Gantner.webportal

System description

October 2019

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Gantner.webportal presented by

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FOR

PV Magazine Webcast

Monitoring and visualization of measurement data

„Gantner-webportal“ is a vendor-independent realtime analysis plattform for the acquisition, storage, visualization and analysis of measurement data as well as for the monitoring of your PV portfolio. It provides investors with solid and reliable information (financial KPIs, performance analysis) and enables them to estimate the performance of their PV portfolio and plan preventative maintenance strategies.

Gantner provides the AG with the Gantner monitoring platform "Gantner-webportal" via Internet hosting "SaaS". This includes free updates to new program versions as well as service patches and new program features throughout the usage period. The "Gantner web portal" enables the customer to independently monitor and manage his PV systems.

All systems are preconfigured, but individually adaptable and expandable.

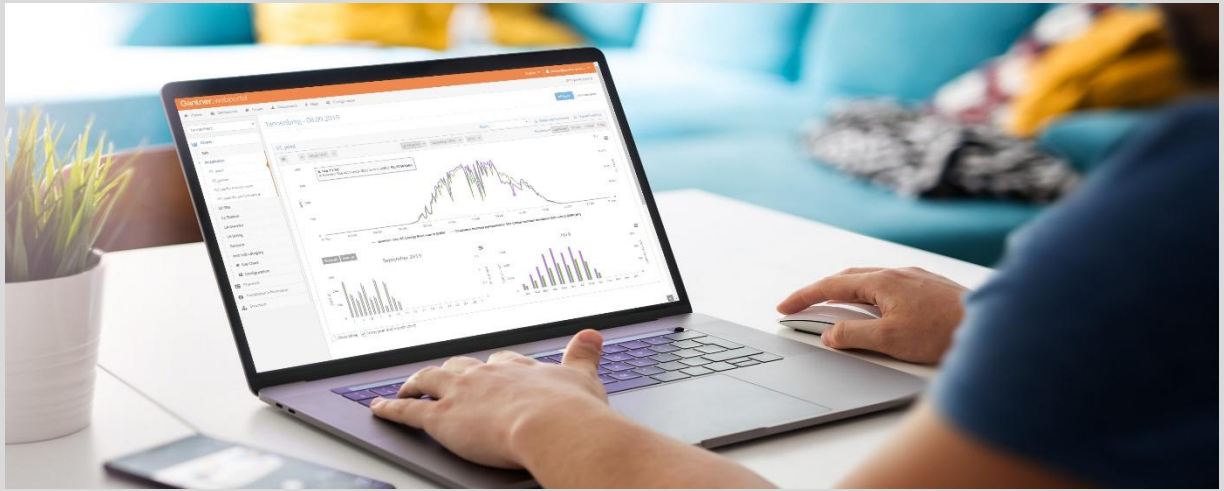
Gantner is not responsible for the system monitoring.

The setup of the portal and the systems will be charged according to time and effort.

Research, development and support

„Made in Germany“ – We plan and sell not only in Germany, but our entire product development cycle, from research through development to support, is implemented exclusively in Germany by highly qualified specialists.

In this way we achieve an undisputed product and service quality from which our customers benefit in the long term.



Information and request for quotation

If you need more information, or would like to make a non-binding offer directly, please contact us directly via

Email: webportal@gantner-environment.com

phone: +49 37754-3351-29

Features

Overview

- **Visualization**
- **Analysis**
- **Alarm Management (Channel- and components based)**
- **Digital image of the plant from the string to the entry point**
- **O&M Overview and administration system**
- Portfolio and asset overview including traffic light status system and Key Performance Indicator "KPIs", Asset Dashboard
- Forecast of energy production (optional)
- Mobile devices supported, W3C standard HTML5, no additional plug-ins needed
- Measured value resolution up/down to 1min
- Supports network operator reductions
- Online access and control (Gantner.RAS integration) on Gantner Q.reader systems with refresh rate of up to 1 Hz
- Gantner.RAS API for bidirectional asset access
- Data import Compatibility with data loggers from different manufacturers and other sources
- Compatible with IEC N 61724-1 (2)
- Language: English, German, Russian, Chinese
- User administration including access, release rights management
- Teamwork functionality

Visualization

- Visualization of the data in daily, monthly and annual overview and individual periods
- Charts: bar graph, line graph, combi graph, scatter plot
- Parameter / time, parameter / parameter
- Tables
- Heatmaps
- Live Charts
- Geo Structure (Option)
- Display of the plant location including intuitive traffic light system in a Google Maps map
- **MPM (Mechanistic Power Model)**

Analysis

- Analysis Functions with target / actual comparison based on local meteostation and sensor data and optional satellite data
- Performance Ratio "PR" Comparison on all structural levels: system, station, inverter, AC-DC combiner, string
- Definable filters (eg: from irradiation 50W / m² and temperature above 20 ° C)
- Automatic plausibility check of raw values (definable range limits)
- Automatic component comparisons
- System (sites) comparison
- Availability calculation (option)
- Excel / CSV - data export (resolution: up to raw data) as download

Alarm Management (Channel- and components based)

- Alarm configuration based intuitive traffic light system
- Alarm messages with ticket system
- Extensive configurable alerting system
- Target / actual deviation
- Min/Max
- PR
- variance
- Consideration of all variables, time ranges, sun position and solar irradiation angle AOI

Features

Digital Mirror / O&M

Digital image of the plant from the string to the entry point

- PV site structure
- installed nominal power at each point of installation
- Normalized values

