Checklist 2026

What Leading Colocation Providers Are Doing Now for Energy Management & Optimization

etalytics

ASSESS. BENCHMARK. IMPROVE.

Use this checklist as a facility + portfolio self assessment. It’s written to match what “best run” colo operators are implementing today (and what regulators and large customers increasingly expect), from governance → instrumentation → controls → procurement → reporting.

Your etalytics team

1) STRATEGY, GOVERNANCE, AND OPERATING MODEL

- [ ] **Name an accountable energy owner per site (**with authority across MEP ops + projects + customer/commercial impacts).
- [ ] **Define "efficiency within SLA" guardrails** (e.g., max inlet temp bands, min redundancy state, max alarm rate) so optimization doesn't drift into risk.
- [ ] **Run energy like reliability**: weekly ops review + monthly performance review + quarterly portfolio steering.
- [ ] **Formal change control for setpoints & sequences** (cooling resets, economizer enablement, UPS mode changes): documented, tested, versioned, rollback plan.
- [ ] **Continuous commissioning (Cx) mindset:** every major plant has a living sequence of operations (SOO), trend verification, and periodic functional tests.
- [ ] **Operator upskilling plan** (controls, psychrometrics, hydronics, power quality, data interpretation), not just OEM maintenance.

2) STANDARDS ALIGNMENT AND REGULATORY READINESS

Global standards and KPIs (make metrics comparable and defensible)

- [ ] **Standardize KPI definitions and boundaries** using the ISO/IEC 30134 family:
  - [ ] PUE (ISO/IEC 30134 2) (ISO)
  - [ ] WUE (ISO/IEC 30134-9) (ISO)
  - [ ] REF (Renewable Energy Factor, ISO/IEC 30134 3) (ISO)
  - [ ] ERF (Energy Reuse Factor, ISO/IEC 30134-6) (ISO)
  - [ ] CUE (Carbon Usage Effectiveness, ISO/IEC 30134 8) (ISO)
- [ ] **Adopt ISO 50001-style energy management** (policy → plan → do → check → act) even if you don't certify at first. (ISO)

Facility efficiency standards used by leading designers/operators

- [ ] **Reference ASHRAE 90.4** for energy-efficient data center design and O&M planning; many teams use its concepts (mechanical + electrical efficiency components) as an internal yardstick. (ASHRAE)

EU-specific: reporting and “best practice pressure”

If you operate in the EU (or sell to EU customers), leaders are preparing for (or already executing) the EED reporting regime:

- [ ] **EED data center reporting readiness (≥500 kW installed IT power):** build the dataset and audit trail needed for the European database reporting. The Delegated Regulation (EU) 2024/1364 specifies the information/KPIs and reporting cadence (initial deadline and annual submissions). (EUR-Lex)
- [ ] **Include the required KPI themes** in your data model (energy consumption, power utilization, temperature set points, waste heat utilization, water usage, renewable energy use). (EUR-Lex)
- [ ] **Treat the EU Code of Conduct Best Practice Guidelines as your playbook** (even outside Europe, it’s a widely referenced best-practice catalog). (E3P)

Also note the market signal from European self-regulation:

- [ ] **Benchmark against Climate Neutral Data Centre Pact efficiency targets** (commonly referenced by EU stakeholders): e.g., annual PUE targets of **1.3 (cool climates)** and **1.4 (warm climates)** for new sites operating at full capacity by **Jan 1, 2025**, and for existing sites by **Jan 1, 2030**. (eudca.org)

3) METERING, DATA QUALITY, AND REPORTING ARCHITECTURE

“Table stakes” instrumentation

- [ ] **Submeter IT vs. total facility** at minimum; then break down:
  - [ ] Cooling plant (chillers/heat rejection/pumps)
  - [ ] CRAH/CRAC/fans (or in-row)
  - [ ] UPS losses and distribution losses
  - [ ] Lighting/misc
- [ ] **Branch circuit monitoring where feasible** (or at least per-PDU + per-row / per-customer feeds).
- [ ] **Water metering** that can support WUE reporting (source water in, process water out, and make-up where applicable). (ISO)
- [ ] **Time-synchronized data** (NTP/PTP) across BMS/EPMS/DCIM so KPIs reconcile.

Data/analytics practices that leaders implement

- [ ] **Single "energy truth" layer** that reconciles EPMS + BMS + utility bills + tenant allocations.
- [ ] **Measurement & Verification (M&V)** for every efficiency project: baseline, expected savings, post-implementation verification.
- [ ] **Customer-facing reporting** (portal + monthly exports) showing energy, carbon, and (where offered) renewable matching – because customers increasingly demand evidence, not claims.

