

Energy Mashup Lab reveals Common Transactive Services for Smart Energy Specification

The Services (CTS) provide a simple, consistent, and flexible way for devices and buildings to participate in micromarkets that can operate microgrids

PITTSBORO, NC, UNITED STATES, November 2, 2020 /EINPresswire.com/ -- [The Energy Mashup Lab](#) announces the release of the first public draft [specification](#) of the Common Transactive Services for use in Smart Grids and in Microgrids.

The Common Transactive Services (CTS) specification describes an information and communication model to coordinate energy between any two parties, such as energy suppliers and customers, markets, and service providers. CTS balances supply and demand over time using automated voluntary transactions between market participants. [The Lab](#) is contributing this draft specification to OASIS for public standardization.

The Lab is continuing to refine its systems for easy deployment, and define common interfaces to existing buildings and devices. The Lab calls on system designers, device makers, and participants in energy-based financial markets should prepare to help complete the public specification. The Lab is especially interested in comments from those looking to implement chip-level solutions for smart energy.

CTS defines a model for systems integration that is known as transactive energy. Transactive energy is used to allocate energy resources over time, including electrical energy, electrical power, natural gas, and thermal energy. Transactable energy is also used to allocate the means of delivery over time, such as transmission line capacity and flowrate.

The target deployments for CTS include but are not limited to

- Smart Buildings/Homes/Industrial Facilities
- Vehicles
- Microgrids
- IoT (Internet of Things) devices

Transactive energy has the potential to make our electrical system more efficient, by better matching supply and demand in real time. Transactive energy relies on markets and consumer choice to make better decisions about power supply and use.

The CTS specification began with the interactions identified during the NIST Transactive Energy Challenge as common to all transactive energy systems. There are many microgrid and transactive energy trials under way. Systems built to interact with one trial are today unable to interoperate with any other trial. These systems each have different market rules and different market matching engines.

The Common Transactive Services express a market interaction model with every such energy market known to us. The CTS specification can be common for all such systems, making no assumptions about currency or market design. Any system, be it a device, building, or other actor, using the CTS payloads and interactions could participate in any of these energy markets without change - so long as that market implements CTS as well.

In 2019, TC9, Inc, under a contract from NIST, developed agents to support simulation of bilateral markets on the NIST Cyberphysical systems modelling platform. This draft of CTS 1.0 is based on the services used in that project for inter-agent communication. All software is hosted in The Lab's open repositories (<https://github.com/EnergyMashupLab>). The CTS specification is licensed under an Apache 2.0 license, as is the software.

The Energy Mashup Lab (<https://www.theenergymashuplab.org/>) is a non-profit (501C3) open source community for the development of software that enables smart energy, and a clearing house smart energy techniques. For more information, contact The Lab's executive director, Toby Considine, at (919)619-2104 or director@theenergymashuplab.org.

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