SUSTAINABILITY & REPORTING

Turn building operations into defensible performance data

How energy, utility, environmental and operational information becomes a consistent building and portfolio record — one that supports benchmarking, emissions calculation and compliance obligations without confusing estimates, missing data or dashboards with verified results.

Buildings produce a great deal of data. Sustainability teams still spend most of their effort deciding what they can trust. Electricity comes from a utility bill. Interval demand comes from a meter. Gas is recorded separately. Water has another source entirely. A BMS holds equipment data but no portfolio hierarchy. A spreadsheet holds square footage. One building reports monthly, another every fifteen minutes, a third has three months of missing meter data, and a fourth changed meters mid-period.

So the problem is not collecting more data. It is knowing what the data represents, where it belongs, whether it is complete, and whether two reporting periods are genuinely comparable. Six questions have to survive all the way to the report:

What did the building consume?	Measurement and source.
What changed?	Period-to-period performance.
Where did the number come from?	Data lineage and context.
Measured, calculated or estimated?	Evidence state.
Which property, meter or period?	Reporting hierarchy.
Can the conclusion be defended?	Completeness and methodology.

SCOPE

This application explainer owns the measurement and reporting layer: utility and meter data, unit normalization, data completeness and quality, measured versus estimated state, portfolio aggregation, baselines, emissions calculation where inputs are available, reporting outputs, and the distinction between operational data, modelled results and verified performance. Operating strategy belongs to Energy, HVAC & Lighting; connection and normalization to Connectivity & Integrations. Capability depends on connected data — see Current availability at the end.

WHAT YOU ARE REPORTING TO

The obligation defines the data, not the other way round.

Sustainability reporting is framework-driven. What a building has to measure, at what resolution, and how confidently, follows from which obligations its owner carries — and those obligations differ sharply in what they demand of the underlying data.

GHG Protocol	A widely used accounting standard for organizational greenhouse-gas inventories, including Scope 1, Scope 2 and Scope 3 classifications and calculation guidance.
Benchmarking mandates	Many U.S. jurisdictions require annual energy benchmarking and disclosure, often using ENERGY STAR Portfolio Manager or another designated submission mechanism.
Building performance standards	A growing set of local laws that go beyond disclosure and impose emissions or energy caps with financial penalties. See below — these carry dates.
Real-estate ESG benchmarks	GRESB and similar assessments are widely used by institutional real-estate owners and investors and place significant emphasis on data coverage, quality and reporting consistency.
Corporate disclosure regimes	CSRD in the EU, and other jurisdictional regimes whose scope and timing have been actively revised. Treat the customer's obligation as the requirement rather than any particular rule as permanent.

The platform does not discharge any of these. What it does is produce the operational record they all draw on — and the discipline that record needs is the same regardless of which framework a given owner reports under.

> **Reporting tools and submission requirements can change. A durable reporting architecture therefore preserves the underlying operational record independently of the particular tool or framework receiving the report. The obligation defines the evidence required; the evidence should not disappear when a reporting interface changes.**

THE REPORTING LOOP

Collect, normalize, validate, calculate, report, improve.

1 · Collect

Start with the best available evidence, and keep track of which kind it is. Utility bills give billing-period consumption and cost. Revenue and building meters give measured resource consumption. Submeters give tenant, equipment or area-level detail where installed. Building controllers give runtime, operating state, temperatures and schedules. External datasets supply inputs required for calculation. Manual entry covers building attributes not obtained automatically.

A monthly bill and a one-minute power meter both describe electricity use, and they answer different questions. The application should preserve that distinction rather than collapsing everything into one undifferentiated number — which means preserving how each number was produced:

Measured	Directly observed from the relevant meter, utility record or connected source.
Calculated	Derived from measured or accepted inputs according to a defined calculation.
Estimated	Used where direct evidence is incomplete or unavailable.

An estimate can be entirely useful. It should not silently become measured because it appears in the same dashboard.

