MOBIUS
THE RISK MANAGEMENT COMPANY



INTEGRATED SOLUTION FOR WATER AND SEWAGE COMPANIES

MOBIUS OEAM
Water & Wastewater

Energy efficiency, asset management and technical interventions, with EFI 100 as the integrated hardware layer

A technical presentation and positioning document. Exclusive application: regional and municipal water supply and sewerage operators.

Technical document · 18 September 2026

EXECUTIVE SUMMARY

1. Why MOBIUS OEAM for water and sewage operators

Water companies operate a continuous, distributed process chain: abstraction, transmission, treatment, storage, distribution, collection, wastewater pumping and treatment. Electricity is a major operating cost, and the unavailability of a pump, blower or disinfection installation can directly affect the continuity and compliance of the service.

MOBIUS OEAM unifies energy data, process information and asset history. The EFI 100 component is positioned at the level of the electrical installation and local communications for acquisition, temporary storage and controlled transmission. The platform turns measurements into indicators, alerts, costs, maintenance priorities and verifiable evidence of interventions.

THE INTENDED RESULT

- Energy visibility down to station, production line and critical asset level.
- Specific indicators: kWh/m³ abstracted, treated, pumped, distributed and treated as wastewater.
- Detection of electrical deviations correlated with flow, pressure, level and process quality.
- A single flow: alert → diagnosis → ticket → team → intervention → validation.
- Investment decisions based on the baseline, total cost, criticality and verified savings.

Implementation principle

The solution complements SCADA and existing automation; it does not replace them. Electrical protections, interlocks, safety automation and compliance requirements remain the local command authority. MOBIUS OEAM provides cross-cutting context, analysis, governance and intervention management.

SCOPE

2. The technical structure of a water and sewage company

FUNCTIONAL ZONE	MAIN ASSETS	OPERATIONAL RISK	ENERGY INDICATOR
Abstraction and transmission	Intakes, boreholes, stage I pumps, re-pumping	Lack of raw water; cavitation; failure at an isolated point	kWh/m^3 abstracted
Drinking water treatment	Mixers, dosing, filters, UV/ozone, stage II pumps	Non-compliant quality; filter/pump unavailability	kWh/m^3 treated
Storage and distribution	Tanks, boosters, DMAs, valves	Insufficient pressure; losses; power peaks	kWh/m^3 delivered
Sewerage	Collectors, wastewater pumping stations, valves, generators	Clogging; backflow; station without communication	kWh/m^3 pumped
Wastewater treatment	Screens, aeration, recirculation, UV, sludge	Over-aeration; exceeded parameters; blower stoppage	kWh/m^3 treated
Support	Laboratories, workshops, warehouses, offices	Unallocated cost; excessive base load	kWh/building or cost center

The hierarchical model in the platform

Company → regional system → locality/catchment → site → production line → electrical board → asset → measurement point. This hierarchy allows navigation from the operator's consolidated indicator down to the load curve of a single blower.

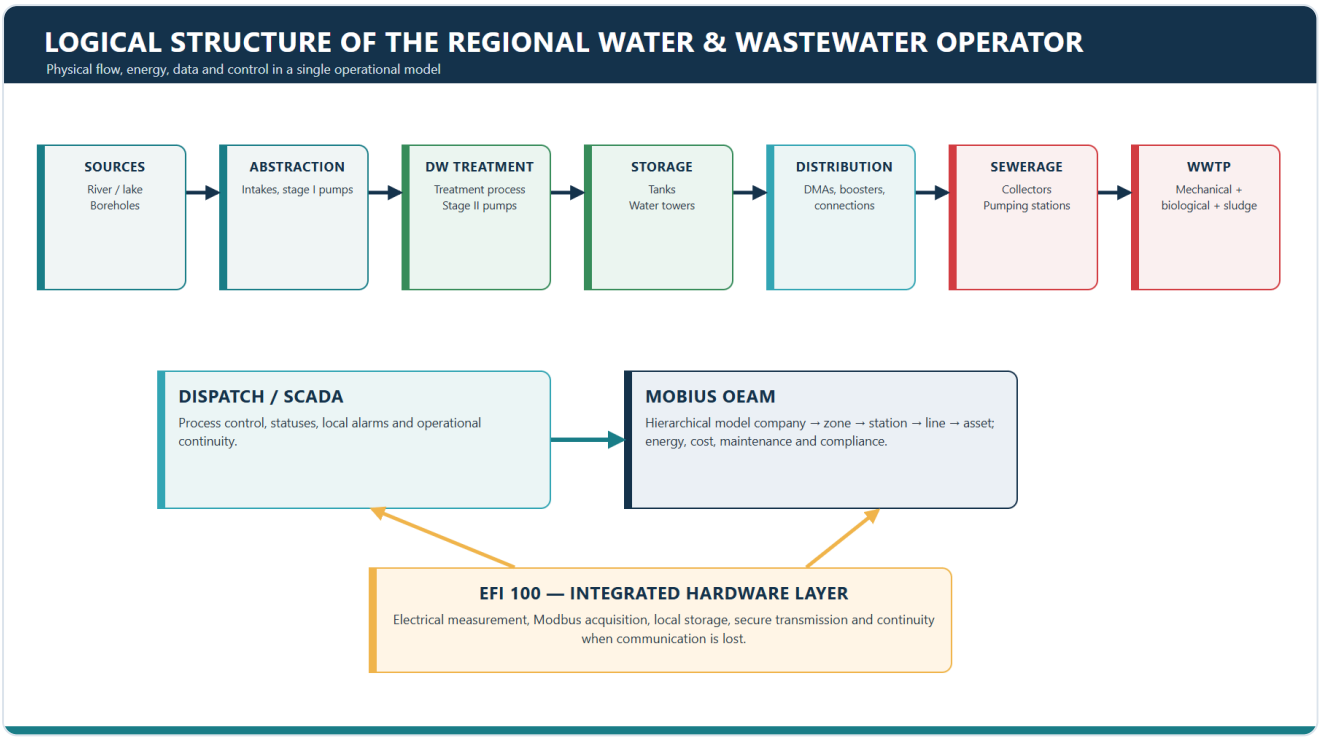


Figure 1. The general logical structure of the operator and the positioning of EFI 100 / MOBIUS OEAM.

OPERATIONAL ARCHITECTURE

3. The physical and information flow at regional level

3.1 THE DRINKING WATER FLOW

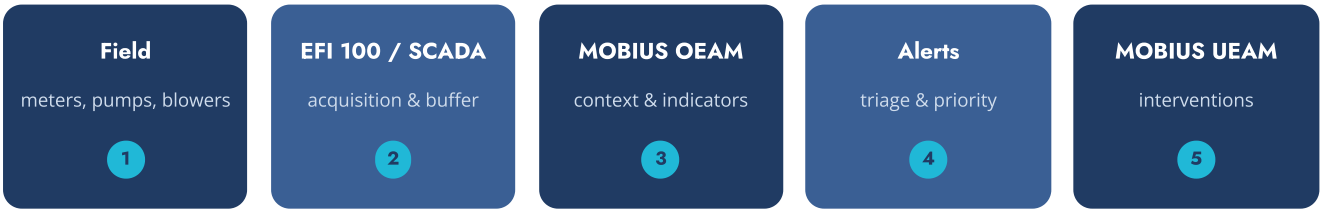
- The source is characterized by available flow, level and quality parameters.
- Abstraction and transmission transfer raw water to the treatment plant, with monitoring of the pumps' operating regime.
- The treatment plant turns raw water into drinking water through successive processes.
- Tanks hydraulically separate production from variable demand and allow the pumping schedule to be optimized.
- Distribution is divided into pressure zones and DMAs, useful for the water balance and leak detection.

3.2 THE WASTEWATER FLOW

- The network collects by gravity, and wastewater pumping stations overcome level differences.
- The wastewater treatment plant performs mechanical, biological and, where applicable, tertiary treatment.
- The sludge line concentrates, stabilizes and dewaters residues; biogas can be recovered.
- Treated water is measured and discharged into the receiving body according to the permit conditions.

3.3 THE INFORMATION FLOW

SCADA retains command and supervision of the process. EFI 100 and the available data sources send the agreed energy data, statuses and process variables to MOBIUS OEAM. The platform consolidates the data, calculates indicators, manages alerts and initiates interventions through MOBIUS UEAM.



