

TOTAL STRATEGY FOR

# SUSTAINABLE MOBILITY

2019



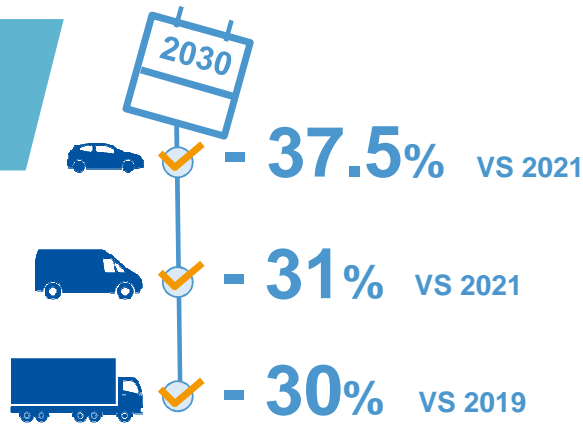


# MOBILITY SECTOR: THE MAIN CHALLENGES

## Limiting global warming

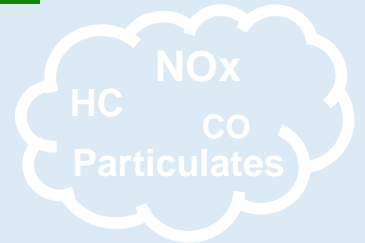
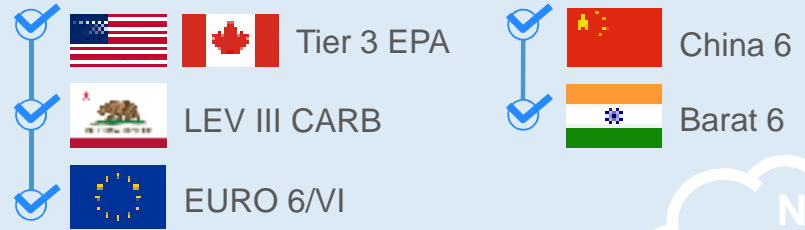
### Fuel economy and GHG emissions standards for vehicles

A global tendency to implement mandatory targets to decrease vehicles' CHG emissions



