

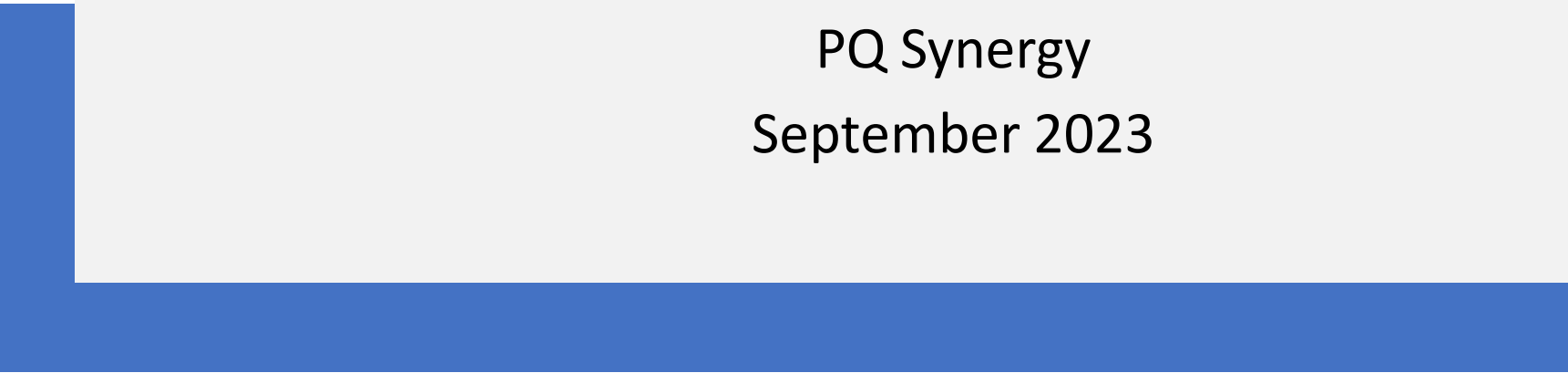


Agenda

1. My personal Experience with Electric Cars
2. The Current State of the Electric Car Industry
3. Challenges and Opportunities
4. The Future of Electric Vehicles
5. Conclusion



I bought a Tesla over 6 years ago.
Would I do it again?



Peter Larsson
PQ Synergy
September 2023

Charging at home is easy

- 240 volts at 40 Amps
- 5-6 hours
- Set to charge at midnight at off-peak price.
- Less than half the price per kilometer (at off-peak price)



DC fast charging – 600 Volt and 250+ Amps

- Typical charging time 20-30 minutes.
- Available space shown on screen for trip planner.
- Often relocated with restaurants and retail shops.
- I like stretching my legs every 3-4 hours anyway.



