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# Data-Driven and People-Focused Sustainability

*TVVL Magazine regularly features inspiring real-life examples of buildings that have been made more sustainable and have achieved Paris Proof status. These are motivating stories from dedicated individuals. But how do you take on this challenge when your property portfolio doesn't consist of a few large buildings, but instead includes many smaller ones scattered across the Netherlands? This article explains how Rijkswaterstaat is approaching this task using the WEii EnergieKompas. This tool, developed by the Dutch Green Building Council (DGBC) and TVVL, incorporates not only energy labels but also actual energy consumption data.*

## The challenge

Rijkswaterstaat is not typically associated with real estate. Most people think of activities like gritting motorways, operating locks for ships, or renovating the Afsluitdijk. But the employees who perform this work need buildings that provide suitable workspaces and facilities. These buildings include offices located along highways, near rivers and canals, and along the coast, where the work is performed. They also include control buildings for locks and tunnels, road support points with salt storage, water support points with docks, district offices, and regional traffic control centres. In total, Rijkswaterstaat manages 137 buildings, each with an average floor area of around 900 m².

To meet the targets set in the 2019 Climate Agreement, these buildings must achieve energy label A and be free of natural gas by 2030. In addition, these buildings are often subject to the Energy Saving Obligation and the Label C requirement. This means that energy-saving measures with a payback period of five years or less must be implemented, and the buildings must have at least energy label C.

But there is still a long way to go. Over the past year, the Dutch central government has frequently made headlines, with media reporting that it has "failed to comply with its own energy label requirements." Rijkswaterstaat's real estate portfolio was also mentioned in this context. As of early 2024, only 53% of its buildings met the Label C requirement. Figure 1 provides an overview of these buildings and their respective energy labels.

## Approach

One of the main reasons many buildings still fail to meet the Label C requirement is their age. A large portion of Rijkswaterstaat's real estate was constructed during the development of the Dutch highway system in the 1950s, 60s, and 70s.These buildings, like the bridges and locks they support, now face a significant modernisation challenge. However, not all of these projects can be tackled at once.
Approach

To make its buildings more sustainable, Rijkswaterstaat uses the Portfolio Approach, a national strategy that gives property owners greater flexibility and reduces administrative burden. By participating, owners commit not only to fulfilling the Energy Saving Obligation and Label C requirement, but also to reducing average fossil energy consumption by 5.5% per year and total energy consumption by 3.5% per year. In return, they are allowed to implement energy-saving measures at natural intervention points and to report progress at the portfolio level rather than per individual building. Given the scale of the task at hand, these two benefits are particularly valuable for Rijkswaterstaat.

Participation in the Portfolio Approach begins with the development of a portfolio roadmap. This action plan outlines which measures will be taken for each building and in which year. Every April, Rijkswaterstaat reports its progress to the Netherlands Environmental Services Organisation (ODNL). The first reporting year was 2023. And with success: Rijkswaterstaat achieved the required reductions in both fossil fuel use and total energy consumption.

