PRESS RELEASE

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SATO Self-assessment toolbox

A cornerstone in the SATO project is the development of the user-centered self-assessment framework and toolbox. SATO has developed user-centered self-assessment methodologies for technical systems, energy components, and appliances with a focus on these methodologies to be implemented in the SATO use cases and pilots. This will ensure data will be available for the development phase as well as for relevant use cases and conditions for test and demonstration of the developed framework and toolbox.

The developed methodologies define the key variables that will be the subject of the assessments, data and privacy requirements, models for equipment and building energy performance, in addition to the algorithms for automatic model parameter assessment. A key part of the self-assessment framework is the identification of benchmarks to evaluate the energy performance of equipment, appliances, energy systems, and buildings and to determine whether the status of the measured performance of systems and components is better than expected, acceptable or needs to be improved. The SATO platform distinguishes between three kinds of references based on either standard data, actual data or historical data.

Figure 1 shows the terminology and categorization used in SATO self-assessment framework for the energy systems and components.

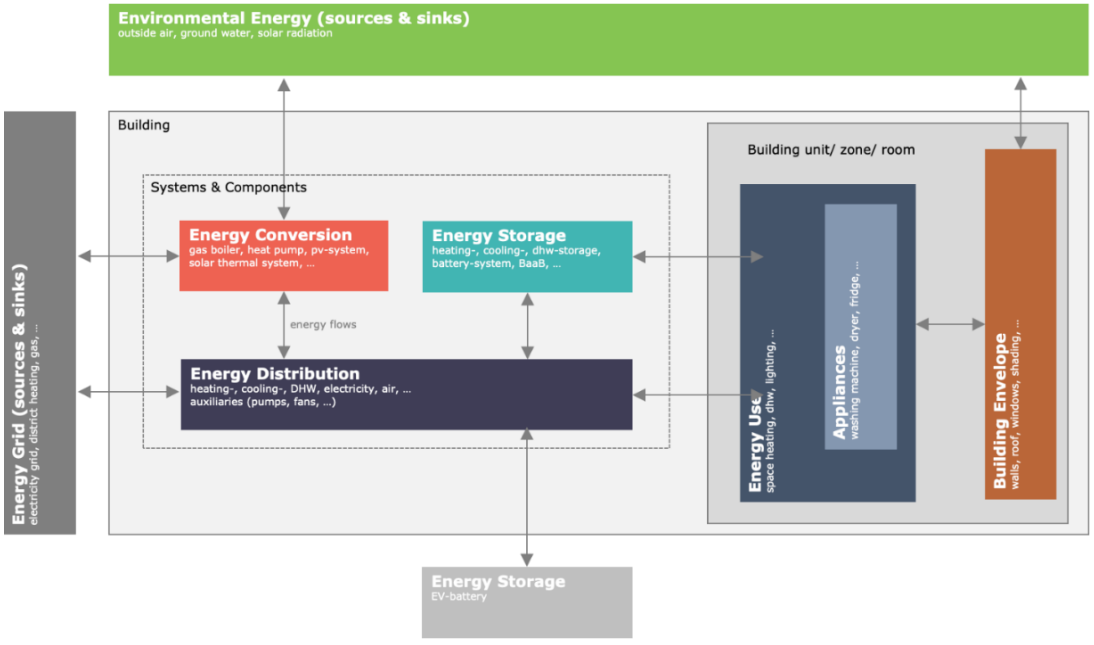

Figure 1

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In SATO, self-assessment methodologies have been developed to assess the following categories:

- **Energy Grid (sources and sinks):** includes the electricity, gas, district heating and cooling grids. There will be an exchange of energy between the building and different grids that needs to be controlled to ensure that building demands are met, while minimizing the stress on the grids and ensure optimal use of renewable energy sources.
- **Environmental Energy (sources and sinks):** includes environmental sources and sinks of heat like solar radiation, outdoor air and ground water. There will be an exchange of energy between the building and the environment through the building envelope. Heat gains and heat losses need to be controlled to minimize the building energy demand. There will also be exchange of energy between different building systems and the environment, exploiting environmental sources and sinks to reduce the need for delivered energy.
- **Energy Conversion**: includes building systems converting energy from grids and environmental sources to meet building thermal and electric energy demands, like boilers, heat pumps, solar thermal systems or PV (Photo Voltaic). Systems need to be controlled to ensure optimum efficiency while reducing losses and fulfilling building energy needs
- **Energy Distribution**: includes building systems distributing heat, water and fresh air within the building to different spaces according to their specific needs as well as exchanging energy with integrated energy storages as required for system optimization.
- **Energy Storage**: includes thermal and electric storages integrated in buildings as well as in electric vehicles. The storage needs to be controlled to ensure that building demands are met, while minimizing the stress on the grids and ensuring optimal use of renewable energy sources. It can be also used to provide flexibility services to the electrical along with the district heating and cooling grids.
- **Energy Use**: includes building terminals delivering heat, water, light and fresh air to users in different spaces to ensure optimum indoor environmental quality.
- **Appliances**: includes different types of energy using service equipment to provide comfort and convenience.
- **Building Envelope**: includes building systems that control the exchange of heat gain and losses with the environment like solar shading, shutters, windows and façade vents.

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