2 · Normalize

Consider the number 24,680. Kilowatt-hours, therms, gallons or dollars? A monthly value or a cumulative register? One building, one tenant or one piece of equipment? A number without units and context is not yet a portfolio metric, so sustainability data is associated with the reporting structure — portfolio, property, building, meter or account, system or space, measurement — and conversions preserve both the source unit and the reporting unit rather than erasing the original.

Meter hierarchy deserves the same care, because two precise numbers can still sum to the wrong answer. A main building meter is not a tenant submeter. An equipment meter is not whole-building electricity. A utility bill may cover a period that does not align with an interval-meter window. Two meters may overlap, and a replacement meter resets its register. Reporting depends on knowing what each meter measures, where it sits, and whether its values can legitimately be aggregated.

Ownership and operating boundaries matter

A building may contain landlord-controlled common areas, tenant-controlled spaces, central systems serving both, tenant submeters, and equipment loads that cross operating boundaries. The meter hierarchy should preserve those relationships rather than forcing everything into one undifferentiated building total. The contractual, lease-accounting or organizational decision about which consumption belongs inside a particular sustainability inventory remains a customer reporting-policy decision.

3 · Validate

If a meter stops reporting for six hours, the building did not become extraordinarily efficient. If a utility bill is missing, consumption did not become zero. If a sensor is offline, the last reading is not the current condition.

> **Missing information is not zero consumption. The reporting record has to preserve the difference between zero and unknown.**

That means quality context travels with the number rather than sitting in a separate audit file: how much of the expected period is represented, where the value originated, at what resolution, whether there were gaps or equipment changes, whether it is measured, calculated or estimated, and whether the period is suitable for comparison with the baseline at all.

Suppose a building reports electricity down 12%. What if two days of interval data are missing, the billing period changed, a tenant vacated mid-month, or a meter was replaced? The percentage may

still be useful — but the reader needs to know whether the comparison is complete, adjusted, estimated, or not yet suitable for a performance conclusion. False precision is still false.

4 · Calculate

Derived metrics are only as good as their definitions, and the definition has to accompany the metric — otherwise two people use the same label and calculate different things. Energy consumption, energy intensity against an appropriate denominator, peak or interval demand, water consumption, period change against a defined baseline, emissions-related metrics where inputs and factors are available, and environmental exception frequency all depend on stated method.

Carbon sits above the energy data, not inside it

Electricity consumption is measured in the building. Greenhouse-gas emissions associated with it are calculated, using factors that vary by location, energy source, period, methodology and framework. Changing an emissions factor does not mean the building consumed a different amount of energy, and a reporting system that cannot show which factor produced which number cannot defend either.

Under the GHG Protocol, directly consumed building fuels may contribute to Scope 1 and purchased electricity to Scope 2, depending on the reporting organization's boundary and control approach. Tenant and leased-space energy can also be important to an owner's greenhouse-gas inventory, but its Scope classification depends on the consolidation approach, operational boundary and lease arrangement. Where tenant energy falls outside the owner's Scope 1 and Scope 2 boundary, it may contribute to Scope 3 leased-asset reporting. Submetering can improve the evidence available for separating tenant, landlord, common-area and equipment consumption; the reporting methodology, not the meter itself, determines the applicable Scope classification.

Scope 2 reporting may require different methodologies. A location-based result uses grid-average emissions factors, while a market-based result can reflect qualifying contractual instruments and supplier-specific information. For organizations subject to dual Scope 2 reporting, both results may be required and rely on different calculation inputs. LEXI's role is to preserve the measured electricity data, applicable factors and methodology used; the exact Scope 2 calculations available depend on the deployed reporting configuration and customer requirements.

Building data can support an inventory without becoming the inventory. Establishing an organisation’s reporting boundary, consolidation approach and final corporate inventory is broader than any building platform. Connecting a meter does not produce a complete or assured corporate greenhouse-gas inventory.

