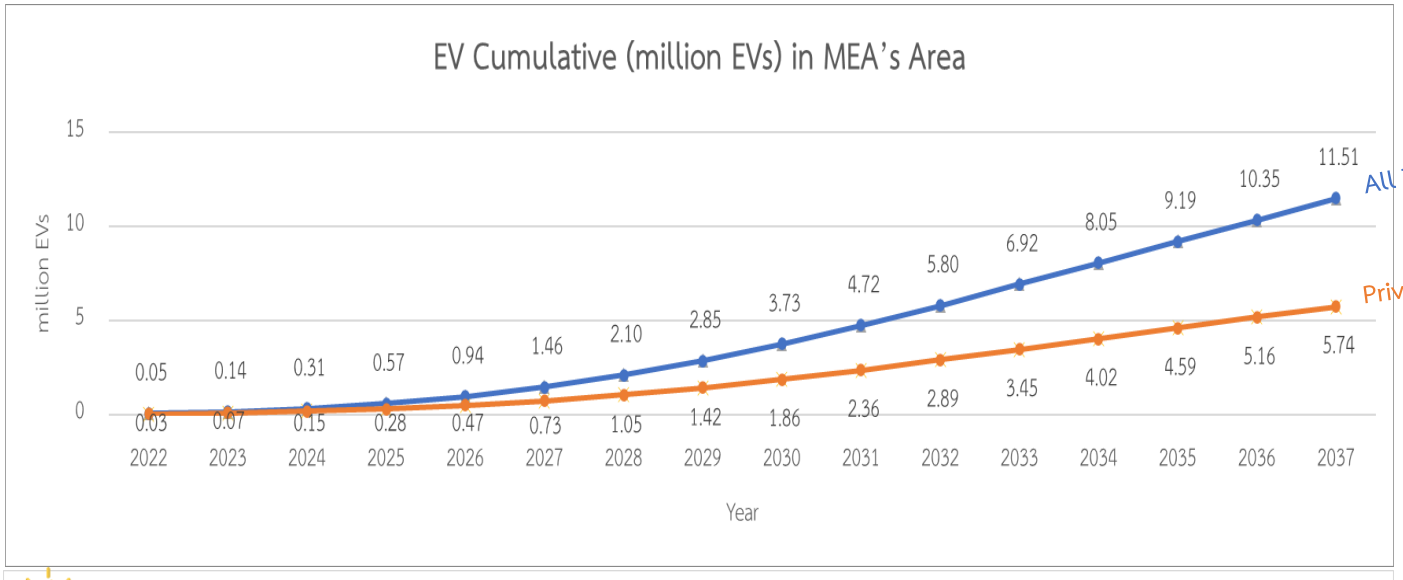
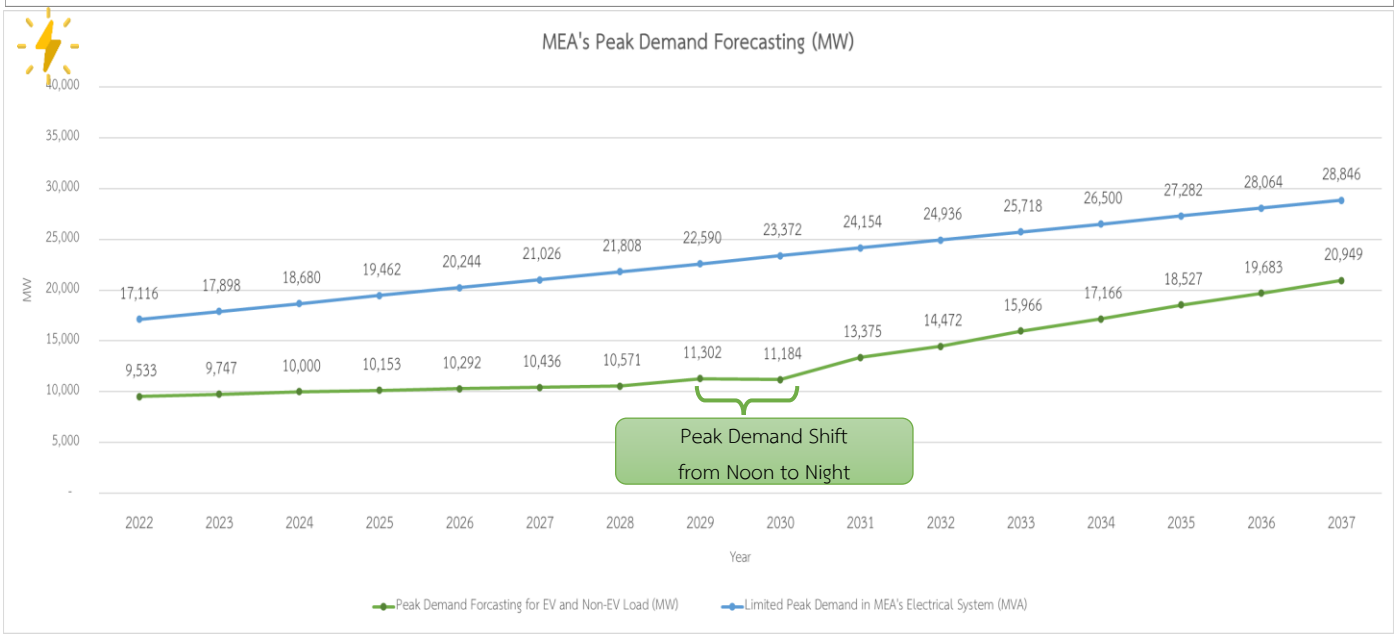
IEEE PES Day 2024