## Improving air quality

### Pollutants emissions standards



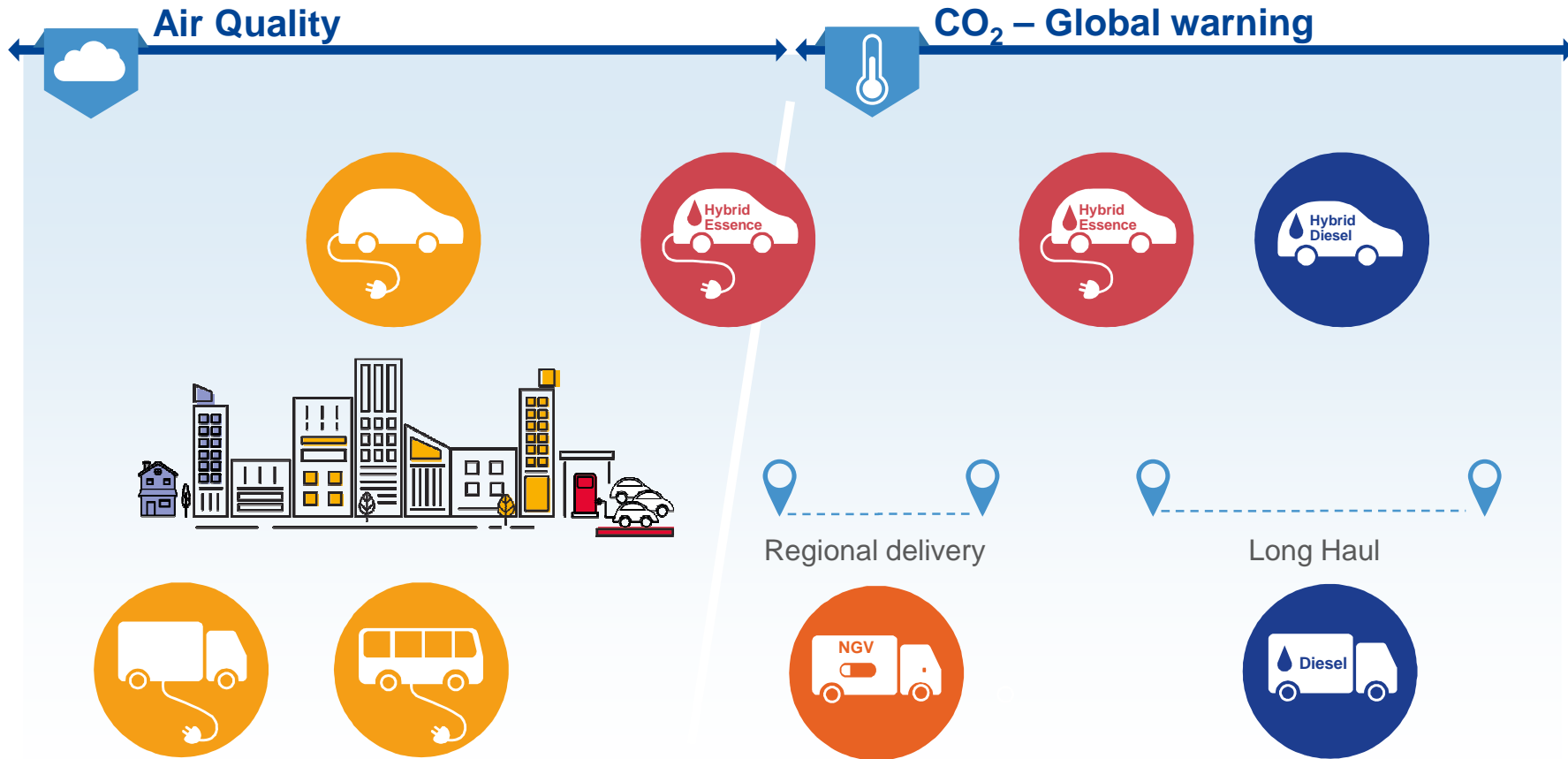
### Promotion of low emissions vehicles

- Zero emission vehicles
- Growing number of restricted traffic area
- Crit'air program in France





# DIFFERENT ENERGIES FOR DIFFERENT PLACES





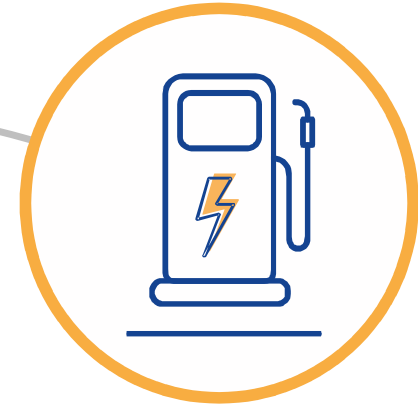
## 3 PILLARS FOR SUSTAINABLE MOBILITY



↳ Improve vehicles **efficiency**



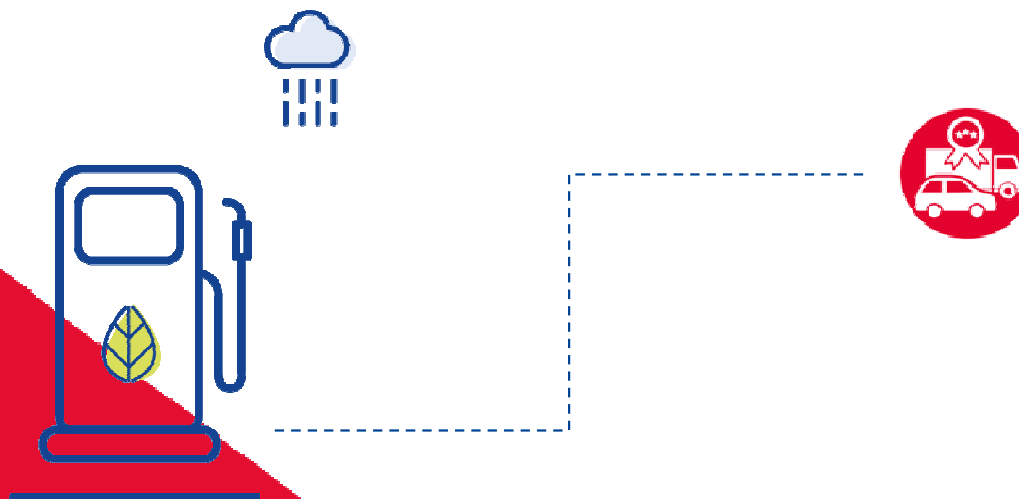
↳ Blend **renewable products**



↳ Develop **alternatives energies**



# TOTAL EXCELLIUM



TOTAL STRATEGY FOR SUSTAINABLE MOBILITY 2019



# TOTAL EXCELLIUM



## TECHNOLOGY

**HIGH QUALITY FUELS** that bring exceptional cleanliness to the engines for:

- Longer lasting engines\*
- Less consumption\*
- Less pollutant and CO<sub>2</sub> emission\*

