Title: Regulations Governing the Assessment of Energy Development and Utilization

Legislative: 1. Promulgated on November 24, 2015

2. Amended on April 18, 2023

3. Amended on June 27, 2024

4. Amended on November 3, 2025

5. Amended on September 15, 2026

Category: Ministry of Economic Affairs

Article 9 Table 7

The Best Available Techniques Which Shall Be Applied in Processing Techniques for Industry of Data Processing, Hosting and Related Activities

Energy users in the industry of data processing, hosting and related activities shall comply with the contents of the Best Available Techniques below.

I. Selection of Information Technology Equipment

Item	Description
1. Information technology equipment cooling air inlet condition control	(1) Information technology equipment cooling air inlet conditions shall comply with the temperature and humidity range of Class A2 specified in the Thermal Guidelines for Data Processing Environments published by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE). (2) If equipment satisfying the working temperature and humidity range of ASHRAE Thermal Guidelines Class A2 cannot be used, equipment capable of withstanding the working temperature and humidity range of ASHRAE Thermal Guidelines Class A1 shall be selected.

2. Select an appropriate information technology equipment according to the power density design of the data center.	(1) Select and install information technology equipment according to the designed power density (per cabinet or square meter) of the data center, in order to prevent the operation of a cooling system outside the design parameters. (2) If the information technology equipment power design is higher than the design value, it may cause cooling and airflow management issues, such that the capacity and efficiency may be reduced.
3. Information technology equipment power matching with cooling system	During the selection of information technology equipment, suppliers shall be requested to provide the total system power, in order to ensure that the cooling system design is under the state of most optimal efficiency and capable of satisfying the cooling requirements and air inlet condition of the information technology equipment under its full-load condition.
4. Information technology equipment matching with cabinet airflow design	During the installation of the information technology equipment in a cabinet, it is necessary to ensure that the airflow direction matches the airflow design of the local area.
5. Information technology equipment equipped with configurable power management function	During the installation of the information technology equipment, it shall be equipped with a configurable power management function, such as basic input/output system (BIOS), operating system, and driver program settings.
6. Information technology equipment power matching with power supply system planning	Power and cooling systems shall be planned according to the actual installation condition and the expected consumption power of the information technology equipment, rather than planning according to the power supply (PSU) specification or nameplate rated value, in order to prevent

	excessive power infrastructure design specification that may cause the occurrence of (partial) low load and low operating efficiency.
7. Select information technology equipment with equivalent performance according to specification	The selection of information technology equipment may refer to the equivalent performance according to the following specification: (1) EU Ecodesign Directive and EU Lot 9 Amendment of Regulations for Servers and Online Storage System. (2) US Energy Star Standards.
8. Select information technology equipment with power and air inlet temperature report output function	Select equipment with the power and air inlet temperature report output function, and consider the use of the industrial standard report output method, such as IPMI, DMTF Redfish or SMASH.
9. Information technology equipment equipped with external control function	Select equipment allowing external control of the energy consumption of the information technology equipment, such as being capable of restricting the maximum energy consumption of the server or triggering components from the external, or capable of shutting down the entire system or subsystem from the external.
10. Select information technology equipment with a high efficiency AC-DC power converter (≧90%)	Select information technology equipment equipped with high efficiency AC-DC power converter, and within the expected load range of the installed equipment, it shall comply with the “80 PLUS” Energy Efficiency Standards for Power Supplies. If the load range is between 10% and 100%, then the power supply efficiency shall not be lower than 90%.

II. Configuration of Information Software Services

Item	Description
1. Deploy Virtualization technologies	For any new services (such as server, storage and network, etc.) requiring specialized hardware and not operating on a resource sharing platform, it is necessary to establish procedures requiring the approval of the senior business department.
2. Reduce information hardware resilience level	Determine the business impact of service event on each configured service, and configure hardware resilience level that is completely reasonable, in order to ensure that application program owner agrees with the information hardware resilience level.
3. Reduce hot / cold standby equipment	It is necessary to determine the business impact of service events on each information service, and configure continuous or disaster-recovery backup information technology equipment and a resilience level of reasonable impact.

III. Data Management

Item	Description
1. Establish data management policy	(1) Establish a data management policy, in order to define the data preservation scope, time and protection level. (2) Data manage policy shall be executed and communicated to users. (3) It is necessary to pay attention to the impact of any data preservation request on the energy consumption.
2. Plan diverse media types to establish a layered storage environment	Create a tiered storage environment utilizing multiple media types delivering the required combinations of performance, capacity and resilience.