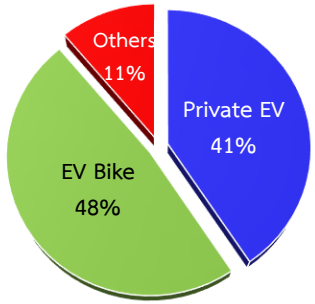
นาย จาตุรงค์ สุริยาศศิน

รองผู้ว่าการธุรกิจ

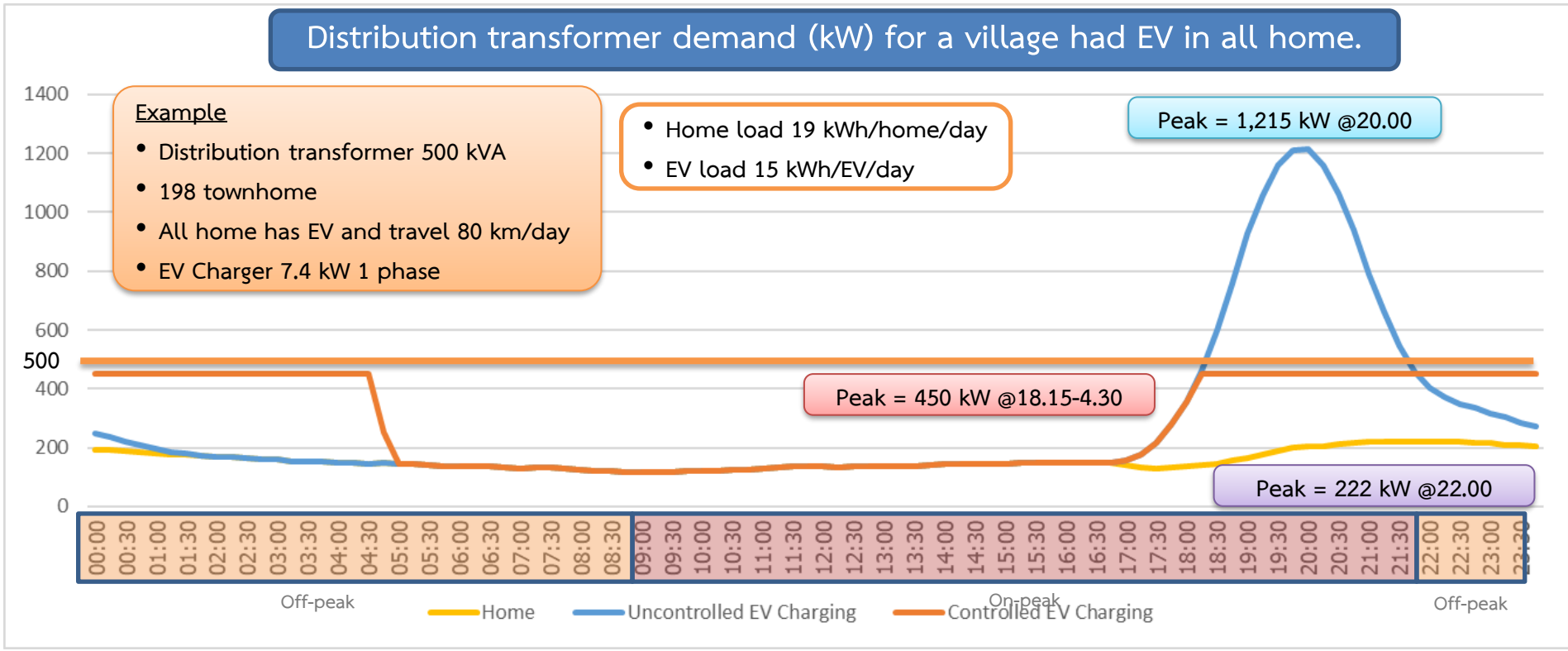




EV Cumulative in MEA's Area

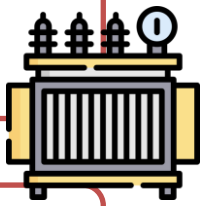


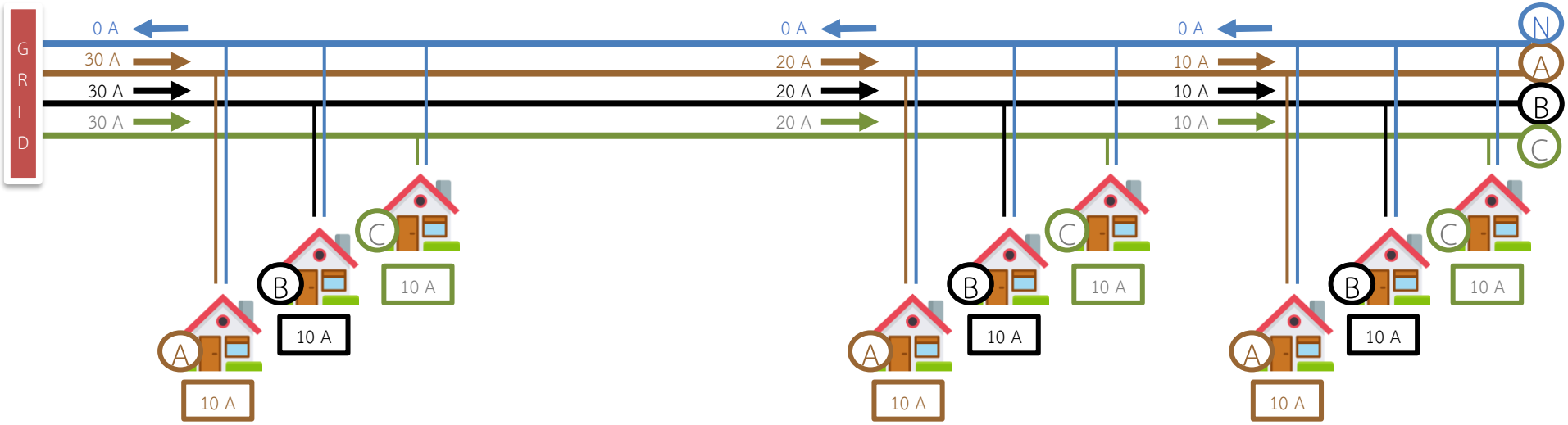
Why we need “Smart Charging” ?



EV Impacts on Power Grids

1. Overload of Distribution Network Components	Distribution transformers are the one component that may have not enough capacity to supply EV.
2. Voltage Drop	In rural area or the long distribution line.
3. Phase Unbalance	Many EV Chargers are 1-phase.
4. Power Quality Problem	More power electronics devices in power system that cause THD problem.




