SCHEDULE 1 – SERVICE DESCRIPTION — Version 2.4 (effective 2026-05-20)

This document is part of the Turbit General Terms and Conditions and describes the offered services of Turbit. These services are bookable in the Order Form.
Hyperlinks contained in this Schedule (including links to videos, images, the Support Wiki, or any other external site) are provided for convenience only. They do not form part of this Agreement and create no contractual obligations.

DEFINITIONS AND EXPLANATIONS

1. **User**: An authorized user, including a non-human program that uses the Turbit App, Turbit API or Turbit Realtime MQTT.

2. **Turbine**: A machine that converts wind energy into electric energy.

3. **Solar Plant**: A facility that converts sunlight into electricity using photovoltaic panels. A Solar Plant usually contains many solar panel arrays that are connected to several electric converters and a datalogger. A solar park may contain several Solar Plants each with one datalogger.

4. Solar Converter: A power-electronics unit (inverter) that converts the DC output of a portion of a Solar Plant's photovoltaic array into AC output for grid feed-in. A Solar Plant typically contains multiple Solar Converters and may be metered at Plant level or at individual Solar Converter level, as set out in the Order Form.

5. **BESS**: Any system that stores electrical energy in batteries (typically lithium-ion) for later use. A BESS usually includes battery modules, power converters, a battery management system (BMS), and a datalogger.

6. **Plant**: A Turbine, Solar Plant, Solar Converter, or BESS.

7. **Park**: A group of several Plants (min. 1 Plant).

8. **Assets Under Contract**: All Plants that are under contract.

9. **Data**: Any of the following type of data:

   a. **Machine Meta Data**: Any information about the Plant or Park (e.g., the machine type, location, components, contracts)

   b. **Sensor Data:** Any time series data of the Plant or Park, (e.g. a time series data of the temperature of the gearboxoil, power or windspeed or others).

   c. **Original Status Data**: Any time-related datapoint of the Plant or Park that describes the operational state of the Plant.

   d. **Customer Status Data**: A time-related datapoint that is manually or programmatically set by the Users to describe a single Original Status Data entry, many Original Status Data entries as a group or any other time-related datapoint interval.

10. **Event**: A noteworthy time-related datapoint or other anomaly detected by Turbit.

11. **Case**: A ticket that may summarize and link to several Events and has additional information from Users.

12. **Label**: Any of the following type of labels:
    a. **Customer Label**: Any label that gives Data a description and is manually set by a User within the Turbit App.
    b. **Turbit Label**: A label that describes Data and is calculated by Turbit.
13. **Pool Data**: anonymized Data, Events and Labels from the Customer and other customers of Turbit.
    a. **Pool Sensor Data**: anonymized Sensor Data of the Customer and other customers of Turbit.
14. **Machine Learning**:
    a. **ML Algorithm**: Any supervised or unsupervised machine learning algorithm.
    b. **ML Model**: Any machine learning model, that is not yet trained with data.
    c. **ML Instance**: Any trained ML Model.
    d. **ML Instance In Production**: A ML Instance that is active and in production.
    e. **Simulated Sensor Data**: Sensor Data that is simulated by a ML Instance in Production.
15. **Monitoring Mod**ule: An algorithm incorporating an ML Instance In Production that detects Events and Cases for a given set of Sensor Data.
16. **KPI**: A key performance indicator that summarizes or describes Data.
17. **All Filter**: Filters give the User the ability to filter the analyzed Data by one or many of the following conditions connected with a logical “and” or “or”. All Filters means that all the following filters are possible to use:
    a. Filter by Plant.
    b. Filter by Time Range.
    c. Filter by Sensor Data.
    d. Filter by Label.
    e. Filter by ML Instance.
18. **Onboarding of Authorized Users and Assets. The Customer's designated administrator ("Admin User") can invite, modify and deactivate additional Authorized Users from within the Turbit App. The initial Admin User is provisioned by Turbit during Customer onboarding. Single sign-on (SAML/OIDC) is not currently offered. The Customer may also add new Parks and Plants to the SaaS Solution via the in-app onboarding wizard.**

TURBIT PRODUCTS
Basic features and functionalities:

The following basic features and functionalities are included in every Turbit product.
The **Turbit App** is a web app that is accessible at https://app.turbit.com (Turbit App Domain).