3. Select storage equipment of high efficiency and low power	Evaluate the energy efficiency according to the service-per-watt, and select storage equipment of lower power.
4. Plan effective data identification procedure	Adopt effective data identification, management policy and procedure to reduce the total data storage volume.
5. Plan data management strategy	Adopt a data management strategy to reduce the volume of duplicates of logical and physical (mirror) data.

IV. Cooling System

Item	Description
1. Design cold and hot aisles	Arrange the airflow direction of the information technology equipment to allow the cold air to be supplied to the cold aisles, in order to ensure that all equipment to draw air from the cold aisles. The hot aisles do not supply cold air, and all equipment exhausts hot air into the hot aisles.
2. Plan closed hot and cold air separated spaces	Design a closed hot air or cold air space, in order to separate cold and hot airflows.
3. Blanking panel installation/planning	Install blanking panels in unoccupied rack spaces (U-slots) to prevent the recirculation of hot exhaust air through cabinet gaps.
4. Select perforated cabinet doors for ventilation	Replace solid cabinet doors with perforated doors at locations requiring cooling and ventilation, in order to ensure sufficient cooling airflow.
5. Block unnecessary holes on elevated floor	(1) Check the opening location of the ventilation floor and relevant influencing factors, in order to reduce airflow bypass. (2) Align the cabinets adjacent to each other in one row, in order to prevent the issue of recirculation of air passing through the gaps.

6. Maintain clear underfloor ventilation channel	If underfloor ventilation is used, keep the ventilation channel clear as much as possible, or use elevated cable bridges to reduce hindrance.
7. Equipment grouping and separation	Set up an equipment group with significantly different environmental requirements or equipment airflow direction in an independent area.
8. Adopt modular cooling equipment planning	Cooling equipment shall adopt the modular planning, and it is necessary to allow operators to turn off unnecessary equipment.
9. Increase chilled water temperature setting under acceptable conditions, and consider the use of free cooling	Check and increase the chilled water temperature setting point under possible conditions, in order to use free cooling to the maximum extent and to reduce the energy consumption of the compressor.
10. Adopt air-side free cooling measures	Design to draw cool and dry outdoor air to satisfy the cooling demands of a portion of or all facilities, in order to reduce or completely eliminate the reliance on machine cooling (e.g. compressor) and to reduce energy consumption.
11. Adopt water-side free cooling measures	Design a free-cooling coil such that when the environmental temperature is lower, the free-cooling coil can be used to perform heat exchange with the outdoor cold air, in order to generate chilled water or reduce the energy consumption of the compressor for generating chilled water.
12. Prevent the use of humidity control as much as possible	(1) Increase the water temperature of the chilled water system or the evaporation temperature of the direct expansion evaporator, in order to prevent dehumidification effect. (2) During the selection of new air conditioners, it is necessary to select air conditioners without humidity control

	function (including any reheating function), in order to reduce investment cost and maintenance cost.
13. Use liquid-cooling technology	(1) Use liquid-cooling technology directly to perform cooling of a portion or all of the information technology equipment, in order to replace the air-cooling method. (2) Liquid-cooling technology provides a more effective thermal loop and allows a higher liquid-cooling system temperature, in order to further increase the efficiency, thereby increasing the waste heat recovery rate or complete use of free cooling.

V. Power System

Item	Description
1. Use modular uninterruptible power supply (UPS)	Use modular (expandable) UPS with widespread power transmission capability.
2. Use a high-efficiency UPS equipped with energy-saving mode	Use a high-efficiency UPS equipped with energy-saving mode, such as compliance with the ENERGY STAR Standard of the U.S. Environmental Protection Agency (EPA ENERGY STAR).
3. Use UPS with the most effective operating mode setting	Use UPS with energy optimization function to cope with the partial loading condition.

VI. Energy Monitoring and Management

Item	Description
Plan for monitoring and managing energy efficiency system	Including but not limited to the use of the following energy monitoring and management indicator methods specified in ISO/IEC 30134 standard, in order to achieve the optimal resource efficiency for data center: (1) Power usage effectiveness (PUE). (2) Renewable energy factor (REF).

	(3) IT equipment energy efficiency for servers (ITEEsv). (4) IT equipment utilization for servers (ITEUsv).