GRID
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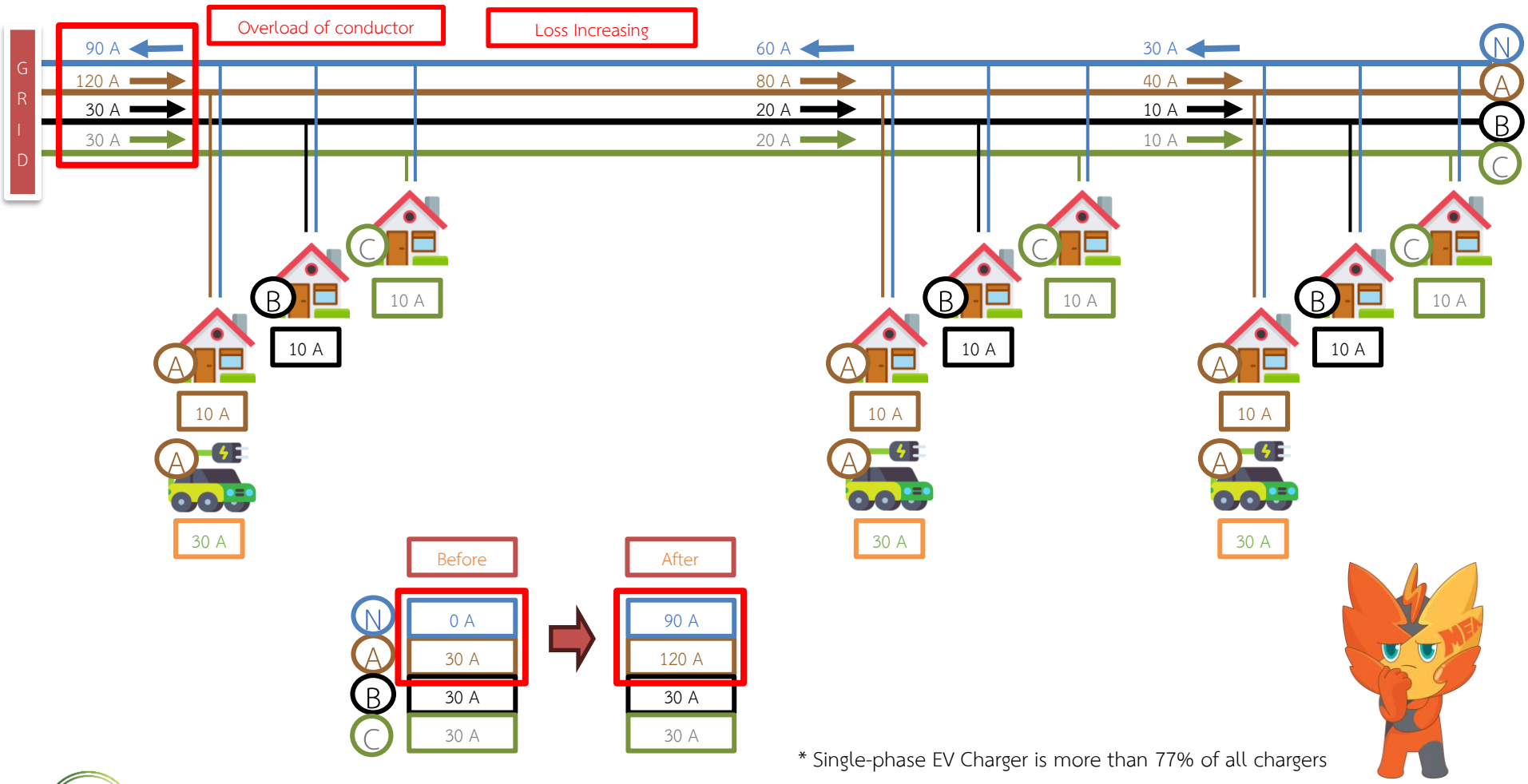