Dashboard

The Dashboard displays important KPI or other relevant high-level information about the Assets Under Contract or the usage of the Turbit App by the Authorized Users.

XY Plotter
The XY Plotter is a scatter plotter, that displays any Sensor Data in 2 dimensions.

Filter possibilities: All Filter except Filter by ML Instance.

Angular Plotter

The Angular Plotter is a radial plotter that can plot average value histograms of Sensor Data. If more than one Plant is selected, the average of the selected Plants is displayed.
Filter possibilities: All Filter except Filter by ML Instance.

Power Comparison

Compare the power output of selected Plants with each other.
Filter possibilities: All Filter except Filter by ML Instance.

Sensor Comparison

Compare Sensor Data of selected Plants with each other in a scatter plot. The x axis of the plot displays the average of the Sensor Data of the selected Plants. The y axis of the plot displays the the individual Sensor Data of the selected Plants.
Filter possibilities: All Filter except Filter by ML Instance.

Turbine Comparison

Like Sensor Comparison but the User can choose freely any Sensor Data to be displayed on the x and y axis of the scatter plot.

Benchmarking

Like XY Plotter but additionally plot data from the Pool Sensor Data of the selected Plants of the same machine type.
Filter possibilities: All Filter except Filter by ML Instance.

Histogram Plotter

Create a histogram plot of Sensor Data.
Filter possibilities: All Filter except Filter by ML Instance.

Status Table

Display Original Status Data and Customer Status Data in a table.
Filter possibilities: Filter by Turbine, Filter by Time Range.

CMS Plotting

Like XY Plotting but additionally plot Simulated Sensor Data generated by the selected ML Instance.

Event Table

Like Status Table but displays Events instead.

Event Card

The Event Card is an automated analysis report and displays an Event within the Turbit Web App. Each Event Card has its unique ID, deep link and is accessible via the Turbit API. The deep link can be sent via E-Mail to customers' and users' inboxes or third-party software.

Case Table

Like Status Table but displays Cases instead.

Case Card

The Case Card is connecting multiple Events from different Plants or ML Modules if they are technically connected. E.g. a gearbox failure resulting in high temperatures but also a throttling in power will be connected in one Case. The Case Card then helps you manage the status of that Case by adding a comment, set labels of priority and root cause and whether or not the Case is unconfirmed, open or closed and communicated to the OEM/service team. From the Case Card you have access to all relevant information that is related to that particular Case.

Labeling

An Event and a Case can be labelled by the User. Labels are used to enhance the Data and can be used as input for the training of a ML Instance or the Event Detection. Labeling improves the performance of the ML Instances as well as the performance of Label Prediction.

Settings

Edit settings of the Turbit App per Authorized User.

API

An API where Users can pull Data, Simulated Sensor Data as well as Events and Cases is accessible here at https://api.turbit.com.

Data Science Pipeline

1. Data Gathering: The Data is gathered periodically from the Customer. If the availability of the Data from the Customer is unusual or generally broken, Turbit informs the Customer.
2. A Data Availability Check as described above is performed.
3. Data Cleaning: Turbit generates a training dataset from the Data to have a dataset that represents the normal behaviour of the Plant. Additionally, Pool Data is used to compare.
4. Training of ML Instances: After the Data Cleaning the training dataset is used to train an ML Instance. If the ML Instance is deemed of sufficient quality, it transitions into an ML Instance in production.
5. Data Simulation: For every Output Sensor that has been available to Turbit, Turbit is immediately generating Simulated Sensor Data with the ML Instance in production.
6. Event Detection: If Simulated Sensor Data is abnormal and not in accordance with the Data, Turbit automatically generates Events.
7. Case Inclusion: Events are combined into Cases based on underlying turbine issues. Customers are informed about Cases.

