powered by **Vector Renewables**

Crafted with our expertise, tailored to the client's needs.

FRIDAY 12 SEPTEMBER 2025

Summary

1. Introduction
2. NUO Platform overview
3. Experience
4. NUO Service Proposal
5. Platform Integration

What is NUO? Our asset management platform

NUO is the platform designed by asset managers for the client.

At Vector Renewables we have a deep understanding of the challenges and complexities that come with managing projects as a worldwide leading advisory firm.

From this experience comes NUO, Vector Renewables' cloud-based digital asset management platform that improves the management of renewable energy assets. Leveraging automation and data analytics, it delivers key performance indicators (KPIs), predictive insights, and real-time monitoring of technical and financial performance, enabling smarter decisions, all in a 360-degree platform.

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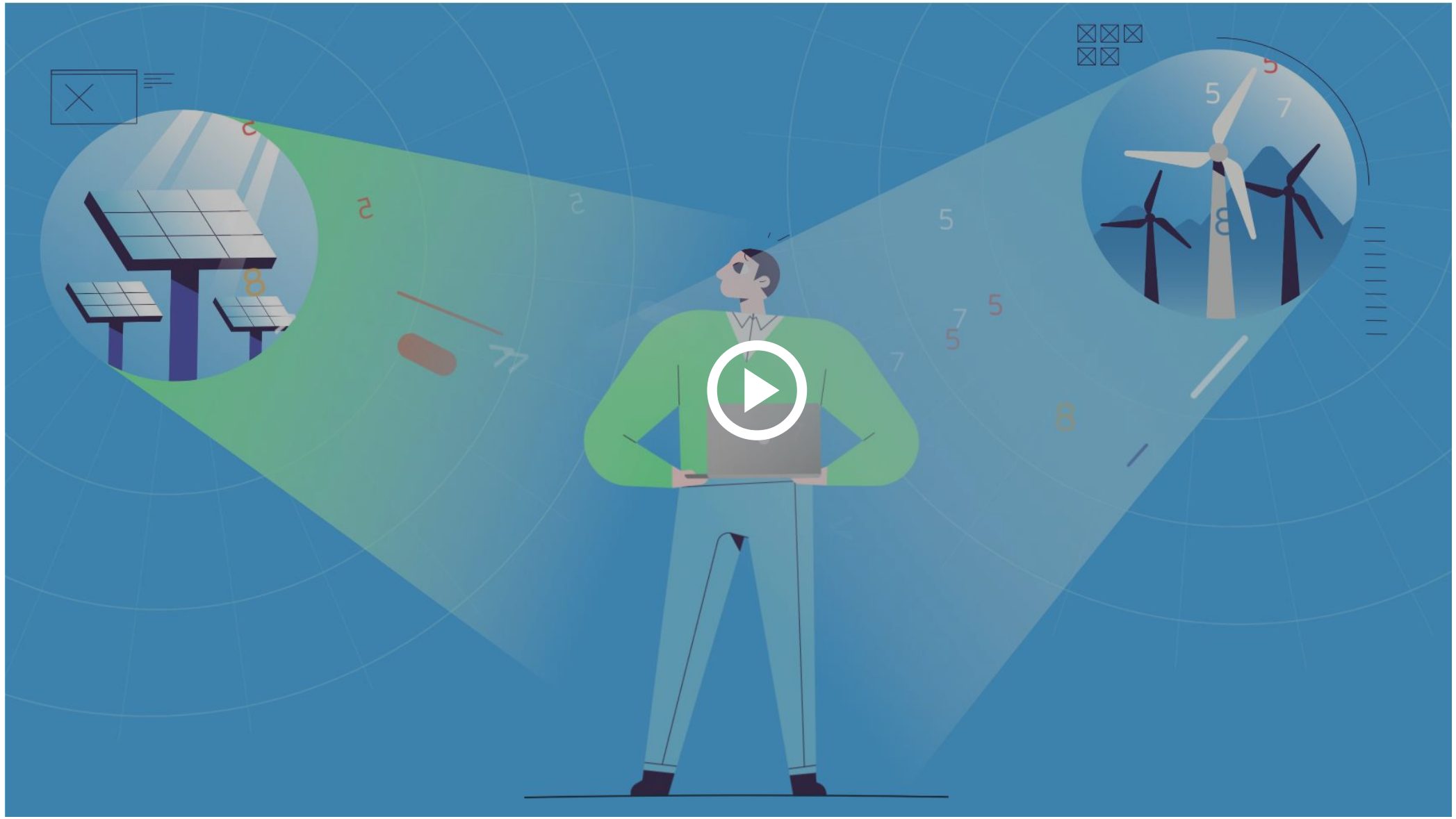
NUO at a glance



NUO’s five pillars

All-encompassing platform to boost renewable asset management efficiency through **digitalization**, **standardization** and **automation**

Connect

1

Consolidate all the client's project data on a single platform by sharing essential KPIs

Optimize

2

Monitor events and trends to anticipate issues and make data-driven decisions.

Plan

3

Keep all the client's tasks under control and monitor the performance of their contractors.

Report

4

View and share the client's data, reporting made theirs.

Control

5

Manage the behavior of the client's assets quickly with remote control.

Connect

Unify all the client's project data on a single platform by sharing essential KPIs.

1 Project overview

- All the information structured in a single place
- Setup of multiple budgets for different purposes
- Fine-tune plant parameters to trigger tailored events and alerts

2 Documental repository

- Access quickly on the projects' information in a structured way
- Deadlines and contractual covenants accessible immediately
- Store previous releases of each document

3 Data integration

- All the data source interconnected in a unique platform
- Integrate field data with satellite and forecast
- Automatic collection of market prices with configurable alerts
- Map spare parts available and their consumption with notification to avoid shortages

4 Data administration

- Dedicated connectors to gather data by any external source or platform
- Improve data integrity with automatic recovery
- Embedded data cleaning to rely on effective data

Optimize

Monitor events and trends to anticipate issues and make data-driven decisions.

1

Real-time monitoring

- Visualize the status of the facilities in real time
- Minimize response time to faults with alarm push notifications
- Compare forecasting models to spot inefficiency

2

Performance analysis

- Monitor the technical behavior of the client's plants.
- Drill down from plant overview to single component
- Automatic event recognition to be human validated
- Calculate technical and contractual KPIs
- Obtain categorized losses estimation

3

Energy management

- Turn the energy production into economic performance
- Analyze revenue calculations from fiscal meters
- Define specific contractual energy sales formulas
- Multiple revenue and cost streams calculation

Plan

Keep all the client's tasks under control and monitor the performance of their contractors.

1 Task management

- Schedule and manage the maintenance, financial and legal activities
- Massively upload contractual scheduled maintenance plan
- Monitor contractor performance and systematic delays
- Direct link tasks to plant unavailability and events

2 Contract management

- Keep track of contractual deadlines and covenants
- Monitor renewals and expiration dates
- Advance notice monitoring in automatic renewal
- Trigger specific alerts for selected events and deadlines

3 Forecast

- Spot potential inefficiency comparing data
- Management of unbalancing costs
- Schedule plant outage during minimum production and energy price

4 Spare-parts and warehouse

- Monitor availability of spare parts
- Plan purchase of scarce components

Report

View and share the client's data, with reporting tailored to their needs.

1 Technical and financial dashboards and reports

- Compare monthly production and revenues against budgets
- Trace main events and task affecting performances
- Aggregate information of single plant at portfolio level
- Monitoring of the aggregated KPIs

2 Customizable dashboards and reports

- Client-tailored charts and tables
- Drill down to single component
- Cross plant KPIs and data comparison
- Apply statistical analysis on data
- Generate specific KPIs defining formulas
- Share the customized dashboard or report with colleagues

3 Financial module

- Balance Sheet, P&L and Cash Flow in one place
- Variance analysis on revenues and costs

Control

Take control of the client's assets in real time.

1 Real time alert and notification

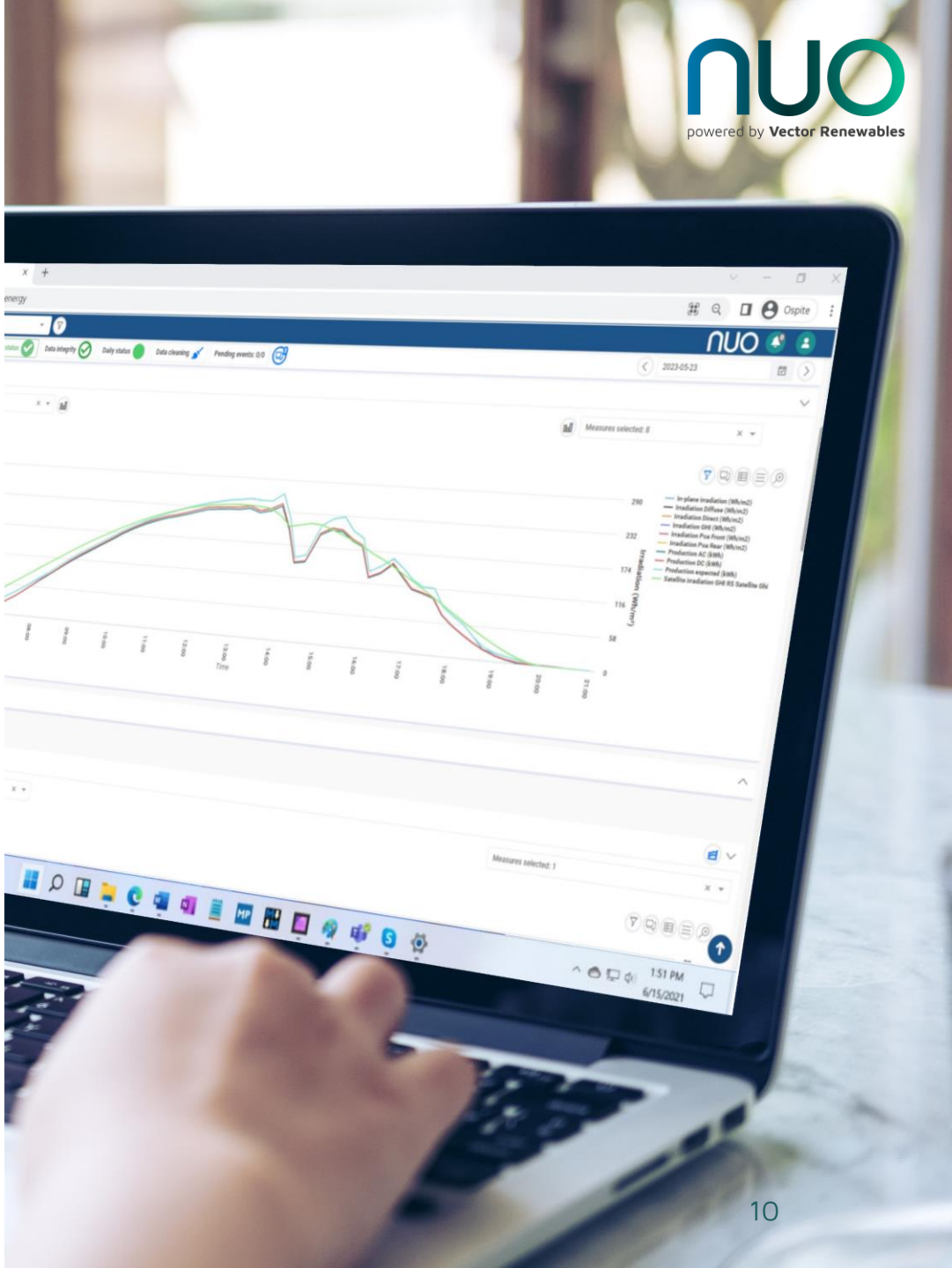
- Keep under control status of all the assets
- Spot critical behaviors
- Generate virtual events as combination of status from multiple sources
- Assign categories of events to specific users