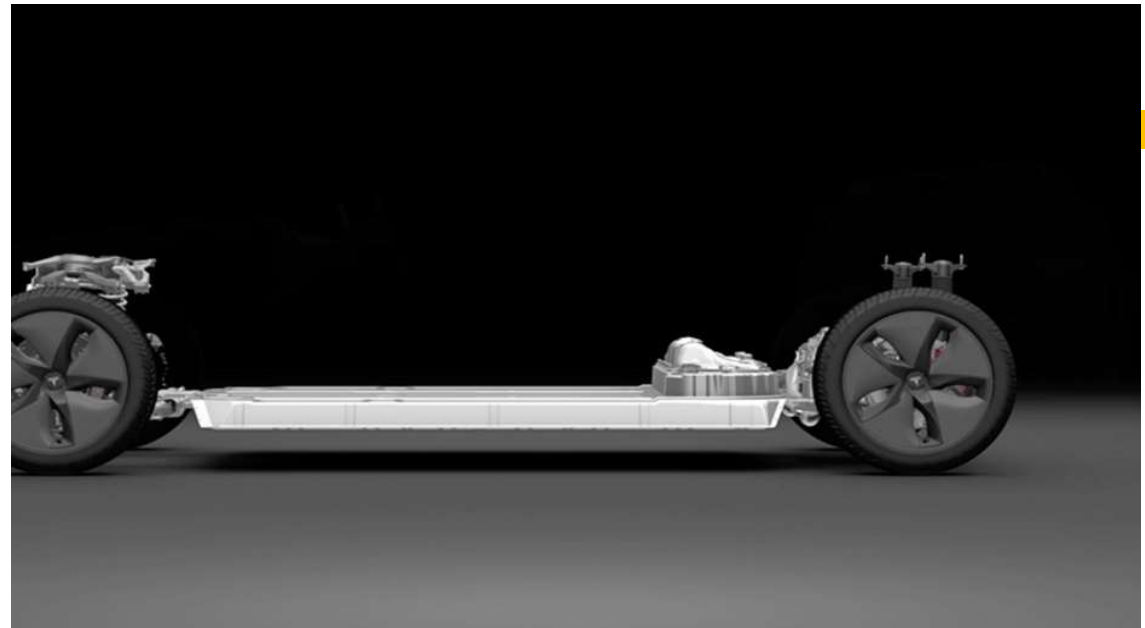
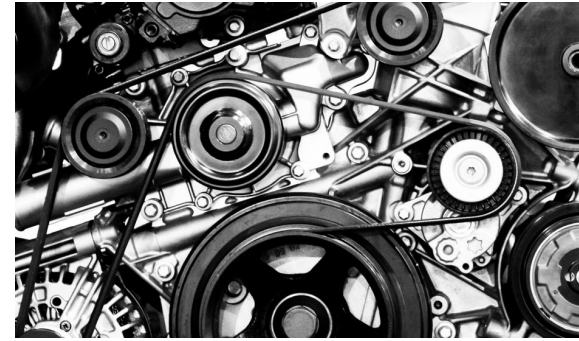
Reliability has been great

- Door locks and mirror replaced at my home.
- No service in 6 years. (no oil to change)
- Range has not been a big issue but once in a strong head wind we almost ran out of battery.

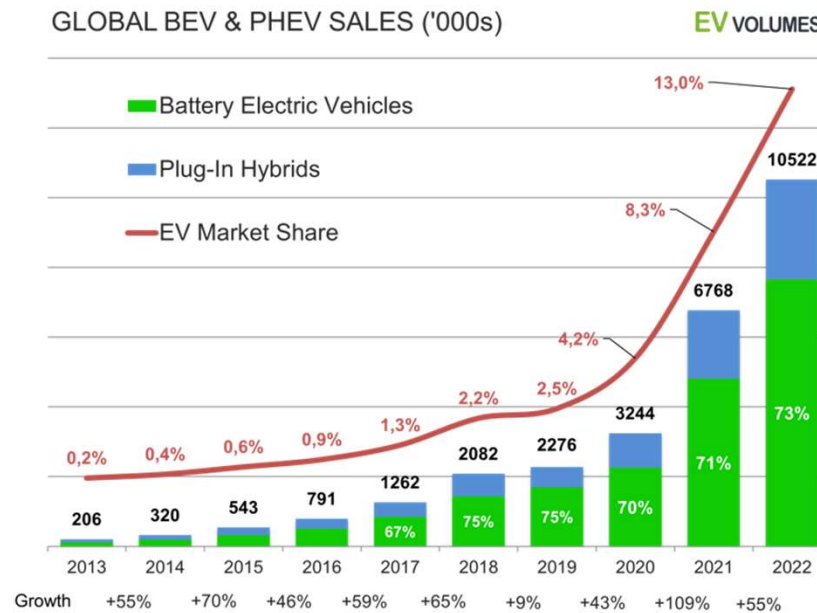


Tesla model platform - 40% of cost is battery.

Few moving parts leads to better reliability and less need for service.