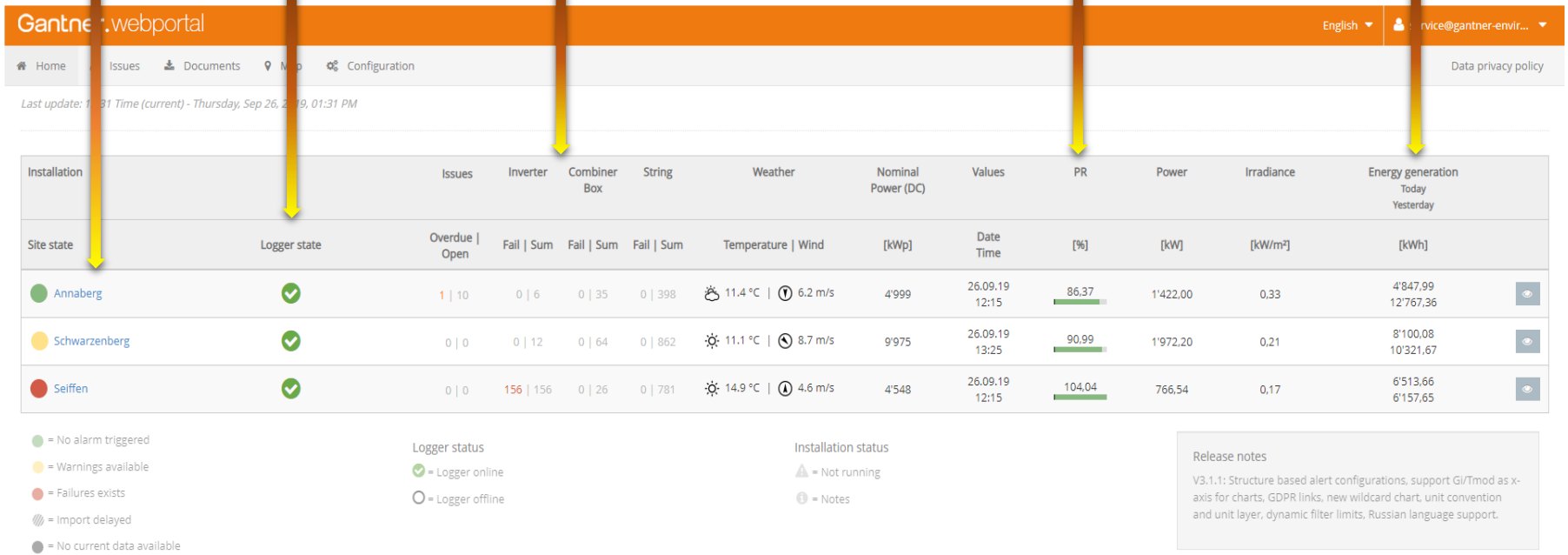
O&M Overview and administration system

- Issue-Tracking-System
- On-call calendar and holiday calendar
- Plant-specific document management (data sheets, operating instructions, single line diagrams)
- Status Tickets
- Inventory - History Management
- Automatic report creation (PDF, Excel)

Sites Overview (Landing Page)

Traffics Lights System and Key Performance Indicator „KPIs“

Traffic Lights | Logger-Status | Info Alarms | Key Performance Indicator | Yield Today/Yesterday



Installation		Issues	Inverter	Combiner Box	String	Weather	Nominal Power (DC)	Values	PR	Power	Irradiance	Energy generation Today Yesterday
Site state	Logger state	Overdue | Open	Fail | Sum	Fail | Sum	Fail | Sum	Temperature | Wind	[kWp]	Date Time	[%]	[kW]	[kW/m²]	[kWh]
Annaberg	✓	1 | 10	0 | 6	0 | 35	0 | 398	11.4 °C | 6.2 m/s	4'999	26.09.19 12:15	86,37	1'422,00	0,33	4'847,99 12'767,36
Schwarzenberg	✓	0 | 0	0 | 12	0 | 64	0 | 862	11.1 °C | 8.7 m/s	9'975	26.09.19 13:25	90,99	1'972,20	0,21	8'100,08 10'321,67
Seiffen	✓	0 | 0	156 | 156	0 | 26	0 | 781	14.9 °C | 4.6 m/s	4'548	26.09.19 12:15	104,04	766,54	0,17	6'513,66 6'157,65

= No alarm triggered
= Warnings available
= Failures exists
= Import delayed
= No current data available

Logger status
= Logger online
= Logger offline

Installation status
= Not running
= Notes

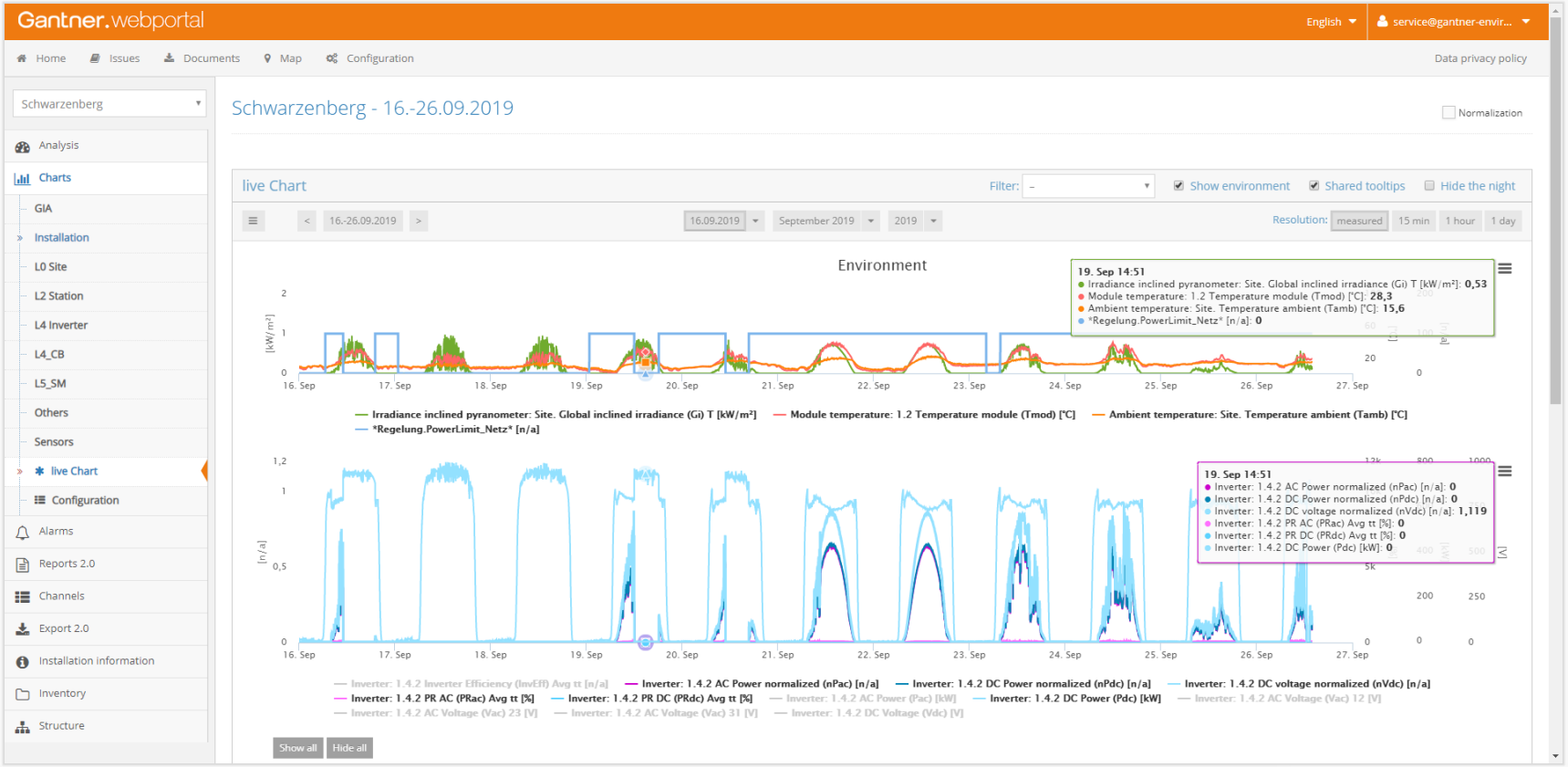
Release notes

V3.1.1: Structure based alert configurations, support Gi/Tmod as x-axis for charts, GDPR links, new wildcard chart, unit convention and unit layer, dynamic filter limits, Russian language support.