2 Remote-control of asset and grid interface

- Start, Stop and Reset client’s assets remotely
- Generate chain of events to automatic trigger emergency stop
- Fast react to grid curtailments and avoid penalties
- Adapt power output to benefit of regulation for balancing
- Keep track of all the action taken on the asset

3 Further action suggestions by AI

- Obtain suggestion about further action to take to fulfill customizable procedures
- Replicate chain of commands according to previous behavior adopted in similar scenarios



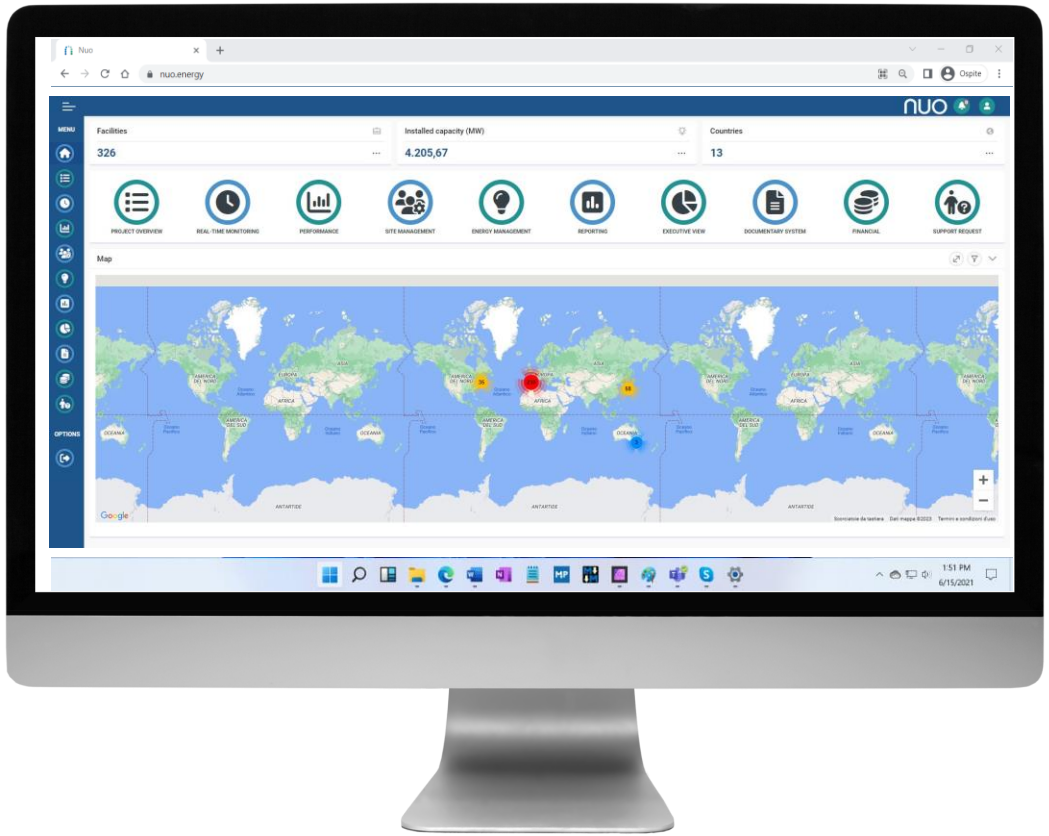
NUO Platform overview

NUO platform review

Login and Landing Page

NUO login page grants secure access to the portal by multifactor authentication and includes password recovery option. It is the main dashboard where it is possible to navigate towards all the modules accessible on the platform to the user.

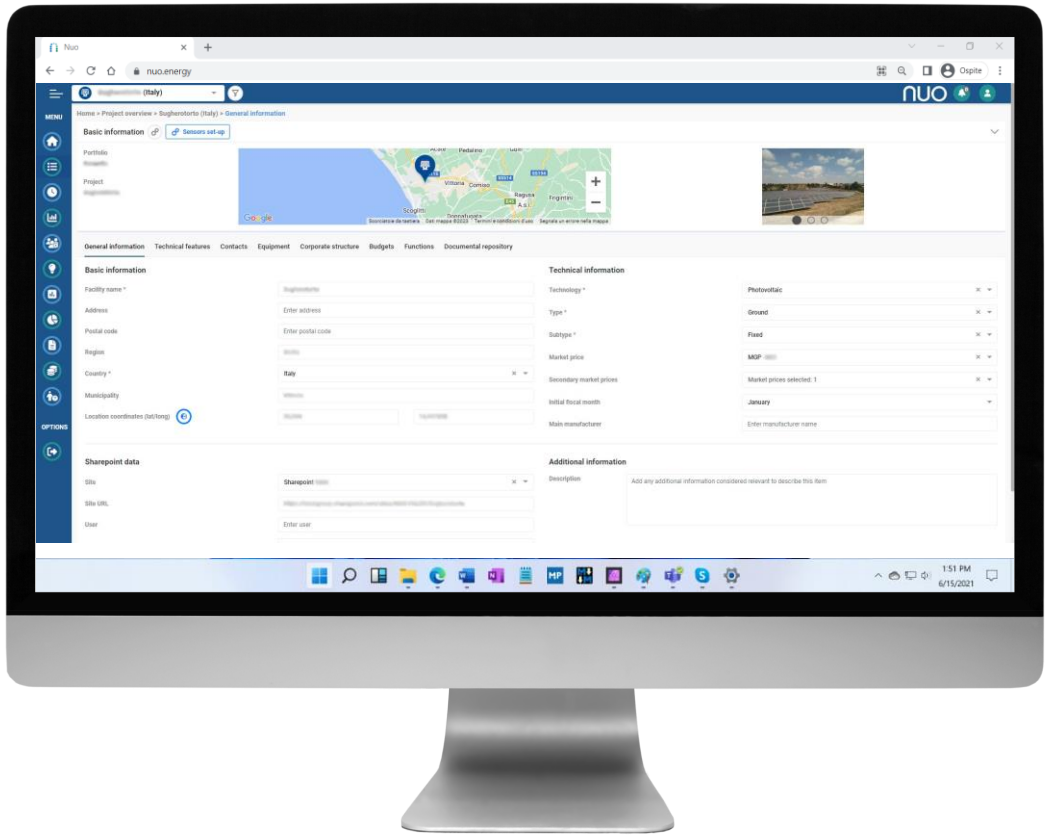
- This page also include a recap of the assets enabled to the user, highlighting the number of facilities, total power and location with support of a map;
- It is also possible to have information about the distribution of facilities per country and split of number and power based on technology.



Project Overview

Project Overview includes all the information about each single asset. In this module it is possible to:

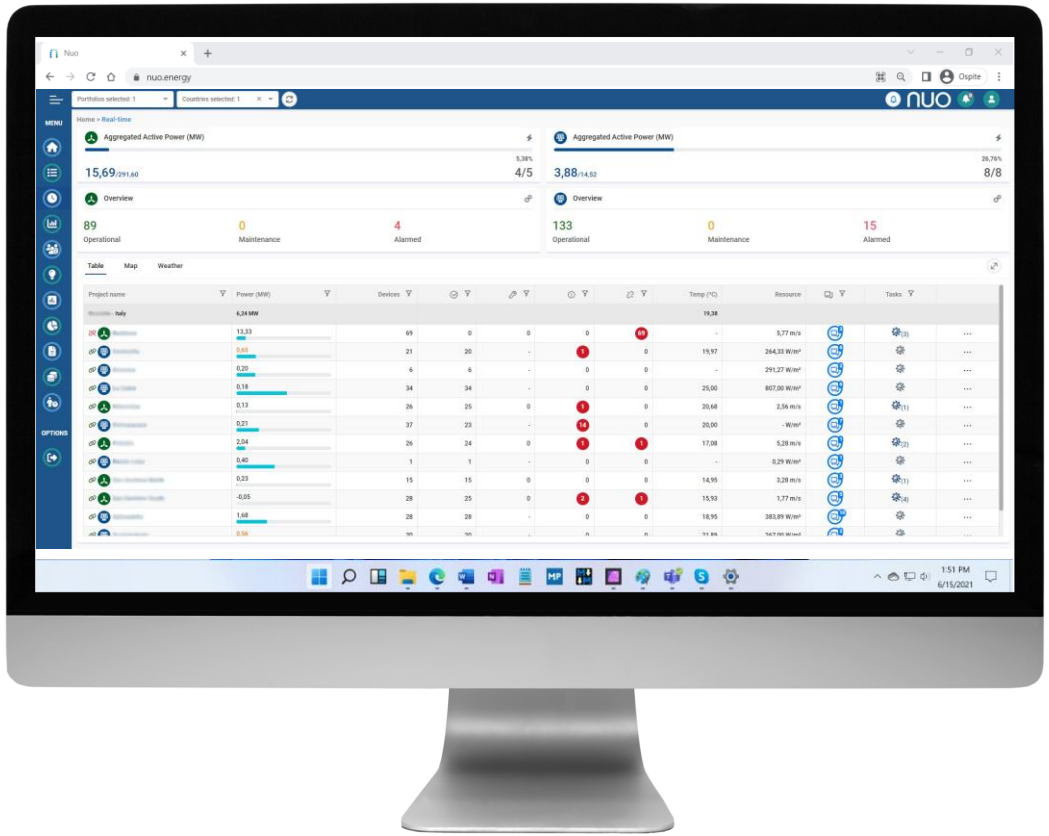
- Setup main plant information;
- Setup of parameters to fine-tune event recognition and access data and model providers (satellite, forecast, etc…);
- Setup main contacts of reference persons;
- Setup company profiles (SPV, holding, third parties);
- Setup multiple budgets for all technical and financial parameters.