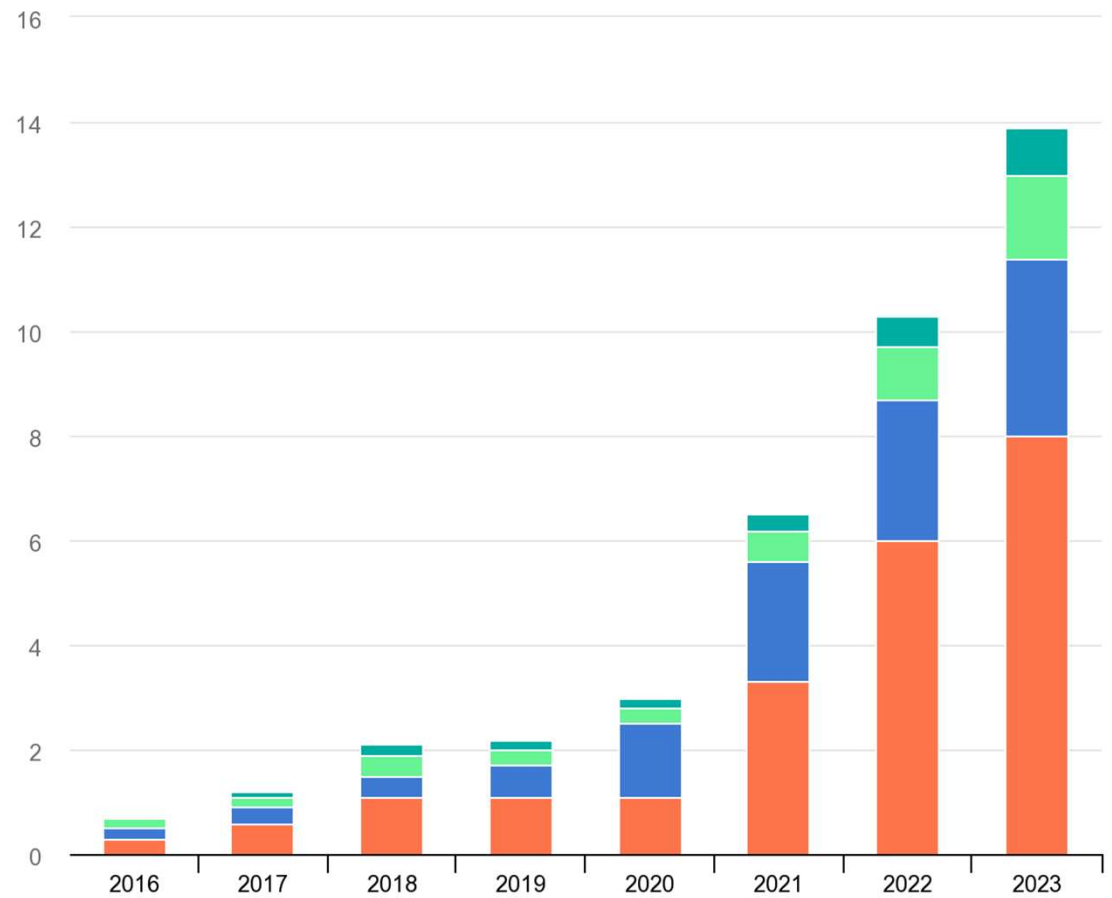


Growth is fast but market share is only 13%



Electric cars are growing fast

-
- **China is leading the trend. (Red)**
- **Europe second (blue)**
- **US third (green)**





Pure EV

1. Tesla: 1,314,330 and 18.2% share (vs 23%)
2. BYD: 913,052 and 12.6% share (vs 7%)
3. SAIC (incl. SAIC-GM-Wuling): 671,725 and 9.3% share (vs 13%)
4. Volkswagen Group: 571,067 and 7.9% share (vs 10%)
5. Geely-Volvo: 383,936 and 5.3% share



Plug in Hybrid

1. BYD: 1,857,549 and 18.4% share (vs 9.1%)
 2. Tesla: 1,314,330 and 13.0% share (vs 16.0%)
 3. Volkswagen Group: 831,844 and 8.2% share (vs 13.0%)
 4. SAIC (incl. SAIC-GM-Wuling): 724,911 and 7.2% share (vs 10.5%)
 5. Geely-Volvo: 606,114 and 6.0% share
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Growth will accelerate in 2025