DETAILED PROCESS

4. The drinking water treatment plant

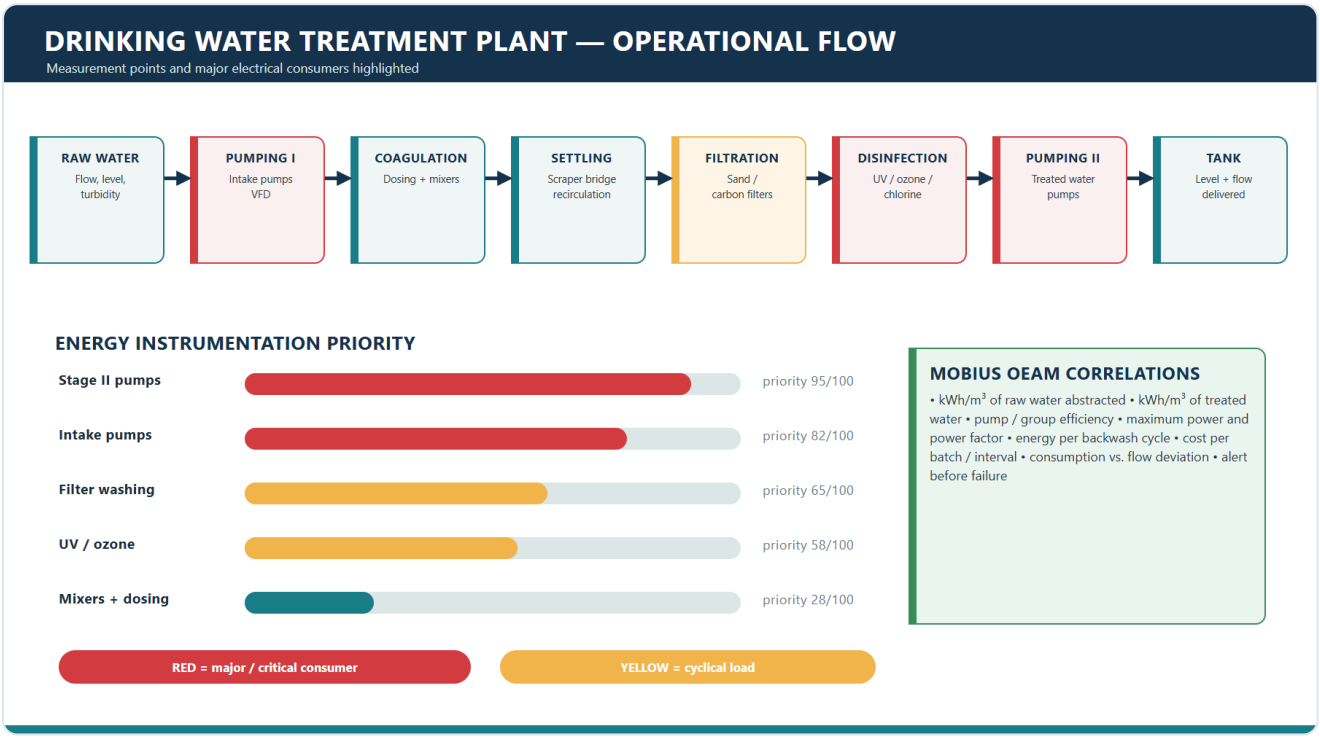


Figure 2. The DWTP operational flow, instrumentation points and priority electrical consumers.

RECOMMENDED MEASUREMENT POINTS

POINT	ELECTRICAL PARAMETERS	CORRELATED PROCESS DATA	POSSIBLE DIAGNOSIS
Abstraction / stage I pumps	P, Q, cos φ, current, imbalance, THD	Flow, suction/discharge pressure, level	Cavitation, operation outside the optimal point, wear
Coagulation and dosing	Power, hours, cycles	Flow, chemical dose, turbidity	Overdosing, blocked pump, ineffective mixer
Filter washing	Energy/cycle, kW peak	Duration, backwash flow, head loss	Cycle too frequent, excessive consumption, clogged filter
UV / ozone	kW, specific energy, availability	Dose, intensity, flow, transmittance	Lamp degradation, insufficient dose, abnormal consumption

POINT	ELECTRICAL PARAMETERS	CORRELATED PROCESS DATA	POSSIBLE DIAGNOSIS
Stage II pumps	kW, kWh, profile, power factor	Delivered flow, pressure, tank level	Low efficiency, unsuitable VFD setting

TREATMENT PLANT — IN-DEPTH ANALYSIS

5. Energy and operational control in water treatment

5.1 Abstraction and initial pumping

For each pump, specific energy, hours, number of starts and the relationship between power, flow and pumping head are tracked. An increase in power at the same flow may indicate friction, obstruction or mechanical degradation; a simultaneous drop in power and flow may indicate loss of priming or a low level at the source.

5.2 Coagulation, flocculation and settling

Individual consumption is lower, but continuity is essential. The analysis combines the cycles of mixers and dosing pumps with flow and turbidity. The platform can flag idle running, unjustified cycles or deviations from the approved process recipe.

5.3 Filtration and washing

Backwash pumps generate short, intense loads. MOBIUS OEAM compares energy per cycle, duration and the interval between washes. Scheduling cycles outside peak load can reduce maximum power, while unconditionally respecting quality requirements.

5.4 Disinfection and final pumping

UV and ozone systems can be significant consumers. Correlating energy with dose and flow avoids both under-treatment and unjustified consumption. Stage II pumping is optimized using tank levels, demand forecasts and hydraulic limits.

TREATMENT PLANT KPIS

- kWh/m^3 of raw water introduced; kWh/m^3 of treated water delivered.
- Energy and cost per process stage.
- Specific efficiency of each pump and pump group.
- Energy per washing cycle and UV/ozone consumption per m^3.

- Availability, MTBF, MTTR and maintenance cost per asset.

WATER NETWORK

6. Storage, pumping and distribution

SITE	INSTRUMENTATION	MOBIUS OEAM ANALYSIS	ACTION
Tanks / water towers	Level, inflow/outflow, auxiliary energy	Production–demand balance; autonomy	Pumping schedule and level thresholds
Booster stations	EFI 100 on board/group; pressure and flow	kW–flow–pressure curves; VFD efficiency	Pump alternation; setpoint adjustment
DMAs	Minimum night flow, pressure, volume	Balance and loss indices	Prioritizing leak detection
Valves and PRVs	Position, upstream/downstream pressure	Hydraulic regime and dissipated energy	Settings and maintenance
Large connections	Flow and consumption profile	Demand, peaks, anomalies	Capacity planning

The energy–water correlation

Electricity consumption is not assessed in isolation. The kWh/m^3 ratio is interpreted together with pressure, level, topography, pump configuration and the actual volume delivered. For correct comparisons, the baseline is adjusted to the hydraulic regime and seasonality.

Operational example

If a booster consumes 18% more at the same flow and pressure, the diagnostic rule successively checks: a setpoint change, unnecessary simultaneous operation, VFD efficiency, a partially closed valve, hydraulic wear and sensor error. The alert includes the context and recommends the competent team, with no unauthorized automatic command.

SEWERAGE NETWORK

7. Wastewater pumping stations

Wastewater pumping stations are numerous, dispersed and often unmanned assets. The main risks are clogging, impeller blockage, infiltration, level sensor failure, an excessive number of starts and loss of communication.

OBSERVED SIGNAL	CORRELATION	PROBABLE CAUSE	INTERVENTION
Increased current + reduced flow	Wet well level, pump command, pressure	Clogging, worn impeller, blocked valve	Mechanical + hydraulic
Very frequent starts	Level, cycle time, infiltration/rain	Small useful volume, wrong threshold, inflow	Automation + network
Zero energy, rising level	Power supply status, board alarm	No voltage, tripped protection	Electrical + operation
Long operation at low load	Flow, level, pump alternation	Loss of efficiency or dry running	Mechanical
Missing data	EFI 100 buffer, network, PLC	Communication loss, not necessarily a stoppage	Automation / telecom

Prioritizing stations

The pilot includes pumping stations with high volume, a history of blockages, high energy cost, difficult access or a major environmental impact. Once the normal signature is established, the rules are transferred in a controlled way to similar stations.

DETAILED PROCESS

8. The wastewater treatment plant

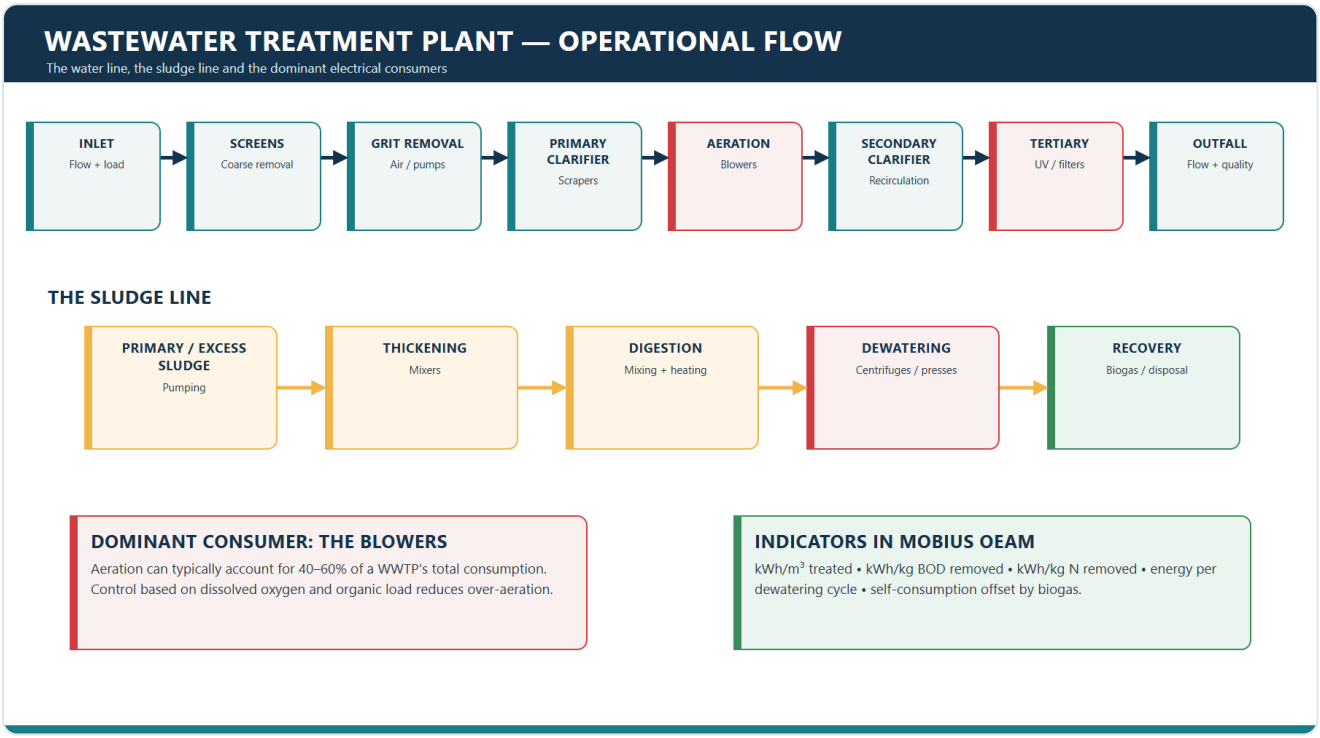


Figure 3. The WWTP operational flow, the sludge line and the major electrical consumers.