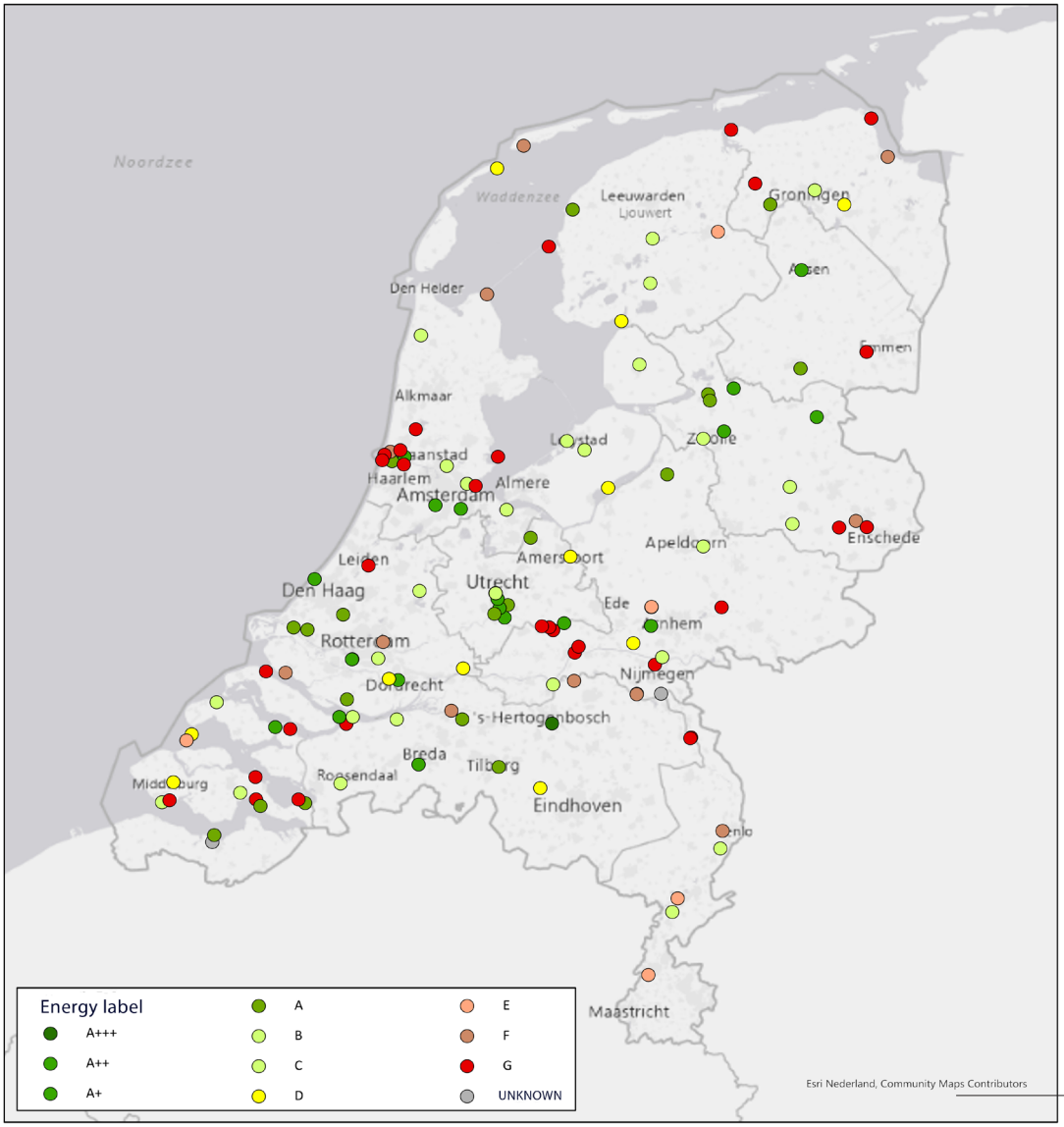


**Figure 1:** *Energy labels as of January 2024.*

To support implementation, Rijkswaterstaat established the Energy Savings Programme. This programme brings together staff from various regional and national departments and teams. They collaborate using the WEii EnergieKompas (Energy Compass), a tool that helps prioritise efforts, track implementation progress, and report results both internally and to ODNL. The programme is overseen by a steering committee made up of directors from the relevant departments and led by a programme director supported by a project team.

## WEii EnergieKompas

Figure 2 depicts the WEii EnergieKompas for Rijkswaterstaat's buildings. The horizontal axis displays the energy labels (as shown in Figure 1), while the vertical axis reflects actual energy consumption. The red line in the graph represents the average expected energy use for each label. The chart immediately illustrates the added value of the WEii EnergieKompas: at a glance, it becomes clear which buildings are truly energy-efficient, and which are not.

This impact was evident when the tool was presented to the steering committee. During the meeting, it sparked instant engagement: the directors stood up, walked up to the screen, pointed at buildings, asked questions, and began meaningful discussions.

Of course, the WEii EnergieKompas wasn't the only factor that enabled the launch of the Energy Savings Programme. Before joining the Portfolio Approach, Rijkswaterstaat conducted a thorough business case analysis. This analysis confirmed that not only would the programme meet its energy-saving targets, but it would also be financially viable. The expected savings on electricity and gas were shown to justify the required investments.