\* In comparison to a non additized fuel



## OUTLOOK

Vehicles whatever the generation are **sensitive to fouling**

Fuels may incorporate more and more **biofuels**

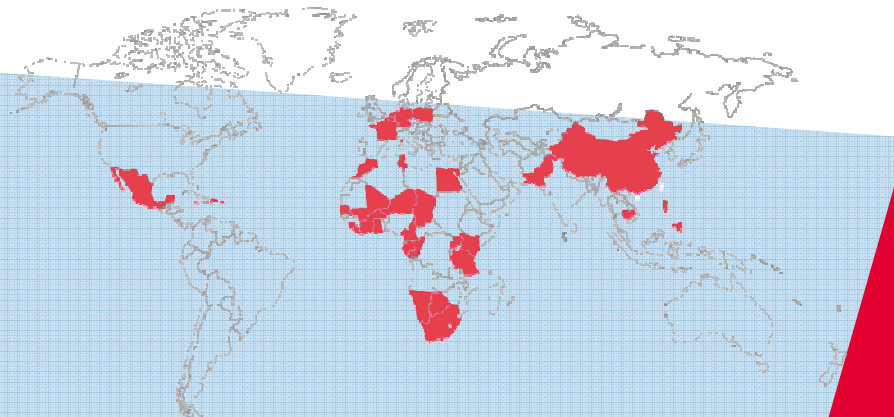
Customer expectations for **high quality fuels** increase

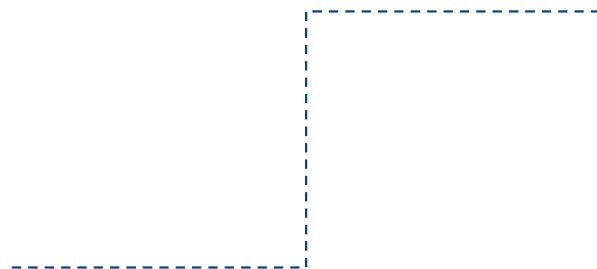
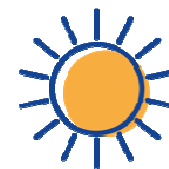
TOTAL R&D DEVELOPS AND IMPROVES ITS **HIGH QUALITY FUELS** TO A CONSTANTLY MOVING ENVIRONMENT



## OFFER

ALREADY PRESENT IN **44** COUNTRIES  
(dec 2018)





# TOTAL B10 E10 E85

TOTAL STRATEGY FOR SUSTAINABLE MOBILITY 2019

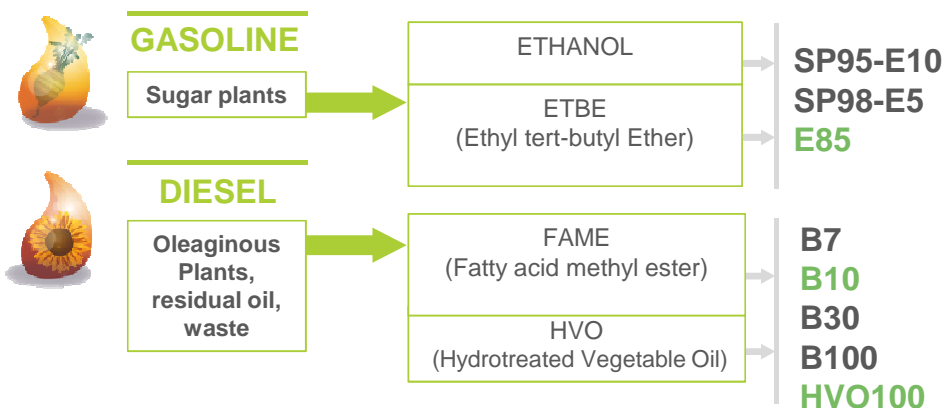




# TOTAL BIO PRODUCTS

## TECHNOLOGY

### HIGH BIO-INCORPORATED FUELS



## OUTLOOK



**A DIRECT ANSWER TO CLIMATE CHALLENGE**

To blend **RENEWABLE FUEL** in our products helps reduce Well to wheel CO<sub>2</sub> emissions

## OFFER

### Biofuels for Total service stations

#### Gasoline E85:

Mainly composed of bioethanol (up to 85%) and 95 unleaded gasoline, the E85 superethanol is compatible with specific adapted vehicles, called "Flex Fuel".