THE MAJOR CONSUMERS

- Aeration blowers — often 40–60% of the plant's total consumption, depending on the process and configuration.
- Recirculation and internal pumping pumps — continuous or intensely cyclical loads.
- UV / ozonation — consumption correlated with flow and the disinfection requirement.
- Sludge centrifuges and presses — power peaks and a scheduling opportunity.
- Inlet, discharge and sludge pumps — indicators sensitive to clogging and wear.

TREATMENT PLANT — IN-DEPTH ANALYSIS

9. Optimizing aeration and the sludge line

9.1 Biological aeration

The objective is not to minimize energy in isolation, but to supply the oxygen the process needs with minimal consumption and maintained compliance. Blower power, air flow, dissolved oxygen, organic load, ammonium and influent flow are correlated. Separate rules deal with over-aeration, operation outside the efficient zone and diffuser degradation.

9.2 Recirculation and internal pumping

RAS/WAS and internal recirculation pumps are analyzed over process intervals. The relevant indicator is energy relative to the volume or mass transferred, not just instantaneous power.

9.3 The sludge line

For thickening and dewatering, energy per tonne of dry solids, cycle duration, polymer consumption and peak power are tracked. Where the process allows, cycles can be scheduled to reduce maximum power.

9.4 Biogas and cogeneration

In installations with anaerobic digestion and cogeneration, the platform separates production, self-consumption and imported energy. The balance tracks overall efficiency and unit availability, without confusing energy produced with verified operational savings.

TREATMENT PLANT KPIS

- kWh/m^3 of influent and treated water; kWh/kg of BOD or nitrogen removed.
- The share of aeration in total consumption; specific blower efficiency.
- Energy per tonne of dewatered dry solids.
- Biogas production, energy generated, self-consumption and export.
- Cost per process, availability and the cost of unplanned stoppages.

TECHNICAL EXTENSION — BIOREACTOR

10. A bioreactor-type biological treatment installation

The bioreactor is the biological core of the treatment plant. In the reference configuration, the flow is divided into anaerobic, anoxic and aerobic zones, followed by biomass separation by secondary clarification or, optionally, by membranes. The real configuration may be continuous, sequential (SBR), conventional activated sludge, MBBR/IFAS or MBR; the MOBIUS OEAM model adapts to the process scheme validated by the designer and the process engineer.

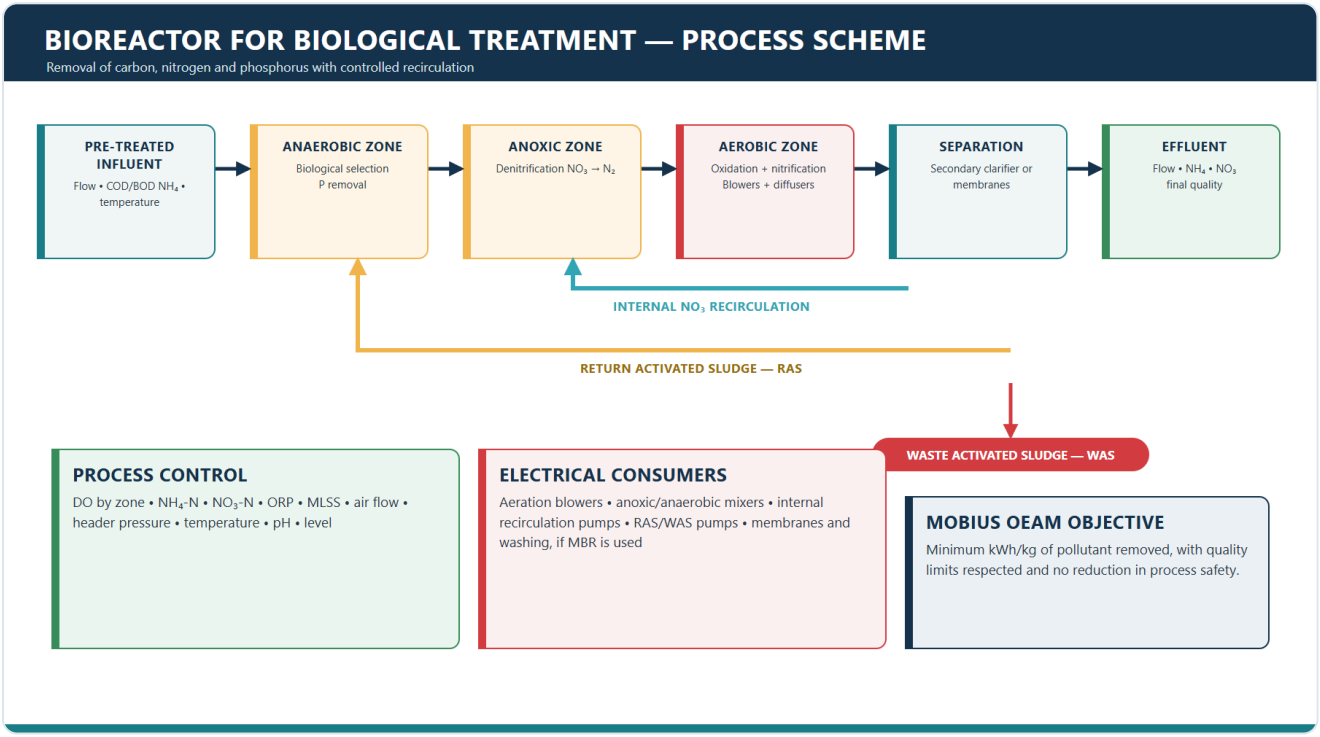


Figure 4. The functional scheme of the bioreactor, the recirculation flows and the main measurement points.

10.1 THE TREATMENT STAGES

STAGE	PROCESS FUNCTION	DATA TRACKED	ELECTRICAL ASSETS
Feed / equalization	Stabilizing flow and load to the biological stage	Flow, level, pH, temperature, estimated COD/BOD	Influent pumps, agitators

STAGE	PROCESS FUNCTION	DATA TRACKED	ELECTRICAL ASSETS
Anaerobic zone	Biomass selection and, where designed, biological phosphorus removal	ORP, retention time, mixing, RAS flow	Submersible mixers
Anoxic zone	Denitrification and conversion of nitrates to nitrogen gas	NO_3-N, ORP, available carbon, internal recirculation	Mixers and recirculation pumps
Aerobic zone	Carbon oxidation and ammonium nitrification	DO, NH_4-N, air flow, pressure, temperature, MLSS	Blowers, control valves, mixers
Biomass separation	Clarifying the effluent and returning activated sludge	Blanket level, turbidity, RAS/WAS flow, TMP for MBR	Scrapers, RAS/WAS pumps, membrane pumps
Discharge / tertiary	Meeting final parameters and disinfection, if required	Flow, turbidity, nitrogen, phosphorus, UV	Pumps, filters, UV