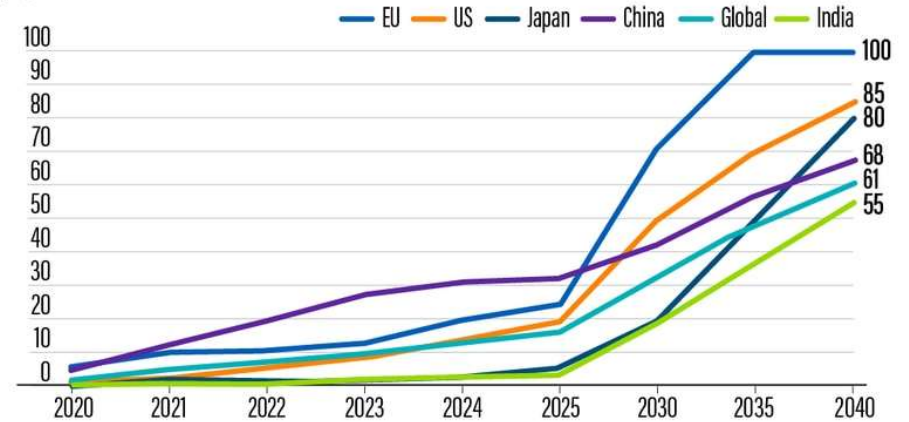
- Europe mandates 100% electric by 2035
- California will also mandate 100% by 2035

(Terry would call it the land of fruits and nuts)

- US growth will jump when big 3 get new products online. (Ford, GM and Chrysler)
- Not sure if China will be slowing down

(big driver in China is pollution/government)

THE SHIFT TO ELECTRIC VEHICLES IS FORECAST TO ACCELERATE (%)



Source: IHS, Global Insight, Goldman Sachs Research

Role of government

- Mandates for end of ICE cars
- Provide incentives
 - Bus lanes free
 - Norway gave free parking in Oslo
 - Tax credits/reduced road tax
- Capital support for charging stations.



Positives for Electric cars



Pros - Environment

Zero emissions

Reduced air pollution

Lower carbon footprint (depends on source of electricity)



S Pros - Cost Savings

Lower fuel costs (about half)

Reduced maintenance

Potential tax incentives and rebates (we got about 15% in tax credits from US and California)

Positives for Electric cars

Energy Efficiency

- Electric motors vs. internal combustion engines
- Regenerative braking

Convenience

- Home charging
- Instant torque and smooth acceleration



Potential Negatives for electric cars

Limited Range

- Range anxiety

Charging Infrastructure

- Availability of charging stations
- Charging time vs. refueling time - even with DC fast charge it takes much longer to charge a battery than filling up with petrol.

Source of electricity

- A friend of mine who is very conservative said: **“we call them coal burners”**



My source of
electricity



Potential Negatives for electric cars continued

Upfront Cost

- Battery cost
- But “In a 2017 BNEF analysis, the crossover point was forecast as **2026**. In 2018, the crossover point had moved two years closer to 2024.

Charging Time

- Level 1 vs. Level 2 vs. DC fast charging
- Advancements in fast charging technology

Battery Life

- Longevity of battery
 - 10 year warranty
- Potential degradation over time
 - So far in 6 years only 4 %