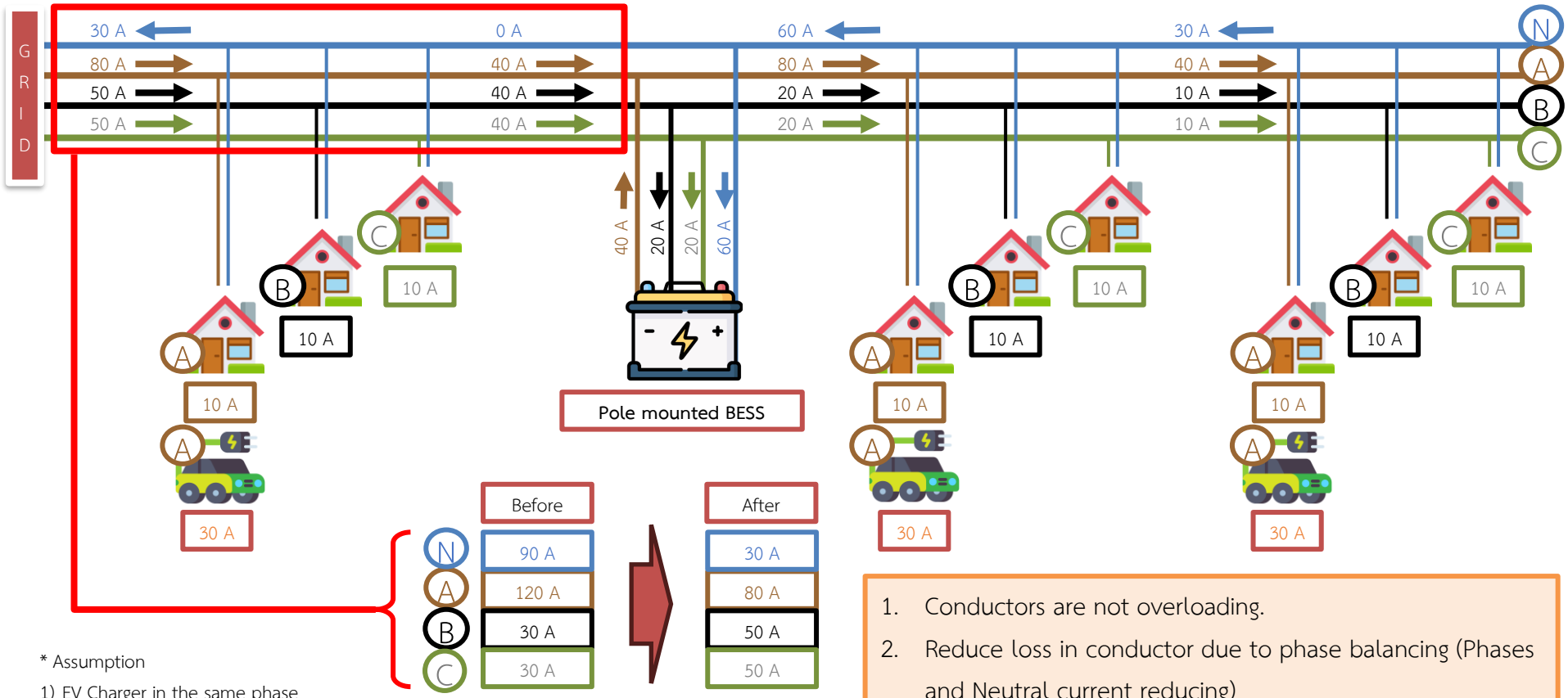
EV Charger are Connected to Phase A



