



# Guideline for Sustainable Establishment Requirements for Datacenters in Noord-Holland

## Framework

### *Background*

Datacenters play a crucial role in an increasingly digitized economy. However, datacenters also have a significant impact on our landscape and on our infrastructure for energy and water. The ambition of the province of Noord-Holland and the municipalities of Amsterdam, Haarlemmermeer, and Hollands Kroon is to address the establishment of datacenters in our region, guiding them towards an outstanding sustainable position and minimizing their impact on the environment and the landscape. To achieve this, the municipalities of Amsterdam and Haarlemmermeer have developed datacenter establishment policy, and the province of Noord-Holland has developed the Datacenter Strategy 2022-2024.

The province has included spatial requirements for datacenters in the Environmental regulation (OVNH2020) in Article 6.1.5a and Article 6.2.2.6a. These requirements are in place for datacenter developments with a gross floor area of more than 2,000 square meters and an electric connection capacity of more than 5 MVA in the three cluster municipalities. New developments of datacenters are allowed within the designated area of “datacenter clustering allowed” written in the OVNH2020.

### *Current Legislation*

There are also rules determined for datacenters at a national level, leading to a current ban on datacenters larger than 10 hectares and 70 MVA in municipal zoning plans. The guidelines of the province of Noord-Holland are complementary to these national rules. Furthermore, it is expected that an EU directive will come into effect from May 2024, partially overlapping with these establishment conditions. The EU directive has a lengthy implementation period before it becomes mandatory, but wherever possible, the establishment requirements of the province of Noord-Holland aligns with EU reporting systems. The **Recognized Energy Efficiency Measures List (EML)** also applies to the datacenter sector.

This guideline for sustainable establishment requirements is the result of consultation between the province of Noord-Holland, the municipality of Amsterdam, the municipality of Haarlemmermeer, the municipality of Hollands Kroon, and with input from the North Sea Canal Area Environmental Service (ODNZKG).

### **Guide for Reading**

This guideline consists of various sections. First, the framework, which describes the reasons for creating the guideline, the document's status, and its implementation. Then, in Annex 1, the guideline for sustainable establishment requirements, agreed upon collectively by the four previous mentioned government bodies, forms the core of this document and serves the foundation for discussions with datacenters regarding expansions or new developments.

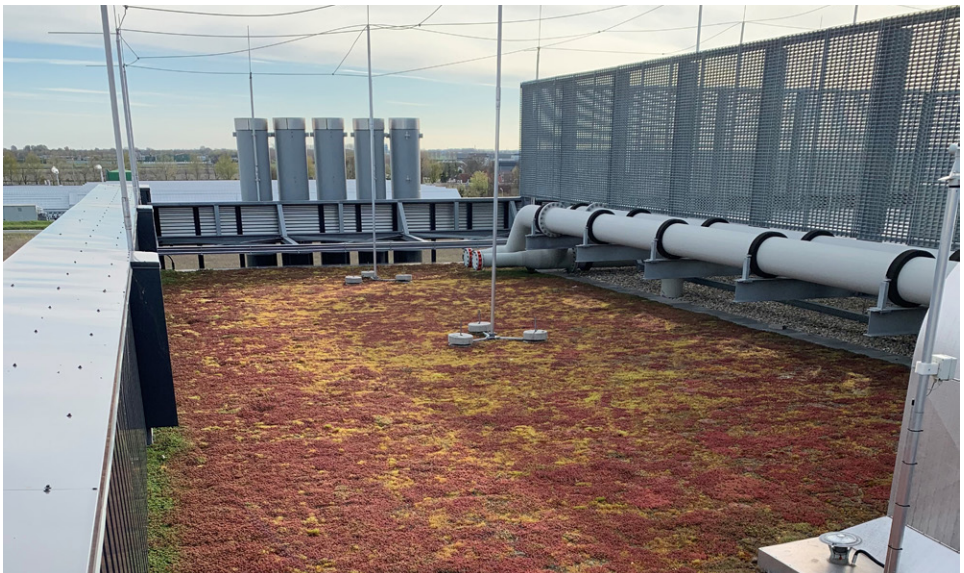
### **Status**

The list of establishment requirements, Annex 1, serves as a guideline for the province, municipalities, and the Environmental Service. It serves as uniform a basis for engaging in conversation with datacenters regarding their measures regarding sustainability and the spatial integration of the datacenter in the landscape. By applying relevant requirements for the establishment or expansion of the respective datacenter, the municipality fulfills the obligation set forth in Article 6.1.5a/6.2.2.6a of the OVNH2020/OVNH2022, respectively.