Recommended system requirements: Latest chrome browser, MAC OS X or WIN 7/10. Intel Core i5, 8GB RAM, separate graphic card with 2GB RAM, resolution 1920 x 1080 px

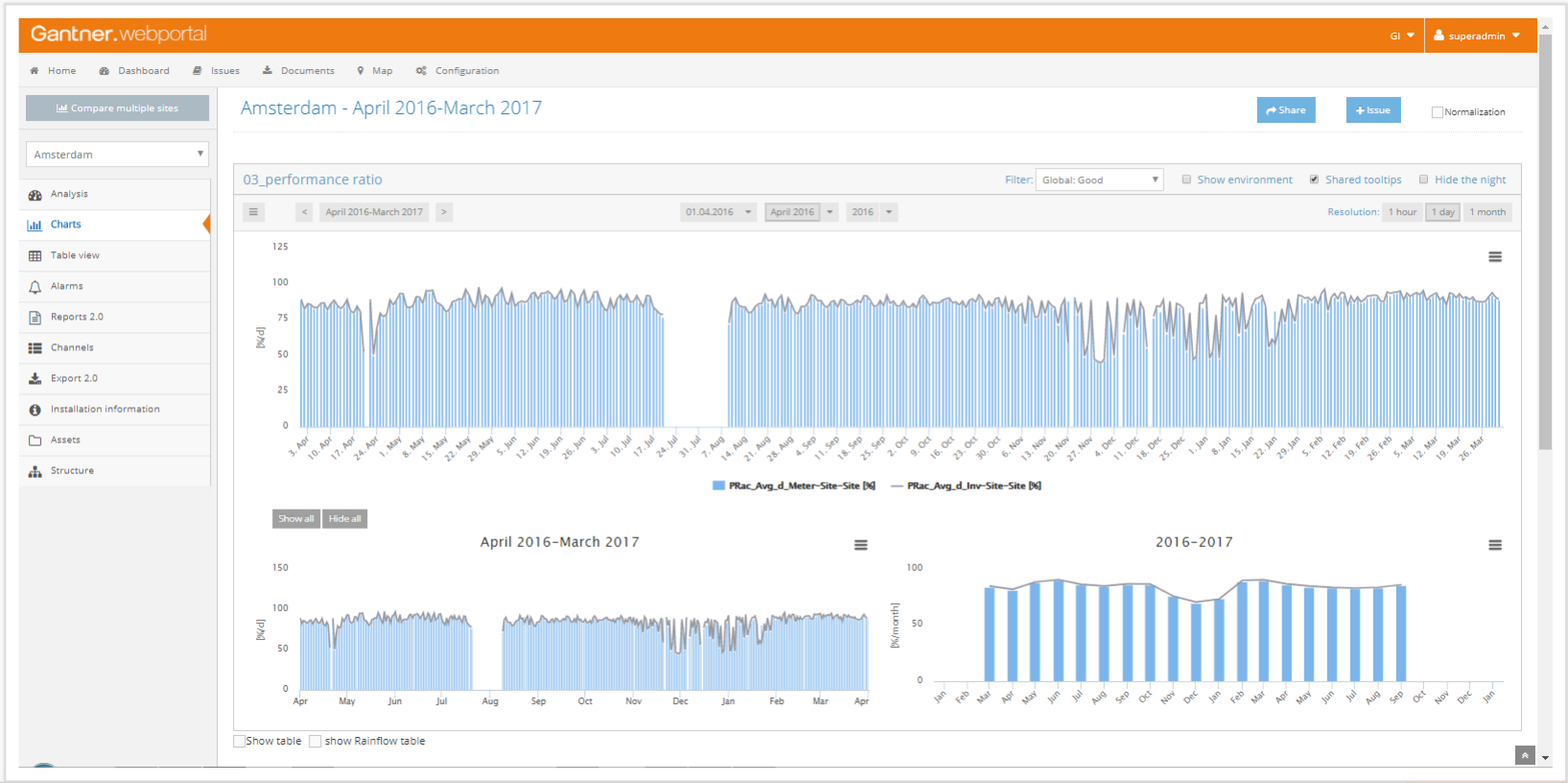
Visualization

Diagrams



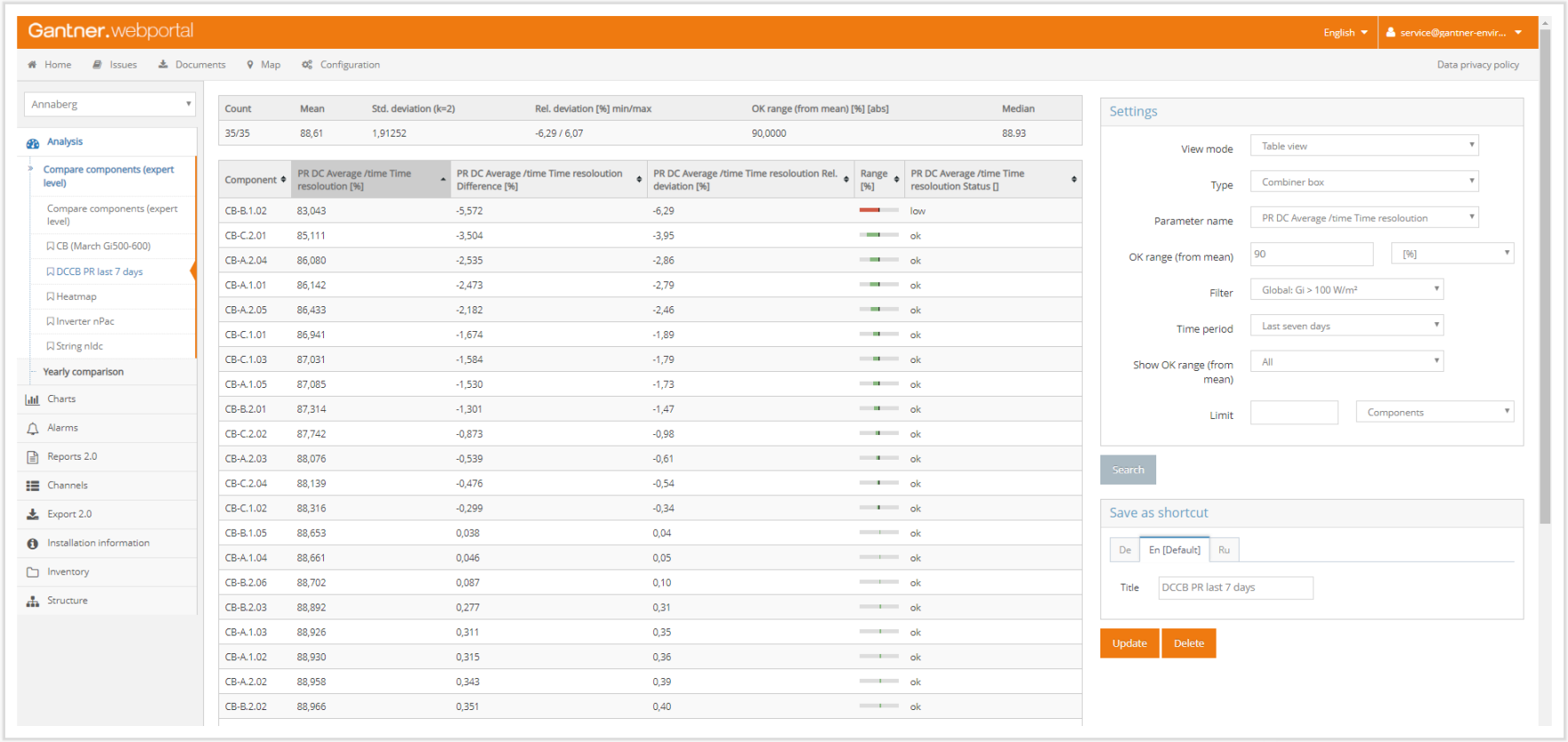
Visualization

Diagrams, individual time frames, Example: PR, 1d span



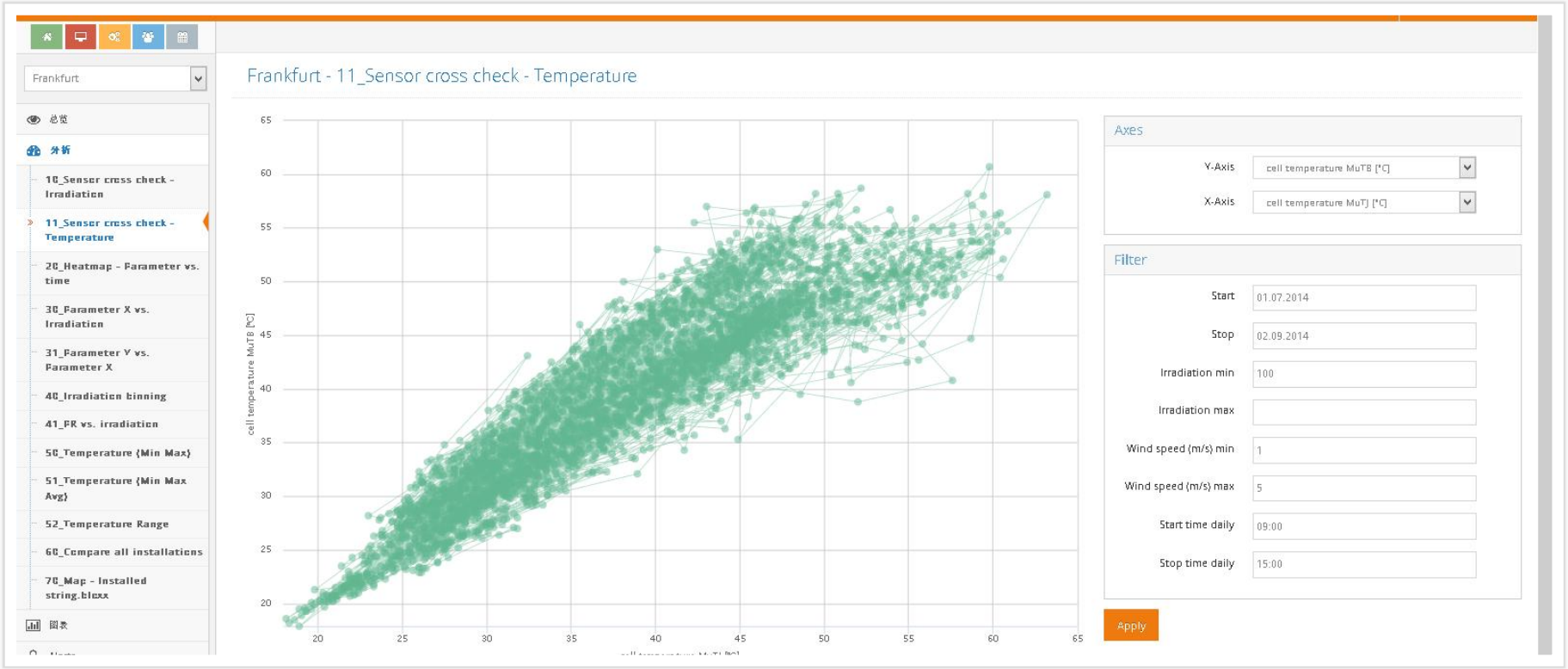
Visualization

Tables



Visualization

Scatter Diagrams Parameter/Parameter



Dashboard


Overview solar farms
4 Solar Farms - 25 MWp
14:01
Fri. 13. September 2019
Gantner instruments
Yield
Today 35668 kWh
125k
100k
75k
50k
25k
0
kWh
Sat Sun Mon Tue Wed Thu Fri
CO2-reduction
Today 21401 kg
Yesterday 27924 kg
Irradiance
Current 0,8 kW/m²
Inverter power
Current 10184 kW
Yields 37227 MWh
CO2-reduction 22028 t
Annaberg
14:00
Fri, 13. September 2019
11.4 °C | 6.2 m/s
Irradiance Current 0,86 kW/m²
Inverter power Current 3769,40 kW
since 04/2016: Yield Total 16086,95 MWh
CO2-reduction Total 9652,17 t

Analysis

availability calculation

Gantner instruments

Gantner.webportal

Oxford

- Overview
- Analysis
- Charts
- Charts v2
- Alerts
- Reports
- Issues
- Channels
- Export
- Availability
- Installation Info

Availability

Layout per 12 month, custom start date

Site	Period	H_PER [h]	SYS_AIV [%]	IN count []	AMA [h/IN]	SYS_AIV_AMA [%]
Oxford	2013/01-2013/12	2932	98.91	7	10	99.25
Oxford	2014/01-2014/12	2987	99.47	7	10	99.8
Oxford	2015/01-2015/12	1240	98.82	7	10	99.63

- Resolution: h, day, month, year, 12month floating
- For each component (Inverter, System, Sub-System, Production batch, ..)
- → Supports preventive maintenance strategies