Real Time Monitoring

Real Time Monitoring includes all technical data currently registered on field in Solar, Wind and BESS. In this module it is possible to:

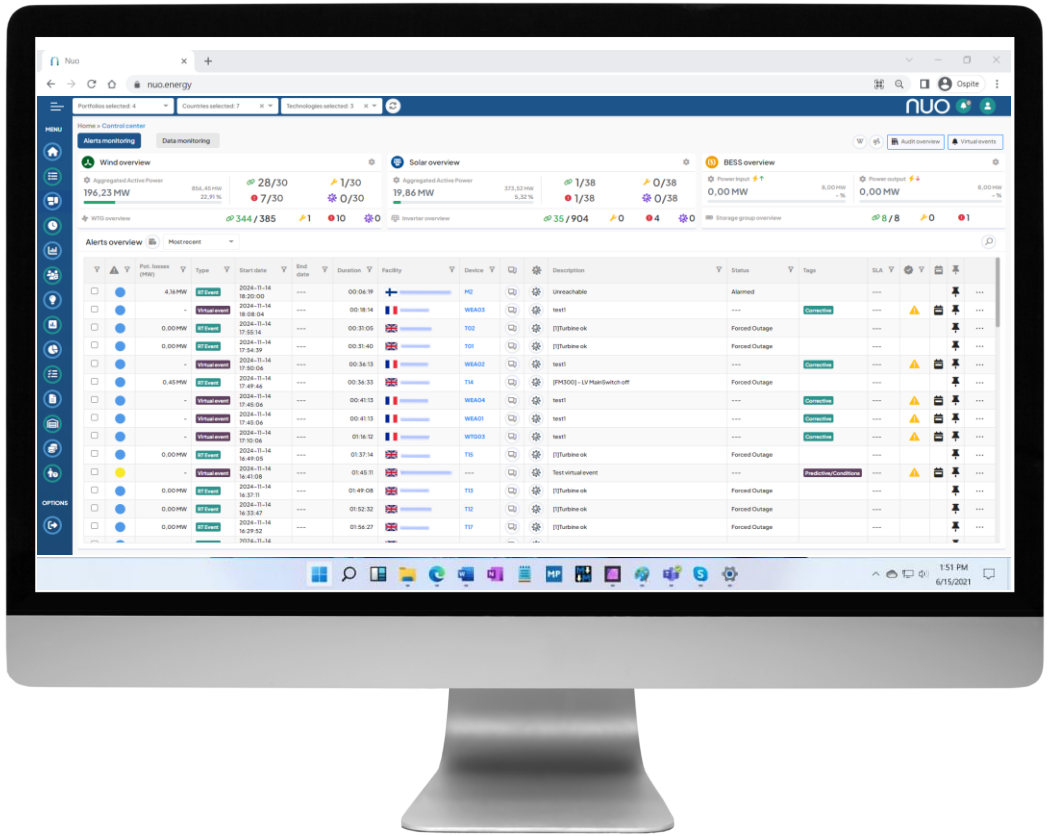
- Check actual power against peak;
- Check curtailment and setpoint applied;
- Check weather and primary resource availability (irradiation and wind);
- Highlight lack of communication, alarms and components under maintenance at portfolio level or plant level;
- Access weather map with forecasting;
- Drill down to components like inverters, combiner-boxes, wind turbine or batteries;
- Access tasks scheduled for the day;
- Include notes (private, teamwork or public).



Control Center

Control Center includes all the feature to monitor status, alarms and remote-control solar, wind and BESS assets and related grid infrastructure. In this module it is possible to:

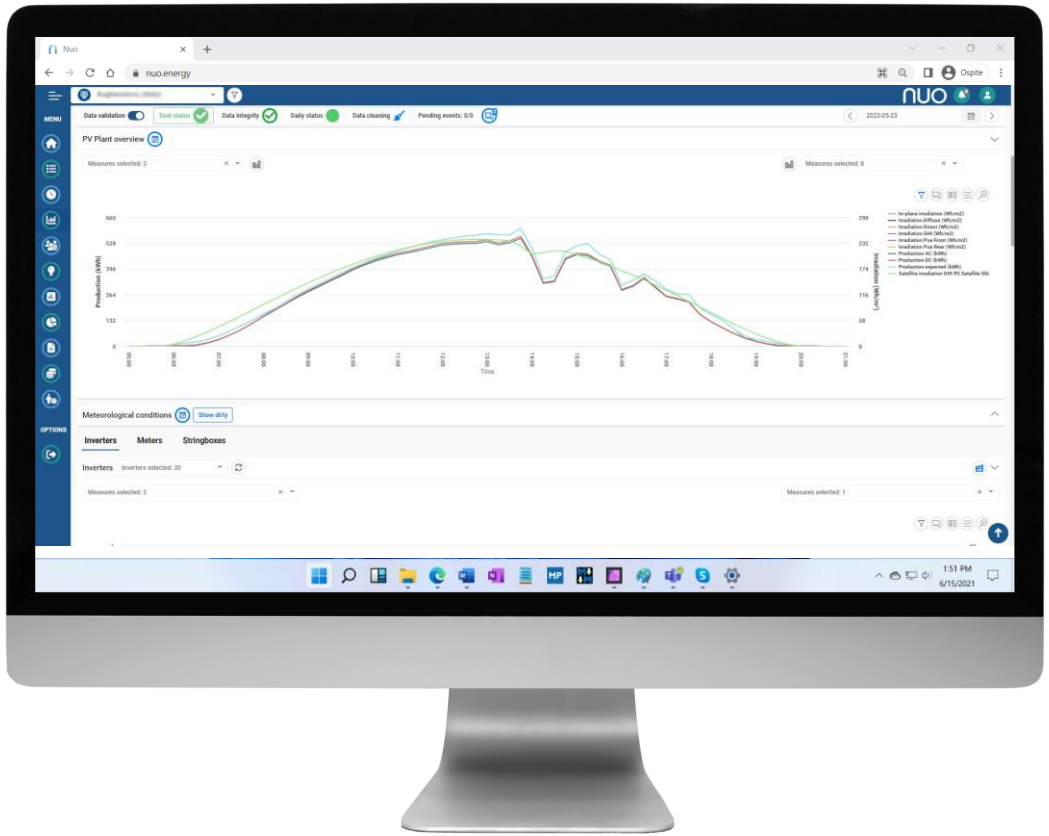
- Check current alarms triggered by the asset and monitor evolution;
- Define and check virtual events as combination of alarms and parameters;
- Sort events and alarms according to different level of priority and magnitude;
- Obtain suggestion on further actions according to tailored procedure;
- Remote control the asset including start, stop, reset and assignment of setpoint;
- Monitor status of grid interconnection;
- Trigger real time notifications and email.



Performance - Solar

Performance includes historical data from solar PV plant and other providers. In this module it is possible to:

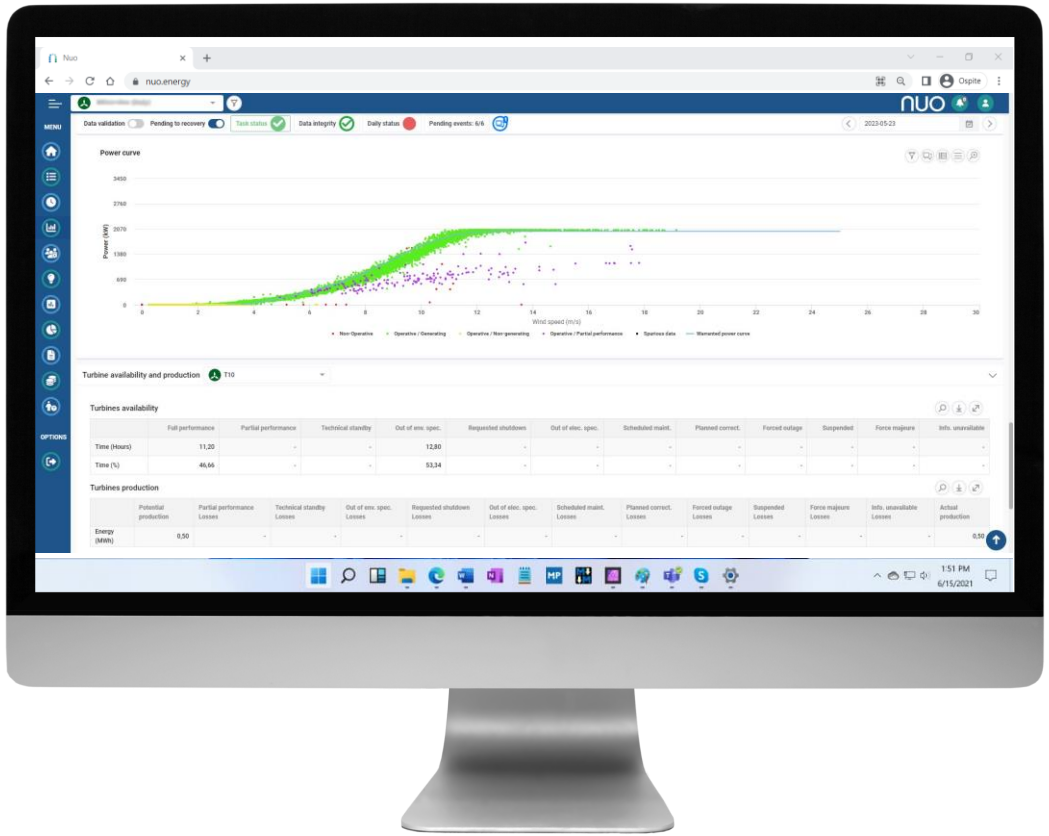
- Access to daily and monthly detail;
- Check calculated main KPIs of the plant like PR and availability;
- Compare production curve to solar resource, expected production and other plant parameter;
- Check data received by satellite providers and forecast;
- Compare devices curves to highlight underperformances and stops;
- Access data by meters, inverters, CB, strings, trackers and other sensors;
- Validate events with related losses and classify to calculate availability;
- Include notes (private, teamwork or public).