Transfer Learning

With transfer learning, Turbit can quickly monitor newly commissioned wind parks. Turbit uses a similarity score for Plants to choose turbines from the Anonymized Customer Data to train ML Instances and finetunes them with new data from the specific Plant.

Training Schedule

Turbit constantly retrains ML Instances to improve prediction quality. The retraining schedule is structured as follows:

1. Main ML Modules are trained once a year.
2. Label Prediction and Relevance Prediction models are trained every 8-10 weeks.

Document Manager

In the Document Manager you can upload any type of PDF (we currently only support PDFs). The documents are then stored and extracted with AI (OCR) or other methods. The Documents are then summarized and key content is extracted by Large Language Models, e.g. the criticality and serial numbers or wind parks are extracted automatically.

Case Manager

The Case Manager is a tool to manage and document Cases.
Depending on the type of Case (e.g. from Power Module, Blade Monitoring etc.) there might be different flows of stages that a Case can go through. In general a Case goes through these stages:

1. Unconfirmed
2. Confirmed
3. Review
4. Closed

TURBIT MONITORING

Every Monitoring Module can be optionally booked as stated in the Order Form. Turbit can only provide the services of a Monitoring Module if at least one of the described Input Sensors and one of the described Output Sensors is sufficiently available and if at least three months of recent historical data is available.
For each new Monitoring Module and a retraining of a ML Module Turbit is performing the Data Science Pipeline.
Available Monitoring Modules:

Power
Surveillance of the power output of a Plant.

Input Sensors	**Output Sensors**
"windspeed.val"	"power.val"
"windspeed.min"	
"windspeed.max"	
"windspeed.stddev"	
"windspeed_1.val"	
"windspeed_1.min"	
"windspeed_1.max"	
"windspeed_1.stddev"	

Input Sensors	Output Sensors
"windspeed_2.val"	
"windspeed_2.min"	
"windspeed_2.max"	
"windspeed_2.stddev"	
"temperature_nacelleambient.val"	
"temperature_ambient.val"	
"orientation_windvane.val"	
"orientation_wind.val"	
"orientation_nacelle.val"	
"curtailment_mode.val"	
"setpoint_max_power.val"	
"utctime_stop"	

Rotor
Surveillance of the main rotor bearings of a Turbine.

Input Sensors	Output Sensors
"temperature_nacelleambient.val"	"temperature_bearing_1.val"
"temperature_ambient.val"	"temperature_bearing_2.val"
"power.val"	"temperature_bearing_inner.val"
"temperature_nacelle.val"	"temperature_bearing_outer.val"
"rpm_rotor.val"	"temperature_rotorbearing.val"
	"temperature_rotorbearing_1.val"
	"temperature_rotorbearing_2.val"

Gearbox
Surveillance of the gearbox of a Turbine.

Input Sensors	Output Sensors
"temperature_nacelleambient.val"	"temperature_gearbox.val"
"temperature_ambient.val"	"temperature_gearboxoil.val"
"power.val"	"temperature_gearboxoilpan.val"
"temperature_nacelle.val"	"temperature_gearboxoil_inlet.val"
	"temperature_gearboxbearing.val"
	"temperature_gearboxbearing_1.val"
	"temperature_gearboxbearing_2.val"
	"temperature_gearboxbearing_3.val"
	"temperature_gearboxbearing_4.val"
	"temperature_gearboxbearing_5.val"
	"temperature_gearboxbearing_6.val"
	"temperature_gearboxbearing_7.val"
	"temperature_gearboxbearing_8.val"
	"temperature_gearboxbearing_9.val"
	"pressure_gearboxoil.val"
	"pressure_gearboxoilpan.val"
	"temperature_gearbox_cooling.val"
	"temperature_transmissionbearing_1.val"
	"temperature_transmissionbearing_2.val"
	"temperature_transmissionbearing_3.val"

Generator
Surveillance of the generator of a Turbine.