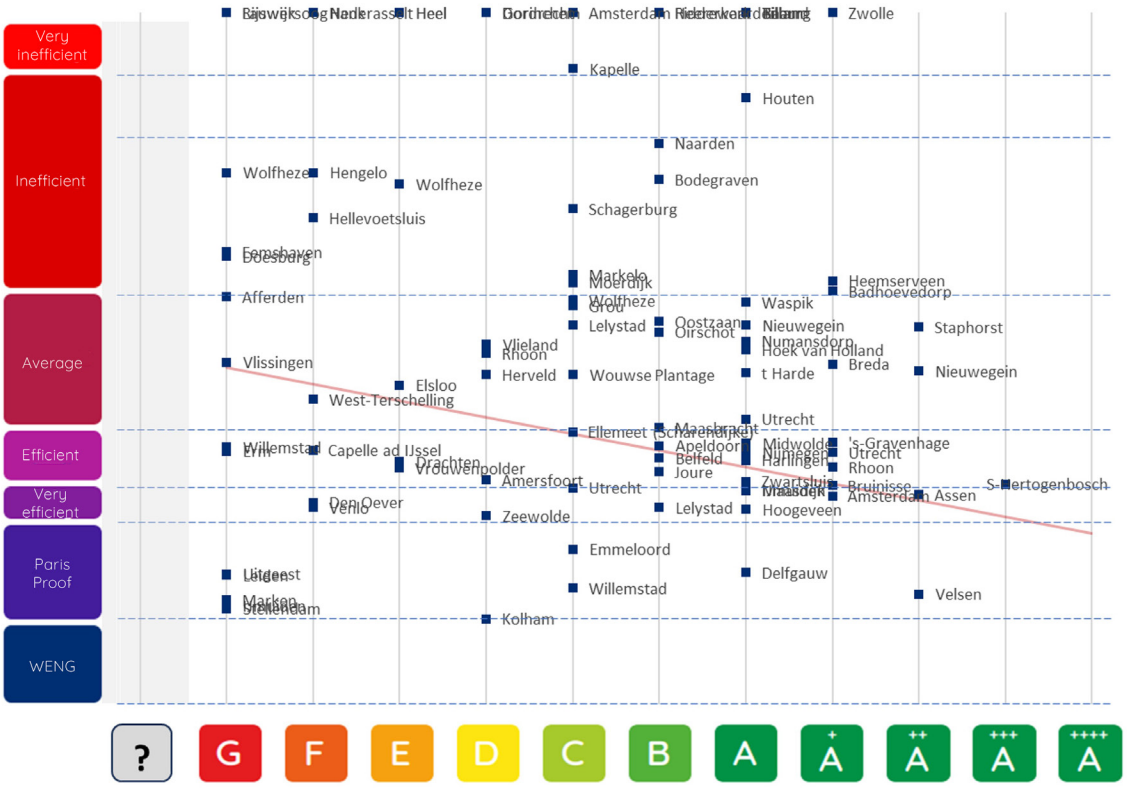


**Figure 2:** *WEii EnergieKompas for Rijkswaterstaat buildings January 2024.*

## 6 Focus Areas

A building's position within the WEii EnergieKompas provides valuable guidance on the most effective strategy for making it more sustainable. Rijkswaterstaat has translated this into six focus areas, which are illustrated in the WEii EnergieKompas in Figure 3.

**1. Immediate Action**

This category includes buildings on the left side of the graph, with an energy label of D or lower. They do not comply with current regulations and must be addressed before December 2026 by implementing energy-saving measures. Typical actions include improving insulation and installing heat pumps. The specific measures for each building were previously determined through tailored energy audits conducted by certified consultants. These audits calculated the current energy label, identified what steps are needed to achieve label A, and outlined how to transition to a gas-free operation. In total, 1,100 measures have been identified for these buildings, and all are catalogued in a central database managed by the Energy Savings Programme. Once a building's measures are implemented, the energy label is recalculated and officially registered with the Netherlands Enterprise Agency (RVO).

A major obstacle to implementation is grid congestion. Roughly 75% of the buildings requiring upgrades are located in areas with limited grid capacity, either for power intake or for returning electricity to the grid. In some instances, this has already rendered installed solar panels and heat pumps inoperable. To address this, one of the measures being taken is the installation of energy management systems. These monitor the main power connection and prevent overloads by automatically turning solar panels or EV charging stations on or off. The method for calculating required power capacity has also been improved. For example, in the new construction of road support centres. These are locations along highways with offices, canteens, salt storage, and spreader garages. When designing the electrical installation, simulations are made of the power consumption during the spreading process. These simulations identify power usage peaks that might exceed the connection's contractual limit. This insight informs design changes to buildings, systems, and operational procedures, to stay within contractual limits.

**2. Planning Ahead**
These are the buildings on the right side of the graph, with an energy label of C or better. While they comply with current legal requirements, they have not yet achieved label A. These buildings are scheduled for energy upgrades during 2027–2030, ideally in coordination with planned maintenance, renovations, or new construction projects. To align these efforts, the Energy Savings Programme collaborates with national and regional property management teams responsible for long-term facility planning.