Performance - Wind

Performance includes historical data from Wind farm and other providers. In this module it is possible to:

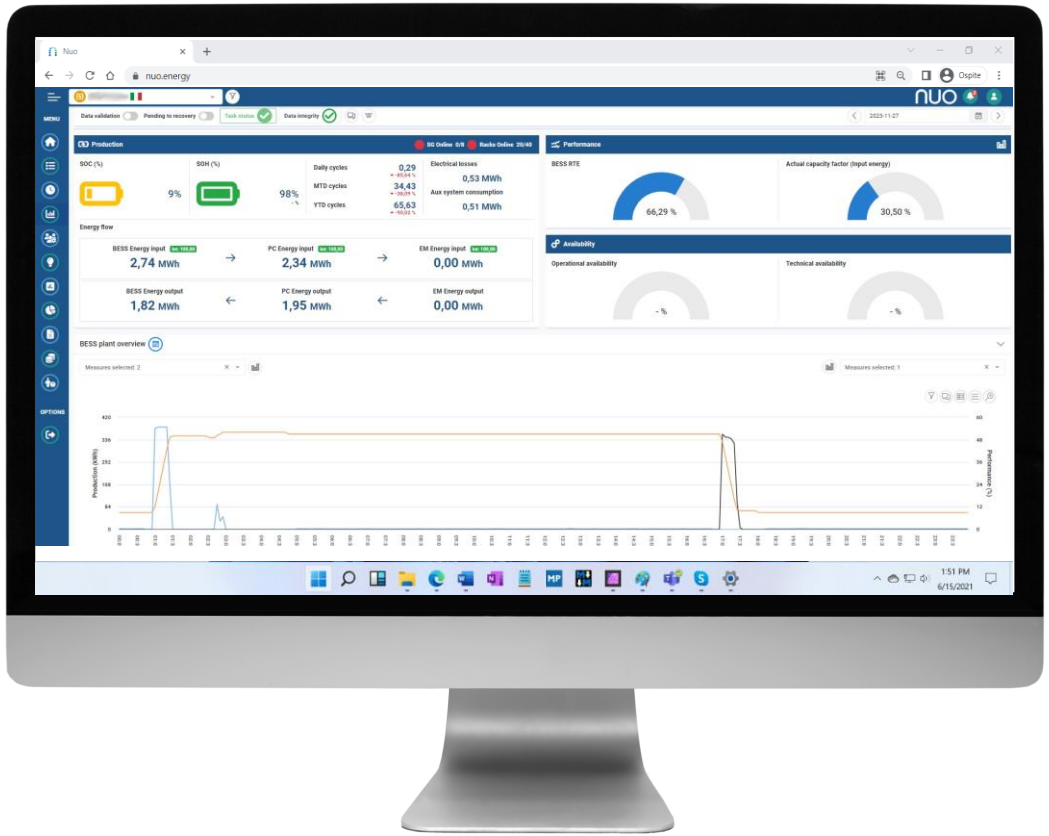
- Access to daily and monthly detail;
- Calculate main KPIs of the plant like production ratio, availability and SEANet;
- Compare production curve to wind resource, expected production, forecast, alarms and other plant parameter;
- Compare WTGs data with power curves stops and underperformances;
- Analyze categorized losses from potential to real production in a waterfall chart;
- Generate events by alarm taxonomy;
- Validate events with related losses and classify to calculate availability;
- Include notes (private, teamwork or public).



Performance - BESS

Performance includes historical data from BESS plant and other providers. In this module it will be possible to:

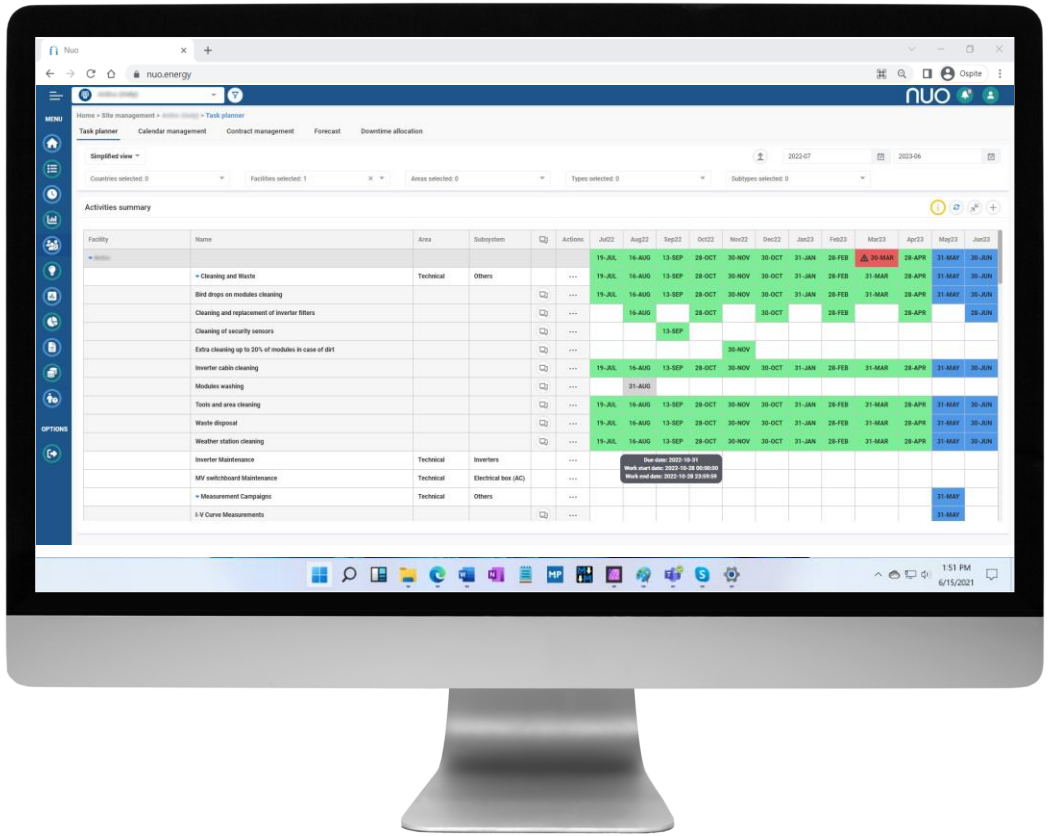
- Access to daily and monthly detail;
- Check calculated main KPIs of the plant like cycles, SOC, SOH;
- Compare charge and discharge and available capacity curves;
- Compare charge and discharge curves to asset production when BESS is linked to wind or solar plant;
- Compare devices curves to highlight underperformances and stops;
- Access data by meters, inverters, BMS and strings of cells;
- Validate events and classify to calculate availability;
- Include notes (private, teamwork or public).



Site Management - Task Planner

Task Management includes activities deadlines to be monitored. In this module it is possible to:

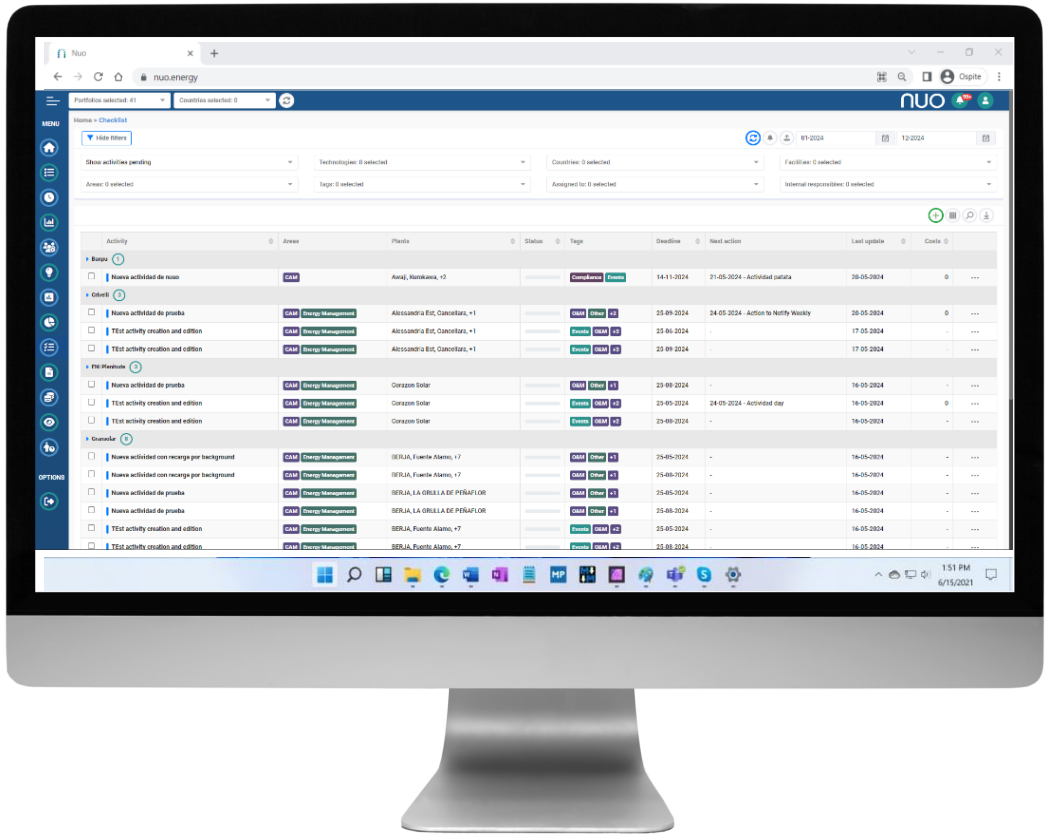
- Access to detailed task event list;
- Group subtask with specific deadline under main activity;
- Categorize activities for different area of interest (technical, commercial, HSE, etc…);
- Check activities pending, performed in time, delayed, expired or cancelled;
- Compare status of similar activities for different plants;
- Map contractual details, deadlines, renewals term and related covenants generating calendar task also adding notes;
- Set customized reminders about deadline expiration also including other users.



Check List

Check list includes historical log of activities under management. In this module it is possible to:

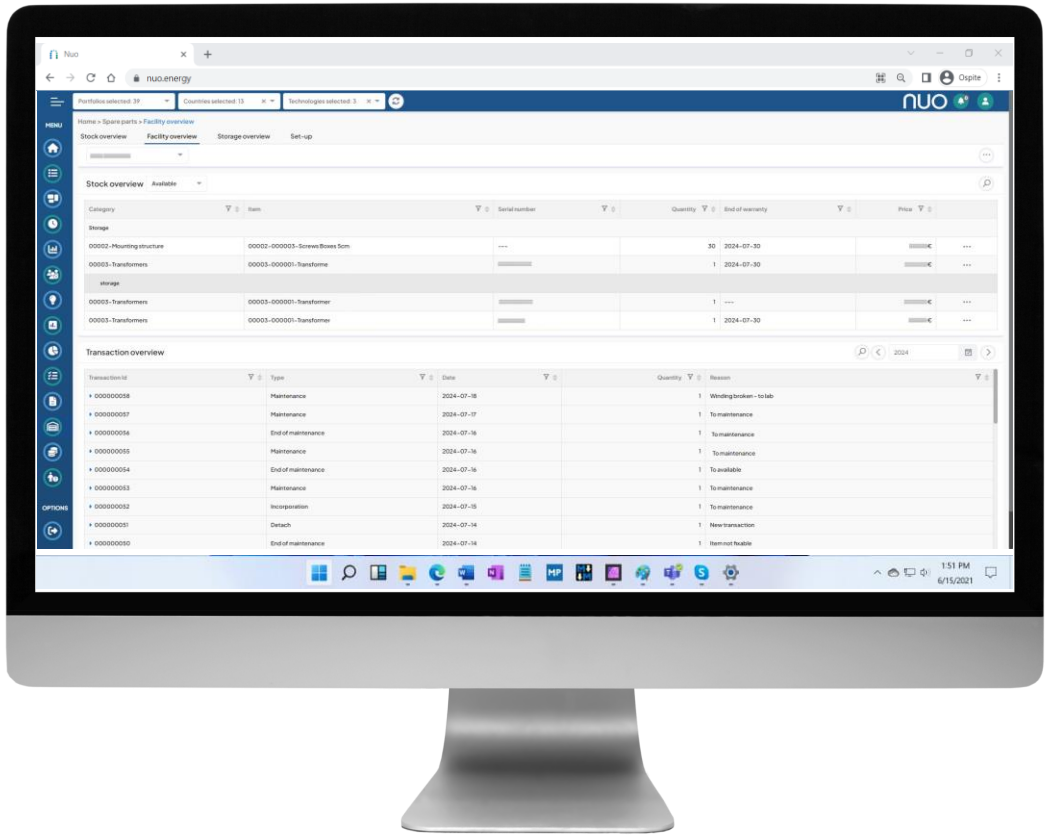
- Access to list of all the activities related to maintenance, compliance and permits;
- Timeline of updates follow the evolution step-by-step;
- Categorize activities for different area of interest (technical, commercial, HSE, etc…);
- Assign responsible, budgets and costs for each step and goals to reach next step;
- Track potential delays or low efficient processes for each step;
- Set deadline, priorities and reminders for open activities;
- Export activity status in report.