VII. Overall efficiency of the data center

Technology items	Descriptions
1. The whole-year average overall power usage effectiveness (PUE) of a data center shall comply with the following requirements: (1) Hyperscale Data Center: PUE ≦ 1.3 (2) Colocation Data Center: PUE ≦ 1.4	(1) Hyperscale Data Center refers to a server room constructed to satisfy the internal needs of self-operations of a company. (2) Colocation Data Center refers to a server room provided to manage other enterprises requiring network information services. (3) Power usage effectiveness (PUE) calculation method: $\text{PUE} = \frac{\text{Data Center Total Equipment Power Usage}}{\text{Information Technology Equipment Power Usage}}$ The aforementioned data center total equipment power usage refers to the information technology equipment power usage, air conditioner power usage, UPS power loss, line power loss and other power usage supporting the data center operations (such as lighting system, surveillance system, elevators) (4) PUE measurement plan is established based on the measurement approach of PUE_1 defined in ISO/IEC 30134, meaning that the measuring point of "Information Technology Equipment Power Usage" is the UPS output location.
2. The industrial impact assessment on the data center shall explain the following: (1) Investment and Industrial Output Contribution (2) Employed population (3) Industrial supply chain benefits (4) AI ecosystem empowerment benefits	(1) For information on investment and industrial output contribution, please refer to the following details: <1> Direct investment: e.g. investment in land, buildings, and equipment by energy users. <2> Indirect investment: e.g. investment in equipment and research and development by the energy user's partner companies.

(5) Cyber security and resilience	<3> Total output value: The annual and cumulative total output value of energy users and their ecosystems, cloud users, etc. (the total output value accumulated over the depreciation and amortization period). <4> Output value per ping, so as to discourage low-output-value applications and encourage high-output-value computing operations. <5> Local spending: The value of goods and services injected into the local economy during construction and after operations. (2) For the information on the employed population, please refer to the following: <1> Direct employment opportunities: e.g. construction-related jobs (electrical engineers, HVAC technicians, pipeline engineers, masons, carpenters, structural engineers and construction machinery operators, etc.), and operation-related jobs (core maintenance staff, information equipment maintenance staff, HVAC engineers, mechanical engineers, electrical engineers, security personnel and maintenance personnel, etc.). <2> Indirect employment opportunities: Jobs supported during the construction and subsequent operation of energy users. <3> Percentage of employees hired for IT technical positions: The proportion of hires with high salaries and requiring advanced technical skills. <4> Local or nearby employment rate and wages: The proportion of employees whose registered addresses are located in the local county or city and their wages. (3) For the industrial supply chain benefits, please refer to the following: <1> Proportion of domestically made information equipment and other machinery and equipment purchases, including hardware used in data centers, such as information equipment, HVAC equipment, thermal

	management systems, and electromechanical systems. <2> Proportion of domestically made software system services and other application purchases: Including software services used in data centers, such as data center infrastructure management (DCIM), information security protection software, and energy consumption monitoring systems, as well as maintenance services. <3> Open testbed: Number of projects using new technologies from Taiwanese manufacturers for proof of concept (POC). <4> Technical diversity of POC: Verification of various new technologies such as 5G private network, edge computing, energy recovery, water conservation, and hydrogen fuel cell. <5> Resources available from open proof of concept: The number of hours or the amount of space provided annually for external R&D teams. (4) For the benefits enabled by the artificial intelligence ecosystem, please refer to the following: <1> Industrial empowerment: The number and cumulative total of SMEs driven to transform and upgrade. <2> Startup support: Allocation of a portion of computing capacity and cloud resources to support the development of local startups. <3> Computing power subsidies: Project budgets or preferential pricing are expected to be offered to help SMEs adopt artificial intelligence computing power and reduce barriers to entry. <4> Technical cooperation: Funding and the number of projects for technical collaborations with universities or research institutions utilizing the data center facilities. <5> Talent development: Internships and technical training are provided for data center operations and maintenance.

	(5) For cybersecurity and resilience, please refer to the following: <1> Key data are stored locally or prioritized for government allocation when strategically necessary. <2> Government priority allocation mechanism: To ensure that computing resources can be redirected immediately to meet national needs. <3> Leading to infrastructure enhancement, including expansion of power grid resilience, fixed-line communications resilience, submarine cables, and satellite ground stations. <4> Compliance with information security management regulations: Obtain certification to ISO 27001 or a national-level information security assessment.