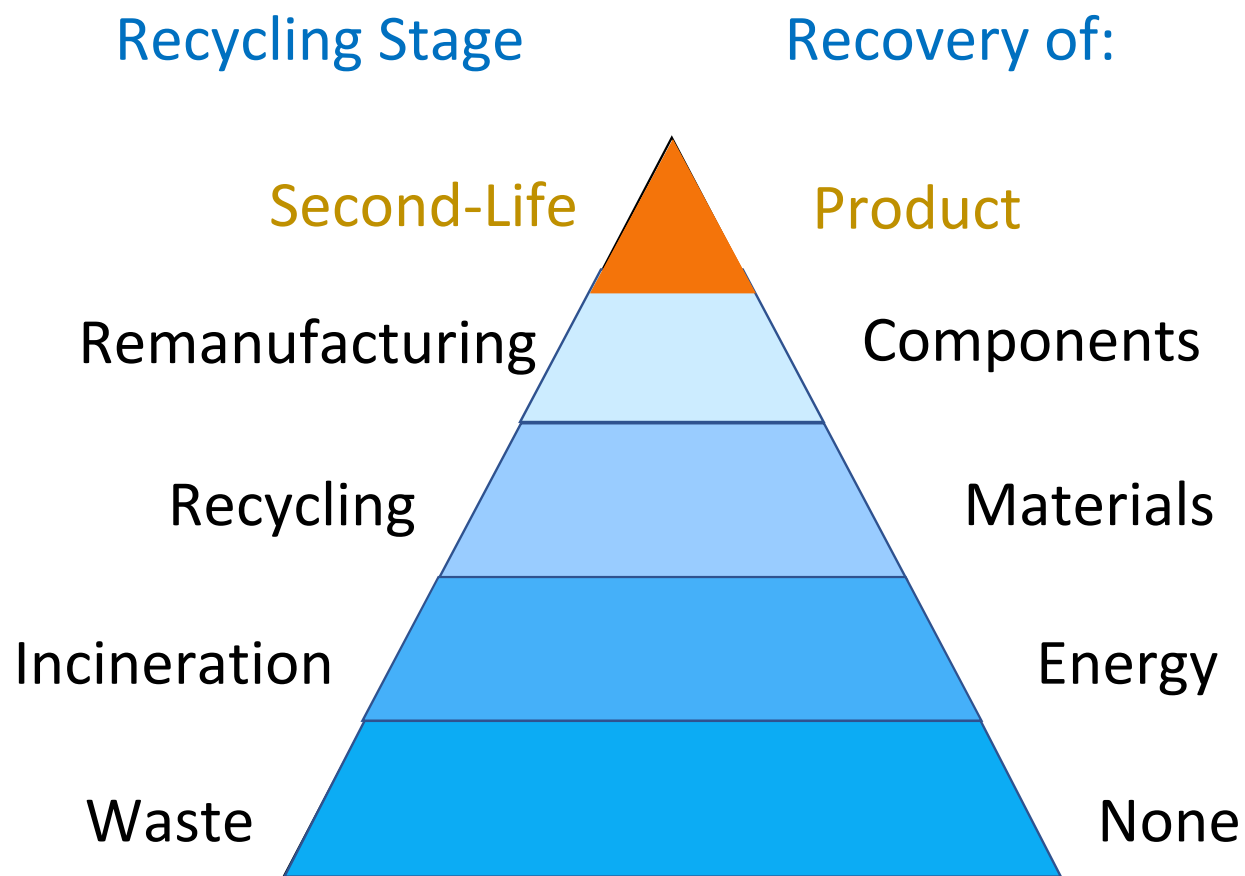
Current BEV models: increasing the capacity

Nissan Leaf	24 kWh 175/199 km	→	30 kWh 250 km	→	40 kWh 378 km	→	62 kWh 385 km*
BMW i3 / i3s	19 kWh 190 km	→	27 kWh >280 km	→	38 kWh 270-310 km*		
Renault Zoe	21 kWh 210-240 km	→	41 kWh 370-403 km	→	52 kWh 342 km*		
Tesla Model S	75 kWh 490 km	→	85 kWh 528 km	→	90 kWh 560 km	→	100 kWh 610 km*

