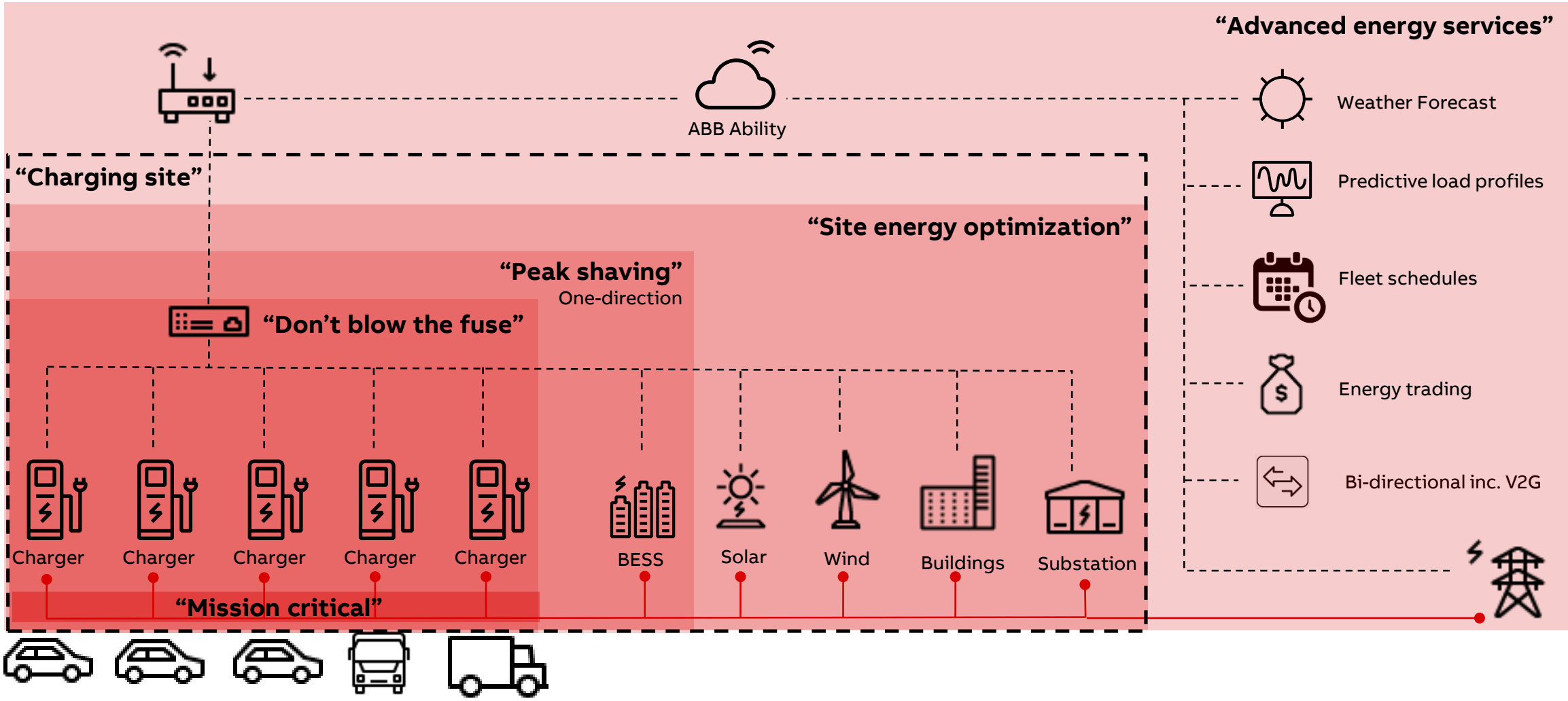
Evolution of the EV Charging value chain



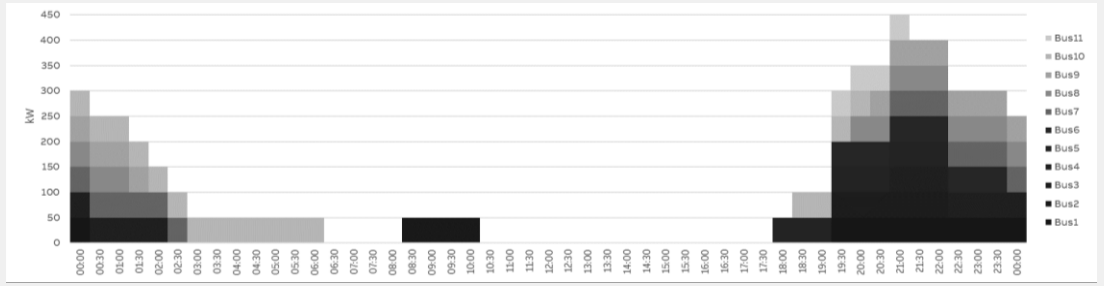
Onsite load management

Why onsite load management?