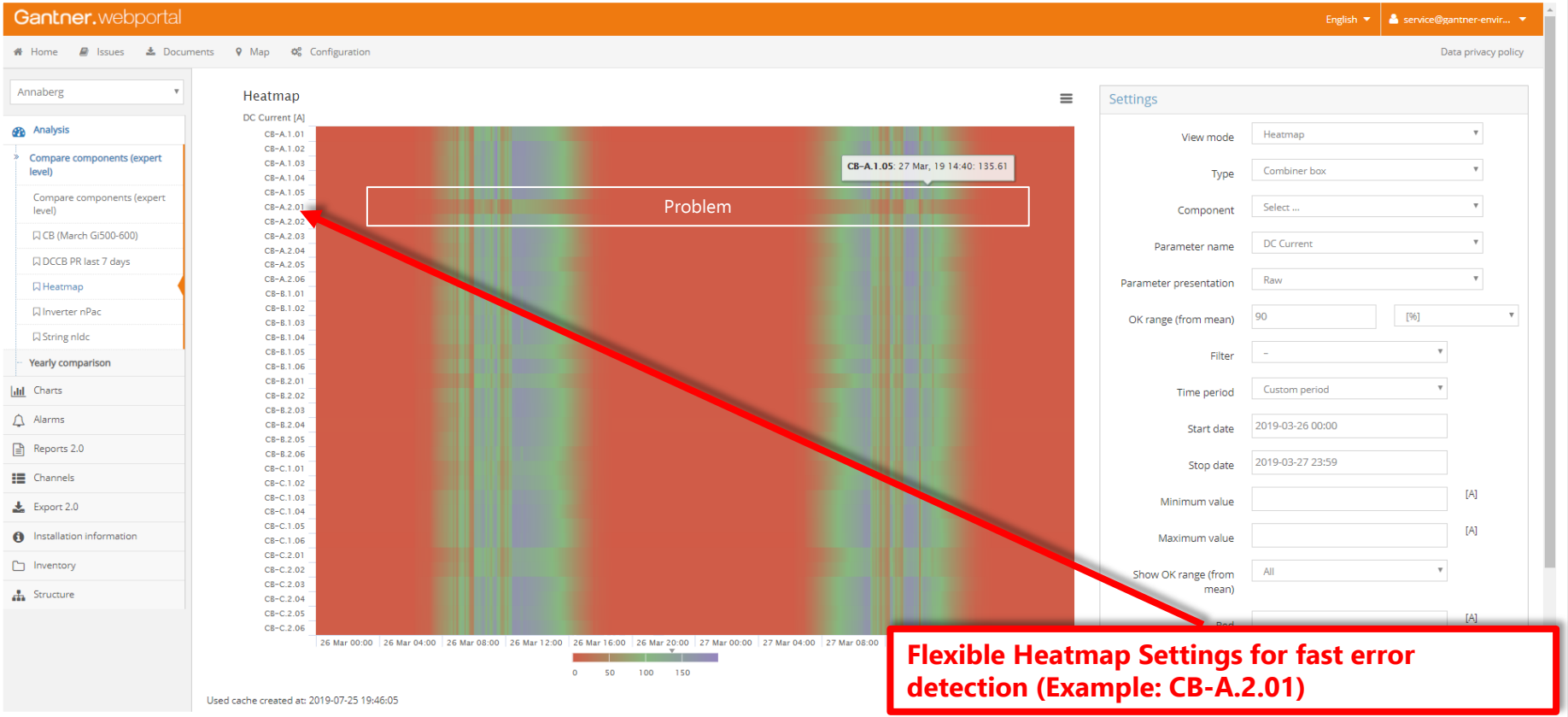
Layout per 12 month, custom start date detailed

Site	Period	H_PER [h]	WR.1_AIV [%]	WR.2_AIV [%]	WR.3_AIV [%]	WR.4_AIV [%]	WR.5_AIV [%]	WR.6_AIV [%]	WR.7_AIV [%]	SYS_AIV [%]	IN count []	AMA [h/IN]	SYS_AIV_AMA [%]
Oxford	2013/01-2013/12	2932	99.86	96.73	99.73	96.73	99.86	99.66	99.8	98.91	7	10	99.25
Oxford	2014/01-2014/12	2987	99.13	99.2	99.67	99.1	100	100	99.2	99.47	7	10	99.8
Oxford	2015/01-2015/12	1240	100	100	91.94	100	100	100	100	98.82	7	10	99.63

Advanced Function

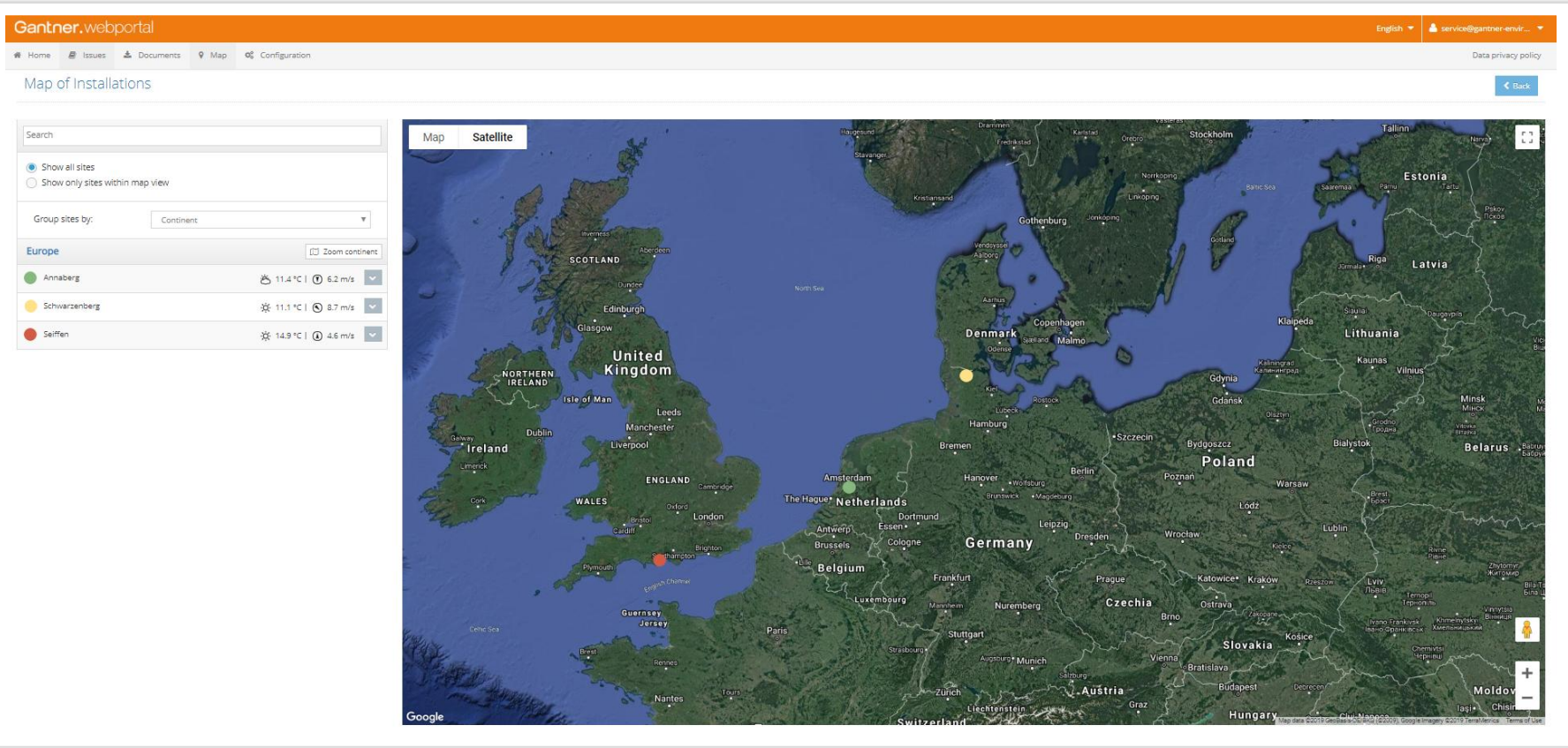
Analysis

Heatmap component comparison



Map View

Display of the plant locations including intuitive traffic light system in a Google Maps map