4) CONTROLS, SETPOINTS, AND OPERATIONAL DISCIPLINE

- [ ] **Operate to an inlet-temperature strategy** (not a fixed supply-air number): distributed sensors, clear alarm policy, and documented response actions.
- [ ] **Reset strategies enabled and validated:**
  - [ ] Supply air temp reset / chilled water supply reset
  - [ ] Condenser water / approach reset
  - [ ] DP reset from "most-open valve" (not fixed DP)
- [ ] **Alarm rationalization** (reduce nuisance alarms; focus on actionable alarms tied to risk).
- [ ] **Seasonal operating modes** documented and trained (free cooling shoulder seasons, adiabatic enable thresholds, etc.).
- [ ] **Continuous "low ΔT syndrome" prevention** (trend ΔT, valve positions, coil performance; fix root causes, don't just raise flow).

5) COOLING PLANT, HYDRONICS, AND WATER-AWARE EFFICIENCY

- [ ] **Maximize economization hours** (air-side and/or water-side where feasible).
- [ ] **Variable-speed everything** (pumps, towers/dry coolers, CRAH fans) with stable control loops.
- [ ] **Optimize kW/ton continuously,** not "design day only" (part-load is where you live).
- [ ] **Water stewardship built into the control strategy:**
  - [ ] WUE tracked and reviewed alongside PUE
  - [ ] Clear policy for adiabatic use vs. water stress conditions
  - [ ] Water treatment + drift/bleed monitoring to prevent silent WUE creep

6) WHITE SPACE AIRFLOW MANAGEMENT AND HIGH-DENSITY READINESS

- [ ] **Containment + bypass control:**
  - [ ] Hot/cold aisle containment where possible
  - [ ] Blanking panels, brush grommets, tile management, cable cutout sealing
- [ ] **Fan control moves to "right control variable":**
  - [ ] Inlet temp compliance rate
  - [ ] Aisle pressure targets
  - [ ] EC/VFD fan optimization
- [ ] **High-density / AI readiness plan:**
  - [ ] Hydraulic + electrical provisions for CDUs
  - [ ] Liquid cooling zones (direct-to-chip / rear-door HX / immersion where applicable)
  - [ ] Commissioning approach for mixed air + liquid environments

Example of where the market is going: Equinix has publicly discussed **adoption of liquid cooling** to support AI infrastructure, alongside partners like Schneider Electric. (News Release Archive)

7) ELECTRICAL EFFICIENCY, POWER QUALITY, AND RESILIENCE-COMPATIBLE OPTIMIZATION

- [ ] **UPS efficiency strategy** aligned to load profile and SLA:
  - [ ] High-efficiency modes where allowed
  - [ ] Avoid chronic low-load inefficiency (right-size modularity; manage stranded capacity)
- [ ] **Loss tracking:**
  - [ ] UPS loss vs. load
  - [ ] Transformer and distribution losses
- [ ] **Power quality monitoring** (harmonics, transients, PF, unbalance) with mitigation plan.
- [ ] **Battery analytics & lifecycle management** (predictive maintenance; capacity testing policy tied to risk).

8) IT LOAD, CAPACITY ORCHESTRATION, AND CUSTOMER COLLABORATION

Colo operators can't "control the servers," but leaders influence outcomes through contracts, telemetry, and optional services:

- [ ] **Stranded capacity playbook:**
  - [ ] Design density bands by hall
  - [ ] Enforce deploy standards (blanking, containment compliance, airflow rules)
  - [ ] Commercial levers to discourage chronic underloading (where contract structure allows)
- [ ] **Tenant enablement (opt-in):**
  - [ ] Per-cabinet or per-cage energy analytics
  - [ ] Power capping / peak management options
  - [ ] Carbon-aware scheduling guidance for non-critical workloads (when customers can shift)

9) AUTOMATION, AI, AND "CLOSED-LOOP WITH GUARDRAILS"

Leaders are moving from dashboards → recommendations → controlled automation:

- [ ] **Anomaly detection** on thermal + electrical signals (catch stuck valves, failing sensors, hunting loops).
- [ ] **Digital twin / calibrated models** for "what-if" (setpoints, new IT deployments, equipment swaps).
- [ ] **Human-in-the-loop optimization first, then selective closed-loop:**
  - [ ] Pilot on one hall/plant segment
  - [ ] Hard safety constraints (temp/humidity/pressure, redundancy state)
  - [ ] Rollback + audit logging

Proven case studies exist: Equinix reported using an AI-based cooling solution to improve energy efficiency at a Frankfurt site (publicly reported as ~9% improvement). (DataCenterDynamics)

10) SUSTAINABLE POWER SOURCING AND GRID INTEGRATION

What "leading" means now: beyond annual renewable matching

- [ ] **Clear renewable procurement strategy** (PPAs, utility green tariffs, certificates) with transparent boundary claims (market-based vs. location-based).
- [ ] **Move toward hourly matching / 24/7 carbon-free energy concepts** where feasible (still emerging in colo, but increasingly demanded by large customers). Google's 24/7 carbon-free energy framework is a common reference point for hourly matching. (Sustainability)

Portfolio power risk management

- [ ] **Grid capacity + interconnection is treated as a first-class constraint** (queue strategy, substation planning, curtailment scenarios).
- [ ] **Tariff optimization** (TOU, demand charges) integrated into operational planning.