Site Management – Warehouse

Warehouse includes information about available spare components. In this module it is possible to:

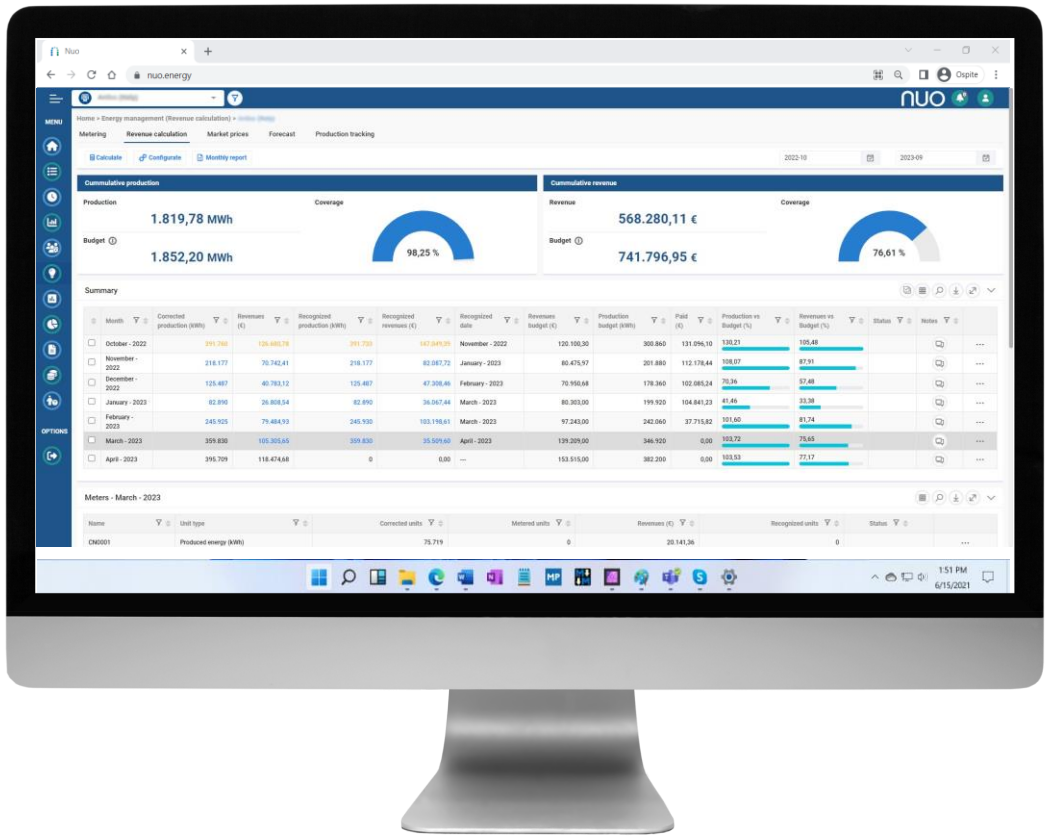
- Access to list of main components available for replacement;
- Map components dedicated to specific assets or available at portfolio level with main parameters as brand, model, serial numbers and current position;
- Manage warranty expiration of original components and purchased during operation;
- Map WEEE components to be disposed according to environmental laws;
- Map components lifecycle (new, installed, repaired or refurbished, faulted, disposed);
- Generate reports of charge, discharge and current status of warehouse.



Energy Management – Revenues Calculation

Revenue calculation includes information about meter, market prices and revenues. In this module it is possible to:

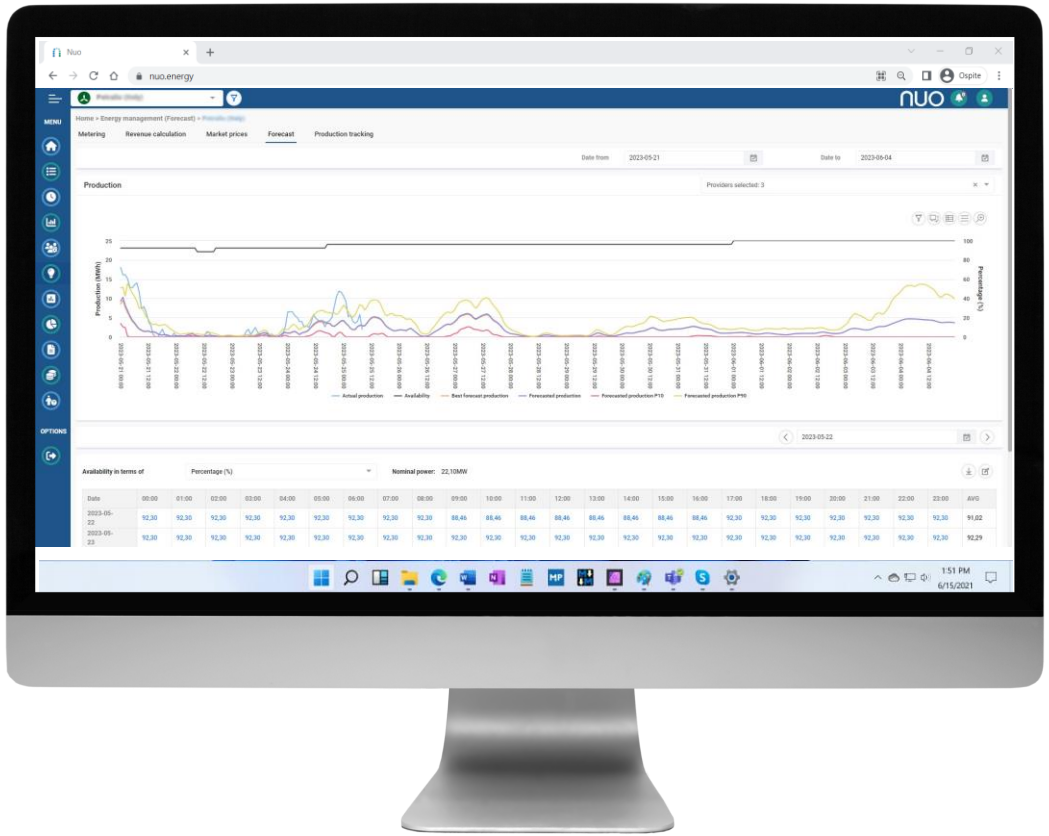
- Check metered values from DSO/TSO and other certified operators also adding notes;
- Calculate specific revenues and costs streams with customizable formulas;
- Automatic collect market prices;
- Automatic stream recognition from invoice;
- Compare expected revenues streams with invoice, payments and budgets;
- Map invoice and payments details;
- Map claims toward offtakers, DSO, TSO and FIT authorities;
- Generate customizable Excel spreadsheets (reports, interchange files, invoice template, etc…) with technical and financial data at plat or portfolio level.



Energy Management – Forecasting

Forecasting includes estimation of production based on data models. In this module it is possible to:

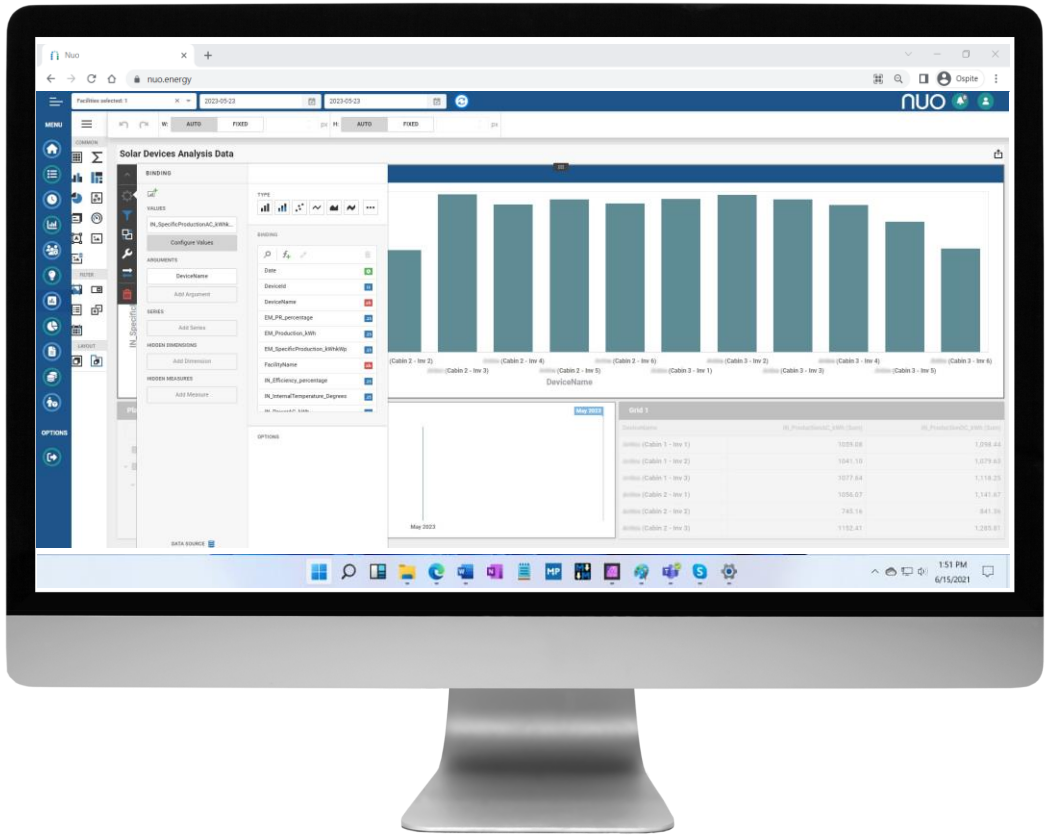
- Include multiple forecasting models available on the market by specialized providers;
- Include multiple stochastic likelihood (P10, P50, P90, etc…) of the same module;
- Map expected availability of different devices to correct production estimation;
- Generate unavailability related to task set as scheduled unavailability;
- Map effective production against forecast to select the most accurate model;
- Map unavailability in capacity and percentage as required by the offtakers and PPAs to minimize unbalancing costs.



Reporting Tool

Reporting Tool includes a set of dashboards and reports to map technical and financial data. In this module it is possible to:

- Access preconfigured dashboard and report templates dedicated to technical and financial performances of plants and portfolios;
- Export Pdf reports to print or share;
- Schedule automatic delivery via e-mail of Pdf reports with customizable scheduling (daily, weekly, monthly, quarterly, etc…);
- Fully customize dashboards and reports to expose plant data, parameters and user designed KPIs based on mathematical and statistical formulas;
- Share customized dashboard and report templates with other users.