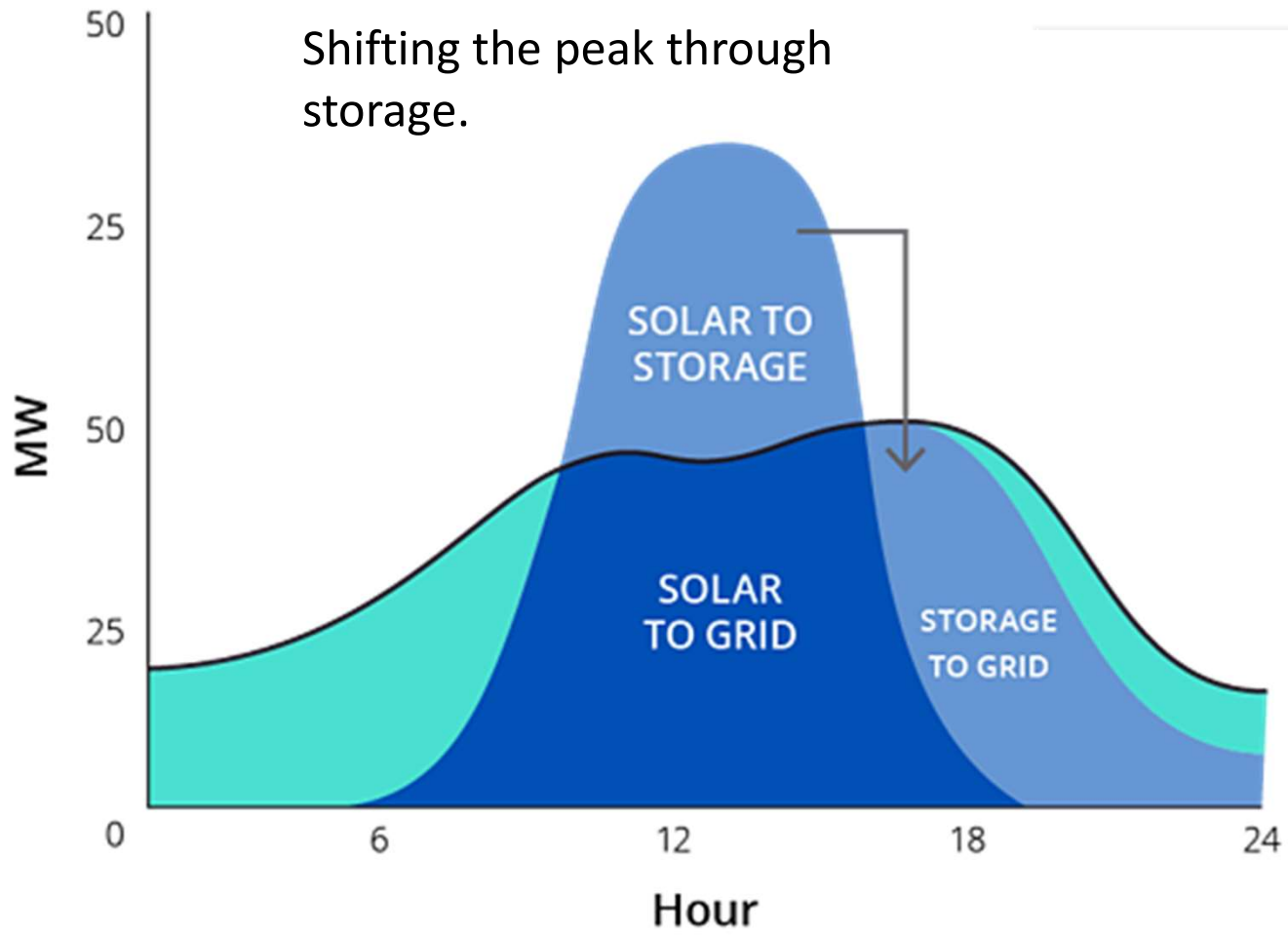


Tesla trip planner

- Shows charging stations and how much you will have in the battery when you arrive.
- Estimates how long you should charge.
- Sends a message when you should return.