Business case example

Without load management:
Charging of 11 vehicles @ 50 kW
Peak consumption: 450 kW

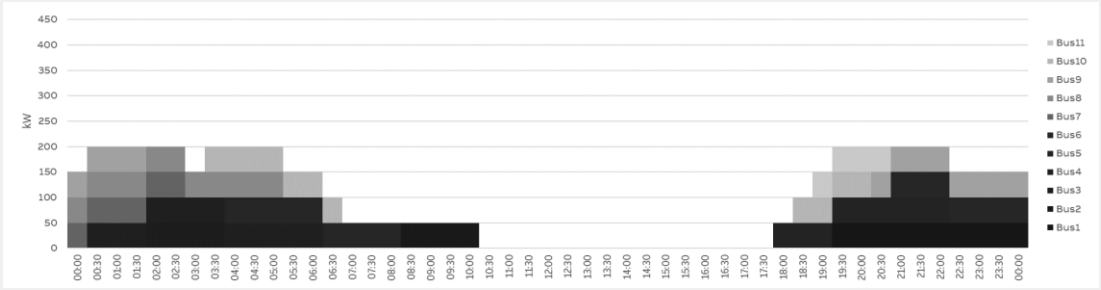
Annual Energy Cost: 31,500€



- 55 %

With load management:
Charging of 11 vehicles @ 50 kW
Peak consumption: 200 kW (- 55 %)