This guideline is intended as a tangible tool for conversation with initiators of new datacenters or expansions of a datacenter, ensuring that all four organizations have the same starting point and engage in conversation with initiators with the same sustainability ambitions, ultimately creating a level playing field in Noord Holland.

The establishment requirements in this guideline are additional to the legal requirements stemming from national and European legislation that datacenters must comply with.

The establishment requirements in this guideline serve as building blocks for further development of sustainable datacenter policies for the three municipalities and the province. At the same time, it provides predictability for datacenters, necessary for taking the right steps toward sustainability and keeping the datacenter sector ambitious in its sustainability goals and innovations in this field. It is important to realize that the listed measures can influence each other. Measures aimed at reducing the use of cooling water can, for example, lead to increased electricity consumption for necessary cooling. Applying the establishment requirements and translating them into concrete sustainability measures will always be a tailored process, considering the type of datacenter and local conditions. This guideline concerns a process requirement, not an obligation to deliver a specific result. This means that the process itself is binding, but the list of establishment requirements is not. In other words, the municipality is obligated to engage in discussions with the initiator regarding these sustainable establishment requirements, and the project description for the new initiative/expansion must include a justification for how the process requirement has been fulfilled. It must be explained why a datacenter development can or cannot meet the establishment requirements.



Green roof NTT Global Data Centers Haarlemmermeer

## Implementation

The administration of the province of Noord-Holland has submitted this guideline for approval after joint dialogue with municipalities and subsequently presents the guideline to the three administration Boards of the municipalities of Amsterdam, Haarlemmermeer and Hollands Kroon. This also means that the list of establishment requirements is adjustable and will remain under the provincial management and will be reviewed at least annually to determine if any adjustments are needed, such as due to changes in legislation or sector innovations.

### **Annex 1: Dynamic List of Establishment Requirements for Datacenters.**

These establishment requirements have been cooperatively developed by the province of Noord Holland and the municipalities of Amsterdam, Haarlemmermeer, and Hollands Kroon. The establishment requirements listed below apply to new datacenters and expansions of existing datacenters in the three municipalities of Amsterdam, Haarlemmermeer, and Hollands Kroon, provided that a datacenter has a gross floor area of more than 2,000 square meters and an electrical connection capacity of more than 5 MVA.

The attached list of establishment requirements do not include the current legal regulations that are already in force, which the Environmental Services, on behalf of the competent authority, already assess. Instead, it includes conditions that go beyond legal requirements and concretely define how sustainability can be achieved in practice.

It is mandatory for the datacenter applicant to explain how the establishment requirements will be implemented. For matters concerning legislation, this will be assessed by the North Sea Canal Area Environmental Service on behalf of the competent authority, while matters related to policy will be evaluated by the municipality or the province. If conflicts arise between various measures or if there are conflicts with other environmental themes (such as noise), leading to choices between implementable measures, this can be motivated in the decision's justification. An initiator is obliged to justify which conditions can or cannot be met.

In the relatively young datacenter sector, technical possibilities for further sustainability are still evolving. Therefore, the establishment requirements to be applied will consist of a flexible list that will be adjusted based on technical innovations (best available techniques) and evolving regulations. The first milestone will be after the implementation of the Environmental Act (expected on January 1, 2024) or earlier if necessary.

## Establishment Conditions (at least the following measures)

1. Energy Measures (must comply with energy saving legislation)
<p><b>A.</b> Declaration that the data center adheres to the maturity model of EN 50-600 (see link for more information)</p>
<p><b>B.</b> An Energy Registration and Monitoring System (EBS) must be in place, kept for a minimum of 5 years, and made publicly accessible to the competent authority. The EBS must record the following quarterly values in kWh:</p> <ol style="list-style-type: none"> <li>1. total datacenter consumption</li> <li>2. total facility equipment consumption</li> <li>3. total consumption by ICT equipment</li> <li>4. solar panel output</li> <li>5. volume of residual heat supply (if applicable)</li> </ol> <p>Quarterly values 1 to 3 are mentioned in the Recognised Energy Efficiency Measures List (EML), measures 4 and 5 are additional and should be open for discussion.</p>
<p><b>C.</b> All closed building parts and the roof must have a light color or be planted to reduce heat absorption.</p>
<p><b>D.</b> The calculation of Power Usage Efficiency (PUE)<sup>1</sup> must be conducted in accordance with EN 50600-4-2.</p>
<p><b>E.</b> The target value for design PUE is a maximum of 1.16, acknowledging that there may be interrelated factors (e.g., higher PUE due to residual heat supply).</p>
<p><b>F.</b> Where possible, the datacenter must install solar panels on the roofs, unused land, or parking areas. This should be demonstrated through a layout plan.</p>
<p><b>G.</b> If a datacenter is located in or very close to the wind or wind+ sun search area, it should explore the possibility of using wind or solar energy.</p>
<p><b>H.</b> Purchased electricity must have a sustainability class of at least C, and the data center must provide information about the quality of electricity through contracts with suppliers.</p>
<p><b>I.</b> The datacenter must make waste heat available to a (heat) company if requested. The temperature of the waste heat generated due to data center cooling must be determined in accordance with the wishes of the heat company.</p>
<p><b>J.</b> If there is no request to collect heat during the procedures, the data center must technically prepare for full heat supply to enable future utilization.</p>