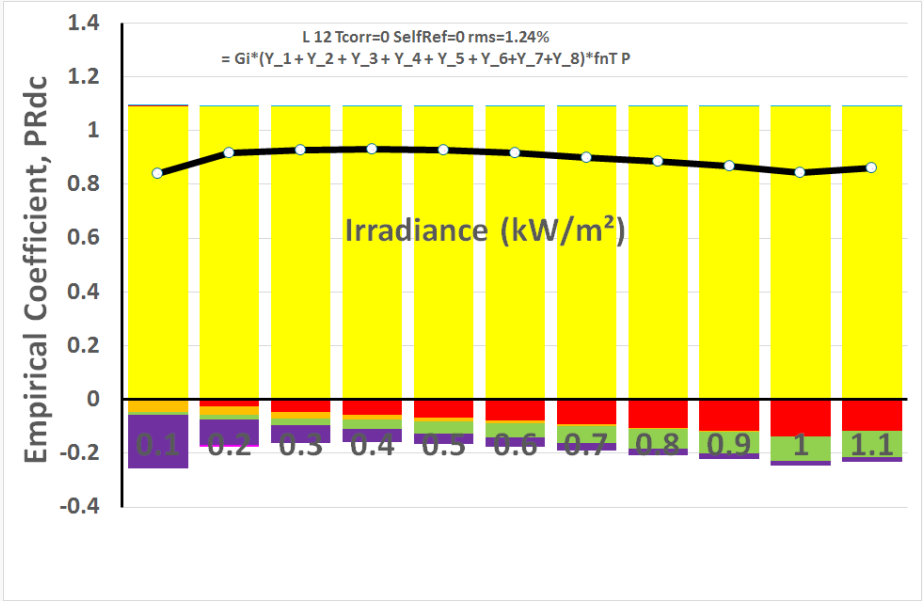
Mechanistic Power Model equation

$$P_{norm} = P_{meas} / P_{peak} = G_i * PR_{MPM}$$

PR_{MPM} equation

$$PR_{MPM} = C_1 + C_2 * dT_{mod} + C_3 * \log_{10}(G_i) + C_4 * G_i + C_5 * WS$$

- quality (~ 80 to 100%)
- gamma (PV-module)
- low light behavior
- high irradiation
- wind speed

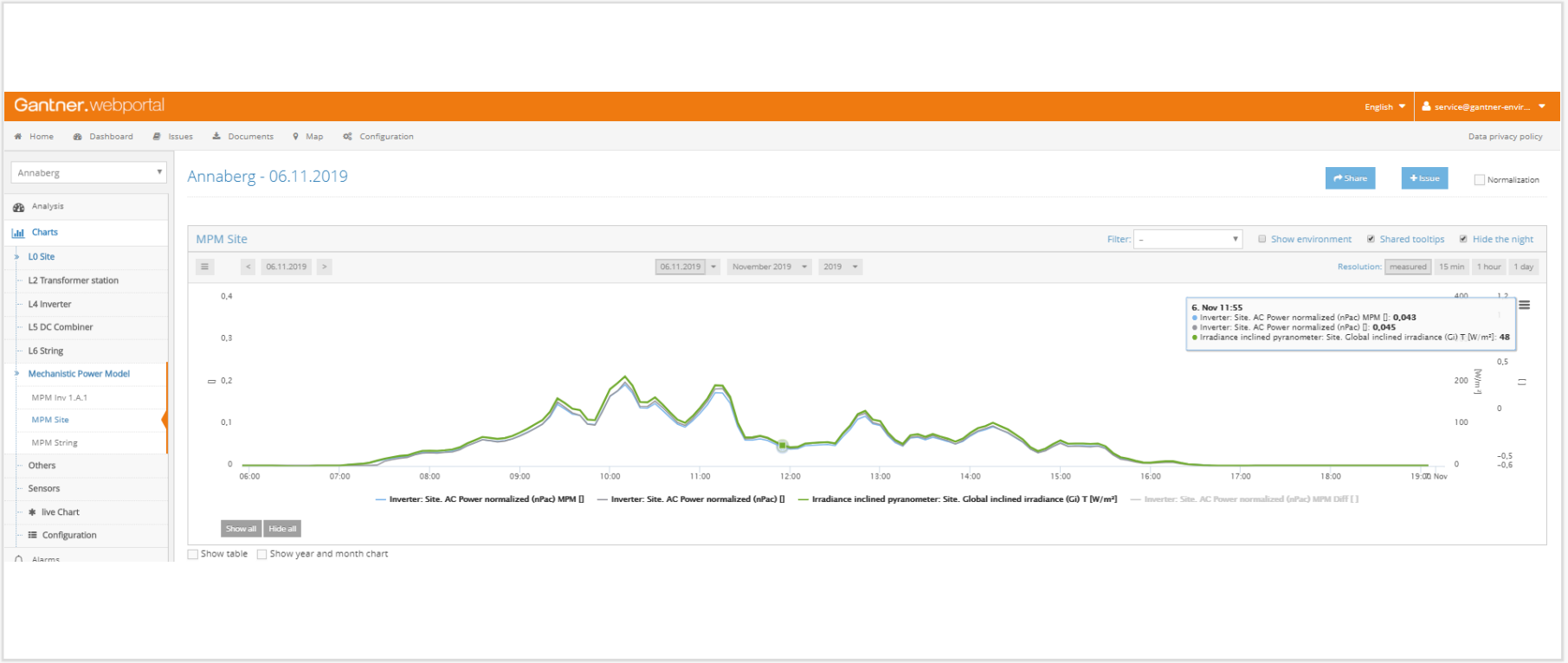


- Normalized coefficients are used to weight the influence of the physical quantities on the Performance Ratio.
- The calculated PR is the sum of all sensor terms.
- The stacked graph shows the impact of the single terms at different light levels.