Executive view

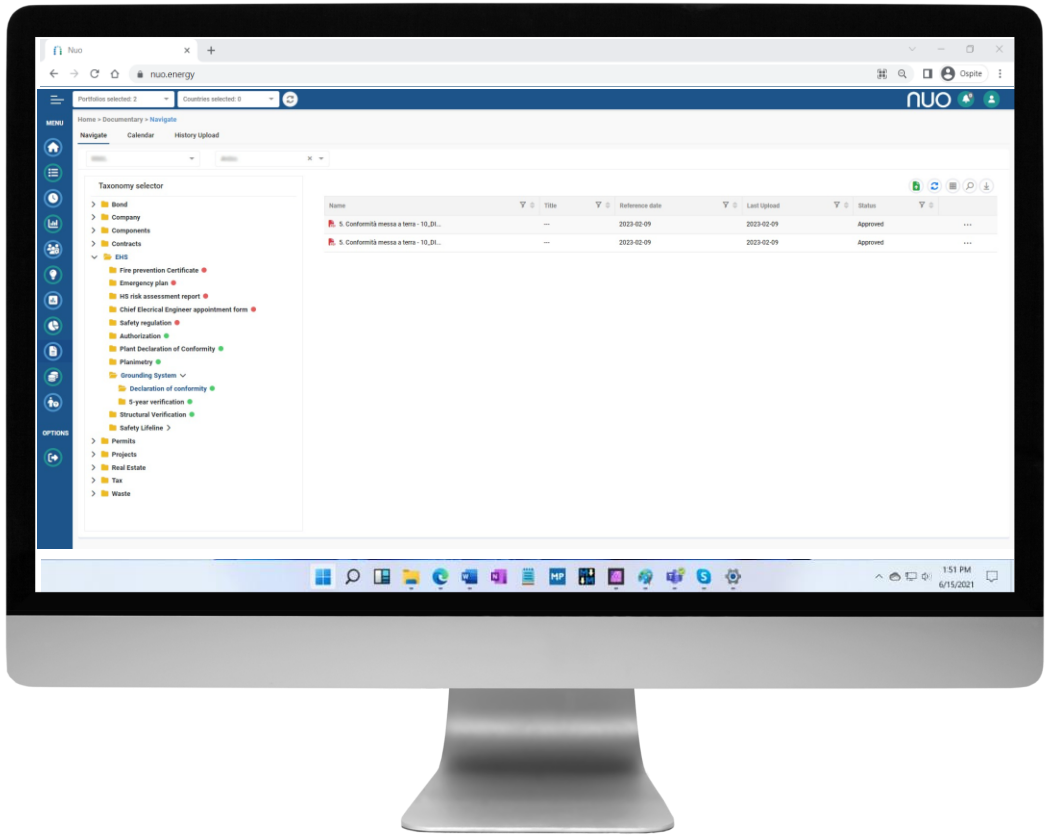
Executive view is a dashboard specifically designed to offer high level interface to plant owner and managers. In this module it is possible to:

- Check portfolio technical and financial performances;
- Aggregate performances based on technology or country;
- Interact with charts to check data;
- Sort assets by performance achieved or budgeted, name and size;
- Define customized period of analysis;
- Switch between different budgets for comparison in one click;
- Switch currency conversion of revenues;
- Visualize on tablet or smartphone thanks to Responsive with easy touch buttons.

Documental System

Documental System includes folder trees collecting documents related to plants. In this module it is possible to:

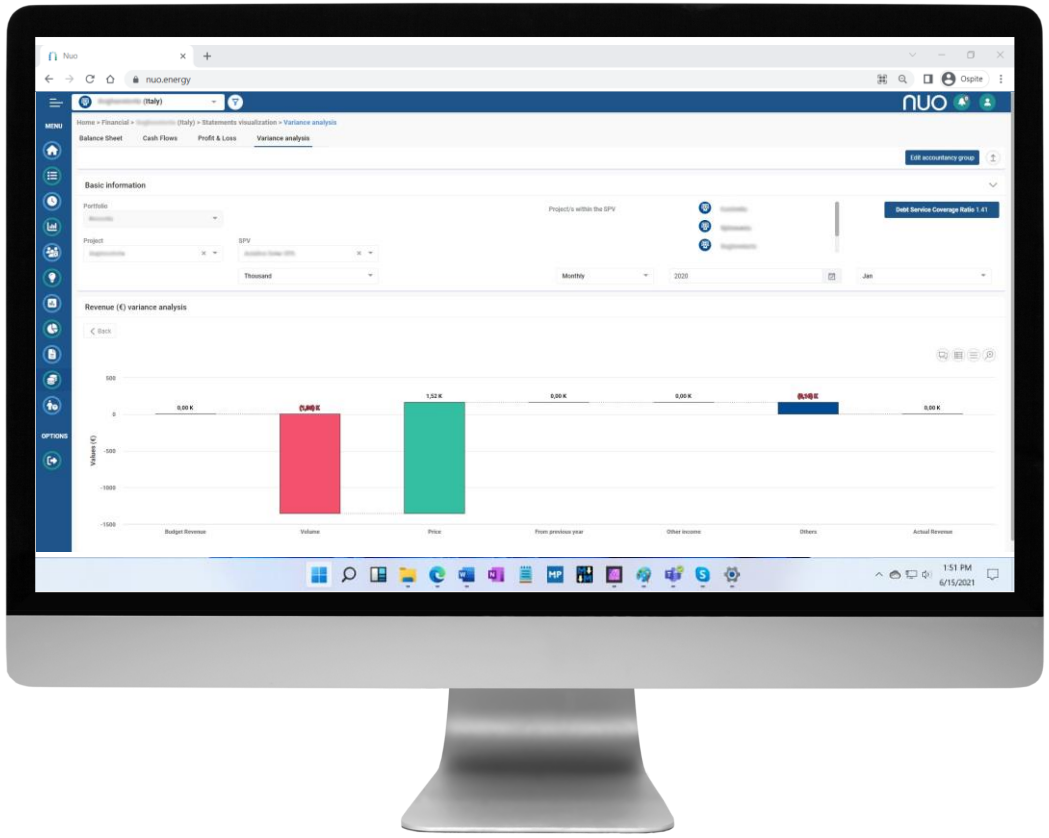
- Upload and access to documents;
- Categorize in specific folders and subfolder's structure fully customizable;
- Manage expired documents with reviews and versions;
- Recognize dates, semantic references (the day after, 30 days from, etc…) and deadlines included in the documents with generation of tasks in calendar by AI algorithm of text recognition;
- Massive download of data room for sharing to third stakeholders.



Financial System

Financial System includes P&L, balance sheet, cashflow and variance analysis. In this module it is possible to:

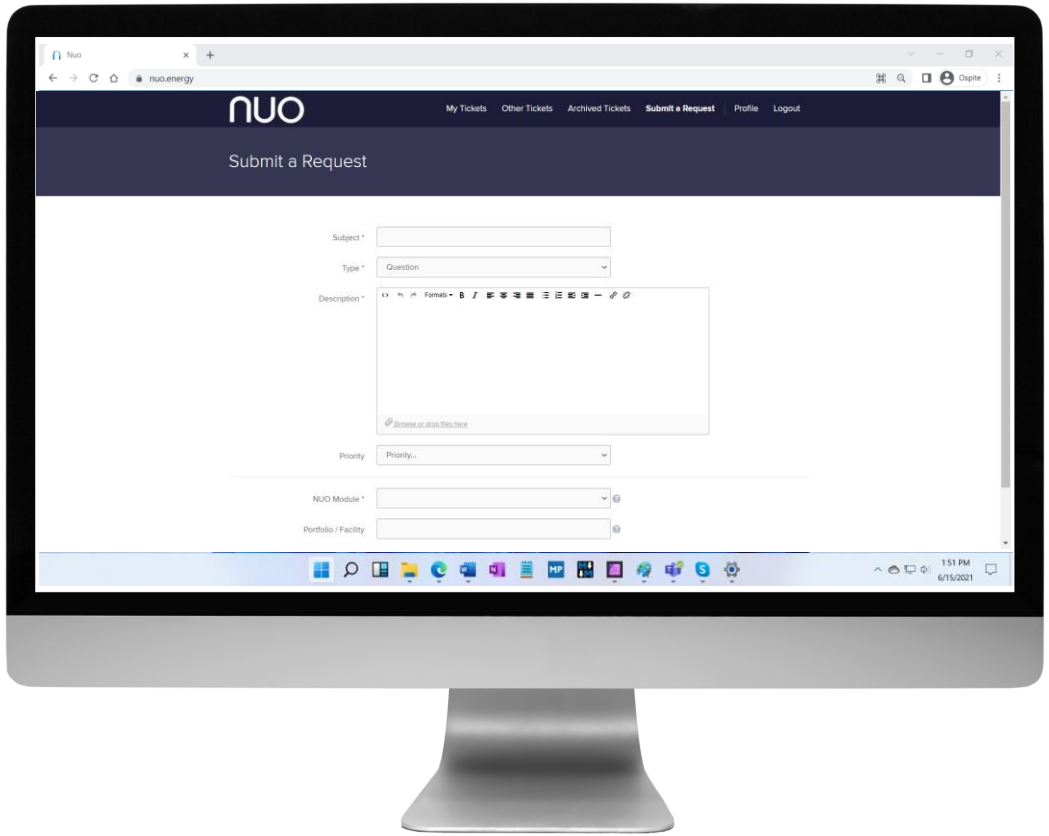
- Aggregate by different granularity (monthly, quarterly, annual) revenues and costs lines;
- Map P&L, balance sheet and cashflow aggregated per SPV or per single asset;
- Synchronize with external accounting ERP solutions (D365, SAGE Murano, etc.…);
- Calculate financial KPIs like DSCR;
- Expose variance analysis to drill down causes of revenues and costs above or below budget;
- Export P&L, Balance and Cashflow data for reporting.
- Import budget assumptions and analyze budget variances against year-to-day figures.



