

Demand response: How to reward users for saving energy and protecting the environment

November 19 2019



Credit: AI-generated image ([disclaimer](#))

With increased efforts to create a more dynamic power grid that is cleaner, more reliable and more efficient, utilities are tapping into various new technologies and programs. A popular energy solution is demand response (DR). Typically implemented in the industrial sector where energy use is high and peak energy demand comes at a significant

cost to utilities and the grid itself, DR usage is gaining traction in the residential sector. Such programs offer consumers the opportunity to play a crucial role in the operation of the power grid by reducing or shifting their electricity usage during peak periods in response to time-based rates or other forms of financial incentives.

Enter the EU-funded RESPOND project that aims to "deploy an interoperable [energy](#) automation, monitoring and control solution that will deliver demand response at a building unit, building and district level," as noted on the project website. "Using smart energy monitoring infrastructure, RESPOND will be able to detect energy conservation opportunities and adapt to indoor and outdoor conditions, and comfort levels in real time through optimal energy dispatching, taking both supply and demand into account."

Beneficial for all

In a news article on "Open Access Government," Rodrigo López, Energy Management Deputy Director at project coordinator Fenie Energía, says: "The rise of the DR is due to the fact that it provides benefits for all stakeholders: Clients, environment and utilities." DR allows utilities and energy management companies to adjust their customers' heating, cooling or other energy services, on demand. Some of the advantages of DR programs include relieving stress on the power grid during peak hours and [extreme weather events](#), freeing up electricity during power plant or transmission outages, and helping the grid adapt to fluctuations in wind and solar energy generation.

In the same [news article](#), López also says that for customers, participation in DR programs "is essentially an economic benefit for the obtained reward from utilities for being available for (and in the cases required, to carry out) the required actions." He adds: "These actions can be classified as automatic or voluntary depending on whether the

intervention of the user is necessary. For automatic execution, it is necessary to install in customer premises both hardware and software to allow remote monitoring and operation."

According to López, examples of DR actions include the temporary adjustment of thermostat temperature or dimming lights. He also refers to passive actions such as changing consumption habits, for example shifting certain tasks execution to periods of low price or reduced network overload."

The ongoing RESPOND (RESPOND: integrated demand REsponse Solution towards energy POSitive NeighbourhooDs) project targets buildings with different residence types (rental and ownership), population densities and underlying energy systems in pilot sites in Denmark, Ireland and Spain. These include private apartment buildings in Madrid, a social housing community in Aarhus and 24 dwellings on the Aran Islands, as stated on the project website.

More information: For more information, please see the RESPOND project website: project-respond.eu/

Provided by CORDIS

Citation: Demand response: How to reward users for saving energy and protecting the environment (2019, November 19) retrieved 26 April 2024 from <https://phys.org/news/2019-11-demand-response-reward-users-energy.html>

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