

Object Properties	
Object	1 Object-1
Customer	2 Customer 1
Description	3 Electric bus, Battery Type, Battery system

Input Data Properties	
Periode of Evaluation	4 12 months
Days evaluated	5 274.9 days

Executive Summary

Max. cycles at norm conditions	6	2000
Full cycles within periode	7	274
Stress weight factor	8	< 90 % (subcritical) ●
Effective cycles within periode	9	≥ 246
Summary	10	The effective load encountered by the battery within the periode of investigation was lower than the designated reference case; under these circumstances, the battery is believed to live longer than designated.

●●●● Reference —●—● Period of Evaluation

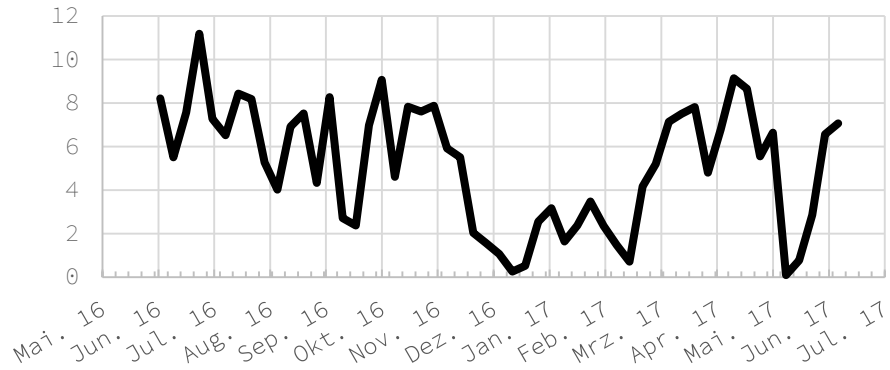
Decomposition: Contribution Factors

Factor	Value	Visual Scale	Possible Mitigation
Temperature	11		Inspect battery, improve cooling, contact manufacturer
DOD	12		No action necessary (subcritical battery utilization/cycling depth)
Power	13		Check route topology optimization potentials, consider 'cautious driving' instruction
avg. SOC	14		No action necessary (average SOC level within normal range)

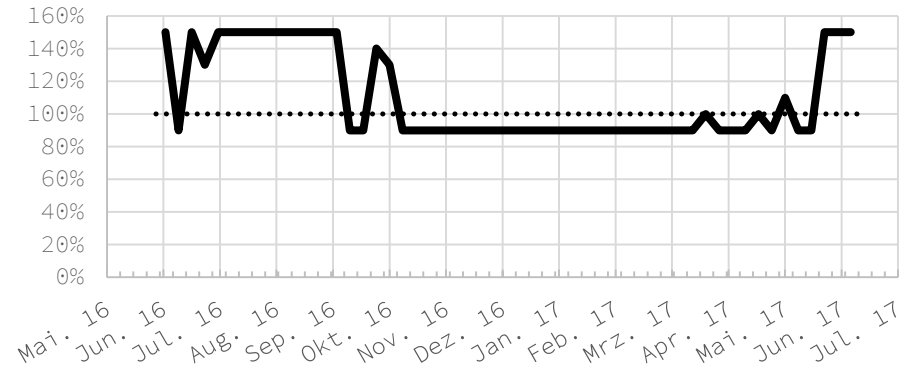
SOH-Report



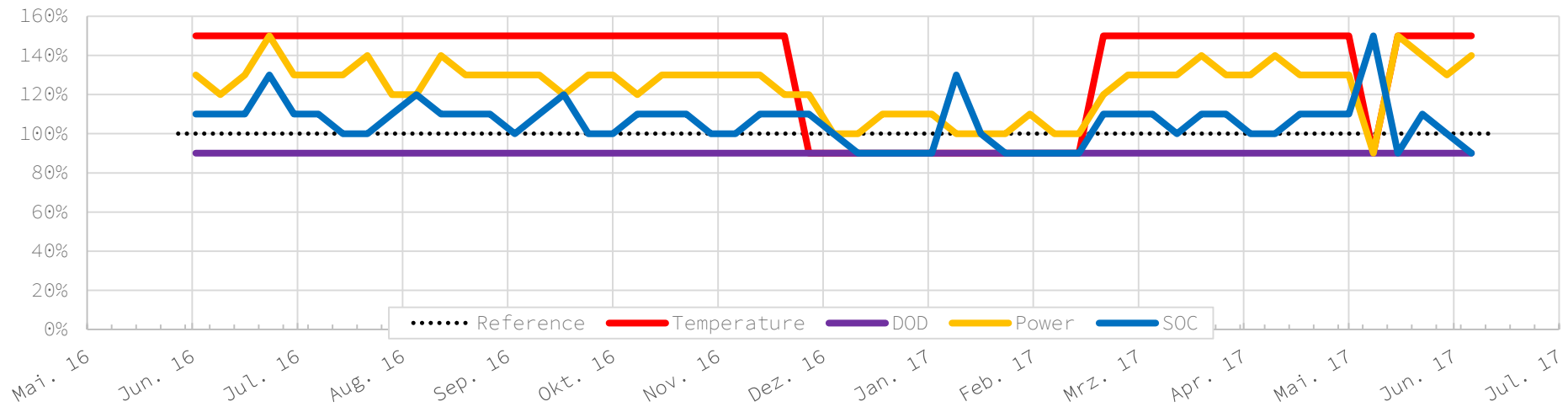
Cycles per Week



Battery Stress per Week



Stress Contribution Factors per Week



Description

- 1 Identification of the vehicle or battery system under investigation/
- 2 The issuing customer.
- 3 General details on the object.
- 4 The overall periode of investigation, i.e. the time periode between the first and last data point.
- 5 The total amount of hours of data that was being investigated within #4.
- 6 Max. number of cycles your battery is designated to last, if cycled at nominal/lab-conditions
- 7 The actual amount of full cycles your battery was dis/charged within the period of evaluation of this report.
- 8 Measure of the battery stress induced by the operation during the periode of evaluation, expressed relatively to the nominal-case (100% corresponds to 'used as designated').
- 9 The effective charge cycles, as reflected in the stress level of your battery.
- 10 Summary of the main outcomes of the report.
- 11 Influence of temperature on the stress level; as a rule of thump, Li-Ion batteries feel most comfortably at around 20°C; deviations in any direction are penalized here.
- 12 Influence of the effective depth-of-discharge (DOD) on the stress level; in brief, the DOD represents the SOC range in which the battery is operated. Low DOD levels are desirable, for an overview see the illustration below.
- 13 Influence of the effective power on the stress level; higher currents (strong accelerations, steep hills, aggressive driving, harsh braking) lead to accelerated ageing.
- 14 Influence of the effective average SOC level on the stress level; as a rule of thump, most Li-Ion batteries like to be operated at around 50% SOC level in a daily average. Deviations lead to undesirable electrochemical side reations, deteriorating battery lifetime. For an overview see the illustration below.