Ticketing System

Ticketing System is available 24/7 to address structured requests to Support. In this module it is possible to:

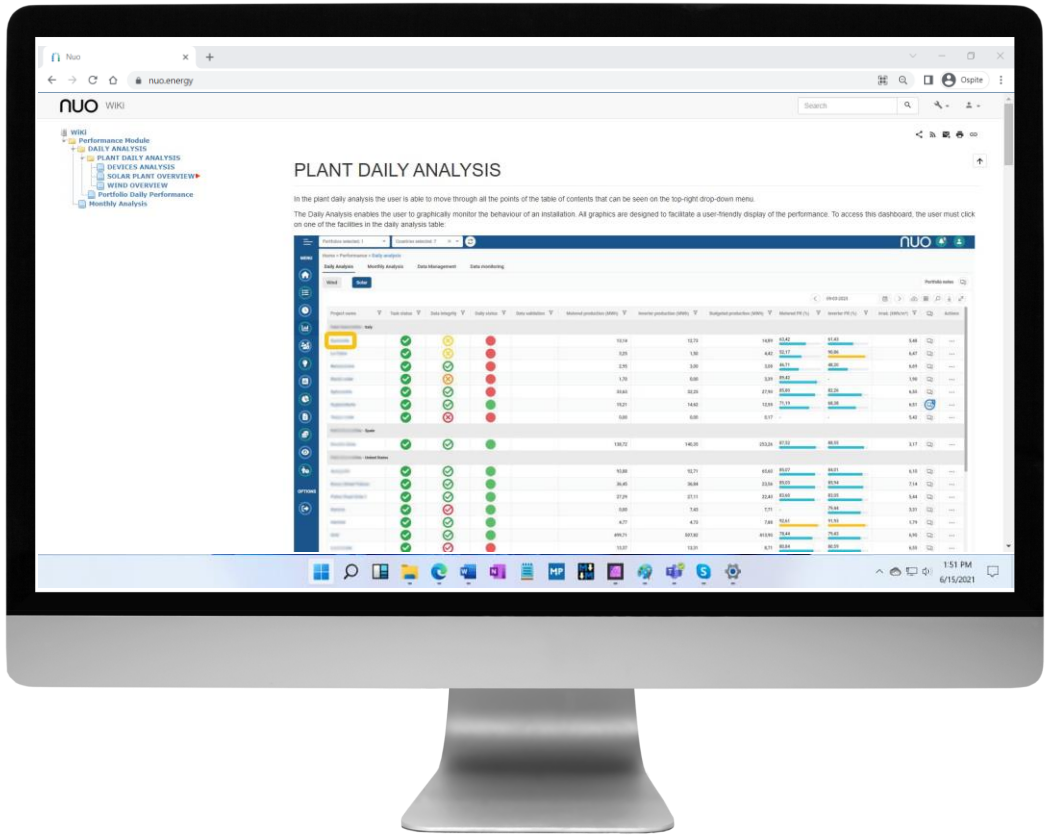
- Open a ticket toward NUO support team;
- Check status of requests and activities;
- Write open text description of the request;
- Attach images to argument the request;
- Require support in case of bugs;
- Require change in configuration;
- Suggest modules and functionality change and evolution;
- Require specific solutions to perform specific activities;
- Require information on how to perform a specific activity with NUO platform.



Wiki Guide

Wiki Guide available 24/7 is the official manual of NUO platform. In this module it is possible to:

- Collect information about the scope of each module;
- Obtain details about all the features included in the platform;
- Read examples about how to perform specific task using the platform;
- Access to media explaining the activity as walkthrough;
- Access to video pills to train new users about specific functionalities;
- Check list of updates and new releases.

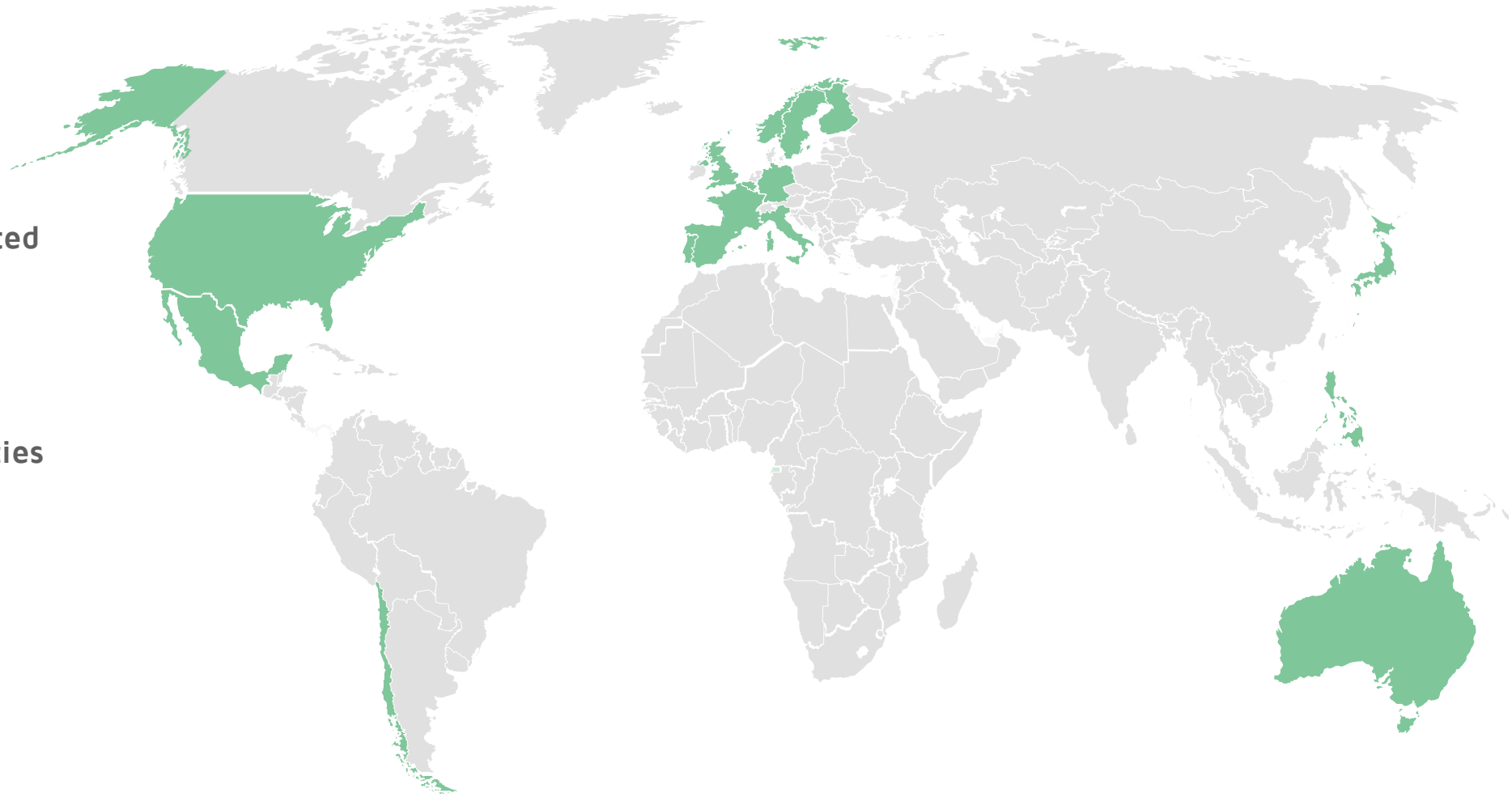


Our experience

International presence

NUO manages solar, wind and BESS portfolios accounting for a total of:

- **5.5 GW fully integrated**
- **17 Countries**
- **More than 300 facilities**



NUO - SaaS proposal

Modular and scalable to adapt to clients needs

NUO is a digital asset management platform developed by Vector Renewables to analyze, control and optimize the performance of renewable assets, both for clients preforming asset management in house or outsourcing to specialized companies.

The proposal is adaptable to clients' needs and is based on NUO's values: modularity and scalability:

Modularity

NUO allows each module of the platform to be activated independently. Each module can be activated in *Operation Mode*, which allows the client to perform activities directly, or in *View Mode*, which demands operation from Vector Renewables under a TCAM&FAM service agreement. NUO can have different configurations with different levels of service according to its experience with market requirements.

Scalability

NUO's proposals are based on the size and modularity of the selected portfolio. Portfolio pricing is defined by the effective assets activated by the client, considering the level of service required, technology, and the size and number of assets.

Digital Asset Management

Vector Renewables is strongly committed to bringing **digitalization** to a higher level in all TCAM agreements with its clients worldwide. Digitalization allows asset managers to perform to their full potential by dedicating most of their time to activities that require a high level of human expertise. That's why Vector Renewables performs AM services in NUO.

NUO has a dedicated solution for these needs, applicable only to assets under a TCAM agreement with Vector Renewables called **Digital Enhanced Asset Management** (DEAM).

DEAM empowers clients by giving them access to the same platform used by Vector Renewables in day-to-day activities. This allows for continuous and fully transparent sharing of information and alignment. It also allows for fast and easy access to data and generation of technical and financial reports that clients may need in real time.

Subscription framework

		Only VR TCAM clients	Standard Packages		
		DEAM	Basic	Tech	Top Line
Project Overview	Technical details, equipment, contacts, budgets	✓	✓	✓	✓
Near Real-time / Real time[1]	RTM Plant production and alarms	+	+	+	+
Performance	Daily and monthly KPIs, events and losses, satellite data, production models, data import/export	✓	✓	✓	✓
Task and Site Management	Task and Contracts management	✓	⊗	✓	✓
Contract management	Contracts management, obligation mapping, notification	✓	⊗	✓	✓
Checklist	Process and compliance tracking	✓	⊗	✓	✓
Energy management	Metering (including reading), Revenue calculation and Market prices	✓	⊗	⊗	✓
Reporting - Technical	Customizable Technical Dashboards with automatic mail delivering	✓	✓	✓	✓
Reporting - Revenues	Customizable Revenues and Financial Dashboards with automatic mail delivering	✓	⊗	⊗	✓
Executive Dashboard	High level Wind and Solar performance and financial portfolio dashboard	✓	✓	✓	✓
Financial Module	Balance Sheet, P&L, Cashflow, Variance analysis and Financial KPIs	✓	⊗	⊗	✓
Warehouse	Spare parts management	✓	⊗	✓	✓
Documentary System	Structured document repository	✓	⊗	✓	✓
Support + Wiki	Ticketing system & Wiki guide to NUO	✓	✓	✓	✓
Basic Forecast	Weather and production forecast up to 5 days	✓	✓	✓	✓
Extended Forecast	Weather and production forecast P10, P50, P90 up to 14 days	+	+	+	+
Remote Control [2]	Remote control of asset and BOP	⊗	+	+	+
Control Room [3]	Weekly, working day after or 24/7 remote monitoring service with direct communication to Client and O&M	⊗	+	+	+

1. Near Real time based to granularity made available by the SCADA. Real time from cloud or onsite solution. Onsite may require hardware not included. Near real-time or real-time access in the DEAM subscription can be activated, subject to a prior agreement with the TCAM service.
2. Remote Control require Real Time,
3. Service delivered from VR Control Room structure based in Philippines only in English.