BIOREACTOR — ENERGY

11. Electricity consumption, balance and optimization

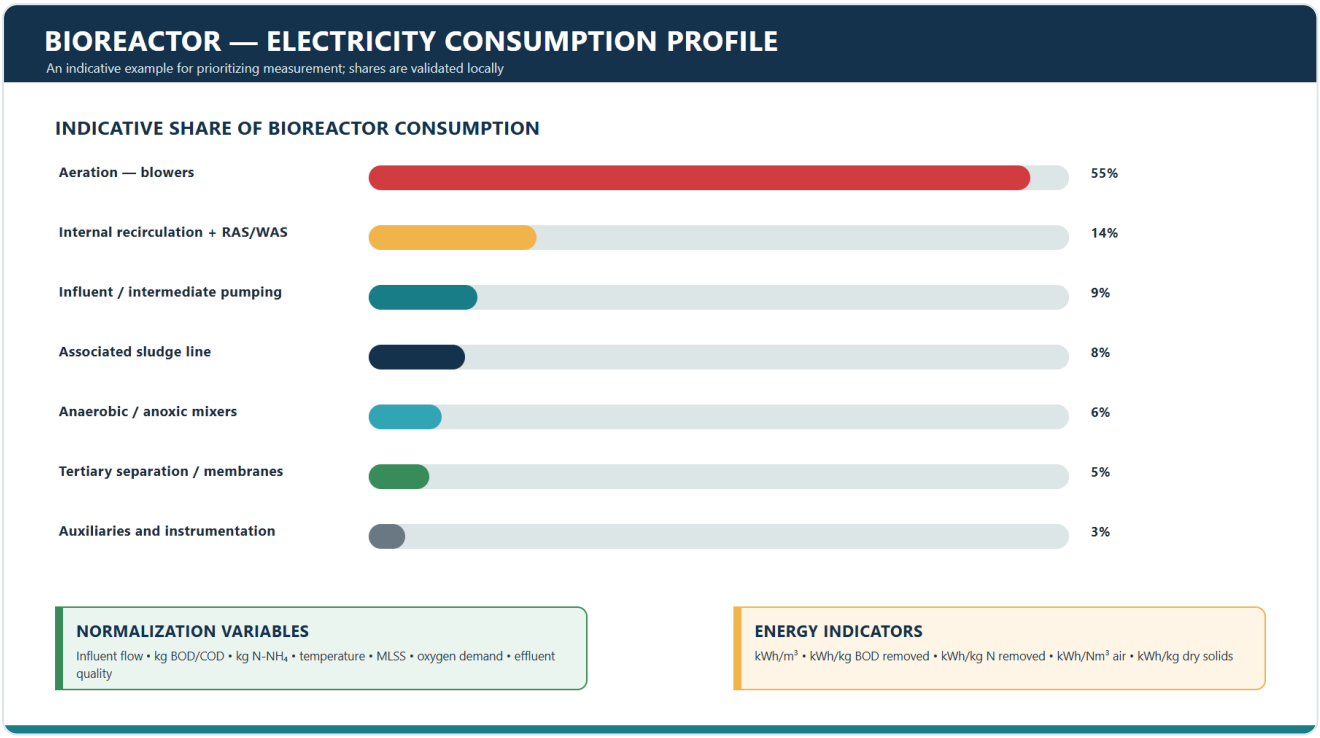


Figure 5. The indicative structure of the bioreactor's electricity consumption. Values are validated by local measurement.

11.1 Aeration — the dominant consumer

Blowers are usually the bioreactor's main consumer. Energy must be assessed together with the actual oxygen demand, dissolved oxygen in each zone, ammonium at the outlet, air flow and header pressure. High power may result from over-aeration, loaded intake filters, clogged diffusers, pipe losses, incorrectly positioned valves or inefficient simultaneous operation of blowers.

11.2 Recirculation, mixers and separation

Internal recirculation and RAS/WAS pumps are normalized to the volume transferred and the biological objective. Mixers are tracked by power, current, hours and continuity of operation; a drop in load may indicate propeller damage, while an increase may indicate blockage or deposits. For MBR, the energy for membrane filtration, washing and aeration is added, correlated with flux and transmembrane pressure.

11.3 THE RECOMMENDED ENERGY BALANCE

BALANCE LEVEL	FORMULA / INDICATOR	USE
Total bioreactor	kWh bioreactor / m^3 influent	Comparing periods and parallel lines
Carbon removal	kWh / kg BOD or COD removed	Normalizing to organic load
Nitrogen removal	kWh / kg N removed	Assessing nitrification–denitrification
Aeration	kWh / Nm^3 air and kg O_2 transferred, if available	Blower efficiency and oxygen transfer
Recirculation	kWh / m^3 recirculated	Pump efficiency and setpoint suitability
MBR separation, optional	kWh / m^3 permeate; kWh / washing cycle	Membrane condition and cleaning schedule

The operational safety rule

Energy optimization never reduces aeration, mixing or recirculation below process limits. Any setpoint change is approved by the process engineer, implemented in the local automation and validated simultaneously through energy, biomass stability and effluent quality.

BIOREACTOR — HARDWARE INTEGRATION

12. Integrating EFI 100 into the biological installation

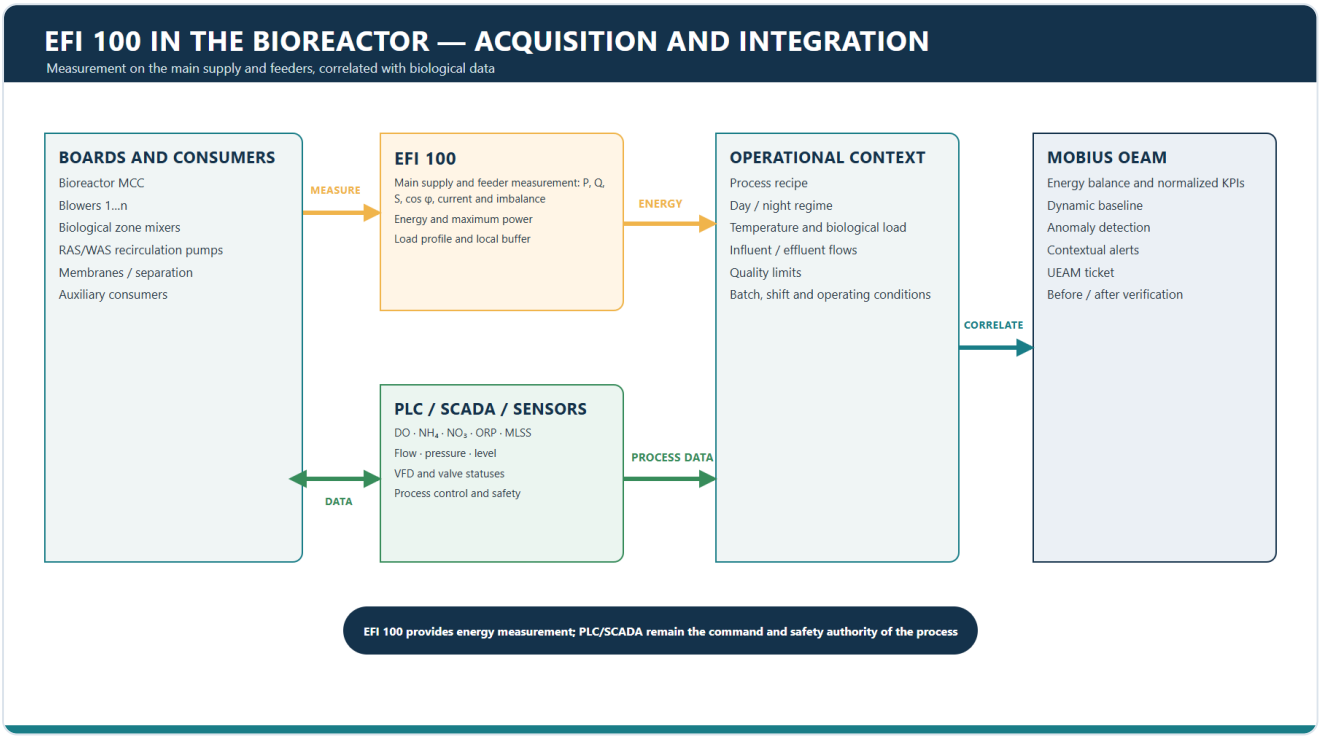


Figure 6. EFI 100 correlates the bioreactor's electricity consumption with PLC/SCADA data and the process context.

12.1 The measurement architecture

We recommend one measurement on the bioreactor's main supply and separate measurements on the feeders of the dominant consumers: each blower, the internal recirculation groups, RAS/WAS, the zone mixers and, if present, the membrane installation. Granularity is set by the ratio between the value of the information, the criticality of the asset and the cost of instrumentation.

EFI 100 POINT	ELECTRICAL DATA	PROCESS CORRELATION	EXAMPLE ALERT
Bioreactor main supply	kW, kWh, kvar, cos φ, peak	Influent flow and load	Specific consumption above the dynamic baseline
Individual blower	Power, current, imbalance, hours	Air flow, pressure, DO, NH_4	Increased power at the same air flow
Internal recirculation pump	Power, current, VFD profile	Recirculated flow, NO_3, ORP	Intensive operation with no biological effect

EFI 100 POINT	ELECTRICAL DATA	PROCESS CORRELATION	EXAMPLE ALERT
RAS/WAS pumps	Energy, starts, duration	Sludge flow, MLSS, blanket level	Increased duration / reduced flow
Zone mixer	Power, current, hours	ORP, suspension, process mode	Abnormal load or no operation
Membranes, if present	Pump energy, cycles, peak	Flux, TMP, permeate turbidity	Rising energy/cycle and TMP

12.2 Data continuity and command responsibility

EFI 100 applies timestamps, plausibility checks, temporary storage and resynchronization. Energy data is sent to MOBIUS OEAM together with the available statuses and process variables. PLC/SCADA exclusively retain real-time command, interlocks and protections; EFI 100 and MOBIUS OEAM do not become a single point of failure.

12.3 An integrated diagnosis example

When a blower's power increases by 15%, the platform compares air flow, header pressure, valve position, DO and NH_4 with similar regimes. If air flow falls and pressure rises, possible clogging is indicated; if flow and pressure are normal, the intake filter, transmission and motor are checked. The ticket includes the curves before the event, the priority, the recommended team and the confirmation criterion after the intervention.