Input Sensors	Output Sensors
"temperature_nacelleambient.val"	"temperature_generator.val"
"temperature_ambient.val"	"temperature_generator_1.val"
"power.val"	"temperature_generator_2.val"
"temperature_nacelle.val"	"temperature_generatorbearing.val"
	"temperature_generatorbearing_1.val"
	"temperature_generatorbearing_2.val"
	"temperature_generatorbearing_de.val"
	"temperature_generatorbearing_nde.val"
	"temperature_generatorcooling.val"

Input Sensors	Output Sensors
	"temperature_generatorcoolingair.val"
	"temperature_generatorcoolingwater.val"
	"temperature_generatorphase_1.val"
	"temperature_generatorphase_2.val"
	"temperature_generatorphase_3.val"
	"temperature_statorwindings.val"
	"temperature_statorwindings_1.val"
	"temperature_statorwindings_2.val"
	"temperature_statorwindings_3.val"
	"temperature_statorwindings_4.val"
	"temperature_statorwindings_5.val"
	"temperature_statorwindings_6.val"
	"temperature_statorwindings_7.val"
	"temperature_statorwindings_8.val"
	"temperature_statorwindings_9.val"
	"temperature_statorwindings_10.val"
	"temperature_statorwindings_11.val"
	"temperature_statorwindings_12.val"
	"temperature_transformer.val"
	"temperature_transformerphase_1.val"
	"temperature_transformerphase_2.val"

Input Sensors	Output Sensors
	"temperature_transformerphase_3.val"

Label Prediction

Each Authorized User can give feedback to the Events and Cases that are generated by Turbit. The feedback is given in terms of labels that include:

- The location of the root cause.
- A description of the anomaly (Data Description), which describes how the detected anomaly is evolving, e.g. steadily wihout steps or suddenly with a stepwise increase in temperatue.

For each Event Turbit predicts the possible root cause.

Relevance Prediction

Authorized Users can rate Events for relevance, e.g., an Event that is not yet known to the Authorized User and indicates a potential breakdown of the gearbox can be labeled with a high relevance, whereas a direct marketer power curtailment can be labeled with low relevance since this information is already known.
For each Event Turbit then predicts the possible relevance with AI. The predicted relevance ratings are used to filter events such that only likely relevant events are included in cases and visible to users.

Blade Monitoring

Turbit Blade Monitoring is a system designed to monitor the health of Turbine blades, which are critical components subject to extreme conditions and potential failures.

1. Data Collection: The system uses high frequency vibration sensor data (e.g. from third party sensor providers) to measure acceleration, strain, or acoustic emissions on the blades. These sensors capture frequency spectra over defined time periods, which are then visualized as spectrograms to analyze vibration patterns.
2. Similar to all other Monitoring Modules Turbit is performing the Data Science Pipeline to detect Events and Cases.
3. Independence and Integration: Turbit Blade Monitoring is designed to be independent of any hardware vendor and can utilise existing or retrofitted sensors. Where Turbit ingests the required high-frequency vibration data via the Datahub, Datahub Plus or Full is required (see Turbit Datahub below). The Customer may alternatively supply the data via a Customer-Pushed Feed (see Schedule 2 §5). Blade Events and Cases generated by the Module appear in the Case Card and Event Card flows in the Turbit App.

Monitoring Backtest

Simulates Turbit Monitoring against the Customer's historical Sensor Data across all available Monitoring Modules (Power, Rotor, Gearbox and Generator). A detailed report shows which Cases Turbit would have detected over the selected period and includes an analysis of potential current issues.