✓ Operation ✓ View + Optional ⊗ Not Included

Subscription framework

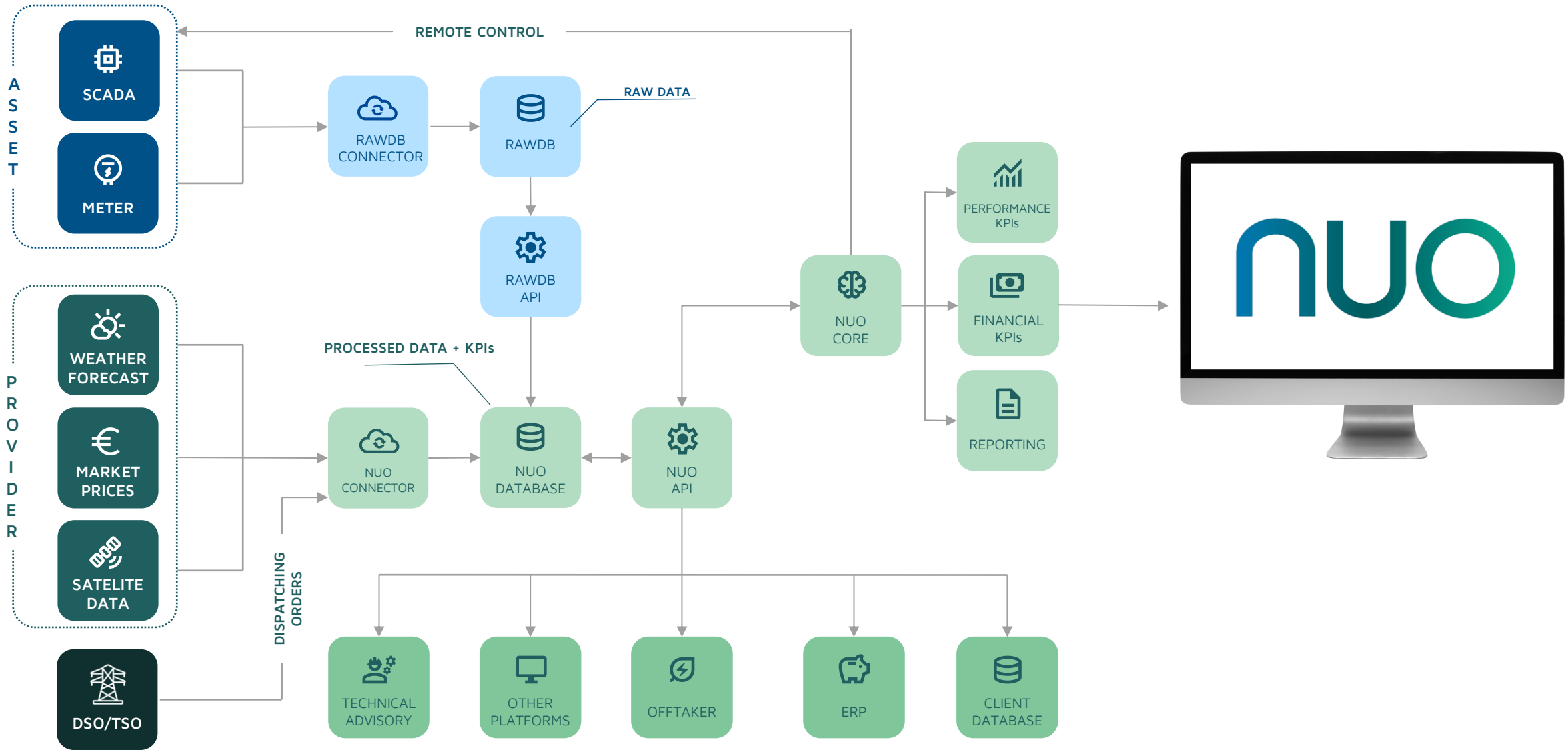
		Standard Packages		
		Basic	Tech	Top Line
Project Overview	Technical details, equipment, contacts, budgets	✓	✓	✓
Near Real-time / Real time[1]	RTM Plant production and alarms	+	+	+
Performance	Daily and monthly KPIs, events and losses, satellite data, production models, data import/export	✓	✓	✓
Task and Site Management	Task and Contracts management	⊗	✓	✓
Contract management	Contracts management, obligation mapping, notification	⊗	✓	✓
Checklist	Process and compliance tracking	⊗	✓	✓
Energy management	Metering (including reading), Revenue calculation and Market prices	⊗	⊗	✓
Reporting - Technical	Customizable Technical Dashboards with automatic mail delivering	✓	✓	✓
Reporting - Revenues	Customizable Revenues and Financial Dashboards with automatic mail delivering	⊗	⊗	✓
Executive Dashboard	High level Wind and Solar performance and financial portfolio dashboard	✓	✓	✓
Financial Module	Balance Sheet, P&L, Cashflow, Variance analysis and Financial KPIs	⊗	⊗	✓
Warehouse	Spare parts management	⊗	✓	✓
Documentary System	Structured document repository	⊗	✓	✓
Support + Wiki	Ticketing system & Wiki guide to NUO	✓	✓	✓
Basic Forecast	Weather and production forecast up to 5 days	✓	✓	✓
Extended Forecast	Weather and production forecast P10, P50, P90 up to 14 days	+	+	+
Remote Control [2]	Remote control of asset and BOP	+	+	+
Control Room [3]	Weekly, working day after or 24/7 remote monitoring service with direct communication to Client and O&M	+	+	+

1. Near Real time is based to the granularity made available by the SCADA Server. Real time requires installation of local solution of hardware not included.
2. Remote Control require Real Time, , already included in the fee of remote control.
3. Service delivered from VR Control Room structure based in Philippines only in English.

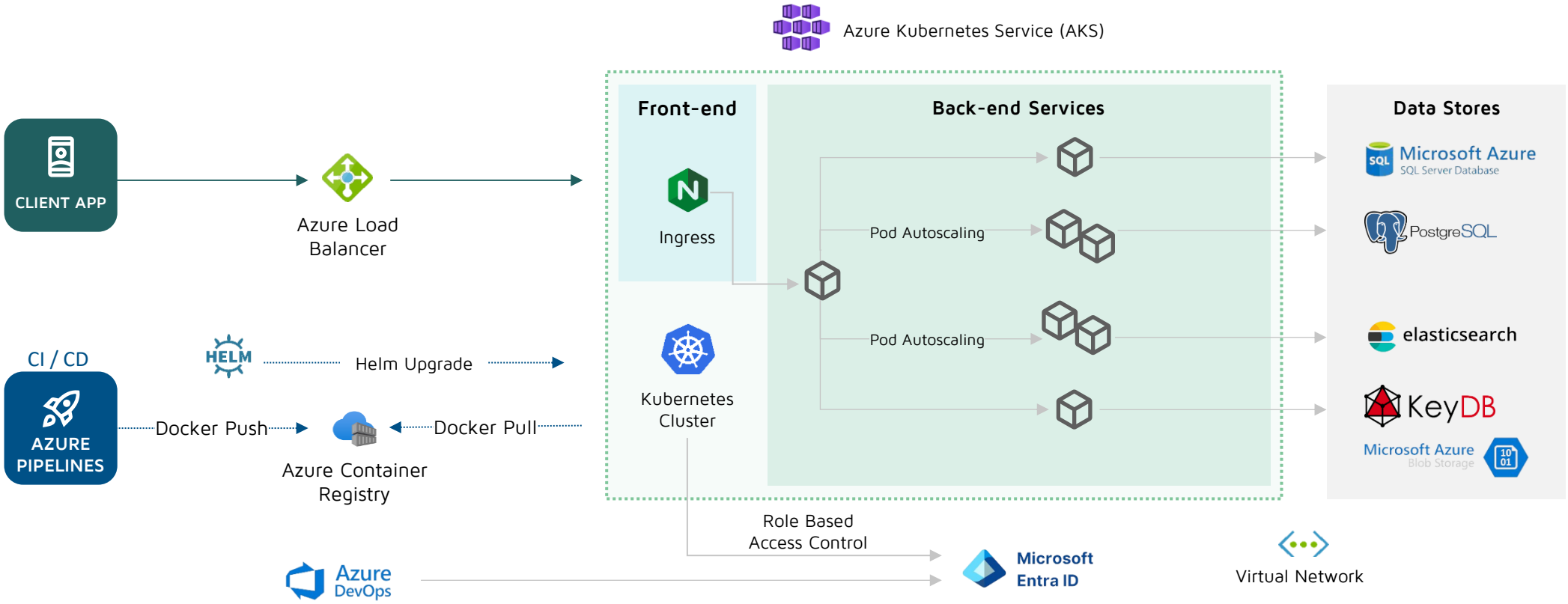
✓ Operation ✓ View + Optional ⊗ Not Included

Platform Integration

System integration



System integration



Data management

Data are retrieved from the different data sources and are stored in raw mode (the collection of information as gathered by the source before it has been further processed, cleaned or analyzed).

Once the data has been stored in its raw form, a semantic normalization process begins. This is the first step in preparing the data for consumption.

After semantic normalization begins, a process cleans the anomalous values. This process is regulated by customizable rules that allow the thresholds to be adjusted. The next step is the environmental replacement process, which is also customizable by rules and applies to satellite or neighboring data..

The data passes through a process control where its quality and integrity are checked. If anomalies are detected, the system can generate alerts and recovery tasks as needed.

The last step before the data is ready to be used is the process that aggregates and calculates the defined KPIs.

Data security & compliance

Key points

1

Compliance with data protection regulations

- The databases are deployed in the Azure cloud as a SaaS (Software as a Service), thus meeting the GDPR standard in terms of regulation.
- The data is covered by a backup retention policies based on snapshots with high availability and geo-replication.

2

Security & encryption

- The system is based on a microservices architecture connected by secured APIs with certificates that use the OpenID Connect protocol and work with the OAuth 2.0 framework.
- The authentication system, based on Keycloak, allows for the implementation of multifactor authentication and user federation.

3

Access control

- Access control is customizable by role, which regulates user access to different modules and permits in modules with write operations.

4

System audits

- NUO includes an audit system that allows tracing iterations with different modules and internal traffic between microservices for the client.

Data exposure: NUO Rest API

NUO can grant third parties (offtakers, PPAs, and forecasting services) access to the client's asset data via **REST API.**

Calls to the Rest API are limited for cybersecurity reasons as follow:

- ✓ **100 calls** per hour per plant
- ✓ **2,000 calls** per day per plant

The following data is accessible via the API:

- ✓ Technical performance data, including budgets
- ✓ Financial performance data, including budgets
- ✓ Asset information, including the company profile and contacts
- ✓ Real-time data
- ✓ Market prices
- ✓ Documents
- ✓ Forecasts and weather satellites

Support & maintenance

SUPPORT SERVICE

- **24/7 service**, based on a dedicated ticketing system portal included in subscription fees;
- **English** is the official language;
- **SLA**: all tickets, opened via e-mail or the dedicated ticketing portal, will be handled by the end of the next business day (COB), according to the Spanish calendar and time zone.

RELEASES AND HOTFIX

- **Immediate Hotfix** when a bug is detected and solved;
- **Periodic new releases** according to the roadmap. All improvements to the modules included in the selected service structure are included in the subscription fees;
- **Scheduled maintenance** activities will be implemented according to the timetable to minimize service interruption.

DATA GATHERING

- **Proactive monitoring** data acquisition, with recovering tasks when possible;
- **Notification** to Client reference person when some plant / device data are not recoverable due to lack of communication with the plant;
- **Flexible support** procedures.

nuo

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Thank you