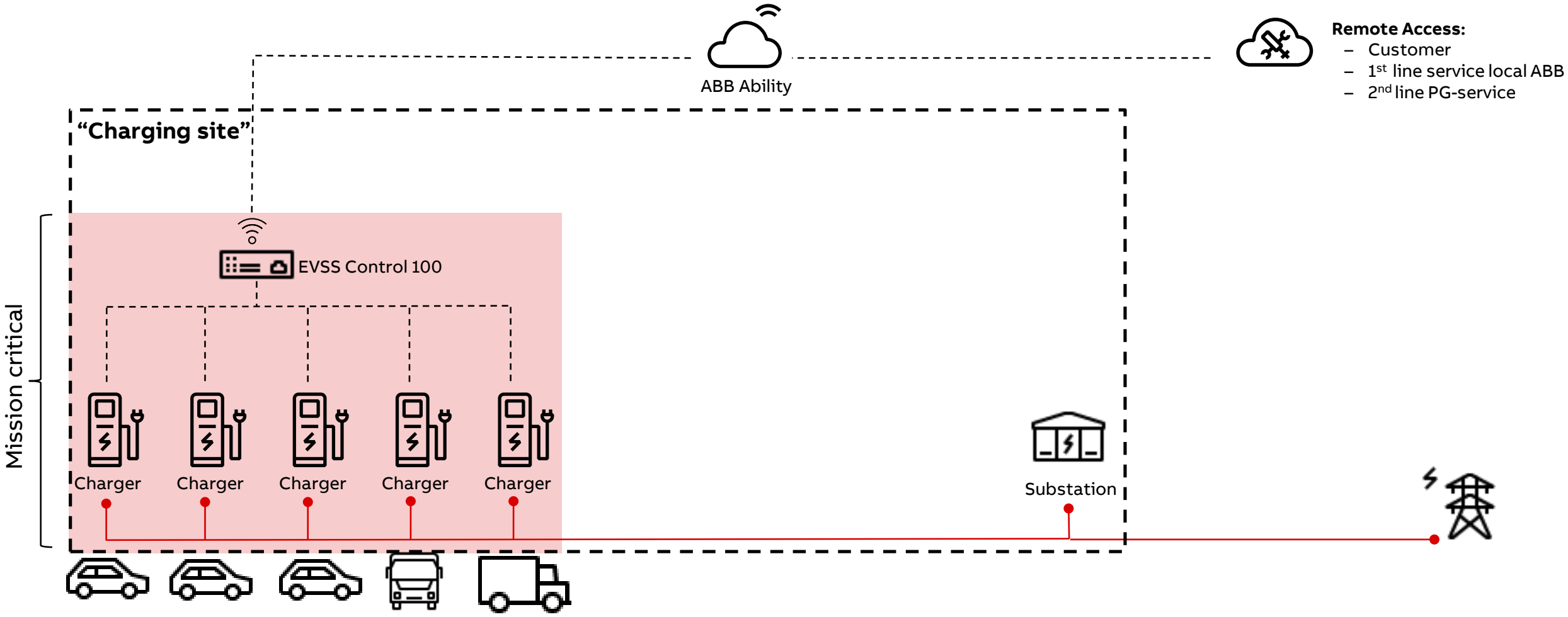
Annual Energy Cost: 14,000 €



CAPEX Savings	30,000 €	(~ new 300 kW transformer + construction)
OPEX Savings	~ 17,500 €/year	(70 €/kW/year peak price)
ROI	Immediate	

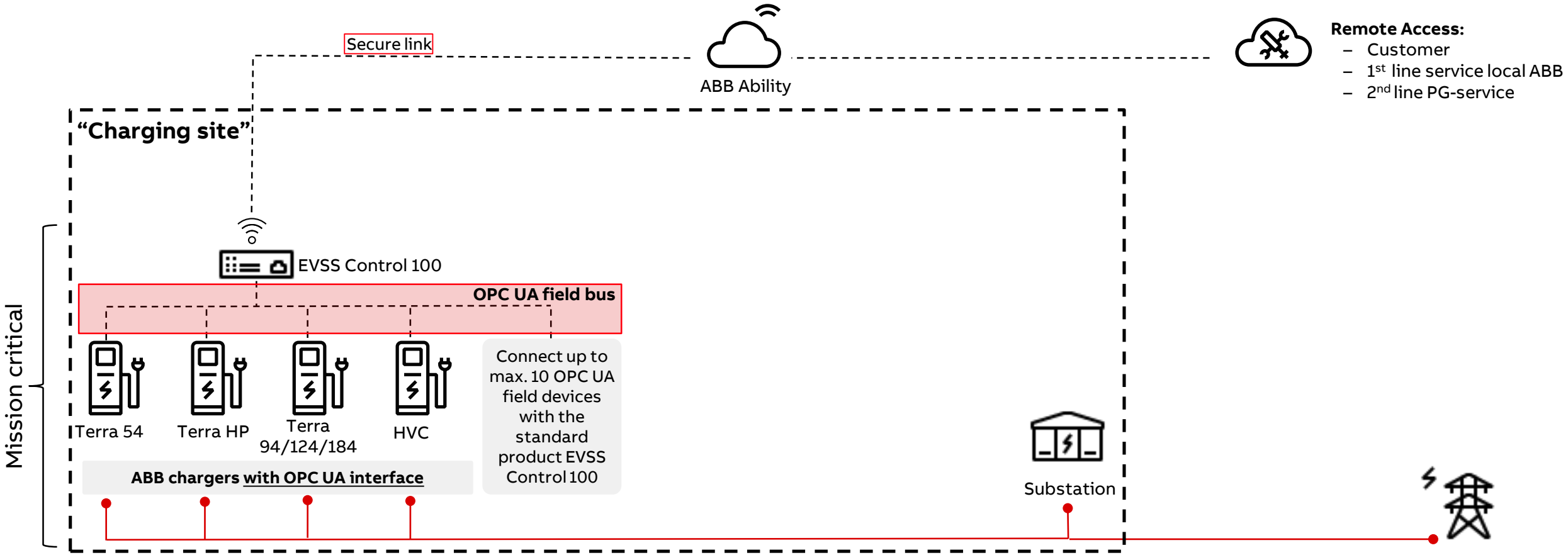
Onsite load mangement

"Don't blow the fuse"