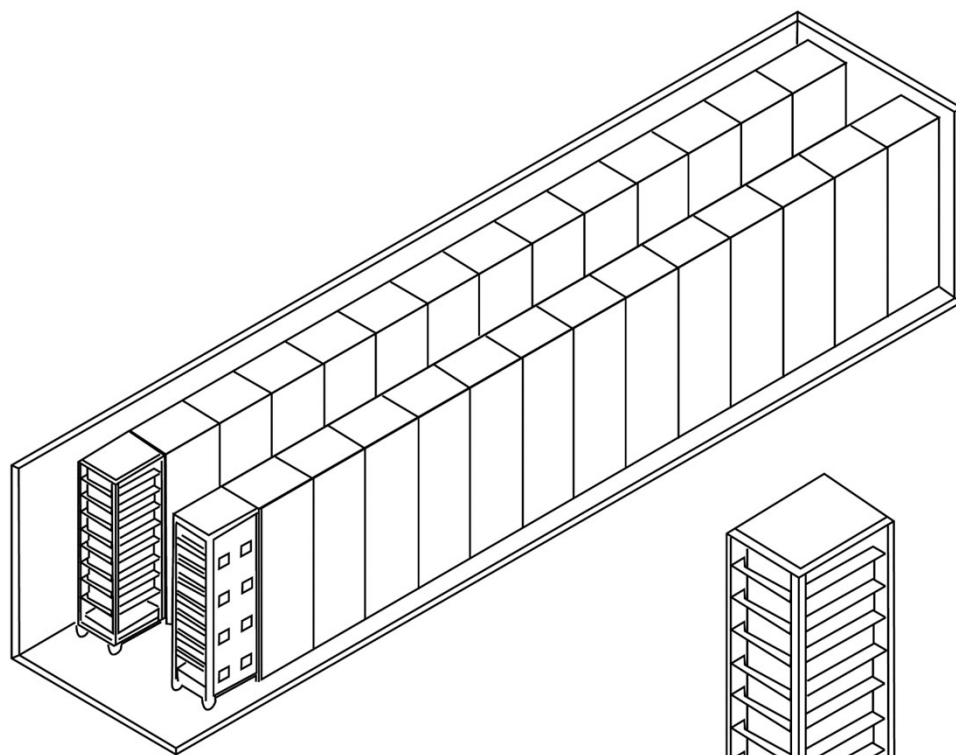
Battery-Capacity
Range in NEDC, *WLTP

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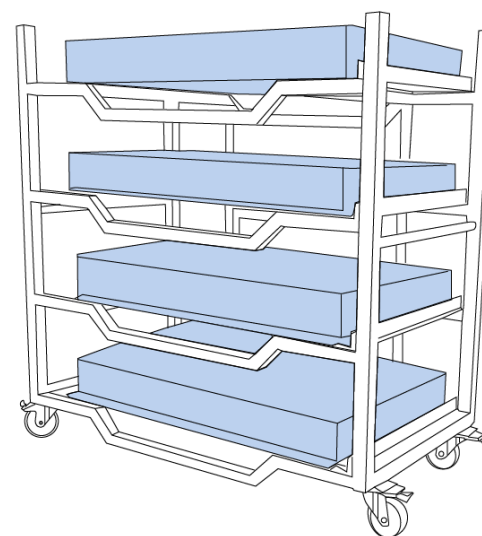
Recycling Pyramid



Geometrical integration battery storage



Battery cabinets with individual modules



Rack construction with complete electric vehicle batteries

Plant in Hamburg



Source: BMW Presseportal

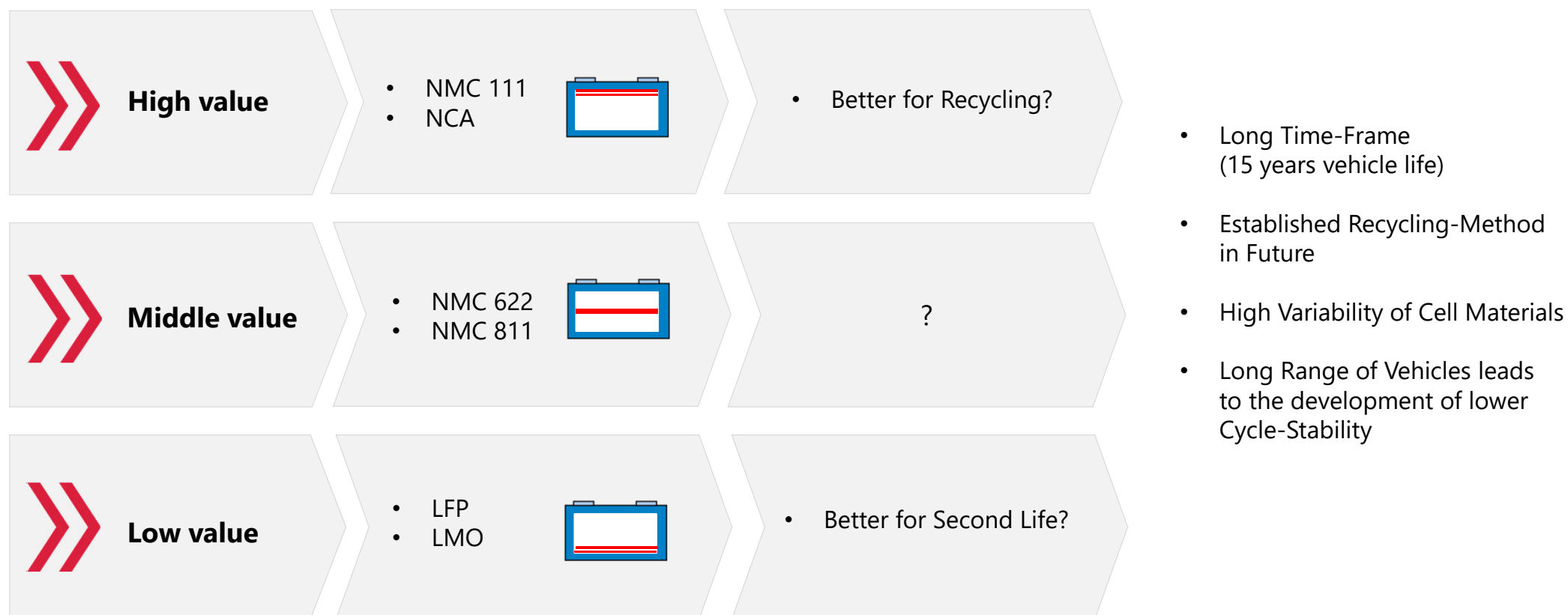
Köln, Oct 5th 2021

Plant in Florida



Possible triggers for Recycling or Second Life

ON CATHODE-MATERIALS



Summary

The subject of energy storage will become more and more important in the future, especially in the stronger awareness of climate change.

Battery capacities in current e-vehicles are steadily increasing. Increase of old but still functioning batteries.

However, the total number of e-vehicles in Germany in the stock is still manageable.

Remanufacturing is still a completely new field.

Both recycling and second life will play an important role in the future.

ANY QUESTIONS?



Dr.-Ing.

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