* Single-phase EV Charger is more than 77% of all chargers

Battery Energy Storage System

Phase Balancing from BESS

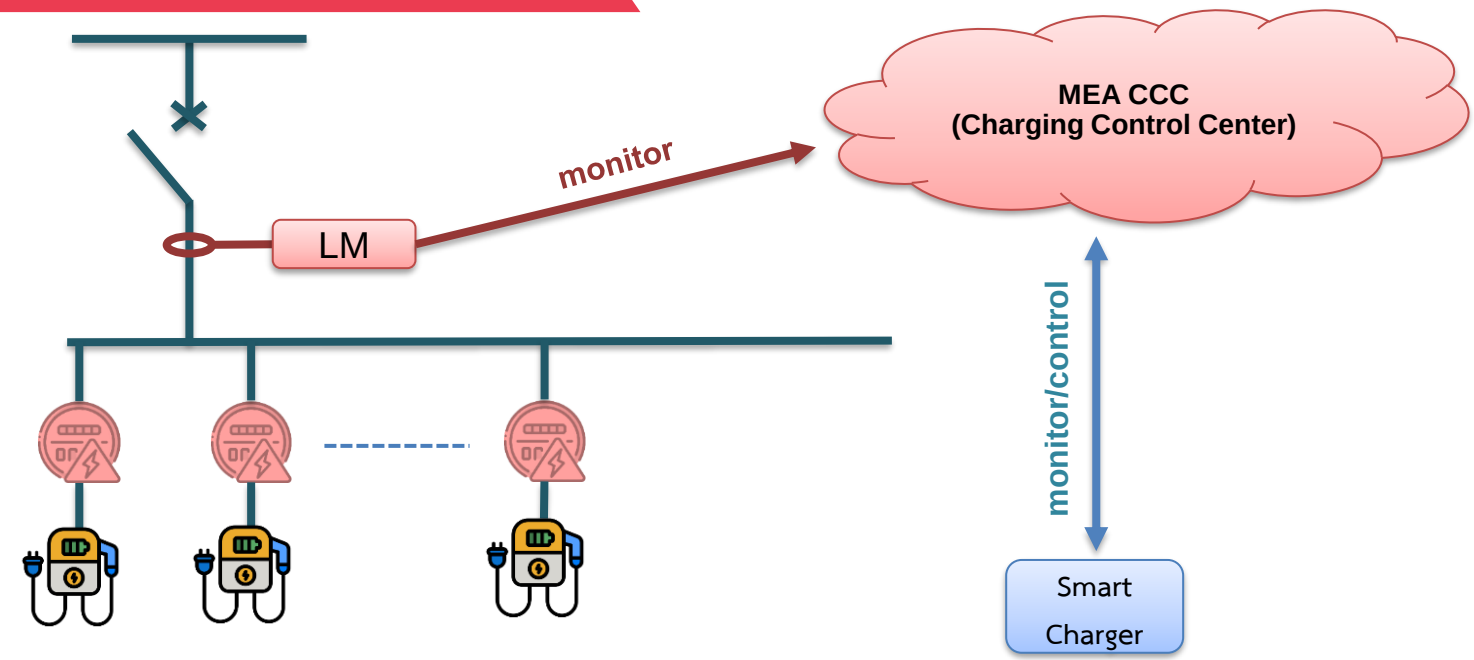


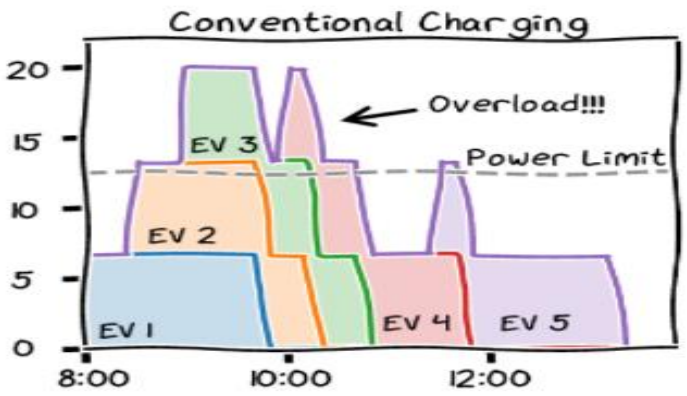
* Assumption

1) EV Charger in the same phase
2) Charging at the same time
3) Drive 80 km/day (charge 2 hr./day)

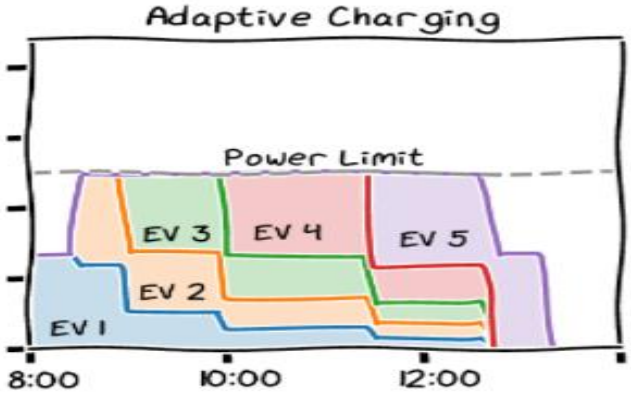
1. Conductors are not overloading.
2. Reduce loss in conductor due to phase balancing (Phases and Neutral current reducing)
3. Reduce voltage drop problem

