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# Energy Performance Evaluation Framework for Responsible Data Center Growth

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**NASEO Nation Building Summit / July 29-30, 2026**

# Codes, Standards, Rating Systems, and Frameworks Applicable to Data Centers

| Standards / Frameworks                                               | Description                                                                        | What it covers                                                                                                     | What it does NOT address                                                                                                                                                                                                                                                                               |
|----------------------------------------------------------------------|------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>ASHRAE 90.1 / 90.4</b>                                            | Commercial building energy efficiency standard                                     | Min. efficiency requirements for cooling and electrical infrastructure                                             | <ul style="list-style-type: none"> <li>- IT equipment (servers, storage, networking)</li> <li>- Compute efficiency (server utilization, workload optim.)</li> <li>- Water consumption</li> <li>- Onsite generation and emissions</li> <li>- Demand flexibility; actual operating efficiency</li> </ul> |
| <b>IECC / ICC Codes</b>                                              | General building and construction codes                                            | Broader framework of building codes; Refers to 90.4 for DC design (different thresholds)                           |                                                                                                                                                                                                                                                                                                        |
| <b>Title 24</b>                                                      | California building codes                                                          | Prescriptive requirements (economizer, variable-speed fan, fan-power, UPS, etc.)                                   |                                                                                                                                                                                                                                                                                                        |
| <b>LEED, BREEAM, Green Globes</b>                                    | Sustainable building rating systems                                                | Evaluate all aspects of sustainability (energy, water, embodied carbon, siting); Allow tradeoffs across categories | <ul style="list-style-type: none"> <li>- Additional metrics beyond reference standards</li> <li>- Direct comparability across certifications</li> </ul>                                                                                                                                                |
| <b>ENERGY STAR</b>                                                   | Energy benchmarking / certification                                                | Compares energy performance among peers                                                                            | <ul style="list-style-type: none"> <li>- Limited by underlying statistical data (a 2008 survey of 120 facilities)</li> </ul>                                                                                                                                                                           |
| <b>ISO 50001 / ISO 14001</b>                                         | Environmental / energy management framework                                        | Plan-Do-Check-Act approach for internal management (baselines, performance indicators, evaluation, improvement)    | <ul style="list-style-type: none"> <li>- Defining metrics or setting performance targets</li> </ul>                                                                                                                                                                                                    |
| <b>RE100, 24/7 CFE</b>                                               | Voluntary clean-energy commitments                                                 | Leadership on renewable energy and carbon-free electricity                                                         | <ul style="list-style-type: none"> <li>- Data center energy performance</li> </ul>                                                                                                                                                                                                                     |
| <b>Maturity Model, Performance Framework, Resource Effectiveness</b> | Self- Evaluation and best-practice guides (iMasons, PNNL, ASHRAE, NEMA Green Grid) | Integrated design solutions, moving beyond single-metric evaluation                                                | <ul style="list-style-type: none"> <li>- Verified performance</li> <li>- Thresholds for min. requirements or target-setting</li> </ul>                                                                                                                                                                 |

# Existing Policies Shaping Data Centers

| Policy Category                                                                                                                             | Purpose                                                                         | Efficiency Topics Covered                             |
|---------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|-------------------------------------------------------|
|  <b>Building energy performance</b>                        | Set standards for equipment or whole building energy use.                       | System efficiency, whole building efficiency, cooling |
|  <b>Interconnection &amp; energy reliability</b>           | Manage energy infrastructure/system constraints and reliability.                | Data center queue management, reliability             |
|  <b>Demand flex &amp; grid participation</b>               | Manages energy system use/utilization and flexibility.                          | Demand response, demand flexibility, load shifting    |
|  <b>Energy procurement &amp; emissions</b>                 | Addresses clean energy, decarbonization, or renewable goals.                    | Renewables and storage, emissions reduction           |
|  <b>Utility &amp; tariff regulation</b>                   | Reallocate cost of energy and infrastructure & manage customer risk.            | Cost recovery or customer cost management, incentives |
|  <b>Land use, permitting, &amp; environmental issues</b> | Local construction/physical building impacts.                                   | Water, site, noise, air quality, permitting, zoning   |
|  <b>Reporting &amp; verification*</b>                    | Verify data centers have been built and are operating to standards established. | Benchmarking, emissions or energy                     |

\*Reporting and verification is not yet widely adopted as a standalone policy pathway but is emerging as a potential mechanism.

