

Home energy management with customized functionalities to improve household consumption efficiency

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An app for the energy transition at home

Repsol Vivit, the new app aimed at the energy company's home energy customers, responds to the objective of continuing to advance its strategy of expanding its digital platforms, with the ambition of reaching eight million customers by 2025. The application will centralize the management of home energy services with personalized functionalities to improve the efficiency of domestic consumption, such as a breakdown of the expenditure of each appliance or comparisons with the consumption of other households with similar characteristics.

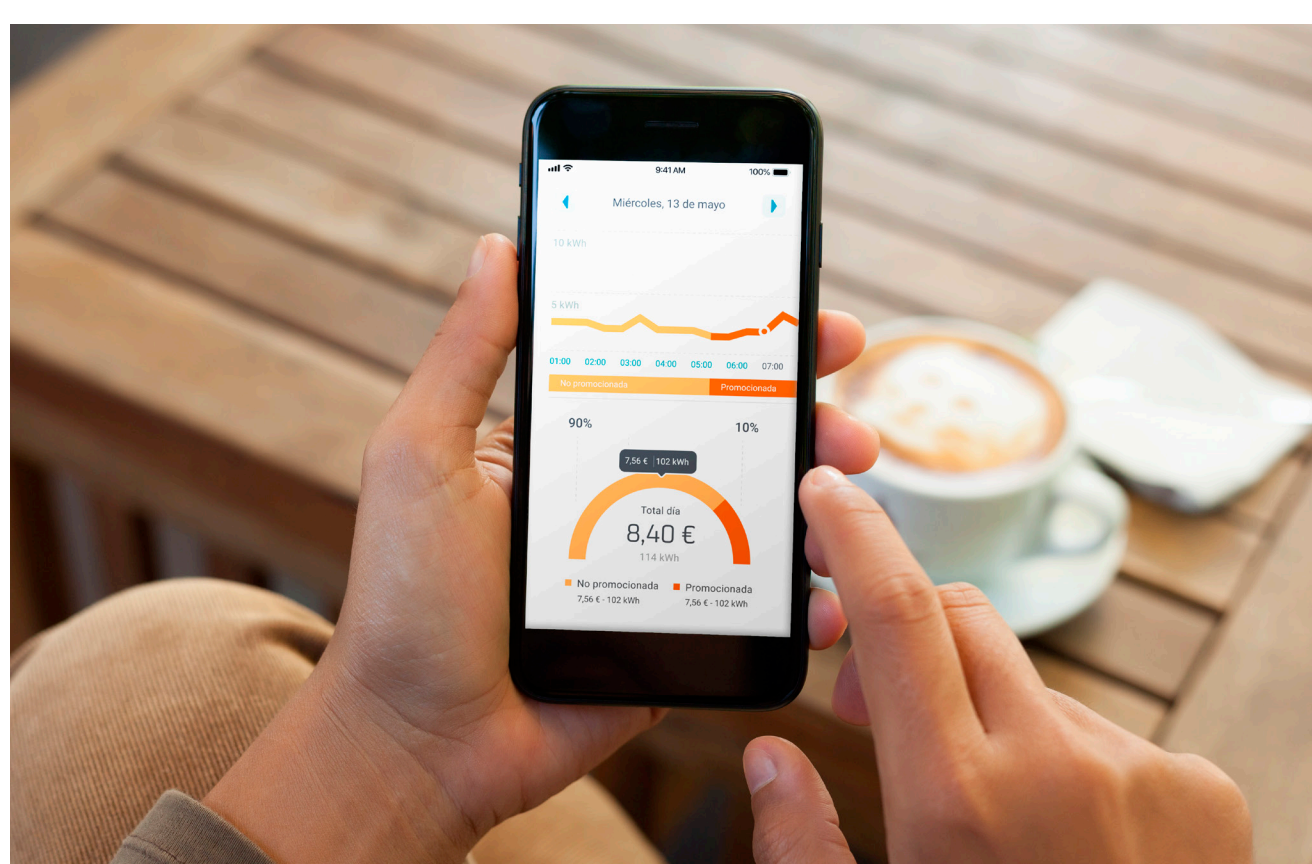
This digital tool, which already has 100,000 users, "is closely associated with the sustainability objectives outlined in the company's 2021-2025 strategic plan. We want Repsol Vivit to accompany our customers in their own energy transition at home, progressively offering them solutions to achieve that goal," says Carlos García Murcia, Commercial Business Manager at Repsol.

A digital personalized relationship

Repsol Vivit joins the ecosystem of digital services which the company wants to use to personalize the relationship with its customers, offering them individualized management of their energy consumption. Conserving all of the functionalities of 'Tu Oficina Online', which it replaces, such as consulting consumption per day and per hour without waiting for the bill, including detailed consumption of each appliance. This new app adds new features to improve consumption efficiency and strengthen that personalization, such as comparisons between comparable periods. "Unlike what happens in other similar apps, in Repsol's, consumption information is both reflected in kWh and translated into euros for a better comparison by the user", García Murcia states.