Application Smart charging with TLM



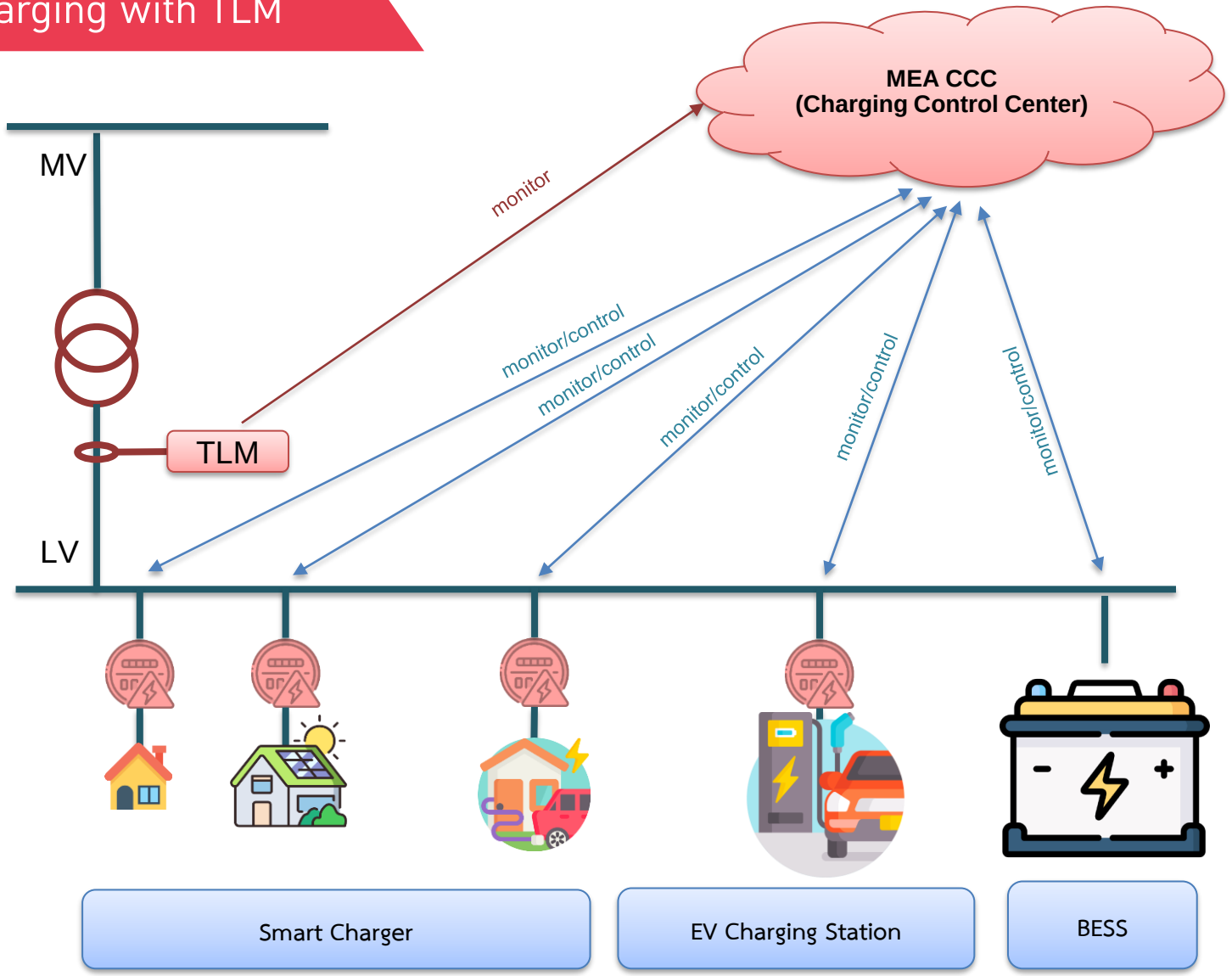


Uncontrolled

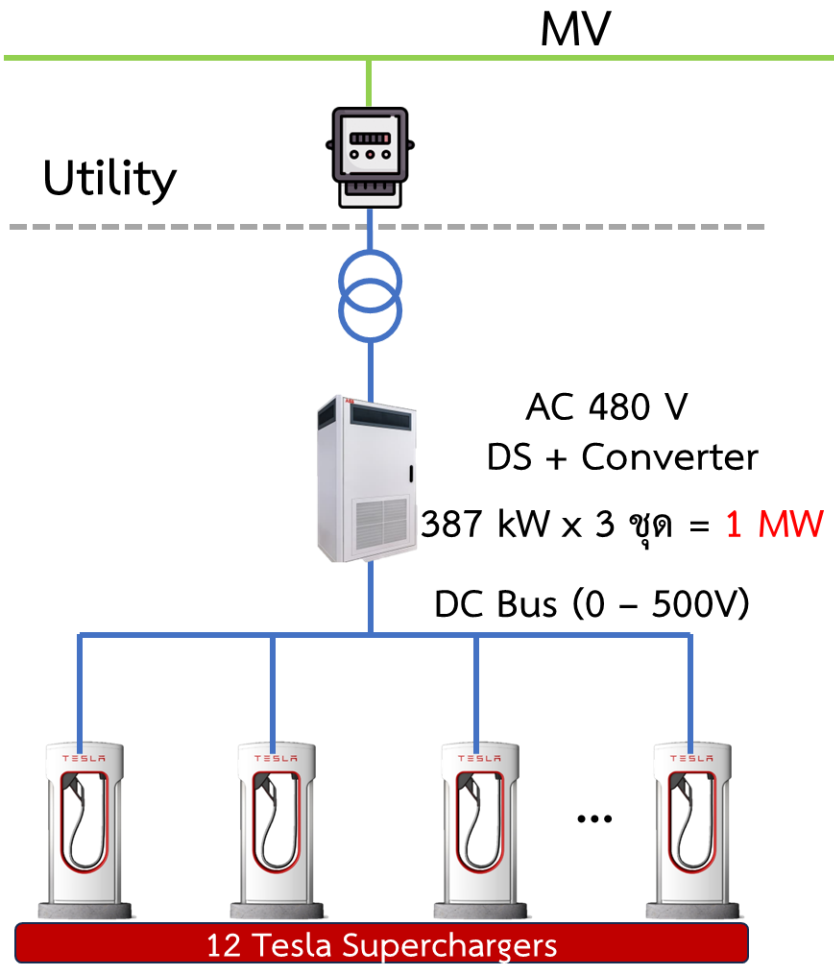


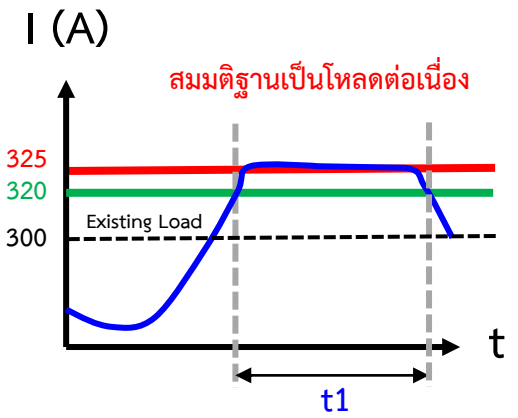