#### TOTAL Diesel B10:

Composed with biocomponents up to 10%, it is compatible with most of Diesel vehicles

### Biofuels for B2B customers

Carburant

#### TOTAL HVO 100

Fully compatible with EN15940 (published in 2016) and all EuroVI Heavy Duty vehicles, it is already available for captive fleets in France





# NATURAL GAS FOR VEHICLES

TOTAL STRATEGY FOR SUSTAINABLE MOBILITY 2019





# NATURAL GAS FOR VEHICLES



## TECHNOLOGY

### CNG

COMPRESSED AT 200 BAR / 250 BAR  
(1L Diesel ⇔ 5L CNG)

Logistics  
Gas grid



Storage  
Pressurized cylinder



Vehicles



### LNG

LIQUEFIED AT **-162°C**  
(1L Diesel ⇔ 1.8L LNG)

Logistics  
Transport by truck



Storage  
Cryogenic tank

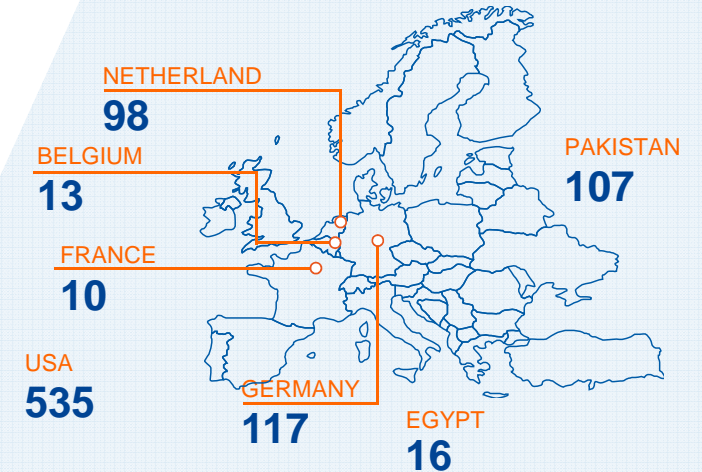


Vehicles



## OFFER

Service stations





# ELECTROMOBILITY

TOTAL STRATEGY FOR SUSTAINABLE MOBILITY 2019





# ELECTROMOBILITY



TECHNOLOGY

## PRIVATE PLACES

**73 – 79 %** of charges  
Main charging (back time task)  
Home, condo, workplace  
**3 to 7 kw**

## PUBLIC PLACES

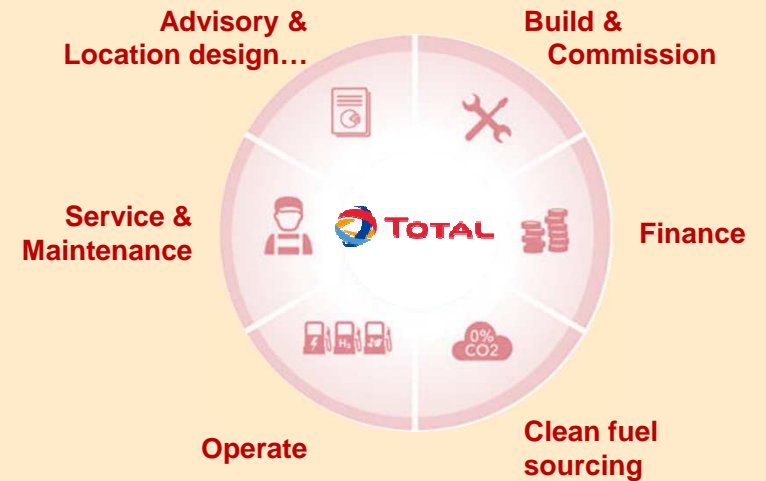
**Slow charge**  
**15 – 25 %** of charges  
Convenience charging (shopping center, street, car park...) – **22kw**

**Fast charge**  
**2 – 6 %** of charges  
Extension of range (service stations)  
**50kw, 175 to 350 kw**



## Full turnkey solutions

↳ from design to operation & maintenance






















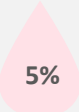
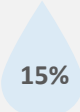