Frontier moves (some leaders are already exploring)

- [ ] **Firm clean power options** (advanced nuclear, fuel cells, etc.) explored for long-term scalability; e.g., Reuters reported Equinix pursuing advanced nuclear-related agreements to meet rising power demand. (Reuters)

11) DER, DEMAND RESPONSE, AND MICROGRID CAPABILITY

- [ ] **Battery/storage strategy** for:
  - [ ] Peak shaving / demand charge management
  - [ ] Grid services participation (where markets allow)
  - [ ] Resilience augmentation (ride-through, black start support in microgrid modes)
- [ ] **Demand response "playbooks"** (what loads can flex without SLA violation; how quickly; under what alarms).
- [ ] **Island/microgrid procedures tested** (not just documented): black start, resynchronization, load shed priorities.

12) BACKUP POWER DECARBONIZATION WITHOUT BREAKING RELIABILITY

Leading colo providers are actively reducing backup emissions while keeping generator reliability:

- [ ] **Renewable diesel / HVO pilots or deployments** for generators (where supply and warranties allow). Example: Compass has promoted HVO use for backup generators and claims large lifecycle emissions reductions. (Compass Datacenters)
- [ ] **Reality check included in governance:** HVO is not "emission-free" and can have supply-chain and sustainability tradeoffs – leaders document claims carefully and assess sourcing. (The Register)
- [ ] **Generator run-hour minimization strategy** (better testing regimes, battery support for shorter events, optimized maintenance scheduling).

13) HEAT REUSE AND "COMMUNITY LICENSE TO OPERATE"

Heat reuse is moving from "nice story" to real projects, especially in Europe:

- [ ] **Heat reuse feasibility** assessed early (temperature levels, proximity to district heat, business case, metering, contracts).
- [ ] **Metering for exported heat** (so ERF can be calculated consistently). (ISO)
- [ ] **Reference designs and guidance leveraged** (e.g., Open Compute Project heat reuse reference designs). (Open Compute Project)

Proof it's happening at scale: Digital Realty has been publicly reported as supporting multiple district heating networks via waste heat from its data centers. (DataCenterDynamics)

14) COMMERCIAL ALIGNMENT AND CUSTOMER-FACING ENERGY PRODUCTS

- [ ] **Energy pricing reflects reality** (pass-throughs, demand charges, TOU) while still being legible to customers.
- [ ] **Offer "energy-aware" options:**
  - [ ] Renewable matching tiers (clearly defined)
  - [ ] Higher inlet temperature / higher density options with explicit risk & efficiency tradeoffs
  - [ ] Heat reuse participation credits (where applicable)
- [ ] **Make savings visible:** KPI improvements are reflected in customer reporting (otherwise efficiency investments don't translate into commercial value).

15) AUDITABILITY AND CONTINUOUS IMPROVEMENT

- [ ] **Evidence pack exists** for each site:
  - [ ] Meter list + one-line diagrams (electrical and mechanical)
  - [ ] SOO + setpoint tables + change log
  - [ ] Commissioning/retro-Cx reports + functional test scripts
  - [ ] KPI definitions + boundary statements + calculation methods
  - [ ] M&V reports for major projects
- [ ] **Independent assurance** (where appropriate) for sustainability/energy reporting – especially if used in customer contracts or public claims.

READY TO MOVE FROM CHECKLIST TO MEASURABLE SAVINGS?

How leading colocation operators turn this checklist into results. Most colocation providers already have meters, BMS, and good people.

What's missing is **system-level optimization across cooling, power, and operations – without increasing risk**. etalytics helps colocation operators:

- Translate **raw energy data into actionable setpoint and control recommendations**
- **Reduce cooling energy by 15–40%** while staying inside SLA and ASHRAE guardrails
- Detect inefficiencies early (low-ΔT, bypass airflow, stuck valves, control drift)
- Create **audit-ready KPIs** (PUE, WUE, CUE, ERF) aligned with ISO/IEC 30134 and EU EED reporting
- Prepare sites for **high-density and AI workloads** with digital-twin-based planning

What's different about etalytics

✓ Physics-based **digital twins** of cooling and power systems

✓ **Human-in-the-loop AI** (recommend first, automate later – safely)

✓ Works with your existing **BMS, meters, and DCIM**

✓ Proven in large European data centers at Equinix, Digital Realty, NTT Data and more, including **near-50% cooling energy savings in production environments**

NEXT STEP: GET YOUR SITE SCORED

Book a free Energy Performance Snapshot

We'll assess one of your sites against parts of this checklist and show:

- Where the biggest efficiency gaps are
- What savings are realistically achievable
- Which actions are **low-risk / high-return** vs. capital-intensive

→ Request your snapshot at:
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