HARDWARE COMPONENT

13. EFI 100 — an integrated hardware instrument

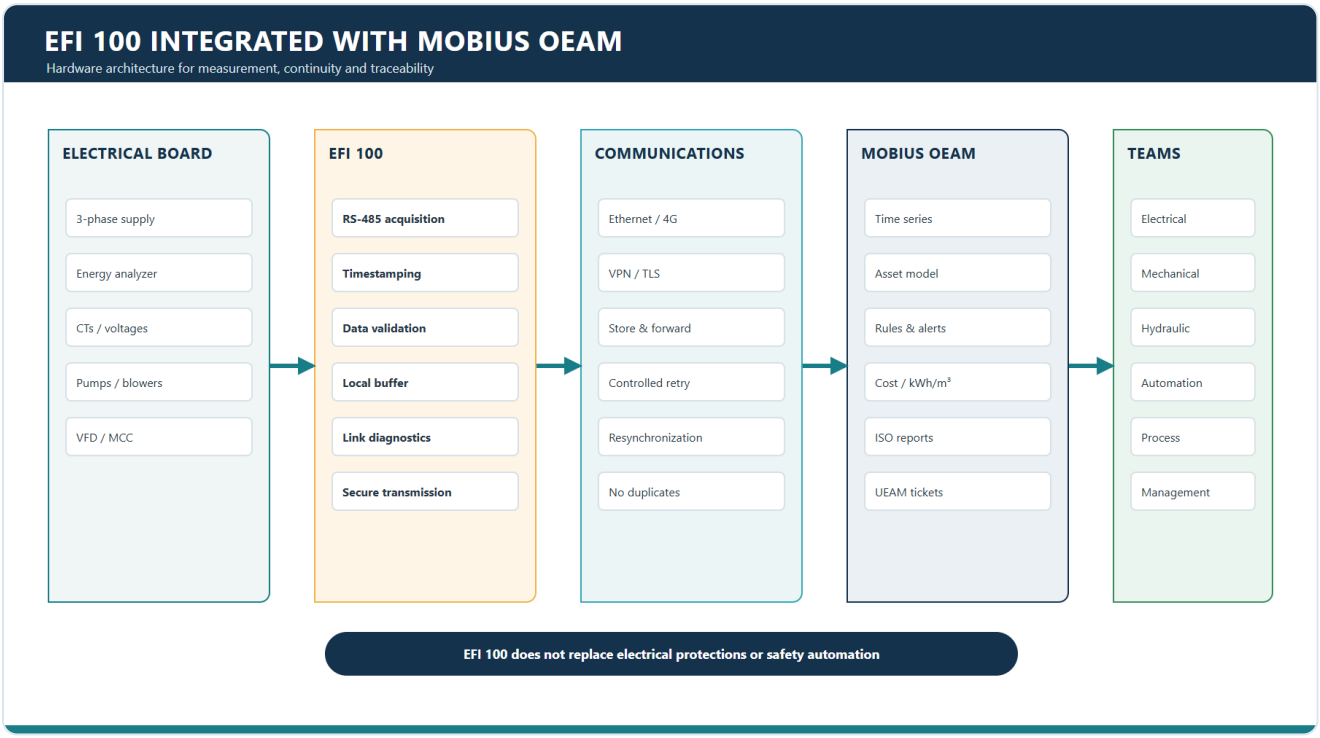


Figure 7. The positioning of EFI 100 between the electrical boards, communications and MOBIUS OEAM.

FUNCTIONAL ROLES

- Acquiring electrical parameters and available data through configured industrial protocols.
- Timestamping, plausibility checks and associating each measurement with the correct asset.
- Temporary local storage when the link is unavailable.
- Secure transmission and controlled resynchronization, avoiding duplicate records.
- Diagnosis of communication status and visibility of data quality.

Recommended positions

The treatment plant main boards; dedicated feeders for large pumps; the blower board; the UV/ozone board; pumping station and booster boards; centrifuge/press boards; isolated abstraction points or boreholes. The final configuration results from the installation audit, the single-line diagram, environmental conditions and communication requirements.

EFI 100 — DESIGN AND INSTALLATION

14. Field integration requirements

AREA	DESIGN REQUIREMENT	VERIFICATION CRITERION
Electrical	Supply point, current transformers, protections, isolation and labeling	Updated diagram; direction and ratio confirmed; energy reconciliation
Communications	RS-485/Modbus and/or Ethernet/4G, addressing and segmentation	Read test, latency, link loss and recovery
Environment	Temperature, humidity, dust, corrosion, board protection rating	Within the manufacturer's and site conditions
Data	Asset nomenclature, units, intervals, timestamp, quality	Approved mapping and traceability to source
Security	Technical accounts, certificates/keys, least-privilege access, logging	Access test and rotation/revocation procedure
Continuity	Local buffer and resynchronization rules	Controlled interruption and recovery test without duplicates

Limits of responsibility

EFI 100 is an acquisition and integration instrument. It does not replace protection relays, safety automation, certified fiscal metering equipment or the operator's procedures. Any command function is designed separately, with risk analysis, authorization and local interlocks.

FUNCTIONAL ARCHITECTURE

15. Collection, representation and analysis

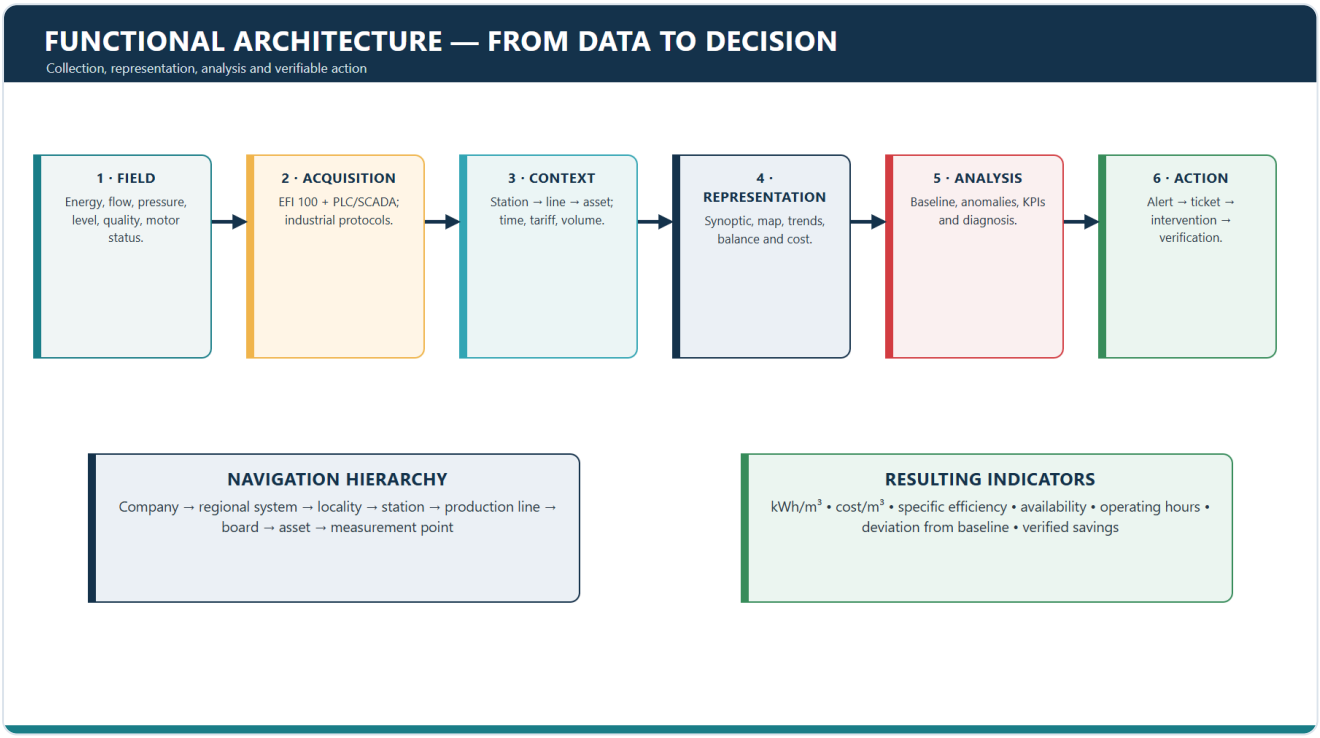


Figure 8. The data circuit: field → EFI 100 / SCADA → context → representation → analysis → action.