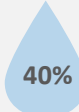

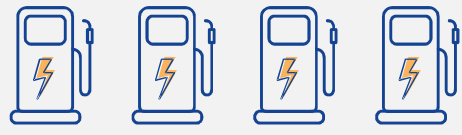




### Additional services

- ↳ Multi-energy & unique billing
- ↳ Fleet monitoring
- ↳ Smart charging (TCO optimization)



# ELECTROMOBILITY REVOLUTIONIZE ENERGY DISTRIBUTION

|              |  <b>CONVENTIONAL FUELS</b>   |  <b>ELECTROMOBILITY</b>  |   |  |  |
|--------------|---|---|---|--|--|
| SERVICES     |     |          |   |  |  |
| INFRA        | <b>B2B &amp; B2C</b><br><br>Service Stations   | <b>B2B &amp; B2C</b><br><br>Service Stations  | <b>B2B &amp; B2C</b><br><br>Public infra | <b>B2B &amp; B2C (employees)</b><br><br>Retail & Enterprise | <b>B2C &amp; B2B (company car)</b><br><br>Home, residential |
| FUELING RATE | <br>100%  | <br>5%  | <br>15%                                 | <br>40%  | <br>40%  |
| SOURCING     |    | <br>Meter Subscription   |   |  | Meter Subscription                                        |