Controlled

Application Smart charging with TLM



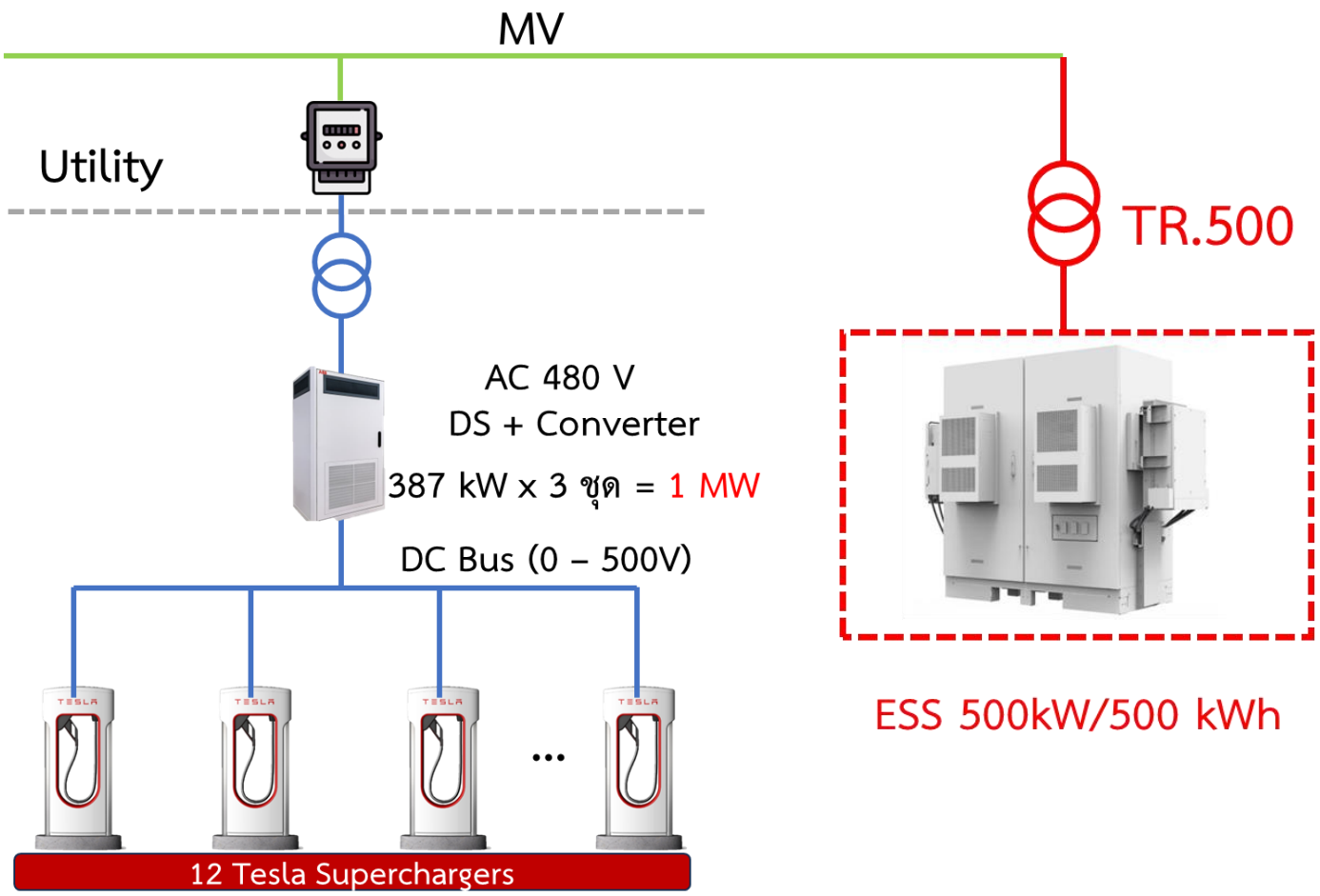
การขยายระบบไฟฟ้ารองรับ Supercharge



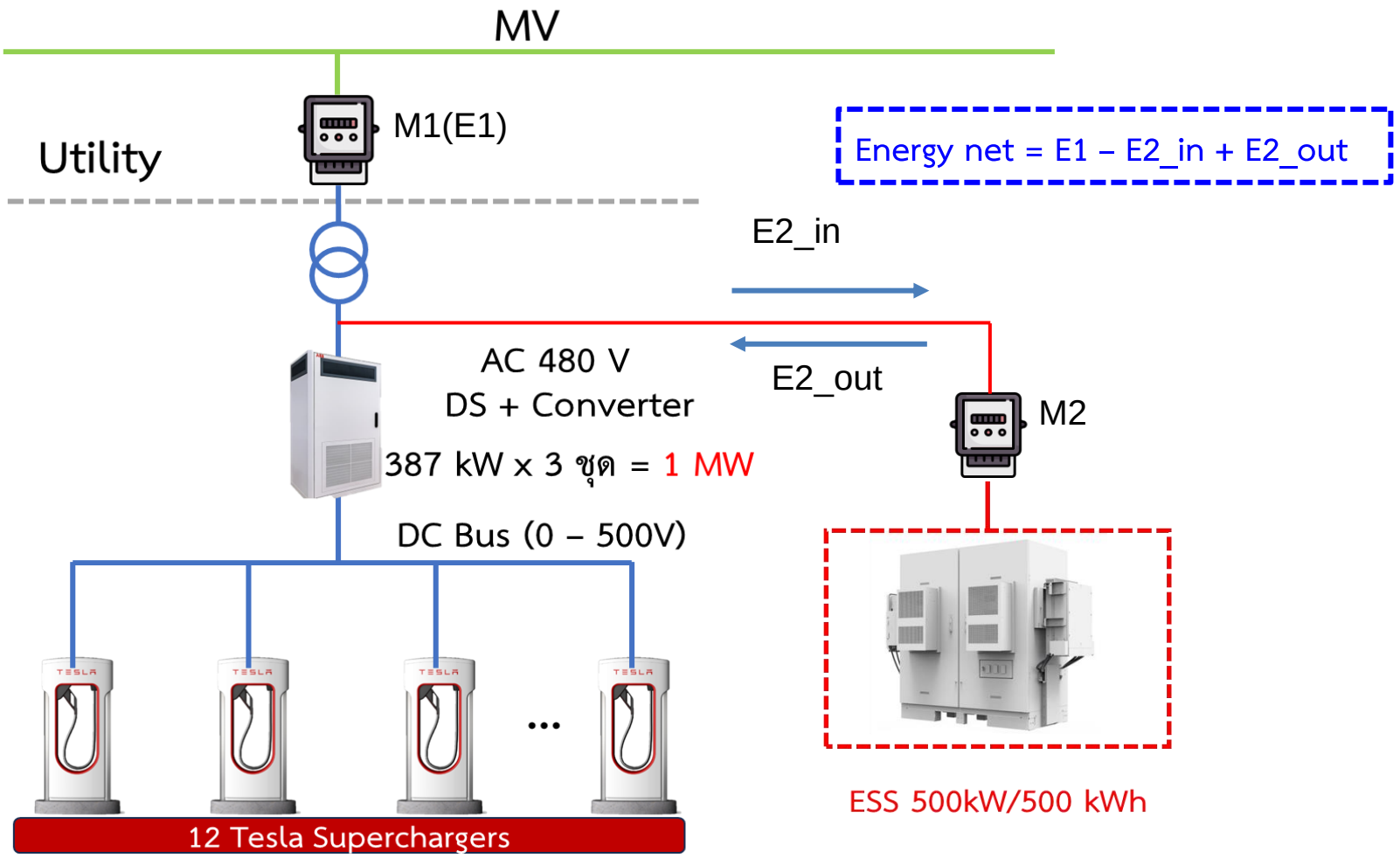


Charge Time 10:00 – 20:00 น.

การขยายระบบไฟฟ้ารองรับ Supercharge



การขยายระบบไฟฟ้ารองรับ Supercharge



Technical limitation places !!!

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