

Innovation in Local Solar and Wind Power Generation

Why PowerNEST?

Because we at Novita Energia share IBIS Power's - the creator of PowerNEST – beliefs:

- The energy transition is not moving fast enough. Not because real estate developers and companies don't want it to, but because sustainability investments on a large scale are so complicated, they sometimes seem impossible.
- Any owner or developer of real estate who wants to make a big impact in the sustainable energy transition and showcase their efforts to their environment, should be able to do so.
- We strive to change this, by bringing solutions to the market that make great sustainable impact but are relatively easy to apply. On both existing buildings and new constructions.
- Also at Novita Energia we create an energy park to generate sustainable energy. We will give you the solution which is more than making sustainable energy only, by creating an energy park including buildings. (see chapter "Energy park")

The company behind PowerNEST is IBIS Power. IBIS Power, which was founded in 2012, is one of the few companies in the world that has managed to utilise both solar and wind energy simultaneously to create one of the most efficient sustainable energy systems in the world,

The Challenge for which IBIS Power Has the Solution:

The real estate industry is under great pressure. In the Netherlands, companies have to comply with strict laws and regulations from governments and goals from other parties to make their properties more sustainable:

- From 2024 onwards, the obligations from the Paris Climate Agreement to improve Environmental, Social and Governmental (ESG) performance will go into effect
- The EU Greenddeal makes 55% reduction of CO2 emissions by 2030 mandatory

Other sustainability issues facing the real estate sector:

- Business cases for real estate development are often only approved if they include solutions for local energy production
- Banks largely favour financing sustainable construction projects

- Grid operators are struggling with an overstretched power grid, causing projects with greater dependence on the power grid to wait a long time to be connected
- Property, land and rental values are falling due to lack of investment in sustainability

Other Solutions Just Don't Suffice

- When just installing solar panels doesn't provide enough energy to meet the building's energy demand
- When the fire hazard insurance won't allow solar panels to be installed without costly roof adaptations
- When the property is too tall and the roof area too small for enough solar panels to meet its demand
- When the roof is already (partially) filled
- When the architecture of the building does not allow the façade to be used for vertically installed solar panels
- When sustainable ambitions need to be realized in a more visible way, showcasing to the environment and market that this roof is making an important contribution to the energy transition.

For all of these challenges, IBIS Power's energy generating crown on the building, PowerNEST, is the solution

How PowerNEST Works:

Maximizing power generation through aerodynamics

Up to 10 times more energy generation than with just solar panels

A high-performance modular power generation system consisting of wind turbines in a nest of solar panels, generating year-round. The design makes optimal use of aerodynamic principles to maximize generation: one rooftop solution to meet zero net energy and carbon emission demands

A calling card to the city, it showcases a great investment in a sustainable future

Up to 10 Times More Energy Generation than with Just Solar Panels, Here's How:

- **Solar roof design: more than 100% of roof area utilized**

The top of PowerNEST has an overhang relative to the roof surface of the building. Thus, we increase the roof area. In addition, because of the nest design, the solar roof rises several meters above the roof surface itself, so no surface area is lost because solar panels cannot be placed on top of other technology on the roof.

- **Wind is captured and accelerated by the Venturi effect: up to 4 times more wind energy**

PowerNEST is designed in such a way that it sucks in the wind that naturally comes up against a building.

The Venturi effect is the wind acceleration effect due to the narrowing of the flow channel. PowerNEST's unique design capitalizes on this Venturi effect, creating a wind tunnel on the roof. The wind sucked into the tunnel is accelerated by the Venturi effect to such an extent, that PowerNEST generates up to 4 times more wind energy.

- **Air-cooling solar panels: 10 - 15% more solar energy**

Because the wind blows through the nest, the solar panels are naturally cooled on both sides. Not only above but uniquely also below the solar panels, where the most heat accumulates. Solar panels that overheat produce less energy. By naturally cooling the panels in PowerNEST, the energy production of the solar panels increases.

- **Bifacial solar panels and reflective surface: 20 - 30% more solar energy**

The solar panels on top of a PowerNEST are bifacial and the base of the nest is treated with reflective paint. As a result, the solar panels generate energy not only directly from the sun on top, but also from the reflected sun on the underside of the bifacial panels on the elevated structure.



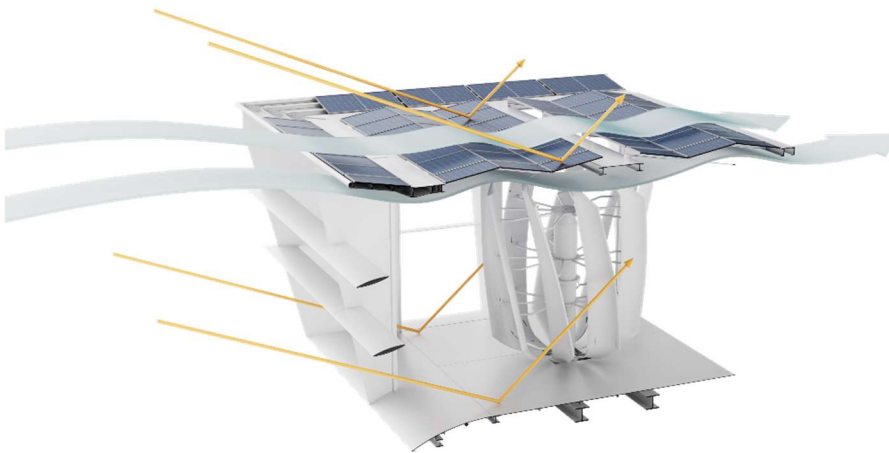
Solar



Wind



Cooling



Reflective

Step 1

Power Scan

- € 1.500 per site
- Energy potential
- Costs and savings
- Visuals

Step 2

Implementation

- Discuss and align proposed variations
- Select configurations for the following steps

Step 3

Pre-engineering Scan

- Site survey by IBIS Power
- Check building integrity with structural engineering specialists, coordinated by IBIS Power
- Costs for pre-engineering scan starting at € 5.000 per site

Step 4

Architectural checks & Permissions

- Approval of architect
- Approval of local government / aesthetics commission
- Spearheaded by building owner, assisted by IBIS Power

Step 5

Contracting

- Signing the detailed proposal
- Down payment
- Detailed mechanical & electrical engineering
- Building interfacing with the PowerNEST modules

Step 6

Detailed Engineering

- Production drawings
- Site preparation
- Ordering of materials

Step 7

Manufacturing & Installation

- Modules manufactured by suppliers
- Lifting and assembling modules on roof
- Mechanically and electrically connecting modules to the building

Step 8 - Ongoing

Operation & Maintenance

- Remotely monitoring the installation and its power generation
- Electrical and mechanical supervision and maintenance of the installation

Energy Park:

Solar panels and wind turbines are taking a lot of land that can not be used for any other purpose. Novita Energia has a system that uses the land in an optimal and efficient way. We will instal the PowerNEST units on buildings we create. The buildings can be multi-functional or dedicated, for example a gym, a shopping mall, a hospital, (local) government purposes etc. PowerNEST is powerful enough to not only provide the buildings with sustainable year round energy, but also contribute to the greenification of the island's energy grid!

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