Source: Steve Ransome & Juergen Sutterlueti

Mechanistic Power Model

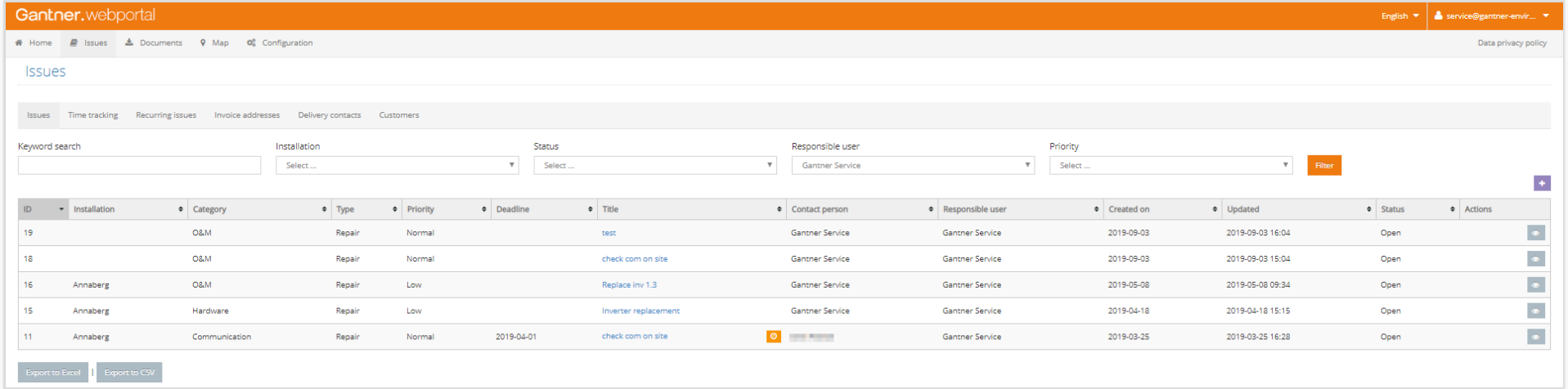
Chart



O&M overview and administration system

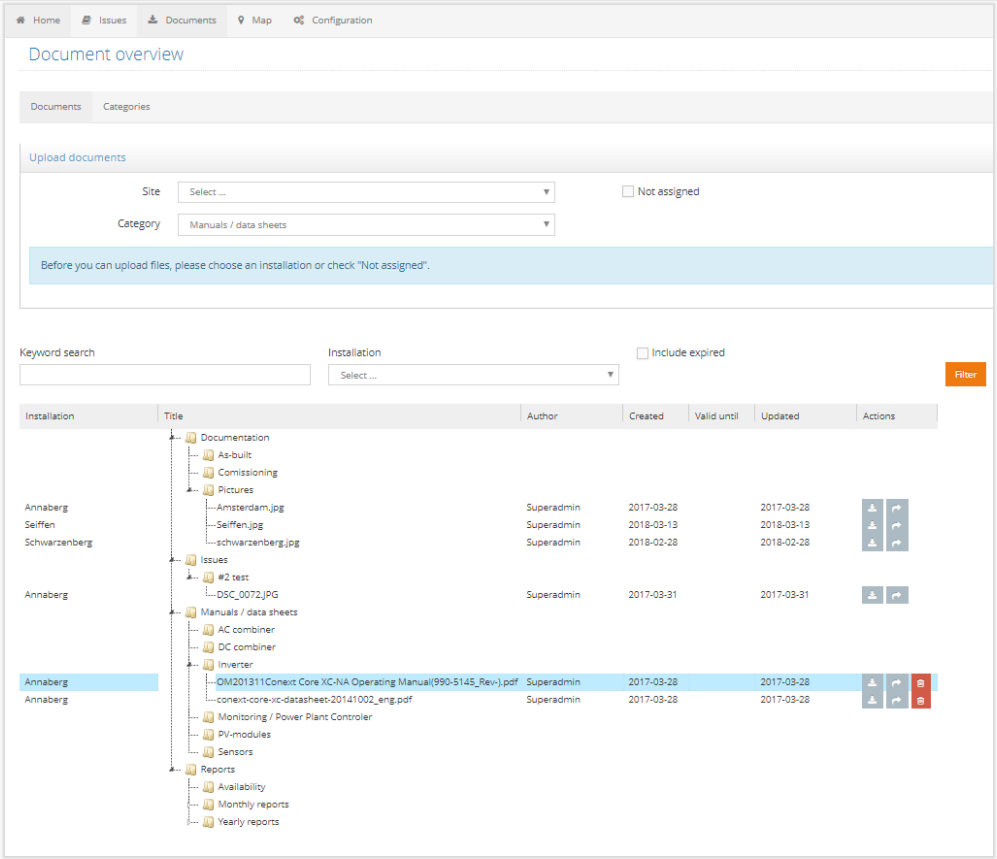
Issue tracking system / system-specific document management