<sup>1</sup> **PUE:** stands for Power Usage Effectiveness, indicating the effectiveness of power consumption. It is used to measure the efficiency with which a data center manages its energy. The lower the PUE, the more efficient the data center, with an ideal but practically impossible value of 1.0. PUE is essentially a formula where the amount of power used to operate ICT equipment is divided by the total building power consumption. The lower the result, the greater the proportion of power that is efficiently used for the provided services.

**K.** For new datacenter developments with a total electricity connection capacity of more than 80 MVA, it is mandatory to establish a connection to a 150 kV purchasing station within a distance of up to 1,500 meters. The 150 kV purchasing station must not be located in public areas.

**L.** A datacenter must be willing to make its surplus capacity available to third parties to connect sustainable generation from the vicinity to the substation (e.g., wind turbines or solar parks).

## 2. Water Use

**A.** Datacenters reduce water use and primarily utilize low-grade sources. In case a water-cooled cooling technique is chosen, the following preference order applies:

1. Maximize water conservation by maximizing energy savings (for example, as the temperature of free cooling - cold aisles - rises, the number of hours/days requiring water cooling decreases).
2. If the temperature of the waste heat is suitable, establish an open ground energy system that allows the data center to use cold for cooling.
3. Optimal use of rainwater (individually or collectively), purified effluent, or demineralized brackish/salt water.
4. If not feasible or insufficient, optimal use of surface water (not guaranteed).
5. If not feasible or insufficient, optimal use of industrial water (industrial water sourced from surface water).
6. If not feasible or insufficient, optimal use of groundwater (except for storing rainwater or an open ground energy system).
7. If not feasible or insufficient, optimal use of drinking water.

**B.** Promote self-sufficiency.

- To bridge emergencies and dry periods, it is advisable to establish a water buffer for cooling water.
- In the case of surface water, the minimum desired size of the storage facility is coordinated with water authorities.
- In the case of drinking or industrial water, the minimum desired size of the storage facility is coordinated with the water supplier

**C.** Maintain a logbook for Water Usage Efficiency (WUE)<sup>2</sup> and m<sup>3</sup> water use, record m<sup>3</sup> water type per month, keep it for a minimum of 5 years, and make it accessible to the competent authority.

<sup>2</sup> **WUE:** stands for Water Usage Efficiency, which refers to the effectiveness of water consumption. It is the ratio between water usage in a data center and the energy consumption of the hardware in that data center.



<p><b>3. Spatial Integration (referring to Article 6.21b 1 in the <b>Environmental regulation OVNH2020</b>, which requires a urban development plan and a design quality plan as prerequisites for new or expansion of data centers)</b></p>
<p><b>A.</b> At least 75% of the undeveloped land must be unhardened or partially hardened, with a minimum of 250 square meters, and the unhardened areas must be landscaped (see also F for a provision on solar panels).</p>
<p><b>B.</b> Create a material passport during construction.</p>

**Sustainable Generation Level (1Bb)**

<p><b>A.</b> Sustainable energy generated in the form of wind and solar power in the Netherlands, without subsidies and with certification.</p>
<p><b>B.</b> Sustainable energy generated in the form of wind and solar power in the Netherlands, with subsidies and certification.</p>
<p><b>C.</b> Sustainable energy generated in the form of wind and solar power in the Netherlands, with subsidies and without certification.</p>
<p><b>D.</b> Sustainable energy generated in the form of wind and solar power with Guarantees of Origin (GvOs), produced abroad, and connected to the national grid.</p>
<p><b>E.</b> Sustainable energy generated in the form of hydropower or biomass, with Guarantees of Origin (GvOs), produced abroad, and connected to the national grid.</p>
<p><b>F.</b> Power from non-renewable sources</p>