Consumer engagement and demand response

The proposals will develop and test novel solutions and tools for demand response and energy services, using real consumption data and feedback from the testing of services with the objective to improve predictability of consumption and consumer behaviour (aiming to create a digital twin of the consumer). The main focus will be on households, but other types of consumers (residential, industrial, commercial and tertiary, including prosumers who are self-consuming part of the energy they produce) may be included. Proposals will demonstrate services that bring a fair share of benefits to consumers and to the energy system, in particular the electricity grid. The proposals should take into account the existing EU framework and the proposed measures under the Clean Energy for all Europeans Package, including the relevant measures on demand response, active customers, energy communities and dynamic price contracts.

Proposals can target one or multiple types of loads (e.g. appliances, electric vehicles, power to heat / cool, etc.) as well as (small-scale) production (e.g. PV), include energy storage and one or several methods of aggregation (e.g. citizen energy communities). Preferably they should rely on advanced automation, advanced ICT tools and approaches (e.g. IoT, Big Data, AI, blockchain, etc.), communication protocols and interoperability.

Proposals are encouraged to include energy vectors other than just electricity (e.g. heating, cooling, water, wastes, etc.) , and are encouraged to include other services than energy (e.g. mobility, health, etc.).

Proposals should not only bring a perspective from the grid and the power system on consumers but also a perspective from consumers on the grid and the power system. For this purpose, social science and humanities-related work will be closely associated with the development of technological solutions from the beginning of the project (e.g. co-creation process involving both technology/ service providers and consumers) and not as an isolated task/work-package.

Privacy, consumer and personal data protection and cybersecurity should be addressed by the proposed solutions.

Proposals will demonstrate how they will use interoperable digital communication solutions, make use of existing standards, study what is the information that shall be exchanged and contribute to open platforms and market places that can be integrated with other services based on platforms.

Services, customer information, engagement strategies and contracts should be designed, tested and conclusions should be drawn to improve predictability of consumption and consumer behaviour, based on the different types of consumers (e.g. segmentation along different categories, e.g. social category, age, technology literacy, gender, etc.) on the considered location and climatic conditions and on the type and magnitude of incentives, putting the citizen at the centre of the proposed approach.

The participation of local energy communities, energy cooperatives, aggregators and local actors is encouraged. The participation of consumer associations in the project is an added value.

Proposals are expected to include clear business model development and a clear path to finance and deployment as a dedicated task, which confirms delivery of affordable energy in no more than 5 years, as well as a clear strategy for managing cybersecurity. Key partners should have the capability and interest in making the developed solution a core part of their business/service model to their clients. Proposals are expected to demonstrate knowledge of the relevant EU’s policies on smart homes and buildings, interoperability, Internet of Things and platforms for data exchange.

Proposals should include tasks or a specific work-package on the analysis of obstacles to innovation under the current context but also under the future market design context and foresee the coordination on policy relevant issues and obstacle to innovation (e.g. regulatory framework, business models, data management, consumer engagement) with similar EU-funded projects through the BRIDGE initiative[[http://www.h2020-bridge.eu/ Where relevant, proposals should consider cooperating also with projects funded under complementary topics, in particular LC-SC3-ES-1-2019: Flexibility and retail market options for the distribution grid, LC-SC3-EE-13-2018-2019-2020: Enabling next-generation of smart energy services valorising energy efficiency and flexibility at demand-side as energy resource, DT-ICT-10-2018: Interoperable and smart homes and grids and DT-ICT-11-2019: Big data solutions for energy in the WP 5.i ICT]]. An indicative budget share of at least 2% of the EU contribution is recommended for the research work associated with these issues.

Proposals should build upon the insights and results of projects that have already been selected in this field under Horizon 2020 (information can be found on the BRIGDE web site[[http://www.h2020-bridge.eu]]) and demonstrate their innovative character.

Projects will cooperate with at least one of the projects supported under the topic LC-SC3-ES-5-2018-2020 that approach the challenge more from a grid perspective. Therefore, proposals will foresee a work package for cooperation with other selected projects and earmark appropriate resources (indicatively 5-10% of the requested EU contribution) for coordination and communication efforts and research work associated with cross-cutting issues[[http://www.h2020-bridge.eu/ Where relevant, proposals should consider cooperating also with projects funded under complementary topics, in particular LC-SC3-ES-1-2019: Flexibility and retail market options for the distribution grid, LC-SC3-EE-13-2018-2019-2020: Enabling next-generation of smart energy services valorising energy efficiency and flexibility at demand-side as energy resource, DT-ICT-10-2018: Interoperable and smart homes and grids and DT-ICT-11-2019: Big data solutions for energy in the WP 5.i ICT]]. Regarding data handling, data management and standardisation issues, proposers should comply with the requirements stated in the section 'Common requirements' of the introduction to the part on the Smart citizen-centred energy system.

TRL will range between 5 and 8 (see part G of the General Annexes). Proposers will indicate the estimates levels of TRL at the beginning and at the end of the project.

The Commission considers that proposals requesting a contribution from the EU of between EUR 4 to 6 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

To put consumers / prosumers at the heart of the energy market and to develop and test new cost-effective solutions for consumers based on the next generation of energy services for consumers that are beneficial to the integration of RES into an efficient operation of the grid and of the power system, that will allow to better predict and incentivise consumer behaviour. Engaging consumers and prosumers in demand-response mechanisms and other energy services - based on dynamic prices as well as on incentives from grid operators to adjust energy consumption or production to help maintain frequency stability, manage congestion or address other grids constraints - has the potential to bring benefits to consumers and to the energy system.

Decentralised (renewable) energy production and digitalisation allow for new ways for consumers to engage in the energy transition, for example through energy cooperatives, peer-to-peer trading and citizen energy communities. Building and home automation allows for the integration of services to consumers and the creation

of value by combining data and services across different sectors for example combining energy services (electricity, heat) with mobility (electric cars), health (assisted living).

The supported projects are expected to contribute to the following impacts:

- Increased use of demand response across the European energy system;
- Increased number and types of consumers engaged in demand-response across Europe;
- Demonstrated and improved viability of innovative energy services, best practices and effective incentives that can be replicated at large scale;
- Increased uptake of services that combine energy efficiency with other energy services, technologies and non-energy benefits;
- Increased reliability of innovative energy services and accessibility to them Developed and demonstrated viable solutions for customers: best practices and effective incentives that can be replicated at large scale;
- Increased predictability of consumption patterns and consumer behaviour;
- Increased data protection and privacy for customers;
- Improved modelling of the flexibility levers from the new energy services;
- Increased share of energy or power that can be mobilised to provide flexibility to the grid and increase the hosting capacity for RES.

Proposals are invited to address at least 7 of the above impacts, substantiate them and include ad-hoc indicators to measure the progress against specific objectives of their choice that could be used to assess the progress during the project life. Indicators are expected to have clear and measurable targets.

Ultimo aggiornamento: 12 Aprile 2024

Permalink: https://cordis.europa.eu/programme/id/H2020_LC-SC3-EC-3-2020/it