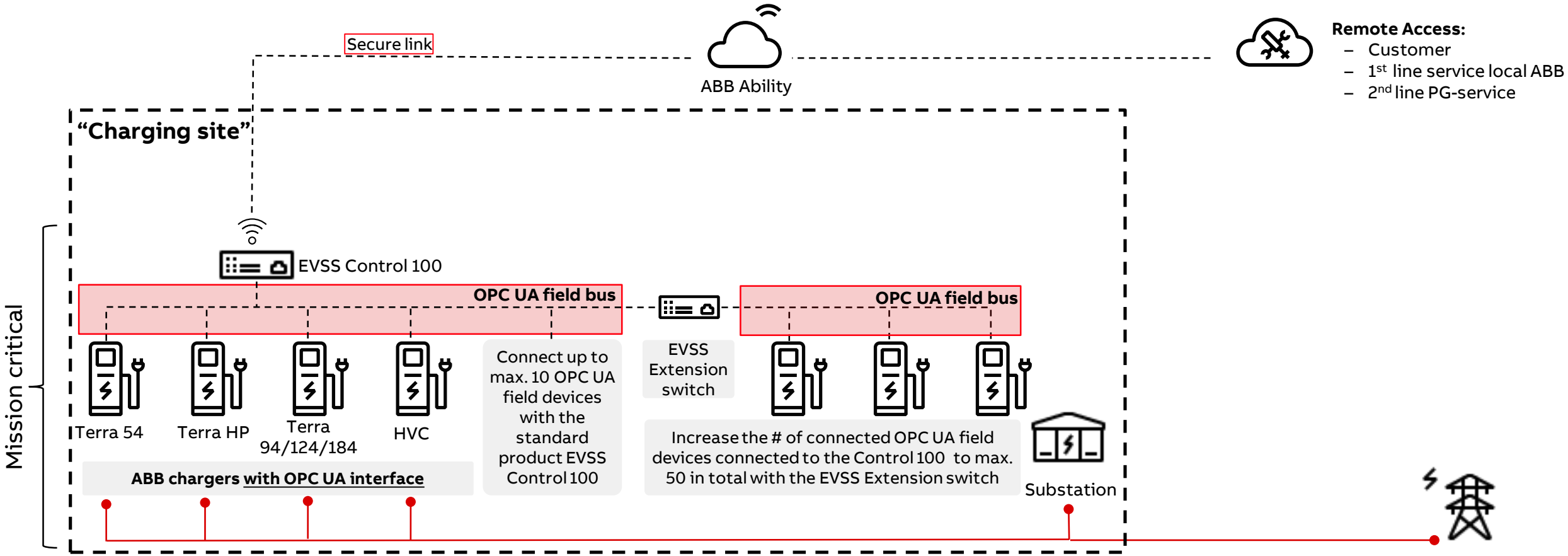
Onsite load mangement

"Don't blow the fuse" with EVSS Control 100



Onsite load mangement

"Don't blow the fuse" with EVSS Control 100



EVSS Control 100

EVSS Control 100 - Load Management Algorithms

Load Management Algorithms

Equal Share

1. First EV to have an active charge session will have full power until another EV starts charging.
2. When a second EV starts charging the site capacity is equally shared between the active chargers. Example:
    1. 2 chargers: both receive 50% of available power;
    2. 3 chargers: both receive 33% of available power;
    3. 4 chargers: both receive 25% of available power;
    4. Etc.

Default budget: used when communication is lost between charger and EVSS Control.

First In First Out

1. Every charger has a minimum default budget to always allow a minimum budget for charging. The remaining capacity is then assigned as per FIFO logic.
2. First EV to have an active charge session will have full power until charging is stopped by user/vehicle.
3. Second EV to start charging will get a reduced charging budget, which will increase as soon as the first EV has finished charging.

Minimum budget: configuration for every outlet of a charger.

Main Guideline: total site charging power does not exceed available site power

Note: Chademo assigned budget will not increase during the charging session

How can EV chargers be prioritized?

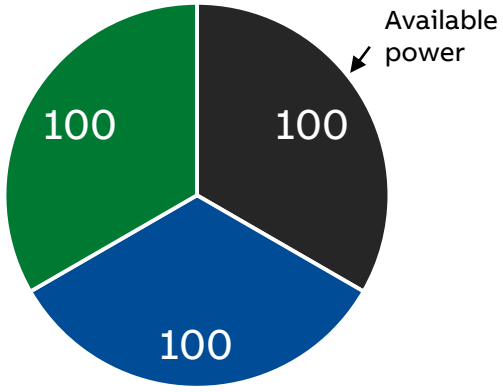
Equal share

7:00

Charging power needs:

100kW 100kW

Charging power delivered:

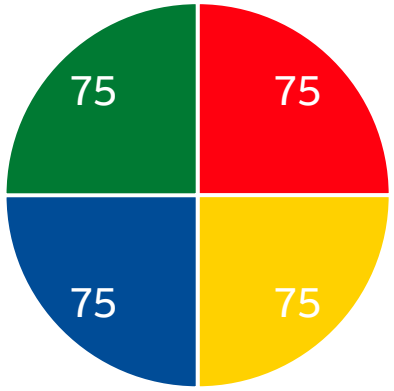


7:05

Charging power needs:

