WIND · SOLAR · HYBRID · 96 BLOCKS · THREE REVISIONS · EVERY 15 MINUTES

Forecast the wind. Schedule the sun. Settle the difference.

Plant-level generation forecasts from real weather, satellite and SCADA data — turned into the 96-block schedules an SLDC accepts, the revisions a QCA must file, and the deviation numbers the bill is settled on.

R0·R1·R2
DAY-AHEAD REVISIONS, ON THE SLDC CLOCK

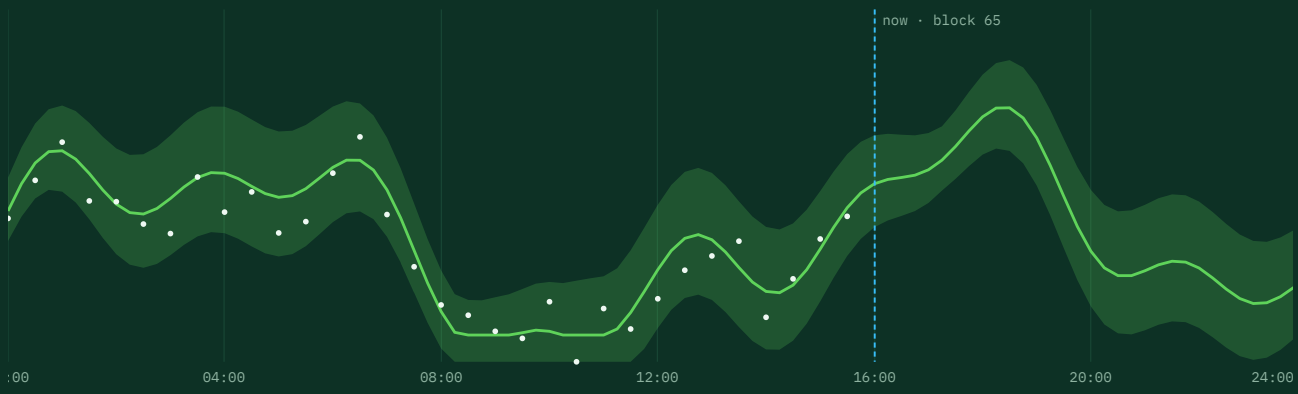
15 min
ROLLING INTRADAY, 0–6 H

P10–P90
CALIBRATED BAND, EVERY BLOCK

7 days
WEEK-AHEAD, 96 × 7

THE DAY, AS RE-CAST RUNS IT

Three revisions, one rolling intraday, and a band around every block.



One wind plant, one day, 96 blocks. Illustrative shape, not a customer's data.

10:00
RO · DAY-AHEAD
D-1 · first schedule for tomorrow

17:00
R1 · DAY-AHEAD
D-1 · evening NWP run folded in

05:00
R2 · DAY-OF
D · overnight SCADA and satellite

***/15**
INTRADAY
0–6 h ahead, refreshed every 15 min

06:00
WEEK-AHEAD
96 × 7 for planning and maintenance

Forecast → schedule → SLDC file

The schedule builder turns the P50 (or your chosen quantile) into the 96-block sheet, applies revision caps and holidays, and exports the SLDC's own XLSX layout. State templates are switchable per plant.

Curtailment and ramps, seen for what they are

Curtailment detection separates a dispatch instruction from a forecast miss. Ramp events are logged with cause and magnitude so a deviation is explained, not just counted.

Every plant type on one registry

Ground-mounted, rooftop and floating solar; onshore wind by IEC class; wind+solar hybrids and hybrids with storage; distributed and behind-the-meter fleets by statistical upscaling.

Multi-state by design

Plants partition by state; each state's SLDC clock, XLSX template and DSM rules are configuration, not code.

FORECASTING ENGINE

Physics first, learned corrections second, calibrated bands last.

TIER 1 Physical and learned models

NWP-to-power physics for solar (irradiance transposition, clear-sky ratio, module temperature, tracker geometry) and wind (power curves, air density, wake maps, terrain). Alongside: gradient-boosted trees, sequence models and statistical persistence, each trained per plant on its own SCADA.

TIER 2 Ensemble

A stacking meta-learner blends the tier-1 members; weights adapt nightly on a rolling 30-day window; regime switching gates members by clear-sky ratio and wind regime.

TIER 3 Post-processing

Model-output bias correction, curtailment detection, behind-the-meter correction, ramp detection, and probabilistic calibration so the P10–P90 band means what it says.

No synthetic forecasts

Every forecast is generated from real weather, satellite, SCADA and metering data. Demo and simulation paths are removed from production builds. Accuracy is scored nightly against SCADA, per plant and per horizon, and reported inside the product — never as a brochure number.

INPUTS

GLOBAL NWP
GFS, ECMWF IFS and ICON, refreshed every cycle; direct ECMWF open-data backup.

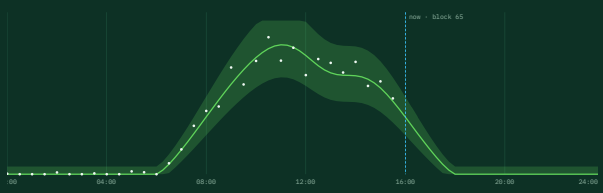
REANALYSIS
MERRA-2 for training history and clearness-index climatology.

SATELLITE IRRADIANCE
SARAH-3 / CM SAF and CAMS McClear for training; INSAT-3DR via MOSDAC on registration.

PLANT SCADA
REST ingestion; Modbus gateway; 5-minute polling consolidated to 15-minute blocks; wind nacelle, rotor, pitch and status; solar GII, module temperature, inverter DC/AC, PR.