TURBIT ASSISTANT

The Turbit Assistant enables you to chat with the documents you uploaded in the Document Manager. Turbit is using a technology called Retrival Augmented Generation (RAG) for this.
The Turbit Assistant consists of 3 main functionalities:

1. Document Manager: You can upload your documents (PDFs) via Drag and Drop. The information inside the documents is extracted and summarized. Severety and priority is extracted and we can set up automatic Case generation (see Document Monitoring as part of AI Monitoring), if a documents needs further attention (e.g. if an oil report shows high iron levels).
2. Chat: The Turbit chat works like any other LLM chat and enables you to ask a variety of questions. The answers are augmented by your real data, e.g. when you ask about what needs to be done in windpark x, the information is gathered from multiple service inspection reports and summarized in the chat. The included volume of Turbit Assistant usage and the behaviour upon exceeding that volume (including any overage rate and the Customer's option to disable for the remainder of the calendar month) are set out in the Order Form.
3. Workflows: The Turbit Assistant supports workflows that automate operational tasks. The first such workflow is Defect Tracking: with each newly uploaded document a list of defects is updated and prioritized for the Customer's wind park, giving a single place to focus on. Additional workflows may be configured from time to time. Turbit may charge for each workflow in a pay-as-you-go pricing model.

TURBIT BLUE

Turbit Blue enables the Customer to combine Turbit's SaaS service with traditional insurance. For this purpose, Turbit cooperates with one or several insurance providers who offer better insurance conditions if the Customer is working with Turbit. For the purpose of transparency and ease of claim management, Turbit provides the following data to the insurance provider:

- Cases of Plants under Turbit Blue

Turbit does not share any Data as defined in this service description.
With regard to the insurance conditions, including the conditions for an insurance cost reduction, the terms of the insurance provider apply, which the customer agrees to directly with the insurance provider. For the sake of clarity, Turbit is not an insurance and is not liable for any damage to the Plants whatsoever.

TURBIT DATAHUB

The Turbit Datahub connects, normalises and stores Data from the Parks and Plants in a central repository for use by the Turbit Monitoring suite and for export via the Turbit API to the Data Warehouse. The Datahub is offered in three tiers — Core, Plus and Full — selected on the Order Form. Each tier provides API access to the Data Warehouse and the Turbit Customer-side data mapping functionalities; the tiers differ in data frequency, status-code support and outbound streaming.

Datahub Core
OPC-based ingestion from the Customer's second-level SCADA system or equivalent, normalised to ten-minute average values. Includes onboarding of live and historic Data for the Turbit Monitoring suite, redundant storage of the ingested Data and API access to the Data Warehouse. Datahub Core does not include status codes, high-frequency data or outbound streaming.

Datahub Plus
All features of Datahub Core, plus ingestion of status codes and high-frequency Data up to the maximum sample rate supported by the source OPC server (typically up to 1-second). Includes the built-in Datahub Monitoring view of ingestion health and Data quality.

Datahub Full

All features of Datahub Plus, plus outbound real-time streaming of the ingested Data via the Turbit MQTT broker. The Customer may authorise third parties to subscribe to the broker on specified topics. Datahub Full is required where the Customer wishes to share live Data with external systems (e.g. insurance providers, OEMs, energy-market analytics and trading).

CUSTOMER SUCCESS AND SUPPORT

Turbit's Customer Success function supports the Customer in achieving value from the Agreed Services throughout the term of the Agreement. The specific Customer Success activities for each Customer — including cadence, scope and any dedicated personnel — are agreed between the Parties from time to time and may be reflected in the Order Form. Turbit's obligations under this Customer Success section are limited to those activities so agreed.

Customer Responsibilities

The Customer shall reasonably cooperate with Turbit's Customer Success activities, including providing access to relevant data and systems, designating points of contact and participating in agreed sessions, in each case as reasonably required for the activities to be effective.