Ticketsystem



O&M overview and administration system

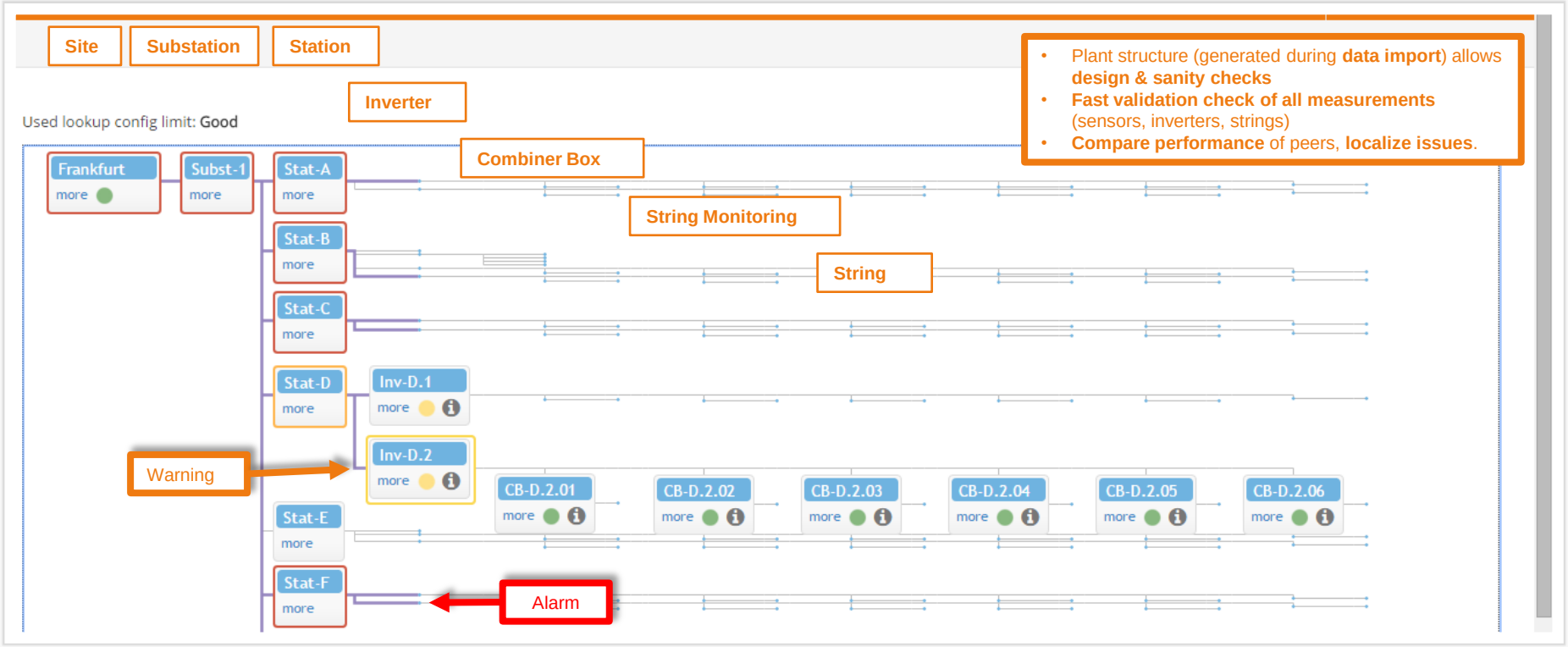
Plant-specific document management



Plant-specific document management

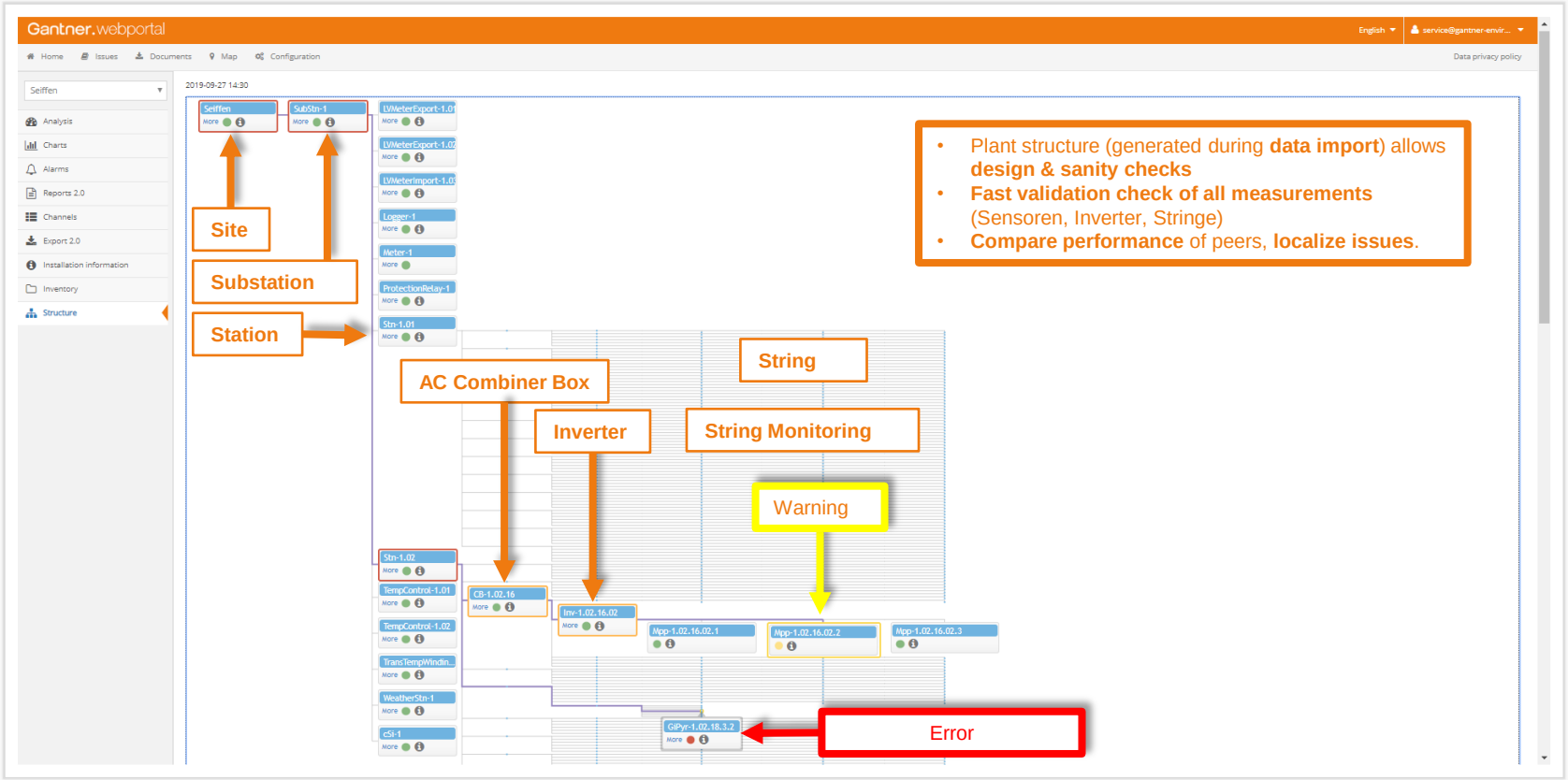
Digital image of the plant from the string to the entry point

(central) PV systems structure



Digital image of the plant from the string to the entry point

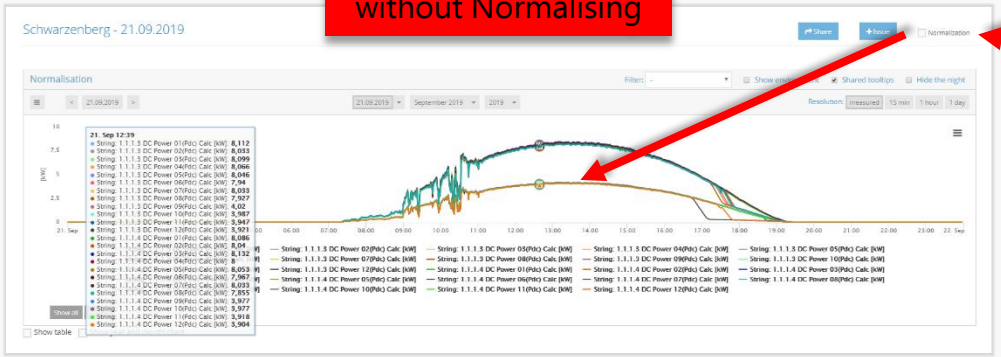
(decentral) PV Anlagen Struktur



Digital image of the plant from the string to the entry point

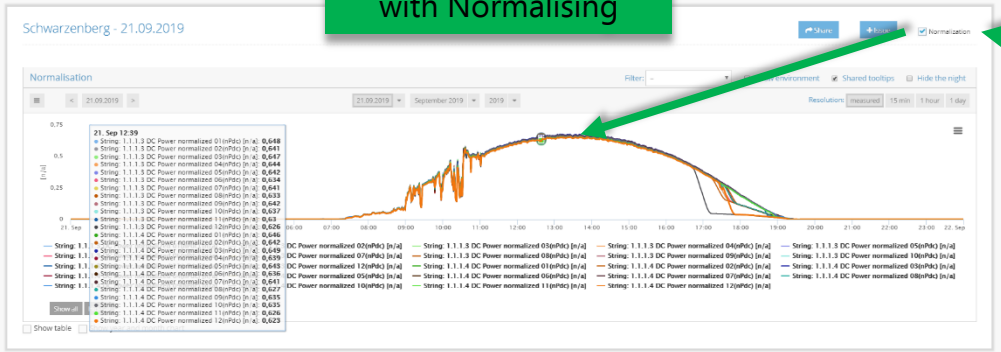
Normalised Values

without Normalising



Absolute values:
$I_{measured}$ is different for larger and smaller areas

with Normalising



Normalized values:
$I_{MEASURED}/P_{NOMINAL}$ shows nearly the same values

Thanks for your attention!

Michael St. Neitzel

Head of Global Cloud Services