Dear SME,

Thanks for agreeing to help out with this effort. Our task is to match each of the following communication protocols to the requirements that have been extracted from the known use cases. In order to help us get the right information to the right people and to properly summarize things for the CPUC, we're asking for your help in getting some basic information. Please complete the following to the best of your ability.

Section 1: Who and What

Please select your name from the following list or enter it manually: Gordan Lum

Please select your protocol from the following list or enter it manually: IEEE 2030.5

What is the current (approved by standards/industry group) version of your protocol? 2013

When was it approved? April / 2013 Is it currently being revised ? Yes

What is the anticipated date for the approval/release of the next version? December / 2017

Section 2: When and Why

Please input a short narrative of the problem that your protocol was created to address, and when it first was adopted.

IEEE 2030.5 was adopted in April 2013 to allow communications between energy-related devices in the Home Area Network (HAN) with zero-configuration (i.e. devices can automatically discover each other and communicate without user intervention). It uses a REST model, and is based on open, well-known, and well-adopted protocols (e.g. TCP/IP, HTTP, TLS, XML, mDNS, etc). It runs on any physical layer that supports IP traffic.

Section 3: Current Status:

Please summarize the current usage and level of adoption of this protocol. If possible, please discuss the number and location(s) of current implementations of the protocol.

IEEE 2030.5 started out in the Home Area Network (HAN) environment with devices like utility electric meters, smart thermostats, load devices, etc. It has since evolved to be used in managing electric vehicle charging and DER (distributed energy resources) devices over the public Internet.

Section 4: Actors Currently in Play:

In order to decouple protocol specific nomenclature and to reduce the number of actors to the minimum relevant number, we've come up with the following list. Please indicate what actors are able to communicate directly with each other by using your protocol.

	EV Driver (EVD)	Power Flow Entity (PFE)	Utility Customer of Record (UCR)	EV Battery System (EVBS)	EV Power Converter System (EVPC)	Energy Connection System (ECS)	Energy Meter (EM)	Building Management System (BMS)
EV Driver (EVD)	-	✔					✔	✔
Power Flow Entity (PFE)	✔	-	✔	✔	✔	✔	✔	✔
Utility Customer of Record (UCR)		✔	-				✔	✔
EV Battery System (EVBS)		✔		-				✔
EV Power Converter System (EVPC)		✔			-			✔
Energy Connection System (ECS)		✔				-		✔
Energy Meter (EM)	✔	✔	✔				-	✔
Building Management System (BMS)	✔	✔	✔	✔	✔	✔	✔	-

Please add any notes needed to clarify the above table

IEEE 2030.5 can be used to control any of the hardware equipment items. Not sure how to handle the 3 entities (EVD,PFE,UCR). For example, the EVD usually interfaces using a webpage, phone app, or similar portal, so he is not directly using the protocol. However, if he pushed a button that initiates an energy flow using the IEEE 2030.5 protocol, doe this count for checking the box? I assume

What physical layer(s) does this protocol use for communication between devices?

IEEE 2030.5 is a protocol that uses HTTP(S) over TCP/IP, so any physical layer that can transport IP packets can be used (e.g. Ethernet, Wi-Fi).

What language is used for communicating between devices (i.e. html, xml, etc.)

IEEE 2030.5 uses an XML-based schema in the payload of an HTTP packet. It also supports EXI, a compressed binary XML format.

Section 5: Actors Anticipated to be in Play (As appropriate):

If the next version of your protocol is expected to allow for additional communications, please indicate them in the following.

	EV Driver (EVD)	Power Flow Entity (PFE)	Utility Customer of Record (UCR)	EV Battery System (EVBS)	EV Power Converter System (EVPC)	Energy Connection System (ECS)	Energy Meter (EM)	Building Management System (BMS)
EV Driver (EVD)	-	✓					✓	✓
Power Flow Entity (PFE)	✓	-	✓	✓	✓	✓	✓	✓
Utility Customer of Record (UCR)		✓	-				✓	✓
EV Battery System (EVBS)		✓		-				✓
EV Power Converter System (EVPC)		✓			-			✓
Energy Connection System (ECS)		✓				-		✓
Energy Meter (EM)	✓	✓	✓				-	✓
Building Management System (BMS)	✓	✓	✓	✓	✓	✓	✓	-

Please indicate any additional functionality or limitations to functionality that are germane to the consideration of this protocol:

The next version of IEEE 2030.5 is expected to be formally adopted on Dec-2017 or Jan-2018. The next version adds additional DER controls to support all IEEE 1547 functions, all CA Rule 21 (Phases 1,2,3) functions, and all CSIP functions . It also provides features to more efficiently support operations over the Internet, especially Utility to Aggregator communications

What physical layer(s) does this protocol use for communication between devices?

IEEE 2030.5 is a protocol that uses HTTP(S) over TCP/IP, so any physical layer that can transport IP packets can be used (e.g. Ethernet, Wi-Fi).

What language is used for communicating between devices (i.e. html, xml, etc.)

IEEE 2030.5 uses an XML-based schema in the payload of an HTTP packet. It also supports EXI, a compressed binary XML format.

Section 6: DC, Single Phase, or Polyphase:

Does your protocol include functionality to manage the flow of DC energy? Yes

Does your protocol include functionality to manage the flow of AC energy? Yes

Does your protocol include functionality to manage the flow of polyphase AC energy? Yes

Does your protocol include functionality to manage the flow of energy from the vehicle back to the grid? Yes

If needed, please add any explanatory details to the answers in section 6:

IEEE 2030.5 has a FlowReservation function set which allows a EVD client and the F