



TECHREG CONSULTING
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International Regulatory Benchmarks for Data Centers and Implications for Brazil (REDATA)

1. Objective

This Technical Note presents the main international regulatory benchmarks applicable to data centers, focusing on the European Union, the United States, and national implementation experiences (Portugal, France, and Germany), and analyzes the alignment of Bill No. 278/2026 (REDATA) with these standards.

2. European regulatory framework for data centers

The European regulatory regime for data centers is structured around Directive (EU) 2023/1791 on Energy Efficiency (Energy Efficiency Directive – EED) and its delegated acts, especially Delegated Regulation (EU) 2024/1364.

The EED establishes energy efficiency as a binding cross-cutting principle across all economic sectors in the European Union, integrating the European Green Deal and the climate-neutrality target for 2050.

- Entry into force: October 10, 2023
- National transposition deadline: October 11, 2025
- Scope: organizations operating in the EU, including multinationals

The Directive represents the evolution of European energy policy, replacing voluntary regimes with binding targets and obligations.

3. Mandatory performance indicators (KPIs)

Under Annex VII(c) of Directive (EU) 2023/1791, data centers must measure and report energy and environmental performance indicators, including:

- energy consumption
- energy utilization
- temperature regulation setpoints
- waste heat utilization
- water consumption
- renewable energy use

The core concept of the European regime is the mandatory KPI, i.e., an indicator whose reporting is legally required.

4. Delegated Regulation (EU) 2024/1364

Delegated Regulation (EU) 2024/1364, in force since June 6, 2024, operationally implements the EU data-center rating and reporting framework.

It applies to data centers with installed capacity ≥ 500 kW and establishes the obligation to report to the European database indicators such as:

- total energy consumption
- share of renewable energy
- water use
- heat reuse
- energy performance

The Regulation does not contain its own sanctions provisions; Member States must establish penalties in national legislation.

5. National implementation in the EU

5.1 Portugal

Decree-Law No. 84/2024 of November 4 partially transposes Directive (EU) 2023/1791 and implements Delegated Regulation (EU) 2024/1364.

It establishes reporting obligations for data centers ≥ 500 kW, including:

- identification of the data center and operator

- installed capacity and area
- traffic and data volume
- energy-performance indicators

Non-compliance constitutes an administrative offense, with fines of:

- €1,000 to €3,500 (individuals)
- €5,000 to €40,000 (legal entities)

5.2 France

Decree No. 2025-1382 of December 29, 2025 transposes Directive (EU) 2023/1791 into the French Energy Code.

It applies to data centers ≥ 500 kW and establishes:

- mandatory energy and environmental reporting
- submission of data to national and EU databases
- annual publication by May 15

Sanctions derive from the administrative regime of the Energy Code, including fines for reporting non-compliance.

France currently represents one of the most advanced cases of full implementation of the EU data-center regime.

5.3 Germany (waste-heat reuse)

Germany has the second-largest data-center market in the world and currently adopts the most stringent regulatory regime in Europe regarding waste-heat reuse.

The German Energy Efficiency Act (EnEfG) establishes that data centers with installed IT capacity ≥ 300 kW must reuse:

- 10% of waste heat by July 2026
- 15% by July 2027
- 20% by July 2028

or alternatively demonstrate an equivalent agreement to supply that heat to third parties.

To date, there is no conclusive evidence regarding the practical effectiveness of these obligations or the level of enforcement and compliance in Germany. Industry reports indicate that many operators—particularly those using liquid cooling or located in areas without nearby heat demand—face technical and economic constraints in utilizing the low-temperature waste heat generated by their data centers.

6. United States regulatory model

The United States adopts a distinct regulatory approach based on incentives and sectoral energy regulation.

Main characteristics:

- absence of federal mandatory KPIs
- voluntary efficiency standards (DOE/EPA)
- conditional state tax incentives
- integration with utilities and power contracts
- zoning and local planning

The U.S. model can be characterized as energy-market regulation with federal soft law.

7. Structural comparison EU × U.S.

European Union:

- direct sectoral regulation
- mandatory KPIs
- compulsory reporting
- public database

United States:

- voluntary reporting
- economic incentives
- energy regulation
- local governance

8. Brazilian situation — Bill No. 278/2026 (REDATA)

REDATA constitutes a tax regime with environmental and energy conditionalities applicable to certified data centers.

The bill already incorporates relevant elements of international benchmarks, including:

- requirement of electricity from renewable sources
- water KPI ($WUE \leq 0.05$ L/kWh)
- sustainability indicators (to be defined by regulation)
- economic sanction via loss of benefit

The Brazilian model is closer to the U.S. pattern (conditional incentives) but does not establish a universal sectoral regime.

9. Regulatory comparison EU × Brazil

Compared with the European regime, Brazil shows:

- absence of mandatory sectoral reporting
- lack of explicit energy KPIs (e.g., PUE)
- absence of emissions reporting obligations
- no waste-heat-reuse requirement
- no public performance database
- absence of strategic licensing regime

10. Final considerations

International benchmarks indicate three regulatory models for data centers:

- European Union: mandatory energy transparency
- United States: incentives and energy regulation
- Brazil (REDATA): tax incentives with conditionalities

Brazil already incorporates relevant sustainability elements through REDATA, especially in renewable energy and water efficiency. However, it still lacks a

national regime of energy and environmental transparency for data centers such as that existing in the European Union.

11. Public-policy implications

Alignment with international standards suggests a hybrid model combining:

- European energy transparency
- U.S. energy incentives
- REDATA tax instruments

Such an approach would enhance the country's attractiveness for digital-infrastructure investment while strengthening sustainability and energy governance in the sector.

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