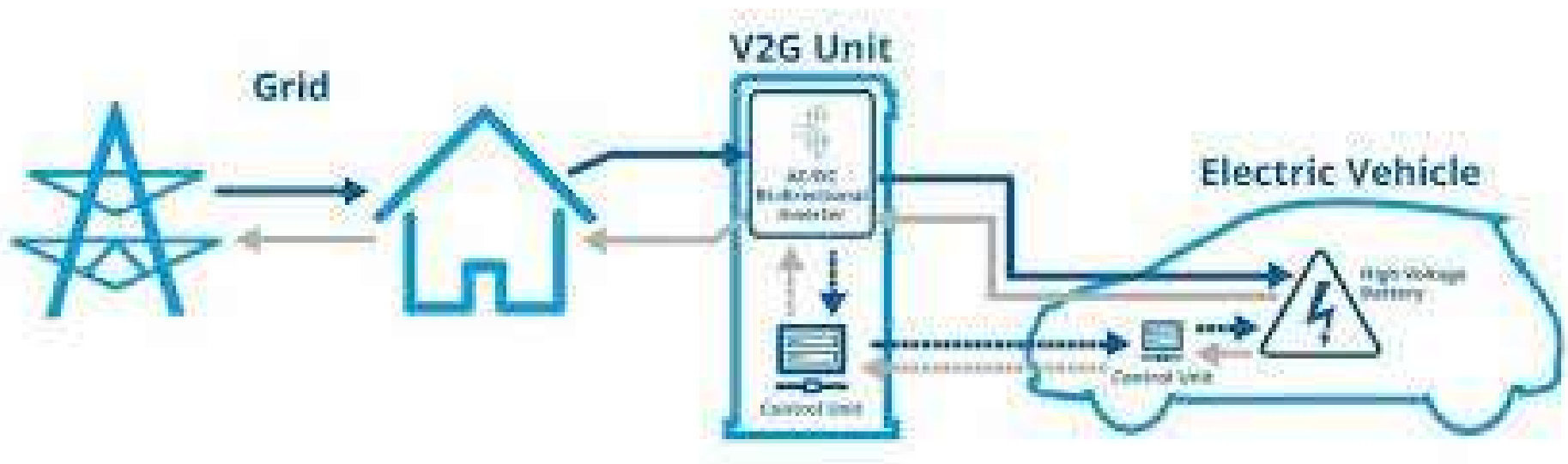


Shifting the peak through storage.

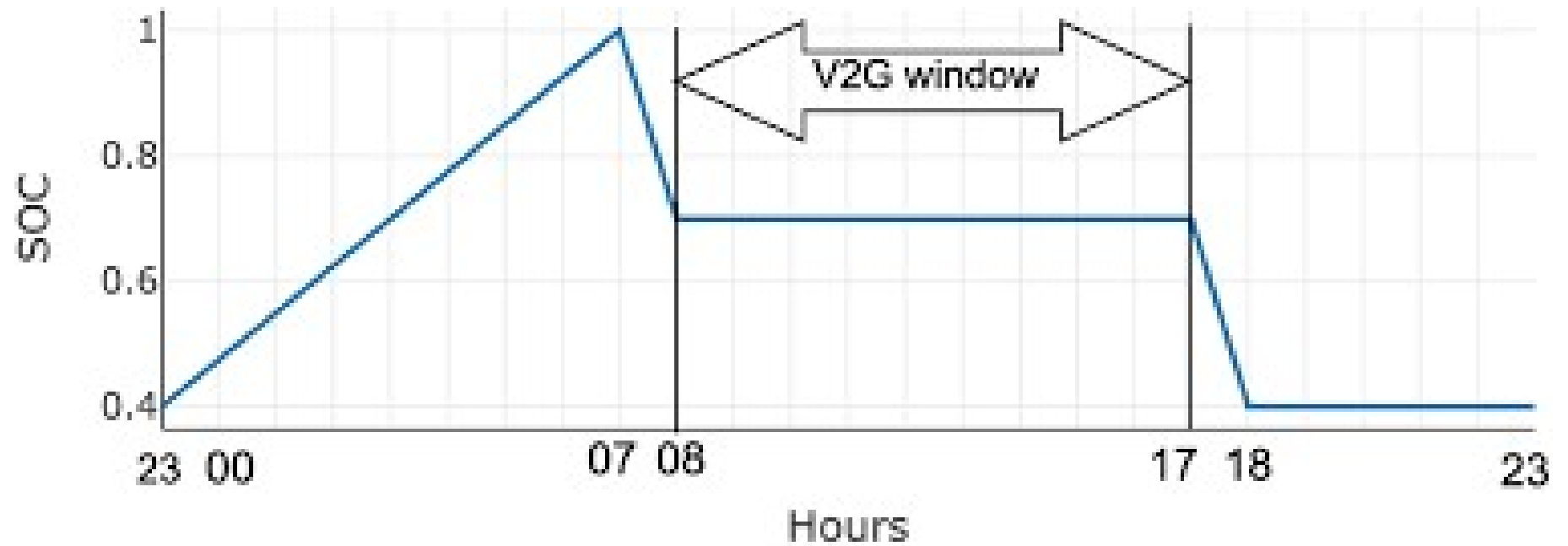


V2G

Vehicle to grid (V2G) storage is going to be multi B\$ industry.