ASSET MANAGEMENT

16. Alerts and interventions with specialized teams

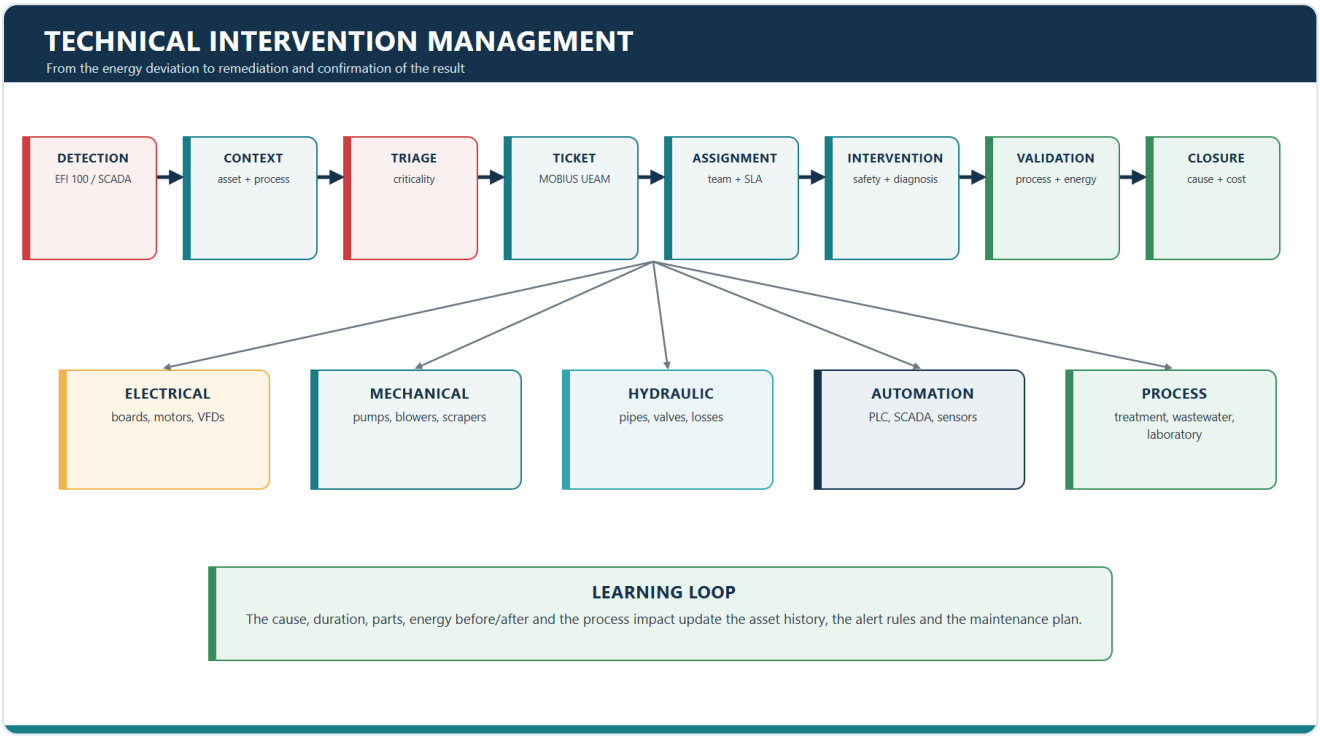


Figure 9. The intervention flow and the operational learning loop.

ENERGY GOVERNANCE

17. Indicators, baseline and verification of savings

LEVEL	RECOMMENDED INDICATORS
Company	Total MWh; cost; kWh/m³ billed; maximum power; reactive energy; calculated emissions
Drinking water	kWh/m³ abstracted, treated and delivered; pumping efficiency; losses in the balance
Sewerage	kWh/m³ pumped; energy per pumping station; starts; time in alarm
Wastewater treatment	kWh/m³ treated; kWh/kg pollutant removed; aeration share; sludge energy
Asset	kWh/hour; energy/cycle; availability; MTBF; MTTR; intervention cost
Data	Completeness; latency; rejected values; resynchronized intervals
## Methodology	
- The reference period is defined and the operating conditions are documented.	
- Results are normalized for volume, load, pressure, influent quality, seasonality and configuration changes.	
- Estimated, implemented and verified savings are kept separate.	
- Any interval with incomplete data or a non-comparable process regime is excluded.	
- Percentage results are indicative until the local baseline is measured and the methodology validated.	

SECURITY AND CONTINUITY

18. Requirements for critical infrastructure

PRINCIPLE	APPLICATION
Zone separation	Segmentation of the process network, the integration zone and user access
Least-privilege access	Roles, permissions by site and logging of operations
Encryption and identity	Secure channels, managed certificates/keys and controlled rotation
Continuity	EFI 100 local buffer, link monitoring and resynchronization
Data integrity	Timestamp, quality, source, configuration version and audit trail
Backup and restore	Tested procedures for configurations, nomenclatures and critical data
Incident response	Responsibilities, isolation, notification, investigation and recovery

@box The safety principle :: Central analysis and representation must not introduce a single point of failure for the process. Stations keep their local automation and the capacity for safe operation when communication with the platform is unavailable.

IMPLEMENTATION

19. A phased program and the recommended pilot

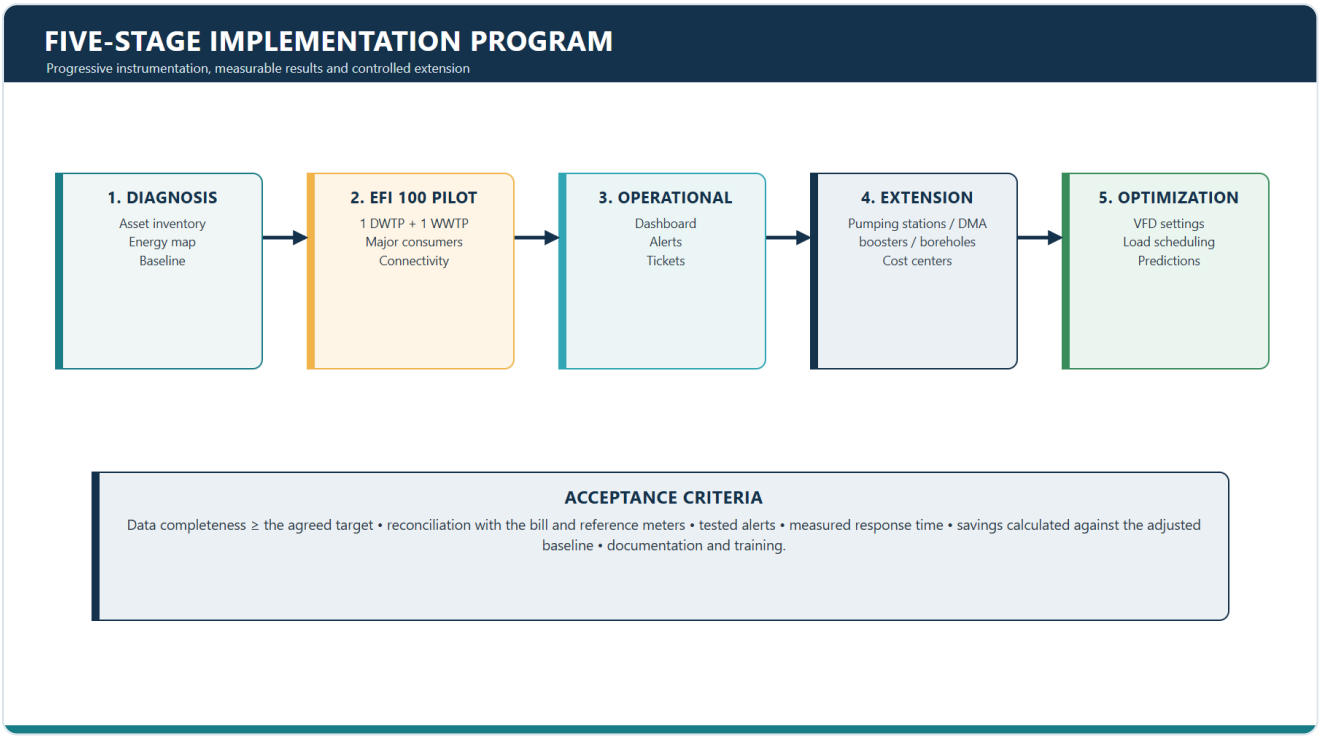


Figure 10. Progressive implementation, from diagnosis to optimization.

ORGANIZATION

20. Roles and responsibilities

ROLE	MAIN RESPONSIBILITIES
Executive sponsor	Objectives, budget, priorities, removing blockers
Energy manager	Baseline, KPIs, tariffs, reporting and validation of savings
Water / wastewater process engineer	Process limits, correlations and acceptance of rules
Electrical / automation	Diagrams, installation, communications, safety and tests
Maintenance	Fault taxonomy, SLAs, interventions and feedback
IT / security	Segmentation, identity, connectivity, backup and incidents
MOBIUS	Configuration, integration, modeling, training and support
EFI 100 supplier	Hardware configuration, commissioning and documentation

@box Governance :: We recommend a weekly operational meeting during the pilot and a monthly energy–assets–process committee. Changes to thresholds, nomenclatures and rules are approved, versioned and audited.

SCENARIOS

21. Usage examples

Scenario A — a stage II pump with degraded efficiency

EFI 100 highlights an increase in specific energy while flow and pressure remain comparable. MOBIUS OEAM checks the VFD regime and history, then opens a ticket for the mechanical/electrical team. After the intervention, the same operating window confirms the reduction in kWh/m^3.

Scenario B — over-aeration at the wastewater treatment plant

Blower power remains high during periods of low load, and dissolved oxygen exceeds the control band. The platform classifies the opportunity, the process engineer validates the thresholds, and the adjustment is implemented in the local automation. Savings are verified relative to load.

Scenario C — a pumping station starting to clog

Motor current increases, flow decreases and cycle duration lengthens. The combined rule avoids an alarm based on a single signal and sends the intervention to the mechanical team before complete blockage.

Scenario D — an energy-intensive backwash cycle

Energy per wash and frequency increase compared with similar filters. The analysis shows the difference, and the process engineer checks head loss, the filter medium and the washing sequence.

Scenario E — a bioreactor with excessive aeration

EFI 100 shows the blowers kept at high load while DO exceeds the process band and NH_4 is stable below the limit. MOBIUS OEAM recommends that the process engineer and automation engineer review the setpoint and blower sequence. After local approval, savings are verified at the same load and temperature.