Market Mechanisms



**Corporate Commitments**

**State / local / utility incentives**

**State / local mandates**

**Net Zero Goals**  
ultimate target

**Rating Systems, Utility Programs**  
higher target

Data Center Maturity Model  
Data Center Energy Performance Framework  
Data Center Resource Effectiveness  
ISO 50001 / ISO 14001

**Best Practice Guide, Self-Evaluation Tools**

LEED, Green Globes, ENERGY STAR, BREEM

**Energy Codes & Standards**  
minimum efficiency target

ASHRAE 90.4, IECC, Title 24

**Water & Air Requirements**  
“Do no harm” floor

Land Use, Permitting, Environmental Reviews

**Data Center Legislations**  
consumer/community protection

Utility & Tariff Regulation, Interconnection Agreement, Disclosure and Reporting Reqs.

Voluntary Demand Flexibility & Grid Participation  
Clean Energy Procurement and Emissions Reduction Reqs.

Policy Mechanisms

**Policy and market mechanisms exist to provide safeguards for responsible data center development. However, the metrics and targets within these mechanisms are fragmented and insufficient to address grid and community challenges.**

# Data Center Energy Performance Evaluation Framework (DC-EPEF) **CONCEPT**

**A tiered metric for every component - minimum floor to stretch targets**  
**Goal:** optimized data centers design and operation to balance the needs of owners, the local grid, and adjacent communities.

## Facility Optimal

**Mechanical Efficiency**  
*ASHRAE, Energy Star, Green Grid*

**IT Efficiency**  
*GEC, Energy Star*

**Electrical Efficiency**  
*ASHRAE, Green Grid*

**Server Utilization**  
*Uptime Institute*

## Grid Optimal

**Peak-Time Reduction**  
*EPRI, National Labs*

**Energy Arbitrage**  
*EPRI, National Labs*

## Community Optimal

**Local Water Impacts**  
*Energy-water tradeoffs*

**Local Energy Benefits**  
*Onsite renewables, storage, micro-grid, heat exchange*

**On-Site Emissions**  
*Existing federal, state & local air regulations*

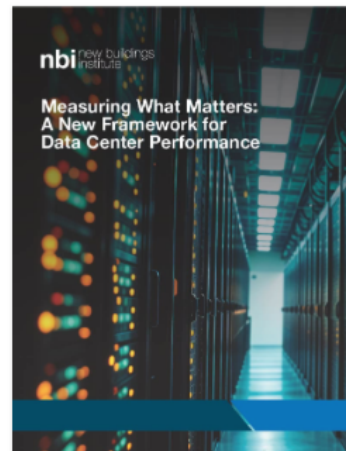
Each component carries a metric, a minimum requirement (which may vary by location), and tiered targets to differentiate performers. Targets can be adopted as mandatory requirements, voluntary ratings, or incentive programs through existing policy and market mechanisms.

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# DATA CENTER ENERGY PERFORMANCE EVALUATION FRAMEWORK (DC-EPEF)

Guideline / July 28, 2026



A new report on the Data Center Energy Performance Evaluation Framework (DC-EPEF) is coming soon. This resource page currently includes the executive summary and a form to be among the first to hear when the full report is released.

[Sign up here to get notified when it is released.](#)

Data centers that run AI workloads are among the fastest-growing sources of electricity demand in the United States. In many regions, data center developments are straining grid infrastructure, raising costs for ratepayers, and inciting strong community opposition. The lack of shared metrics, standards, and performance targets creates a critical gap in achieving data center development that balances the interests of data center owners, utilities, and surrounding communities, leaving stakeholders to pursue competing priorities.

NBI is introducing a **Data Center Energy Performance Evaluation Framework (DC-EPEF)**. The DC-EPEF is not intended to replace existing standards, certification systems, or performance metrics, nor does it create an entirely new set of requirements. Instead, it is designed to build upon and unite the substantial body of work already developed across industry, government, utilities, and standards organizations.

Data center performance measurement is unlikely to be transformed by a single new metric or standard. Instead, progress will come through the integration of existing tools and the gradual development of additional measures where important gaps exist. **By connecting established standards, emerging industry frameworks, and evolving policy objectives, the DC-EPEF provides a practical and adaptable structure for evaluating data center performance more holistically and consistently.** It is intended to help policymakers and market actors distinguish facilities that achieve efficiency gains in a single dimension from those that deliver broader benefits across energy, emissions, water, grid reliability, and resource stewardship.