Asset managers are critical in this process, as they develop five-year building plans. The WEii EnergieKompas helps them compare buildings and prioritise actions. In one example, an asset manager noticed unusually high energy consumption at a site compared to two similar facilities. On his way home, he visited the site and discovered the issue: occupants had set the thermostat to 17°C when leaving, expecting it to save energy. Excellent, you would think. However, this triggered the air conditioning and ventilation systems to run at full capacity to maintain the low temperature. Simply adjusting the system settings led to an immediate reduction in energy consumption.

## Portfolio approach

As part of the Climate Agreement, provisions were made to allow large building owners to report to regulatory authorities every four years using portfolio-level roadmaps, based on actual energy consumption. The goal of this Portfolio Approach is to reduce administrative burden, enable goal-driven planning rather than focusing on individual measures, allow for phased implementation, and ensure consistent national oversight by competent authorities. In exchange, participants commit to an ambition level that exceeds legal requirements.

Participation in the Portfolio Approach is voluntary, but it comes with clear expectations. Progress is monitored through four critical performance indicators:

- reduction in fossil energy consumption (22% by 2026, with an average annual reduction of 5.5%)
- reduction in total energy supply (14% by 2026, with an average annual reduction of 3.5%)
- compliance with Recognised Energy-Saving Measures (100% by 2026)
- compliance with the Energy Label C requirement for office buildings (100% by 2026)

If progress is deemed insufficient, the participant's positive status may be revoked, and regulatory authorities may revert to standard oversight. More information about the Portfolio Approach is available on the RVO website: www.RVO.nl

**3. Installing Sub-Meters**
The top section of the graph includes buildings with significantly higher-than-average energy consumption. These outliers score very poorly in terms of efficiency and have attracted the attention of the Netherlands Environmental Services Organisation (ODNL). During a review of the 2023 draft report, ODNL's coordinating inspectors raised critical questions about them. Subsequent investigations revealed that these are often tunnel and lock complexes, where the control buildings and the mechanical systems (such as sluice gates and bridge motors) share a single energy meter. To gain better insights, sub-meters are being installed in the control buildings to separate their energy use from that of the rest of the complex.

As a pilot, three complexes are going even further by measuring all internal energy flows. The goal is to understand energy use across various parts of the complex and identify opportunities for efficiency improvements for the other facilities. To do this effectively, they need both building usage data and infrastructure data, such as traffic volume through tunnels and the number of lock operations.
The installation of sub-meters is being coordinated by the Energy Savings Programme in collaboration with facility managers, ensuring no disruption to Rijkswaterstaat's daily operations.

**4. Implementing Energy Management**
Implementing energy management is a recognised measure under the Energy Savings Obligation. Rijkswaterstaat's Energy Savings Programme performs this task for all buildings included in the Portfolio Approach. For buildings in the upper-right quadrant of the graph —those with a good energy label but above-average energy consumption— energy management is particularly beneficial. Energy management involves actual energy usage, collected via Rijkswaterstaat's energy management system, with expected usage based on outdoor temperatures and building operating hours. The analysis is performed for one representative week in each season. The resulting graphs help determine whether climate control systems are properly configured or if there are opportunities for improvement.

To facilitate these improvements, a workshop was held with building users, facility managers, and technicians from contracting companies. It became clear during the workshop that the technicians found the data very useful. When a graph indicated opportunities to fine-tune climate systems, participants immediately brainstormed practical solutions.

A key requirement for energy management is the ability to read energy meters remotely. While this is already possible for electricity meters, some gas meters lack this capability. For buildings where gas meters cannot be read remotely, energy management is conducted on-site instead.

**5. Giving Credit Where It's Due!**
Buildings in the lower-right quadrant of the graph have both a good energy label and low consumption. The users, managers, and contractors responsible for these buildings deserve credit. They have ensured that the climate control systems are operating efficiently. Attitudes toward sustainability among building users vary. Some appreciate Rijkswaterstaat's efforts: "I'm doing the same at home. "Others express concern, particularly about comfort after hours: "Won't it be cold in the evenings?"—a concern especially relevant in facilities used outside standard office hours. That's why many conversations begin by clarifying what will not be changed. Namely, temperature settings during regular working hours remain unaffected.

**6. Time to Reassess Policy?**
Buildings in the lower-left quadrant have a poor energy label yet low energy consumption. A somewhat unusual combination. Further investigation shows these buildings are often only partially used or used for limited hours. In such cases, it may be valuable to re-evaluate real estate policies. Options such as consolidating functions or decommissioning underutilised spaces could lead to better utilisation and improved energy efficiency. Additionally, continuing to apply energy management ensures that climate control systems are aligned with actual usage schedules, even when a building is only partly occupied.