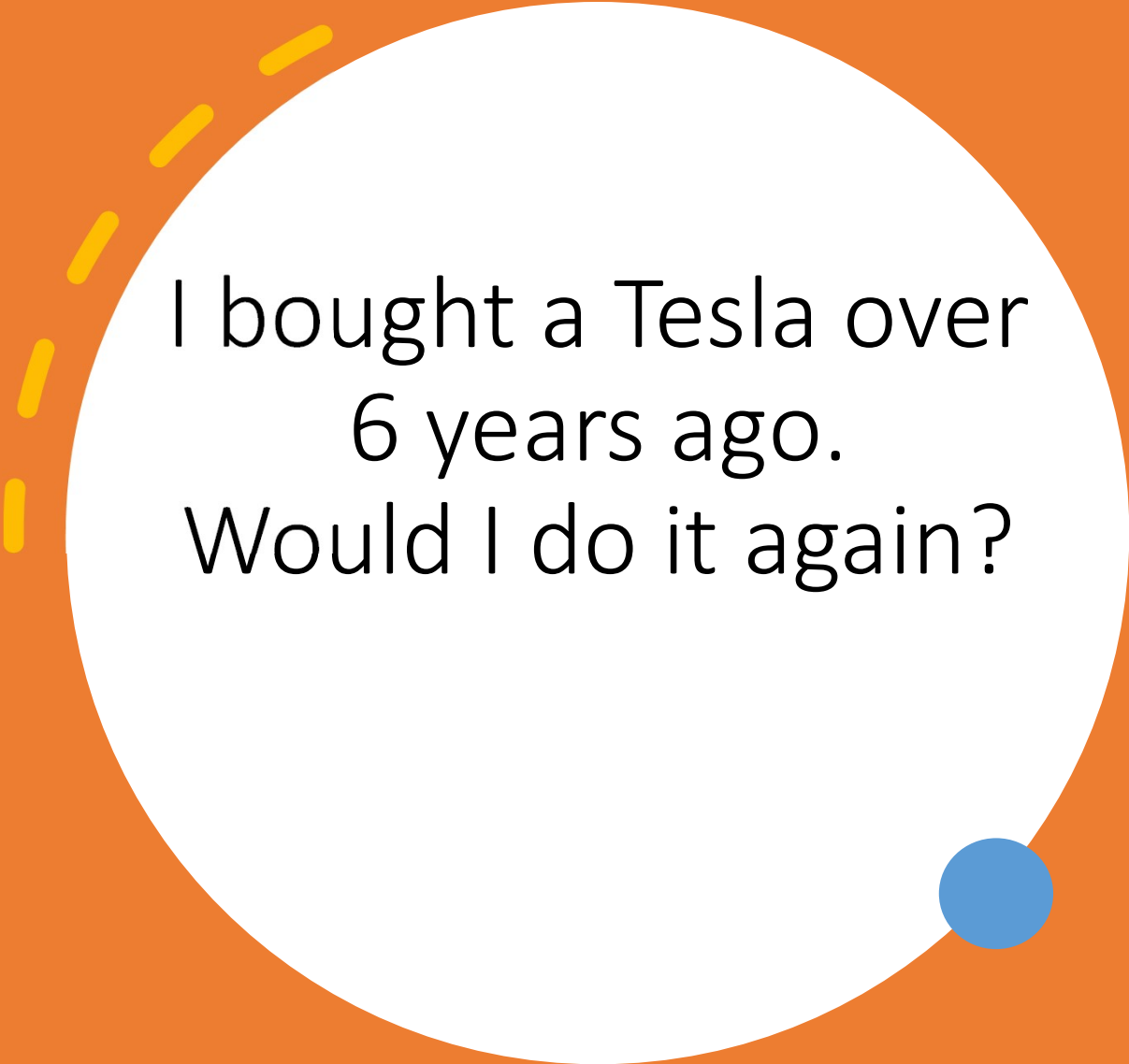


G2V and V2G



- In China, the biggest market in the world for electric vehicles, about half of two- and three-wheeled machines sold were battery-powered in 2021, compared with 16% of new passenger cars
- In India, Indonesia, the Philippines and Vietnam, where two-wheelers outnumber cars by between three and 30 to one, electrifying them can help countries limit air pollution in cities.





I bought a Tesla over
6 years ago.
Would I do it again?

Never ever again petrol

We got the blue one
in 2020



Summary

Electric cars are growing fast

Cost reductions and government mandates/incentives will will accelerate the growth

Cars will be one important source for storage.

For me it has been great. I will never ever go back to a filling station.



Thank You