SITE PHYSICS
PyWake wake maps, 30 m terrain, per-block air density, rainfall-derived soiling calendars, fixed / single-axis / dual-axis trackers.

GRID & MARKET
SLDC dispatch and curtailment scans; exchange price references; outage and maintenance register.



Solar: the band tightens at clear-sky hours and widens under cloud. Illustrative.

QCA OPERATIONS

The forecast is the start. The filing, the de-pooling and the settlement are the job.

Forecast Per plant, per horizon, with bands. →

Schedule 96-block builder, caps, holidays, revisions. →

File SLDC XLSX in the state's layout; export log. →

Actuals SCADA and meter data consolidated to 15 min. →

De-pool Pooling-station totals split to plants. →

Settle Deviation, DSM charges, commercial settlement.

- **Schedule builder.** Quantile choice, manual overrides with audit, revision numbering, cap enforcement, maintenance and holiday calendars.
- **SLDC submission.** The 96-block XLSX the despatch centre expects, generated in seconds for a fleet, with a submission log per plant and revision.
- **Meter data entry and smart import.** Typed entry, bulk files and a smart importer that recognises common SLDC and meter layouts.
- **De-pooling.** Pooling-substation totals allocated to constituent plants by declared capacity and availability, with the allocation retained.
- **Deviation & DSM charges.** Block deviation against the filed schedule; charge tables per state and effective date; direction-aware.
- **Commercial settlement and bank guarantees.** Settlement statements per plant and period; guarantee tracker with expiry and utilisation.

Bridge to REDSM

Every filed schedule and every curtailment flag can be published to AION's deviation-settlement platform, so forecast, schedule and bill share one plant identity end to end.

Backtest before you trust

Replay any plant over any window with the model set of your choice; compare members, horizons and quantiles against SCADA before promoting a change.

SLA and fallback logic

If a weather source is late, the next one is used and the fallback is recorded. If SCADA stops, persistence takes over and the switch is visible. Nothing fails silently.

Data vendors and cost

Every external call is metered; a vendor page shows what each source costs per plant per month and what it contributes.

ONE CONSOLE FOR THE QCA DESK

Everything the operator touches, and everything the auditor asks for.

Operations home
Fleet status, today's revisions, deviations in flight, data-feed health.

Plant registry & detail
Capacity, type, tracker, turbine class, SCADA mapping, state, PSS membership.

Forecast
Per plant, per horizon; band and members; override with reason.

Forecast accuracy
Per plant, per horizon, per revision — scored nightly against SCADA.

NWP ensemble status
Which model runs arrived, when, and which members the ensemble used.

Ramp events
Detected ramps with magnitude, duration and attributed cause.

Actuals
15-minute consolidated SCADA and meter series with gap flags.

Schedule builder & SLDC submission
Build, revise, export, log.

Deviation & DSM · De-pooling · Settlement
The commercial chain in three pages.

Solar & wind asset detection
Satellite imagery reviewed to confirm plant footprints and turbine positions against the registry.

Smart import · Export schedule
Bring files in; get the SLDC file out on a timer.

Holiday & maintenance calendar
Planned outages and holidays feed the schedule automatically.

Bank guarantee tracker
Instrument, expiry, utilisation, alerts.

Audit log · API reference
Every change with who and when; every endpoint documented for integrators.

Configuration · MFA
Roles for QCA, generator, utility and admin; multi-factor login for privileged roles.

Built for the tender, checked against it

A compliance matrix inside the product maps every functional requirement to the module that implements it — with its status. What is configured-but-awaiting-onboarding is labelled as such.

Runs where you need it

Containerised three-tier stack — API, time-series database with geospatial support, queue and workers — on your cloud tenancy or on-premises. A pilot instance stands up on a single VM.

WHO IT IS FOR

One forecast, four desks, and a 90-day pilot to prove it on your plants.

QCAs
Forecast, file, de-pool and settle for every represented plant from one console; revisions on the SLDC clock; the audit trail a generator will ask for.

Generators & IPPs
Plant-level forecasts with bands, ramp and curtailment explanations, and a deviation view that shows which blocks cost money and why.

SLDCs & state utilities
Aggregated RE forecasts by pooling station and state; the same 96-block layout you already accept; a curtailment record that both sides can read.

DISCOM RE desks & traders
Week-ahead and day-ahead fleet views for procurement and exchange positions, with the band as the risk measure.

A 90-DAY PILOT

01 **Weeks 1–2 · Onboard.** Plant registry from your lists; SCADA or meter feed connected; state template selected.

02 **Weeks 3–6 · Shadow.** Forecasts and schedules run every day alongside your current filing; accuracy scored nightly per plant.

03 **Weeks 7–10 · Operators on the console.** Revisions, de-pooling and settlement statements produced in RE-cast; your current process remains the check.

04 **Weeks 11–13 · File from RE-cast.** Go live plant by plant, with the shadow record as evidence.

What we need from you
The plant list with capacities and locations, a SCADA or meter export covering a few months, and the SLDC format you file today.

What you get
A per-plant accuracy record from your own data, the filed-schedule archive, and a system already configured to your state.

Pricing
Per plant per month, with the data-vendor cost shown separately and metered. No charge for plants that are not yet forecast.

Send us your plant list. We will send back tomorrow's 96 blocks.

Write to **info@aionpl.com** with the plants you schedule and the state you file in. We will come back with a pilot plan and a configured instance.

AION PRIVATE LIMITED

aionpl.com · info@aionpl.com

AION RE-CAST

Renewable generation forecasting & QCA operations platform

ALSO FROM AION

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