Integrated model



# AMBITION: BECOME ONE OF TOP 3 PLAYERS BY 2025 IN EUROPE

## High Power stations network



**300**  
sites in 2022



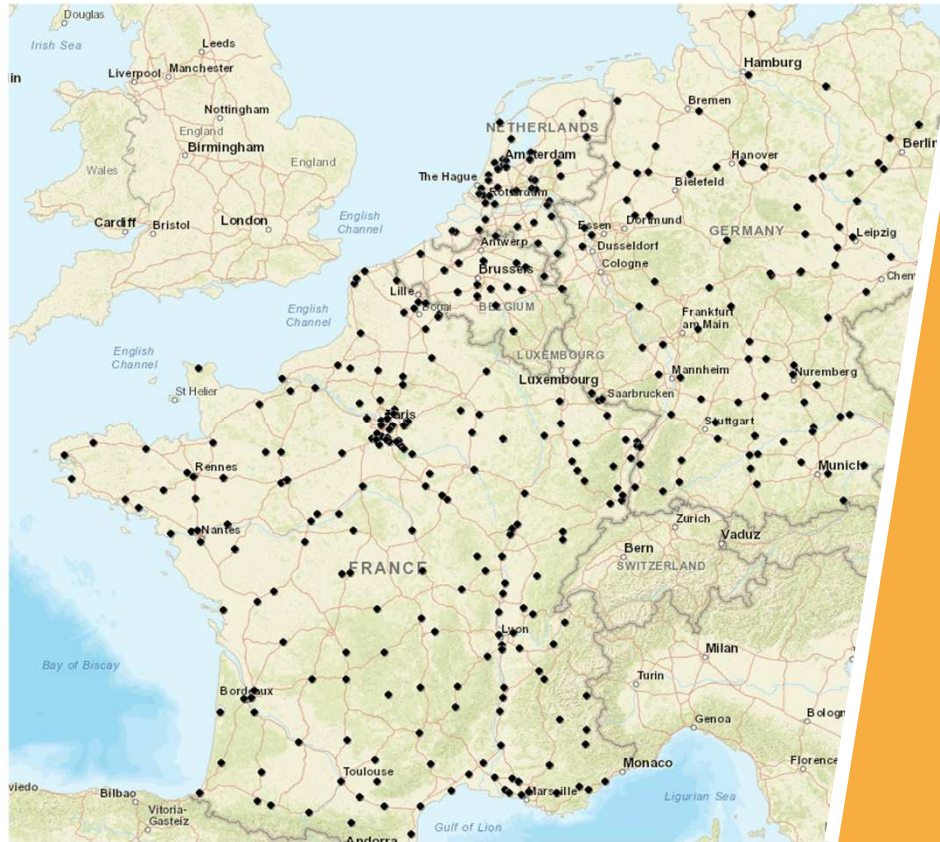
**150 km**  
Inter-distance



**2 to 4**  
HP chargers /  
station



**+175k**  
chargers



## Public or private parking



**170 000**  
OPERATED CPs IN 2025



**7 to 22kW**  
CHARGERS (Full Range)



# HYDROGEN

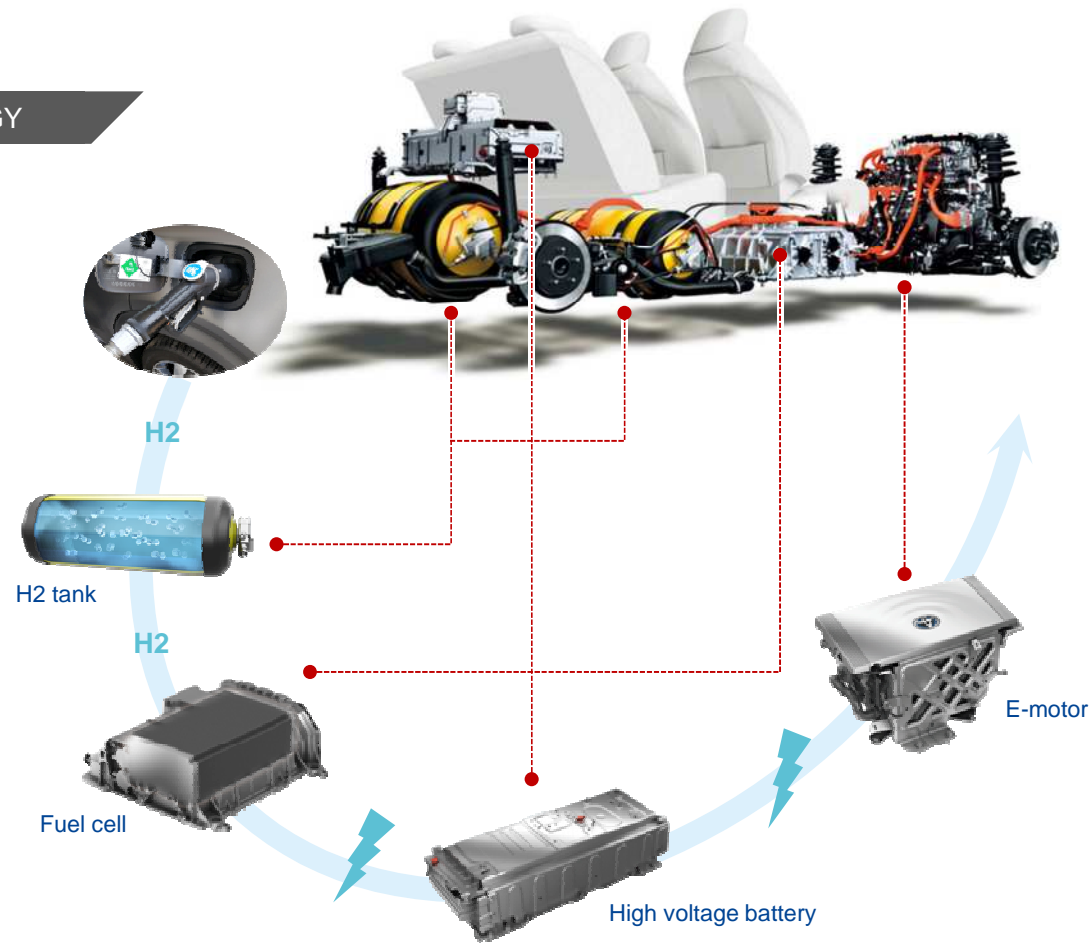
TOTAL STRATEGY FOR SUSTAINABLE MOBILITY 2019



