Shared electric vehicles for all, globally, now!

ASIA CLEAN ENERGY FORUM 2020

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UNEP Emissions Gap Report and recent Intergovernmental Panel on Climate Change (IPCC) reports show that “without a worldwide switch to a zero-emissions electric fleet, we will not meet the Paris climate targets.”

- Rob de Jong, UNEP Head of Air Quality and Mobility
Limited or no grid for electric vehicle fast-chargers worldwide

- Large-scale buildout of fast-chargers takes minimum 10-30 years and is economically and technically not viable in most parts of the world
  - ~70% of the world population without access to EV fast-chargers in the next decades
  - Only industrialized countries and few major cities in China will have a decent fast-charger network

- Due to the limited or missing grid for fast-chargers, there are strong limitations to the roll-out of electric vehicles

Shared electric vehicles for all, globally, now!

A multi-purpose, connected, electric vehicle that works with the existing energy infrastructure (+ range-extender batteries) to solve the problems of limited range, range anxiety and charging time

* Final series vehicle design (preview here) will be presented in August 2020

ALWAYS CHARGED
ACM developed a breakthrough solution for mass adoption of EVs using the existing 220/110V energy infrastructure + range-extender batteries

Innovative vehicle design
- **Lightweight** vehicle with low power requirement
- **Pure electric multipurpose city vehicle**: Passenger-to-cargo conversion, enabling a wide range of use cases like ride-hailing, carsharing and logistics

**Revolutionary energy solution**
- Charge with **existing energy infrastructure** (220/110V) in 4-7 h for 200 km+ range
- Manually **swappable batteries to refuel** in < 5 min and extend range by > 100 km
- Operate globally **without fast-chargers**

**THE CITY-EV ALWAYS CHARGED**

*Final series vehicle design will be presented in August 2020*
ACM developed a fleet data platform that enables fast scaling of fleets, 24/7 energy supply, higher fleet utilization, and value-added services.
ACM offers the cheapest and cleanest km, increased utilization, value-added services, and fast scaling of fleets

**VALUE PROPOSITION**

**Cheapest km**
- Up to 36% reduction of TCO
  - Vehicle purchase price
  - Operations/maintenance costs
  - Energy/fuel costs
  - CO₂ certificates costs

**Cleanest km**
- 70% reduction of CO₂ emission / zero CO₂ possible
  - Compliance with regulations
  - “Green” image

**Increased utilization**
- Reliable energy supply
  - 17–20 h operations without charging
  - 24/7 operations possible with battery swap solutions

**Value-added services**
- Additional revenues through digital real-time advertisement
  - On-board interactive infotainment screen
  - Exterior electronic advertisement screen

**Fast scaling of fleets**
- Operation of large EV fleets through fleet data platform
  - Connectivity of vehicles
  - Battery management
  - Fleet management
  - Vehicle management

**Multipurpose vehicle**
- Passenger-to-cargo conversion
- Fleet sharing among operators

**Fleet operations cost savings**
- Negotiation of preferred rates e.g. repair, insurance, data for connected vehicles

**Utilization ACM**
- +25%
- Fleet utilization today 50%

**Source:** Study "Wirtschaftlichkeit von Elektromobilität in gewerblichen Anwendungen“ Öko-Institut, Dialoginstitut, VDE Feb. 2015
ACM offers the cheapest km:
Up to 36% reduction of total cost of ownership (TCO)

Source: Study "Wirtschaftlichkeit von Elektromobilität in gewerblichen Anwendungen" Öko-Institut, Dialoginstitut, VDE Feb. 2015
ACM offers the cleanest km:
70% reduction of CO₂-emission / zero CO₂ possible

*Up to 100% reduction of CO₂-emission possible if batteries charged with 100% renewable energy

Source: Study "Wirtschaftlichkeit von Elektromobilität in gewerblichen Anwendungen" Öko-Institut, Dialoginstitut, VDE Feb. 2015
Corona Impact

1. Commercial fleets catering to cargo logistics have gone up while passenger mobility use case may take time to recover.

2. Due to slump in demand, OEMs have been left with under utilized production capacity and potentially low demand in the next 3 years.

3. Government spending, particularly in emerging economies, will be diverted to alleviate COVID-19 negative impacts. Expected to shrink investments on fast chargers.

4. Economy will see a slow and painful recovery. Expected change in buying behavior towards frugal and pragmatic solutions like during the 1970s and 2008 crisis.

ACM response

1. ACM vehicles are designed for passenger and logistics use cases, giving them a natural hedge to the changing market.

2. ACM’s outsourced manufacturing model will prove to be win-win for both ACM and OEMs.

3. ACM’s energy solution works with home plugs and range extender batteries, giving it an edge as the world waits longer for fast chargers.

4. With high practicality, low cost of ownership and low upfront costs, ACM is best positioned to cater to the changing demands.
Asia Case: India is one of the ideal markets for ACM, with the 10 most polluted cities worldwide

**Tata Motors’ President: Bharat Stage 6 norms to make small diesel cars costly, sales to be affected**
Posted on April 28, 2019 by CarToq Editor

India's car sales decline 16% in April, the worst in eight years: Siam

The slowdown has prompted worries among auto dealers, which do not expect the market to improve soon and have called for leaner inventories

Arindam Maity | New Delhi
Last updated at May 13, 2019 21:00 IST

India has more e-rickshaws than China's e-vehicles fleet

The South Asian nation is home to about 1.5 million battery-powered, three-wheeled rickshaws — a fleet bigger than the total number of electric passenger cars sold in China since 2011.

Bloomberg | October 20, 2018, 10:31 IST

India approves $1.4 billion electric vehicle incentive scheme

Updated on May 12, 2019 04:14 IST (Reader)

The government had set a target in 2017 for all new vehicles to be electric by 2030, but critics said the high cost of batteries and a lack of charging points were major obstacles.

- 10 most polluted cities worldwide in India
- Massive adoption of electric Tuk-Tuks in the past 3 years
  - New norms make diesel cars more costly
  - Lack of viable city cars pushing Tuk-Tuk form factor
  - 1.5 million, unregulated and often dirty-battery based, 3-wheel Tuk-Tuks sold (more than all EVs in operation in China)
- Demonstrated e-fleet demand
  - Fleet operators like OLA constituted e-fleet divisions, but awaiting viable 4-wheeler solutions
  - EV incentive scheme discounts battery costs by 50% (effectively 25% of costs of car + battery)
  - ACM’s data platform can help with an integrated solution: Vehicles, energy sources, users/
Strong political and financial support for ACM from governments and industry players in Germany and Asia

ACM was part of German chancellor’s business delegation to India in 2019......

German Minister for Economy, Peter Altmaier, with ACM’s research car.

ACM receives advice from Sir Ratan Tata, Chairman Emeritus of Tata Group, on optimizing the vehicle for the world market.

eMobility lighthouse project of the German government. Awarded as best German mobility start-up in India in 2017.

... where € 1 Bn German-Indian governmental fund for Green Urban Mobility was announced.
Germany ready to provide 1 billion Euros to India for green urban mobility

India and Germany on Friday agreed to provide financial support to climate initiatives aimed at reducing greenhouse gas emissions, with the latter expressing its readiness to provide one billion euros to India for green urban mobility.

Innovations from the first floor

[...] The ACM project includes not only vehicle and charging technology, but also a communication platform that enables the mobile to be shared. And it includes a sales concept that operates the ACM fleets, ensures a CO2-neutral energy supply as well as maximum capacity utilization through Car-Sharing. [...]
THE CITY-EV ALWAYS CHARGED

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