5 · Report

The same underlying record serves different audiences at different resolutions — a building engineer needs interval consumption, meter status and exception detail; a sustainability manager needs monthly performance, year-over-year change, intensity and emissions calculations; an executive needs a small number of trends and exceptions; a customer or partner needs the authorized subset for their purpose. One record, several authorized views of it.

Exceptions belong in the report rather than beneath it. A meter offline, a missing utility bill, a changed baseline, estimation used, a material change in building use, an unavailable emissions factor — none of those is a reporting failure. Making them visible is what increases confidence in the numbers that remain. And a portfolio view should not reward the building with the biggest reporting gap.

6 · Improve

A sustainability dashboard creates little value if nobody uses it to change what happens next. Electricity up sends you to operating conditions and the energy application. Demand rising sends you to schedules and equipment sequencing. Water elevated sends you to meters and possible abnormal use. An improvement that disappeared sends you to persistence, changed use and equipment condition. That closes the loop, and it is what makes reporting part of building operations rather than a separate annual exercise.

BUILDING PERFORMANCE STANDARDS

Compliance can carry a financial consequence.

Energy benchmarking mandates required disclosure. Building performance standards go further: they set emissions or energy caps per building and attach financial penalties to exceeding them. A growing number of US jurisdictions now operate one, and for owners in those markets the reporting question stopped being reputational.

New York City's Local Law 97 is one prominent example. Covered buildings are subject to annual greenhouse-gas emissions limits and reporting requirements, with financial penalties tied to emissions above the applicable limit. Boston's BERDO and Washington, DC's BEPS illustrate the broader movement toward building-specific performance standards. Requirements, thresholds and penalty structures vary by jurisdiction and reporting year.

> **When compliance has a financial consequence, data quality becomes a financial control. An owner who cannot evidence consumption cannot confidently evidence compliance — and an owner whose reported figure is inflated by estimated, duplicated or misclassified data may overstate its exposure.**

That inverts the usual argument for measurement. In a disclosure regime, incomplete data is an embarrassment. Under a performance standard it is an exposure in both directions: understated data creates compliance risk, and overstated data creates unnecessary penalty. The meter hierarchy, completeness tracking and lineage described above stop being reporting hygiene and start being the basis on which a number is defended.

It also changes what an owner needs from an operating platform. Knowing consumption annually, in arrears, is enough to file. Knowing it continuously, with the operational context to explain it, is what allows a building to be steered away from a cap before the year closes — which is the connection between this document and Energy, HVAC & Lighting.

COMPARISON

A baseline is a reference point, not a magic number.

Improvement requires something to compare against — a prior year, a pre-project period, a defined operating period, a calibrated model. The important question is always what else changed: occupancy, weather, operating hours, tenancy, the building scope itself, or major equipment. Those contextual changes have to be preserved, or a simple before-and-after gets mistaken for a controlled measurement.

Adjusting for weather or occupancy makes comparisons more meaningful and can also make them less transparent, which is why the method has to be as visible as the result. A credible report says whether a figure is raw, normalized, modelled or adjusted, and under what methodology. The goal is not the most favourable number; it is the most defensible comparison.

Measurement and verification

An HVAC application changing a schedule does not prove energy was saved. Equipment turned off earlier does not equal a percentage. Verification requires comparing observed performance against an appropriate reference, using metered consumption, interval data, schedules, weather, occupancy or equipment state as the project demands. Where formal savings verification is required, IPMVP is one widely used framework for defining measurement boundaries, baselines, adjustments and verification methods. The applicable M&V methodology is determined by the project, program and customer requirements.

Operational feedback and verified savings are different things. Did consumption fall, did demand move, did the result persist, what else changed — those observations support operational improvement, and they should not be presented as independently verified savings unless the methodology supports it. The system should keep the action taken separate from the performance attributed to it.

ASSURANCE READINESS

What makes data assurable is not what makes it presentable.

Sustainability information may be subject to internal review, third-party verification or external assurance depending on the reporting obligation. LEXI does not provide assurance. What a platform can do is preserve a record that a reviewer or assurance provider can test, which is a different design goal from simply producing a dashboard.