Initially aimed at power and gas customers, the application has the goal of also incorporating company businesses linked to the home. "In Vivit, we have built what we call the 'Home' entity. The first thing to look at is which household or households you have contracted services for and what you have contracted for each one. In the future, that will allow us to incorporate any other services apart from power and gas to give the customers a complete vision of their energy uses."

The Company intends to reach 8 million customers by 2025 in its different digital services



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Boosting the digital relationship with users of Repsol's services is one of the pillars of the company's strategic plan. It aims to reach eight million digital customers on its various platforms by 2025, up from two million today. For the power and gas business, the goal is a full portfolio of two million customers and to digitally connect with as many of them as possible.

Tools that favor a sustainable energy consumption

One of the fundamental functions of the app is to provide users with simple tools that can help them make a more efficient use of energy. "The first step is that customers become familiar with their electricity consumption and understand their bills". Repsol Vivit has a comparison section that relates consumption "to things that can make it more tangible." For example, the option to provide the characteristics of the home (square meters, persons living together, or year of construction) so that the application compares it with similar homes and knows if we are making an adequate use of the energy.

As already initiated on Waylet, Repsol's mobility app, Vivit users with a gas contract will be able to offset the carbon footprint derived from their consumption by collaborating with reforestation projects in the Amazon rainforest in Peru. The energy company will complement that donation with an amount equivalent to the amount contributed by the user.

The app also benefits from the EMS project (Energy Management System) developed at the Repsol Technology Lab. It applies Artificial Intelligence and Machine Learning techniques to the management of energy associated with heating and cold chain processes, in the case of customers from the commercial and industrial segment, reducing their energy consumption, while also reducing CO₂ emissions. For these cases, the EMS has shown savings of up to 20% in energy consumption associated with heating and up to 40% in the cold chain. The Athletic Bilbao soccer club's San Mamés stadium, the Grupo García Carrión, the real estate consulting and services firm CBRE, and the Grupo Nueva Pescanova will all use EMS to improve their energy efficiency.

In its application in the household segment, the probabilistic and algorithmic models created in this research are able, for example, to break down how the electricity consumption of a household relates to each connected device: washing, lighting, entertainment, etc., or in fields such as self-consumption of solar energy and distributed generation to provide information on the degree of generation that has been achieved in a period of time or the number of people who have joined a solar community.

By applying these usage patterns, the next step will be to send saving recommendations to customers so that they use their appliances in the time slots that best accompany their tariff or to alert them if excessive consumption is detected in any of them. These suggestions will not only be from a financial savings point of view for the user, but also from a sustainability one. "If the customer receives knowledge through the app that the contribution of renewable generation is currently low, they can make an informed decision about their consumption, choosing to defer it to help prevent the resources that produce the most CO₂ emissions in Spain's electricity system, such as thermal power plants, from entering into operation," García continues.



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These saving recommendations are in line with the commitment taken on by Repsol to become a net zero emissions company by 2050, "because we understand that we must advise our customers to consume in an increasingly efficient manner. By doing so we are responding to a demand that already exists in our society and we are advancing in the energy transition."

Self-consumption and distributed generation

Repsol Vivit also will have space for self-consumption, an alternative that the energy company offers with its Solmatch program, for those who can install solar panels on their roofs, and the Solmatch program, the option for those who choose distributed generation through forming part of a solar community. The app will host Solmatch's private area, "customers with some specific characteristics. And that is why we want to address them with a preferential channel" that reports in detail about the percentage of the energy consumed produced by their community or about the performance of the solar communities in Spain as a whole.

Choosing renewable energy

With the focus set on that same target, the energy company has also designed "a product that is differential in this market." It is 'Solución Origen de Tu Energía', an option designed for those customers who want to be able to select the source of the energy they consume from among the wind and photovoltaic farms that Repsol makes available to them, beyond knowing that it is 100% renewable, which in the case of Repsol is certified with the A Label granted by the The National Commission of Markets and Competition (CNMC).

Repsol Power and Gas customers who don't have their own roof to install solar panels on or who aren't close to a solar community that they can join be able to choose this product and select a wind or a solar farm to link part of their electricity consumption to the production at that facility, "guaranteeing that part of the energy at that farm is reserved for them," García continues.

They are going to receive the energy in their homes from the farm that they are linked to and the rest of their consumption, the one that can't be covered by the generation of that farm, will be covered by grid energy with 100% renewable electricity. And with the added incentive that Repsol will apply a 50% cheaper rate to the part coming from the solar or wind farm than to the part received through the grid. With that, "as well as saving, it will be contributing to the renewable system of Spain and the flexibilization of demand."

'Solución Origen de Tu energía' has a featured space in the Repsol Vivit application. The user is able to consult on their cell phone, practically in real time, when the generation of that farm is greater and able to adjust their consumption habits depending on the production of the facility selected.

Among the future developments of Repsol Vivit, which still require a technological evolution associated with the EMS project, will be the Smart Home area. It will allow users to connect appliances and other smart electrical devices to the application to control them remotely. "We are offering a home energy management tool and that must be the main goal," García concludes.

Users will be able to compare their consumption with similar homes, or find out the expenditure in euros and not just kWh

Repsol offers its customers the option to link part of their consumption to the production of a wind or a solar farm