100kW 100kW 150kW 75kW

Charging power delivered:

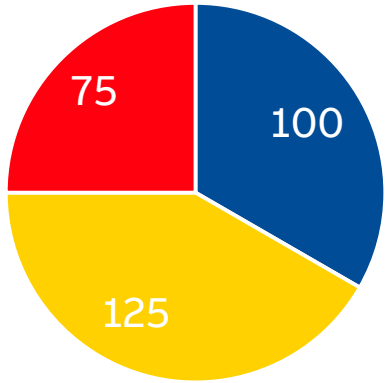


7:10

Charging power needs:

100kW 150kW 75kW

Charging power delivered:

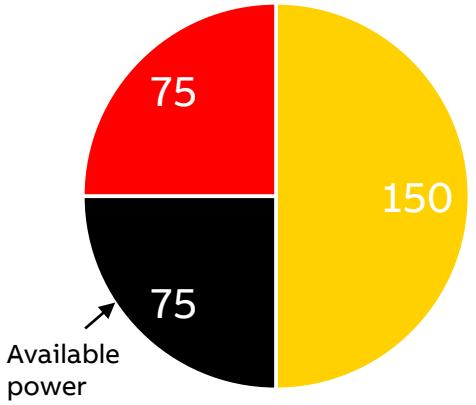


7:15

Charging power needs:

150kW 75kW

Charging power delivered:



The above sequence is representative for charging with CCS and AC. CHAdeMO can have different behavior as power assigned cannot increase during a charging session

How can EV chargers be prioritized?

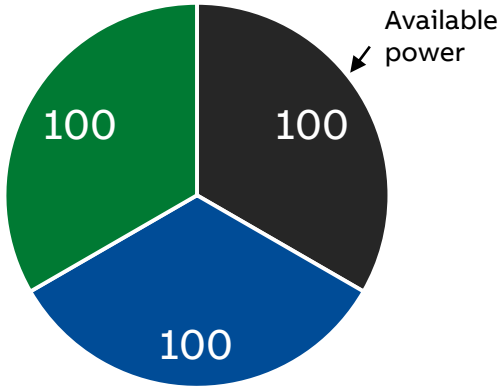
First in, first out (FIFO)

7:00

Charging power needs:

100kW 100kW

Charging power delivered:



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Charging power needs:

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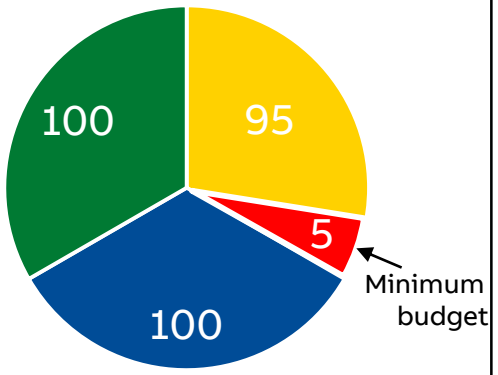
Charging power delivered:

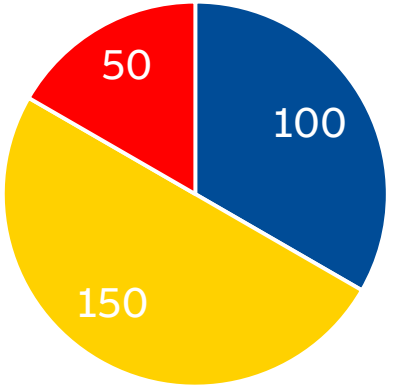


7:10

Charging power needs:

100kW 150kW 75kW

Charging power delivered:

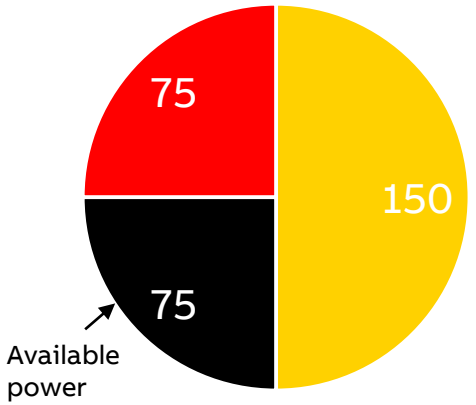


7:15

Charging power needs:

150kW 75kW

Charging power delivered:



The above sequence is representative for charging with CCS and AC. CHAdeMO can have different behavior as power assigned cannot increase during a charging session