A reviewer works backwards from a reported figure. They may ask which source records produced it, whether a selected sample can be traced end to end, where estimation was used and on what basis, what changed between report versions and why, and whether the documented methodology was actually applied. A reporting system that can answer those questions from its own records can reduce the manual reconstruction required during verification or assurance.

An assurance-ready reporting architecture should preserve five things:

Traceability	Reported figures should resolve back to source meters, periods and records rather than terminate at an unexplained total.
Evidence state	Measured, calculated and estimated values should remain distinguishable after aggregation.
Completeness	Coverage of each reporting period should be visible, with gaps identified rather than absorbed.
Methodology	The calculation method and factors applied should remain associated with the result they produced.
Change history	Restatements should be explainable — what changed, when and why.

Those are the same properties described throughout this document. The point of naming them together is that they are not five separate features; they are the conditions under which a number can be defended by somebody other than the person who produced it.

LINEAGE AND VERSIONING

A credible metric is traceable backwards.

A portfolio number should not terminate at 12,482 MWh. It should resolve to the contributing buildings, the source meters, the reporting periods represented, the unit conversions applied, where estimation was used, the calculation method, and any external factor or assumption involved. Normalization, estimation and calculation should create traceable derived values rather than overwrite the source observation from which they were produced.

That matters most when something changes. A prior-year emissions total might move because a utility bill was corrected, a missing meter period was filled, an emissions factor was updated, a meter hierarchy was fixed, or an estimate was replaced by measured data. Without lineage the number simply changed. With it, the system explains why — which is exactly what a restatement requires.

Operational data keeps arriving. Late bills appear, errors are corrected, metadata changes, factors are updated. A credible process therefore treats a report as a defined dataset, for a defined period, under defined assumptions, at a defined point in time. Yesterday's correct report and today's correct report can legitimately differ. The goal is not to pretend data never changes — it is to make the changes explainable.

A WORKED EXAMPLE

Apparent improvement and supported improvement.

Building A	+4% electricity · occupancy increased substantially
Building B	−8% electricity · comparable operating conditions · complete metering
Building C	−14% electricity · seven days of interval data missing

The useful conclusion is not that Building C saved the most energy. It is that Building B currently shows the strongest supported improvement, Building A needs contextual analysis before any conclusion, and Building C needs its data-quality issue resolved before a figure is reported at all.

This is the discipline the whole document is about, and it is worth noticing which building would have looked best on a dashboard without it.

BEYOND ELECTRICITY

The same discipline extends to other resources.

Where appropriate metering exists, the same sequence applies to water, fuel, thermal energy and other supported resources: identify the source, normalize the units, associate the context, validate completeness, calculate against a defined method, report with the assumptions attached. That is more useful than forcing every resource into one dashboard format.

Environmental measurements can contribute to operational reporting too — temperature, humidity, CO_2, particulate and other supported readings — but they carry the same boundaries established in Occupancy, Environment & Facility Use. A CO_2 trend is not a declaration that a building is healthy, and a temperature-compliance percentage is not a medical outcome. The reporting layer summarises a measured condition; it should not quietly convert that into a health or certification claim.

Reporting is not certification

The platform organises, calculates and presents building-operational information. It does not thereby certify regulatory compliance, green-building certification, greenhouse-gas inventory assurance, financial disclosure, or adherence to any framework. Those determinations require defined methodologies, organisational decisions, third-party verification, legal review or independent assurance — and better evidence supports those processes rather than replacing them.

THE BUSINESS CASE

Reduced uncertainty, and exposure you can quantify.

Two arguments run in parallel here, and the second is newer. The first is efficiency: how much manual work is required to gather and reconcile building data, how much of the portfolio has usable information for the required period, how quickly missing meters and reporting gaps are discovered, how many properties can be evaluated on a consistent structure, how many reporting exceptions become investigated operating actions, and which projects can demonstrate improvement under an accepted comparison method.