# HYDROGEN



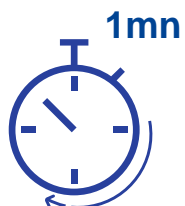
## TECHNOLOGY



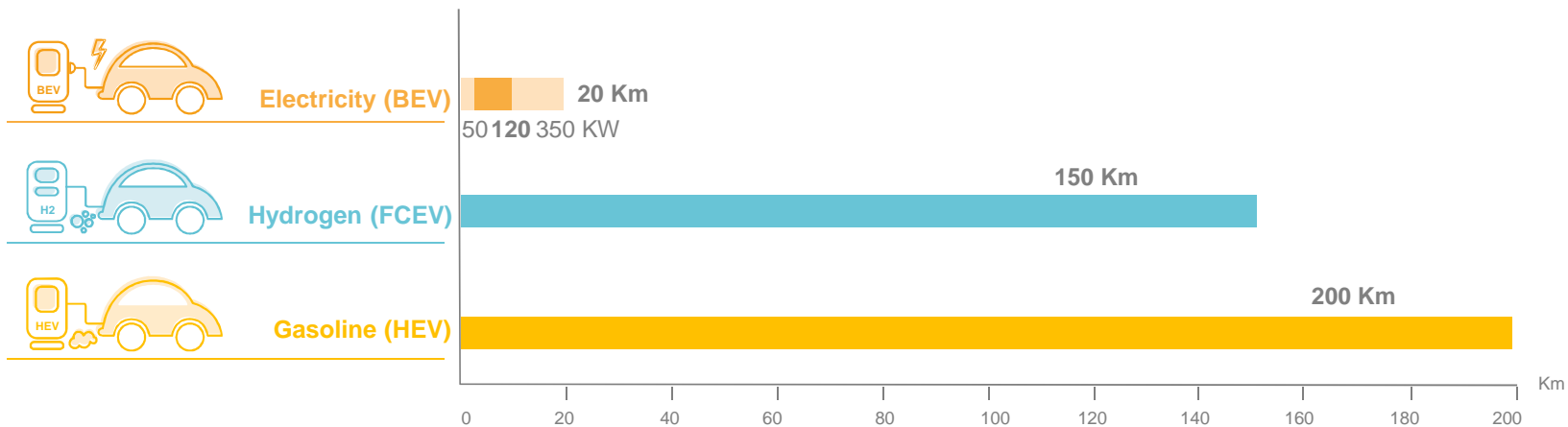




# H2 IN VEHICLES



Km per minute of charging / fueling



Volume required for 100 Km





# HYDROGEN



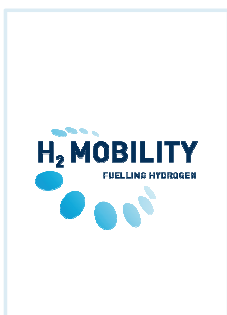
OFFER

MEMBER OF THE **Hydrogen Council**



### Germany

↳ H2 supply stations since 2002



### JV Germany

Foundation in 2015 with 6 shareholders

Target:

↳ **100 H2 stations** for light vehicles (700 bar) by end of 2019 with ~25% in Total network

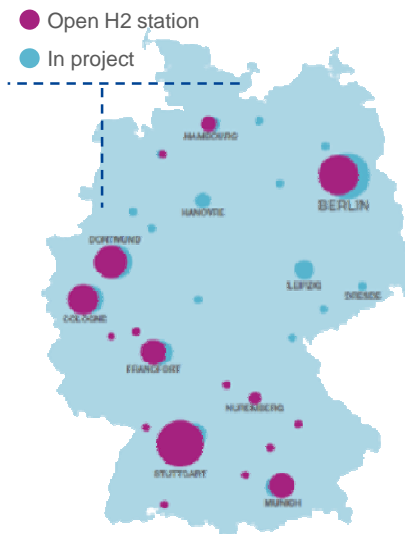
↳ **400 H2 stations and 250.000 FCEV** (only if H2 becomes a mass market)



### Acquisition in 2017

↳ 3 H2 bus stations (350 bar) NI, Be

↳ 4 projects on going

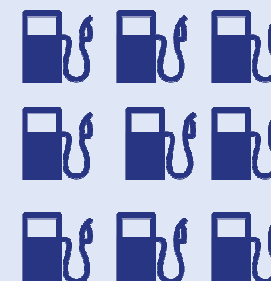


OUTLOOK

Development via local ecosystems which gather captive fleets (buses, LDV,...) and service stations in the same area

**35**  
stations  
in Europe

By end of 2019



# A MULTI ENERGY STRATEGY TO SUPPORT OUR PARTNERS



Turnkey solutions from design to operation & maintenance

### Additional services

- ↳ Multi-energy & unique billing
- ↳ Fleet monitoring
- ↳ Smart charging (TCO optimization)

## Premium fuels



**80%**

Service stations offering  
TOTAL EXCELLIUM by 2021



## Biofuels

**2,4 Mt**

biofuels blended in gasoline & diesel



## Alternative energies

**350 NGV** stations Europe by end of 2022

**300 stations** in Europe with high power charging  
points (150kW+) by end of 2022

**170 000 operated charging points**  
in Europe by 2025



**35 H2 stations** Europe by end of 2019



# RECENT STRATEGIC ACQUISITIONS





THANK YOU FOR  
YOUR ATTENTION !

