



ALP STORE



Pilot Region Allgäu

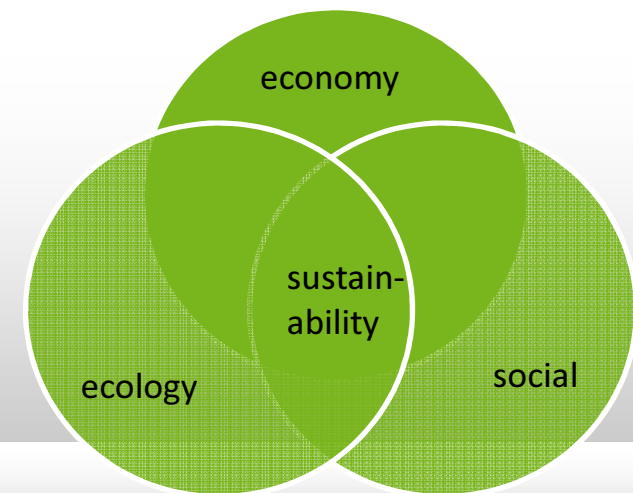
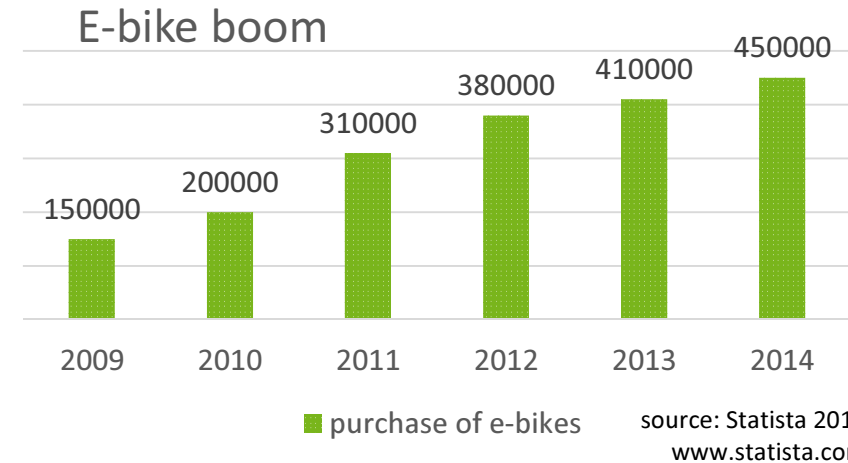
PV-Store^{Plus} E-Bike



B.A.U.M.

Before AlpStore: Our Challenges

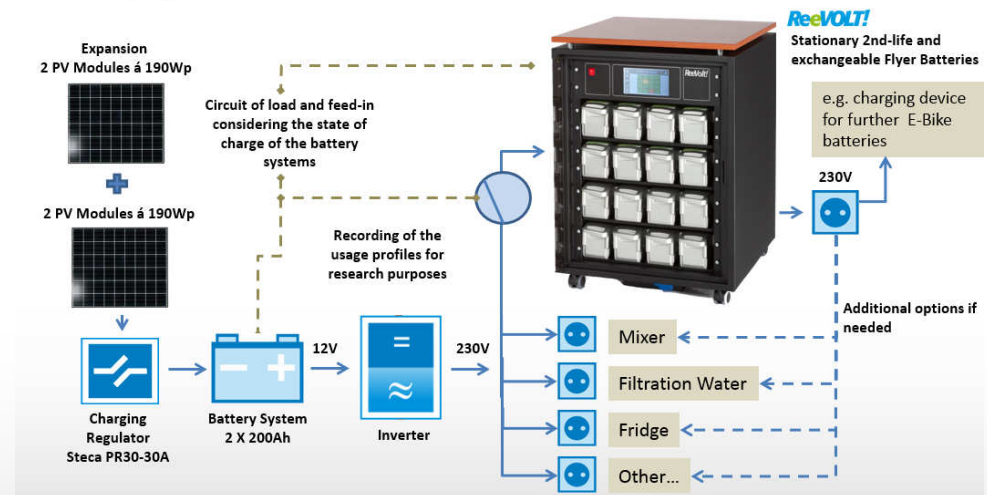
- Evolving of the e-bike market
 - Annual disposal of 600000 e-bikes after 2014 (annual change of 15%)
 - Number of producers rising as well
 - 2013, 1.3 million e-bikes were in use in German traffic
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- Allgäu tourism has been an upward trend for years
 - E-Bike tourism are affected by the rising trend
 - Only sustainable when the used energy derives from renewable energy sources



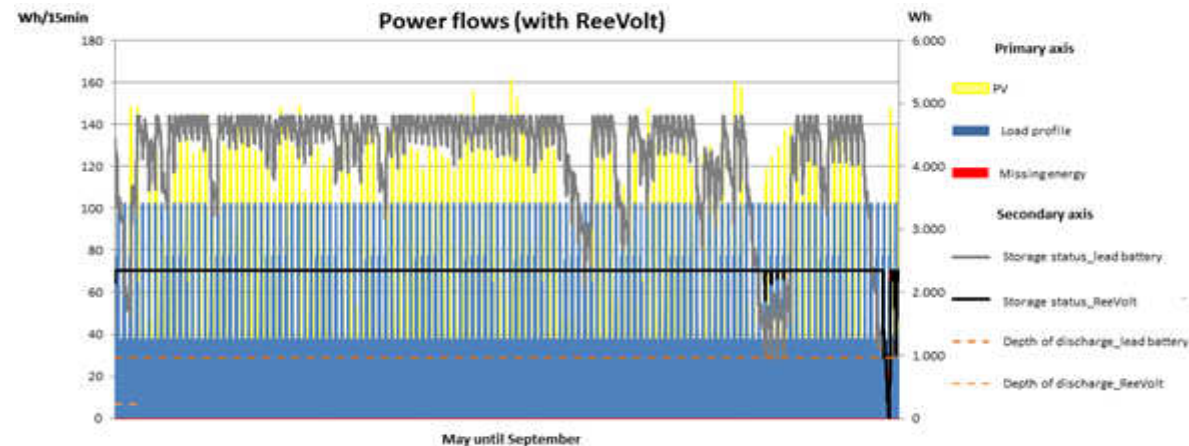
During AlpStore: Our Activities

- Choosing the implementation side distance, frequented cycle tracks, discharging, feasibility etc.
- Selection storage system
ReeVolt storage - second life battery system (modular design); charging station for e-bike batteries
- Installation ReeVolt storage system
Integration/Extension of the existing hut network
- Collection of data
Analysing the load curves of different devices
- Extensive calculations
Analysing strength and weaknesses of the ReeVolt system

Solar Charging Station with Second Life Batteries



After AlpStore: Our Achievements



Positive

- Stable operation of the network
- No voltage drop during the test phase
- No undersupply of any devices could be assessed
- The ReeVolt system can guarantee a 99,8% supply of the hut (depending on the settings) and served parallel as a charging station for e-bike batteries

Negative

- Extensive self-consumption of the ReeVolt storage (about 60W)
- ReeVolt system did not work as intended
- Coverage rate of 100% leads only to a rate of use of 63% of the solar radiation
- The hut will be connected to the grid in near future

After AlpStore: Our Recommendations

- General conclusion
 - Several problems only appeared in the off-grid operation phase
 - Adapting the results to other battery systems, e.g. in households, the self-consumption of the battery system need to be observed
 - => Calculation of the real benefit**
- Reduction of the self-consumption
 - Manufacture WEMAG recognised this as a massive problem
 - WEMAG will reduce the self-consumption about 90% down to 6W within the next product line