The second is exposure. For a portfolio with buildings under a performance standard, the owner can identify which buildings are covered, the applicable performance limit, current performance against that limit, and the financial consequences defined by the jurisdiction. That creates a quantifiable compliance exposure against which operating improvement and data quality can be evaluated. Where

information is also subject to verification or assurance, better lineage and evidence quality can reduce the manual reconstruction required to support the reported result.

As elsewhere in this series, the intent is to make those questions answerable rather than to assert a universal sustainability return.

HOW THIS DIFFERS

The value is not the dashboard. It is the evidence underneath it.

	Spreadsheet or point-solution reporting	LEXI sustainability and reporting
Primary view	Bills, manually assembled data, or sustainability-specific metrics	Operational building and portfolio context
Meter context	Manually maintained or platform-dependent	Associated with building, meter and equipment hierarchy
Resolution	Typically billing period	Utility, meter and interval information where available
Data quality	Manual review, or varies	Completeness and source context attached to the metric
Measured versus estimated	Often a spreadsheet convention	An explicit reporting state that survives aggregation
Operational context	Usually limited or separate	Occupancy, equipment and operating information available
Emissions calculation	Manual, external, or a core function in isolation	Built above measured resource data, with factors and method recorded
M&V relationship	Separate analysis	Operating action kept separate from measured outcome
Investigation path	A separate operational process	Exceptions route back into the building applications
Lineage	Manual, or platform-dependent	Source and calculation context are part of the record

The differentiation is not that LEXI invented sustainability reporting. It is that the report stays connected to the physical building, the operational context and the source data that produced it.

WHAT THIS MEANS

For the people who report and defend building performance.

Sustainability teams	A consistent building and portfolio foundation with source and quality context attached, and a record that survives a change of reporting tool.

Building owners	Whether reported performance reflects operating improvement, changed use or incomplete evidence — and, where a performance standard applies, what is actually at risk.
Facility and engineering teams	Reporting exceptions connected directly to the equipment and operating conditions that may explain them.
Finance and executive teams	Portfolio metrics with clear definitions and visible data-quality exceptions rather than a single confident number.
Systems integrators	Connect meters and sources once; the normalized context is reusable across reporting and every other application.
Managed-service providers	Deliver reporting and performance services over the same platform used to operate the building.

CURRENT AVAILABILITY

Reporting capability follows the data available.

> **The platform supports energy-management and building-operational applications, connected meter and equipment information, portfolio hierarchy, dashboards, analytics and reporting workflows according to the deployed devices, integrations and software release.**
>
> Which sustainability metrics are available depends on the utilities and resources connected, metering resolution, meter hierarchy, available history, external factors and calculation inputs, and the methodology a customer requires. Advanced normalization, emissions calculation, benchmarking, formal measurement and verification, and framework-specific outputs should be treated according to the data, methodology and release actually deployed. LEXI does not represent that a connected building automatically produces a complete, assured or regulatory-ready sustainability report — the objective is a stronger operational foundation from which credible reporting can be built.

THE CORE IDEA

Preserve the difference between what the building did and what the report concluded.

A meter produces a measurement. A building model gives it context. A quality process determines whether it can be trusted. A calculation turns it into a metric. A report communicates the result. An operator decides what to do next. Collect the evidence, normalize it into building context, make gaps and estimates visible, calculate according to a defined method, report with traceable assumptions, and use the result to improve how the building runs.

> **The result is not another sustainability dashboard. It is a reporting process built on a clear understanding of where the number came from, what it means, and how confidently the organisation can stand behind it.**

Utility, metering, emissions, environmental, benchmarking, calculation and reporting capabilities vary by connected data sources, building configuration, application, methodology and software release. LEXI provides operational data and reporting infrastructure; regulatory reporting, certification, assurance and legal compliance remain subject to the applicable framework, methodology and customer requirements.

Related · Energy, HVAC & Lighting · Connectivity & Integrations · Equipment Monitoring & Diagnostics · Occupancy, Environment & Facility Use · Distributed Intelligence