Scenario F — diffuser degradation

At the same air flow, header pressure and blower power increase progressively. The common trend indicates additional resistance in the distribution system. A planned intervention is issued for inspection and cleaning, and the result is confirmed by a reduction in pressure and kWh/Nm^3.

DECISION AND EXTENSION

22. Investment prioritization matrix

ASSET / SYSTEM	ENERGY IMPACT	PROCESS CRITICALITY	EASE OF INSTRUMENTATION	TYPICAL PRIORITY
Treatment plant blowers	Very high	Very high	High	1
Bioreactor — recirculation and mixers	High	Very high	High	1
Stage II pumps	High	Very high	High	1
Abstraction / transmission pumps	High	Very high	Medium	1–2
Large pumping stations	High	High	Medium	1–2
UV / ozone	High	Very high	High	2
Centrifuges / presses	Medium–high	Medium	High	2
Network boosters	High	High	Medium	2
Auxiliary loads	Low–medium	Low–medium	High	3

@box Final ranking :: The final order is set by a weighted score: annual consumption, criticality, fault history, data quality, accessibility, instrumentation cost and replication potential.

COMPLEMENTARY SERVICES

23. Additional services: energy audit and energy efficiency management

Beyond the MOBIUS OEAM platform and the EFI 100 hardware component, MOBIUS Software SRL also offers complementary consulting services, delivered by certified/authorized energy efficiency experts. These services prepare and support the technical implementation: they identify where the savings opportunities really are, establish the baseline against which results are measured and configure the platform so that the indicators tracked match both operational reality and legal requirements.

23.1 ENERGY AUDIT BY CERTIFIED ENERGY AUDITORS

The energy audit is carried out by certified energy auditors, in accordance with Law no. 121/2014 on energy efficiency — periodically mandatory for large energy consumers, a category that includes most water and sewage operators.

- Identifying and quantifying energy efficiency improvement opportunities in each functional zone: abstraction, treatment, storage and distribution, sewerage, wastewater treatment.
- Establishing the energy baseline and the energy performance indicators (EnPIs) that will later be tracked in MOBIUS OEAM.
- An audit report in line with legal requirements, including the documentation needed for reporting to ANRE.

23.2 ASSISTANCE IN DEFINING AND CONFIGURING ENERGY EFFICIENCY MANAGEMENT

Starting from the audit results, the team of experts helps the operator define and configure energy efficiency management, so that the MOBIUS OEAM platform reflects the real structure of consumption and the organization's objectives from the start.

- Defining the organization's energy boundary, by station and production line.
- Establishing energy performance indicators (EnPIs) and action plans, in line with ISO 50001 principles.
- Configuring the hierarchical model, alert thresholds and compliance reports in MOBIUS OEAM, based on the audit results.
- Training technical and operations staff to use the platform and interpret the indicators.

23.3 THE TEAM OF EXPERTS

The services are delivered by certified/authorized experts — certified energy auditors and energy management specialists — who ensure both the legal compliance of the deliverables and the technical alignment between the audit recommendations and the actual configuration of the MOBIUS OEAM platform.

Note

The energy audit and energy efficiency management assistance services are complementary to the MOBIUS OEAM platform and the EFI 100 component and can be contracted separately or together with the technical implementation.

CONCLUSION

24. A proposal for collaboration

MOBIUS OEAM and EFI 100 form an integrated framework for energy visibility, asset management and technical interventions in water and sewage infrastructure. The value comes from correlating energy with the process: the same measurement becomes a cost indicator, a degradation signal, a justification for intervention and proof of the result.

RECOMMENDED NEXT STEPS

- A technical workshop with operations, energy, process, maintenance, automation and IT.
- Selecting the treatment plants and the consumers for the pilot.
- A field audit: electrical diagrams, communications, meters and process points.
- Defining KPIs, the baseline, acceptance criteria and responsibilities.
- A technical offer and a phased implementation schedule.

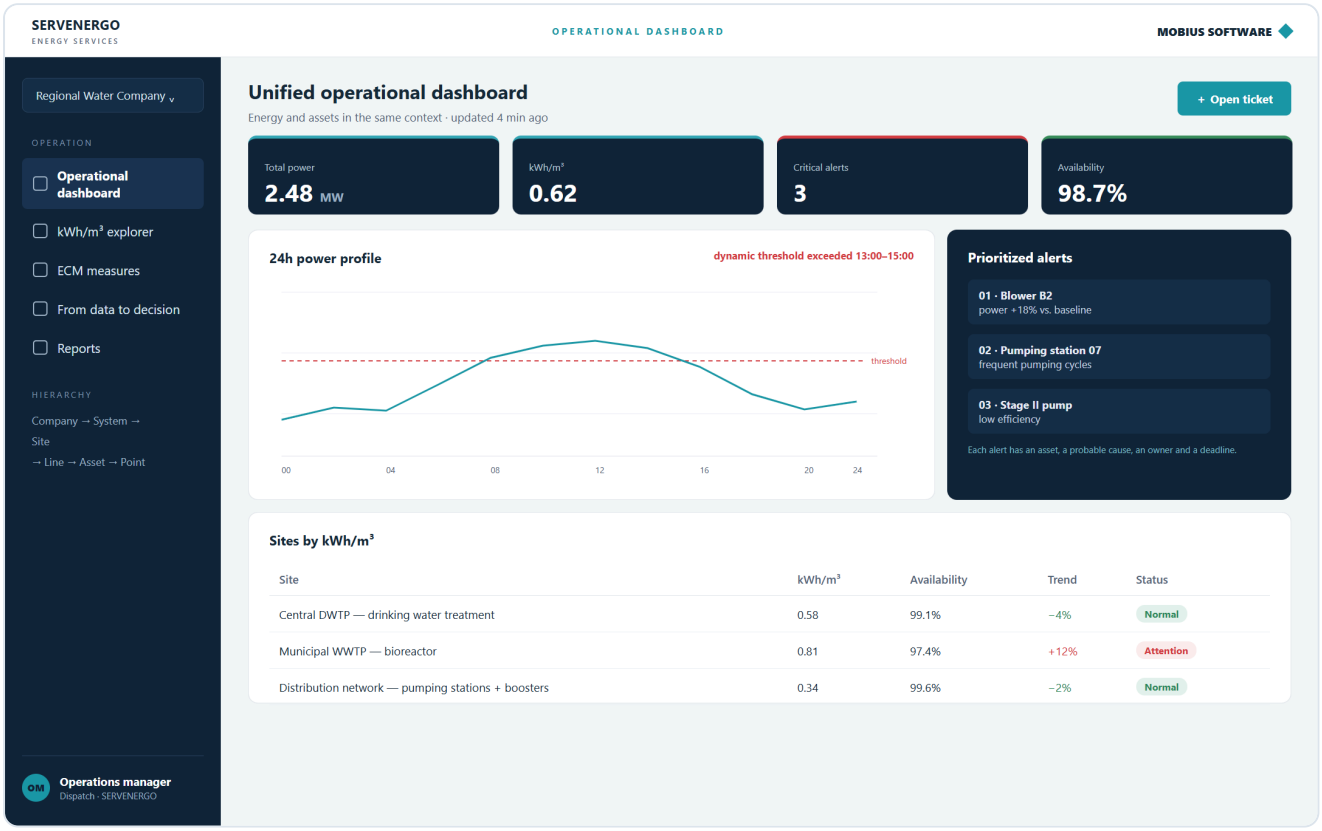
Sources and notes

Official MOBIUS OEAM page: www.mobiussoftware.ro/en/products-and-services/mobius-oeam. Percentage values, shares and examples are indicative and must be validated by measurements at the client's site. The EFI 100 configuration, instrumentation and protocols are confirmed in the technical design.