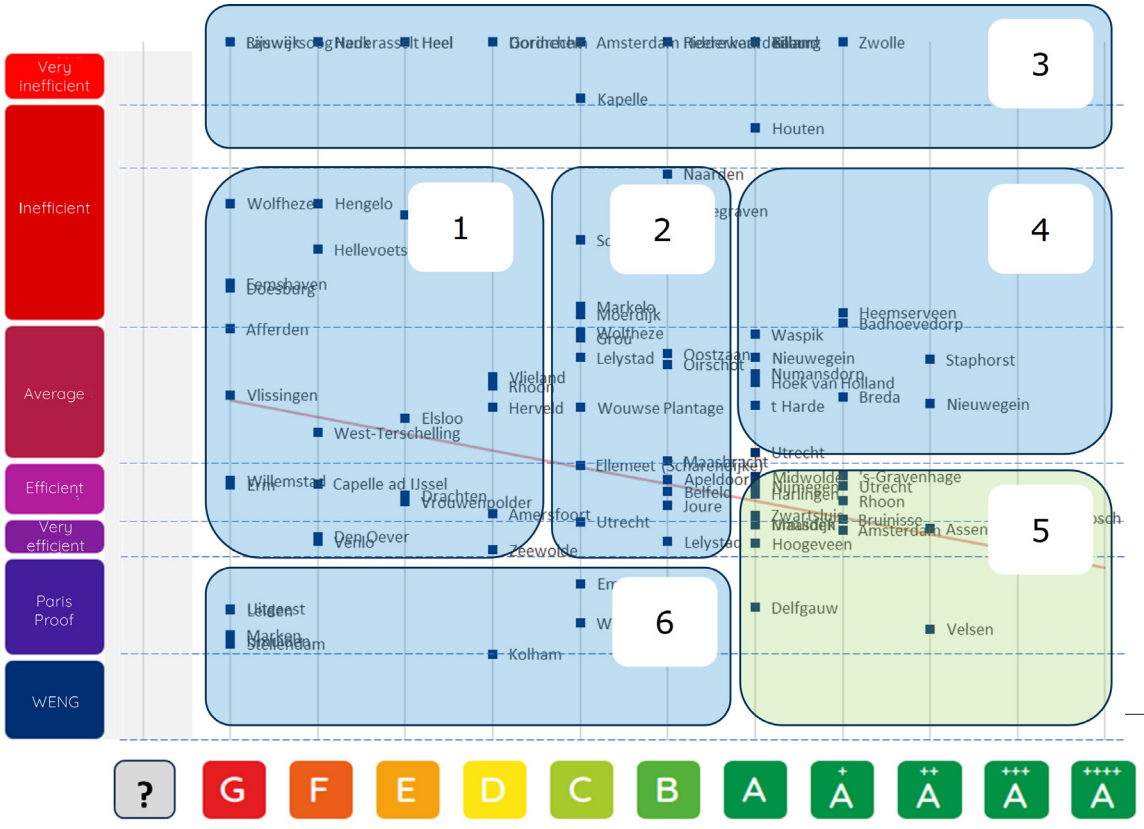


**Figure 3:** WEii EnergieKompas for Rijkswaterstaat buildings, showing focus areas.

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**Highly Recommended**

The use of the WEii EnergieKompas, which combines actual energy usage with energy label data, gives Rijkswaterstaat a clear, evidence-based view of the energy performance across its entire portfolio of office buildings. It helps identify what needs to be tackled first, what can wait, and which focus areas apply to each building. These insights have energised the regional and national teams involved in energy-saving efforts and the broader Energy Savings Programme. As such, the WEii EnergieKompas has become an essential tool, one we wholeheartedly recommend to any organisation striving to operate in a data-driven and people-focused manner.

## WEii EnergieKompas

To report on the two energy reduction performance indicators, participants in the Portfolio Approach are required to use the WEii-score (Werkelijke Energie intensiteit indicator/real energy consumption indicator). This score is calculated by dividing the annual energy consumption by the building's usable floor area.

The WEii-score incorporates weather corrections, ensuring that seasonal variations, such as a harsh winter, do not distort results. This enables consistent comparisons between buildings or building groups across multiple years.

In the WEii EnergieKompas, the WEii-scores of all buildings are plotted against their corresponding energy labels in a single graph. In a second graph, the average WEii-score of all buildings is tracked for each year of participation. This average score is used to determine whether the critical performance indicators have been met. More information about the WEii-score and the WEii EnergieKompas can be found on the WEii-website: www.weii.nl