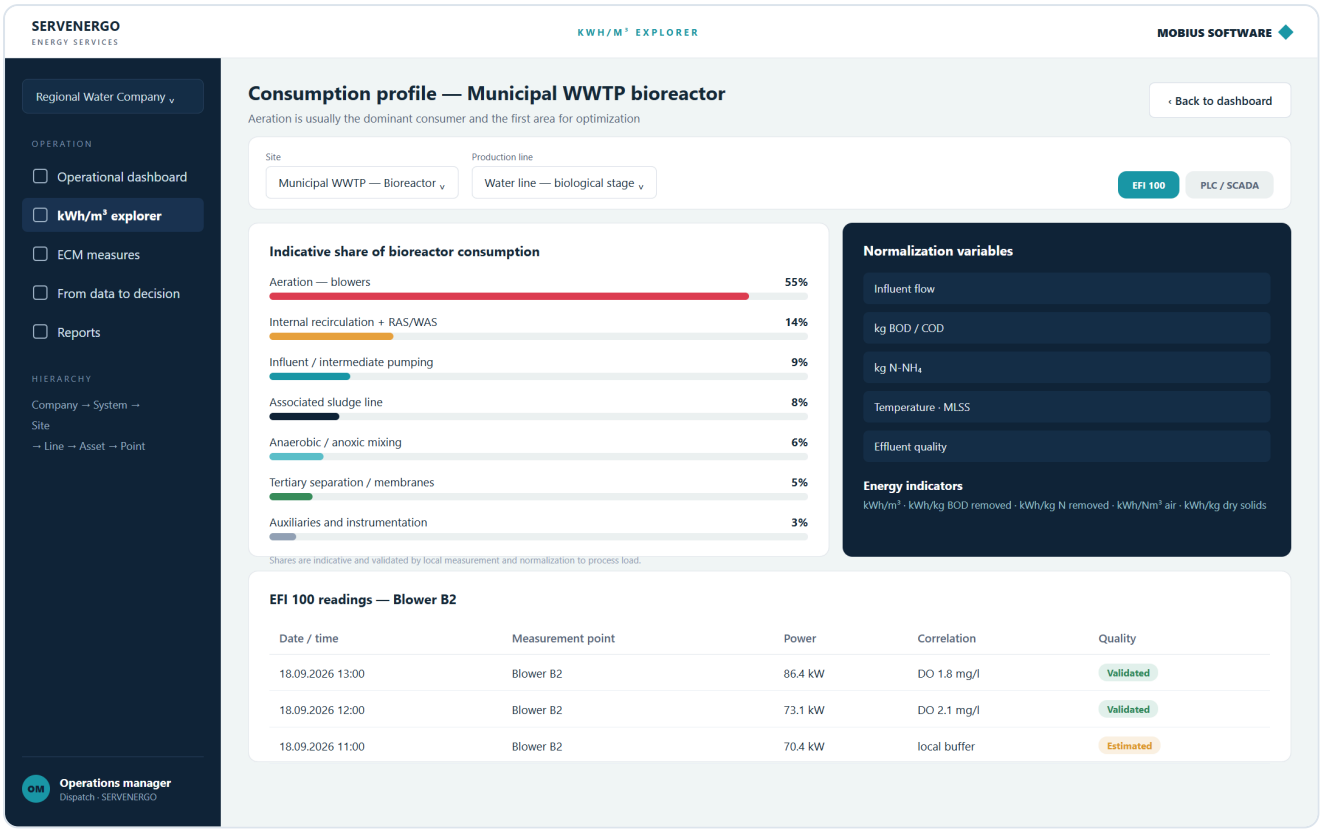
APPENDIX

Dashboard interface examples

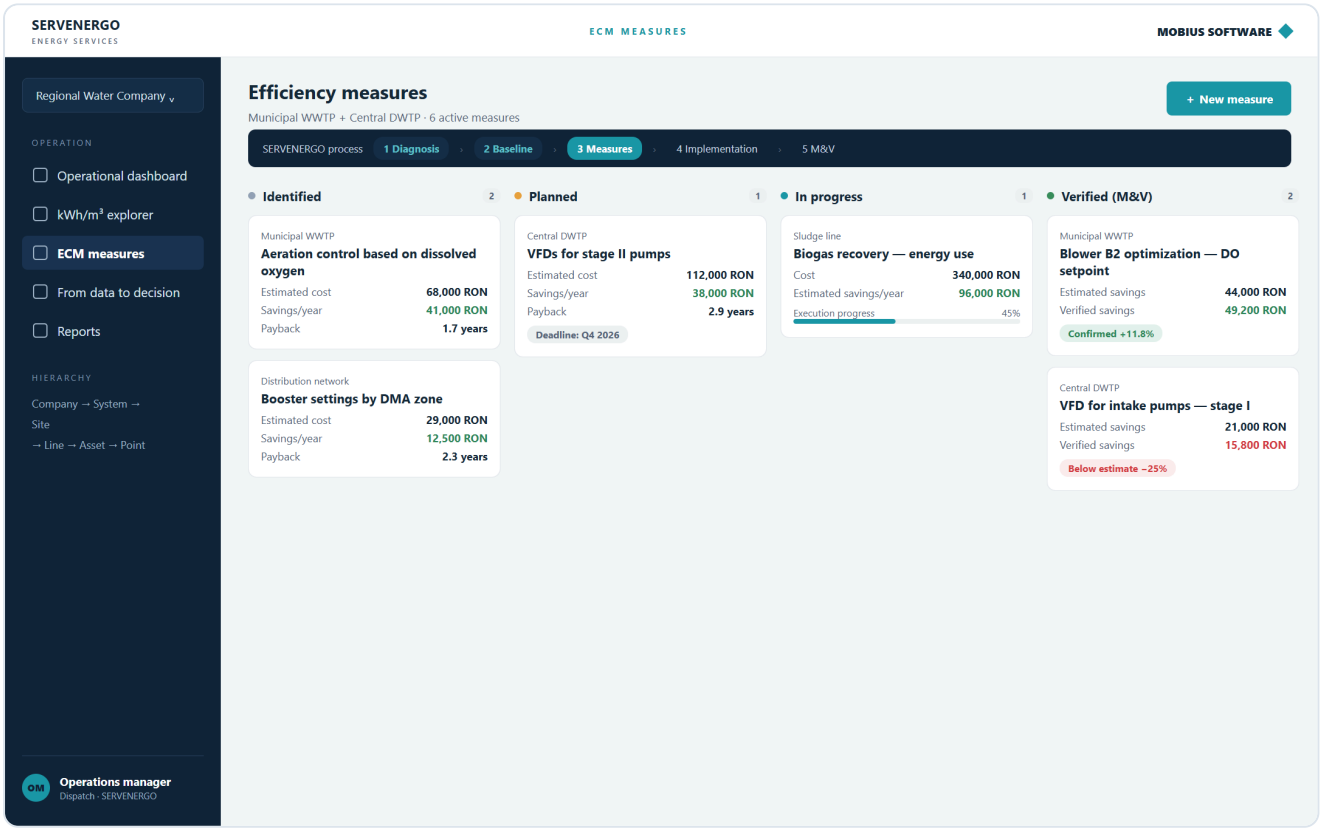
Conceptual screens of the MOBIUS OEAM interface for a regional water and wastewater operator. The values are illustrative.



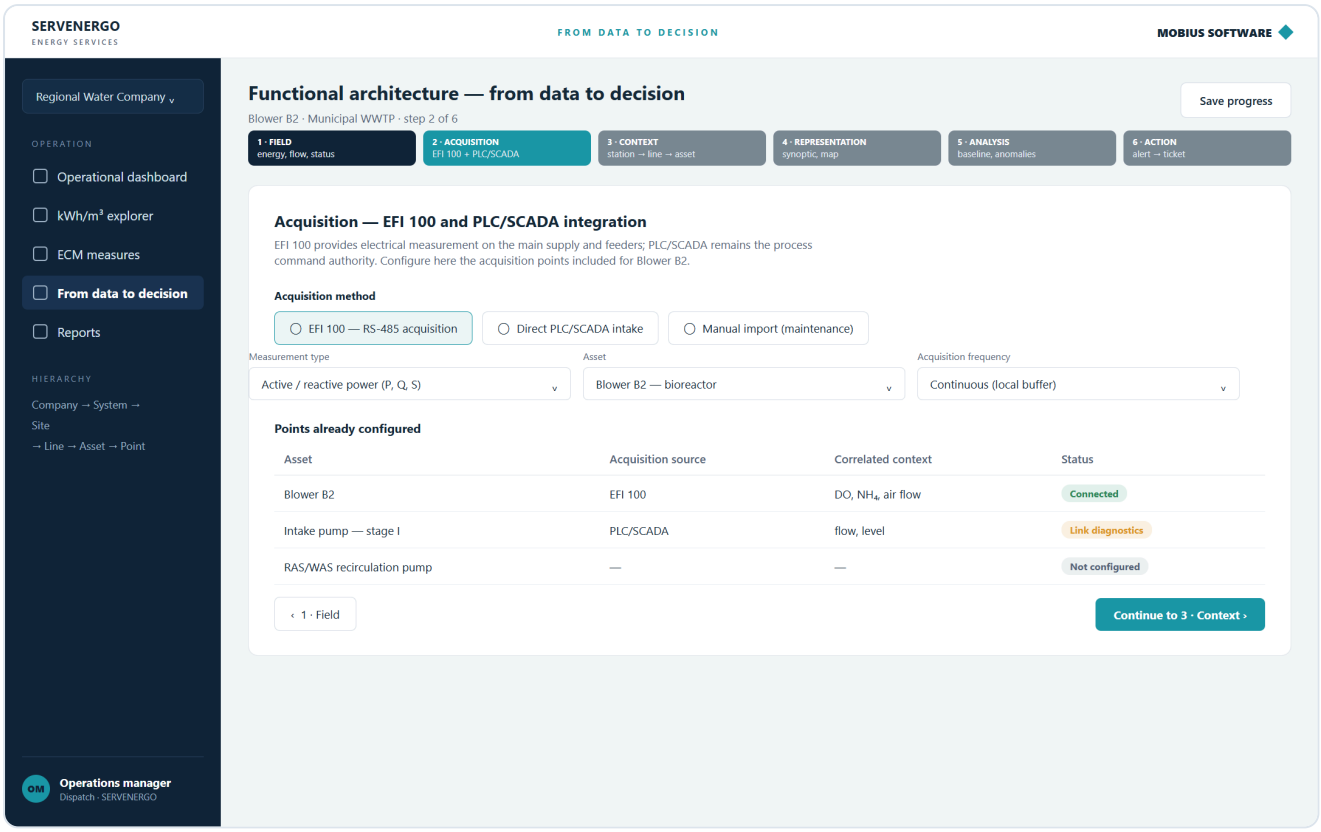
The unified operational dashboard: energy and assets in the same context.



The kWh/m³ explorer: the consumption profile of the municipal WWTP bioreactor.



Efficiency measures (ECM): from identification to measurement and verification (M&V).



From data to decision: configuring EFI 100 and PLC/SCADA acquisition.

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