G	P	C	U	R
G	**P**	**C**	**U**	**R**
Governor	Prosumer	Consumer	Utility / DOS	Regulator
Organization that runs this market	Someone with an electric panel	Someone who wants to buy	Someone who wants to buy	Governmental oversight viewing txns

1. G deploys the market contract
   - tokens are minted in the constructor?
2. P, C, U self register as participants
3. G opens a market with **openMarket**

Name	Type	Description
startTimestamp	uint256	The time that the market opens
endTimestamp	uint256	The time that the market closes
startDeliveryTimestamp	uint256	The time that energy can start to be delivered - wait - is this necessary in this function? YEs a market is for energy that is to be delivered during a certain period.
endDeliveryTimestamp	uint256	The time that energy finishes flowing
maxPrice	uint256	The current cost of 1 kWh on the commercial market (not this prosumer/consumer market)

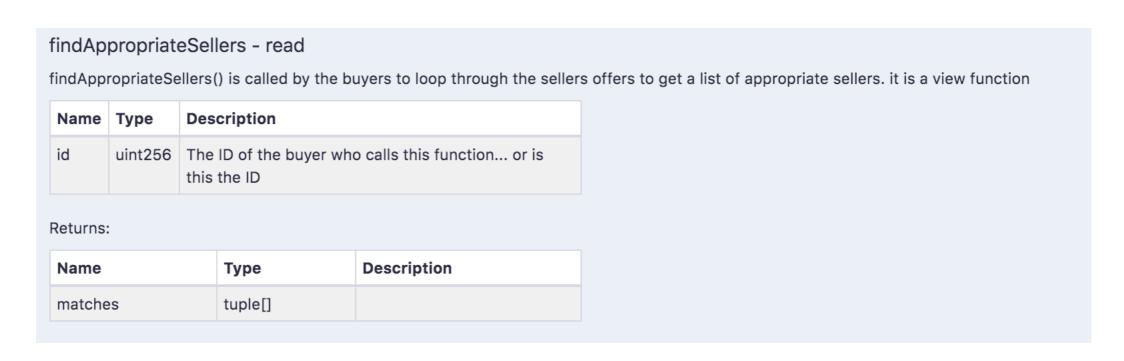The maxPrice is the rate on the commercial market.
It is input by the G.
Later this could be brought in with an oracle.

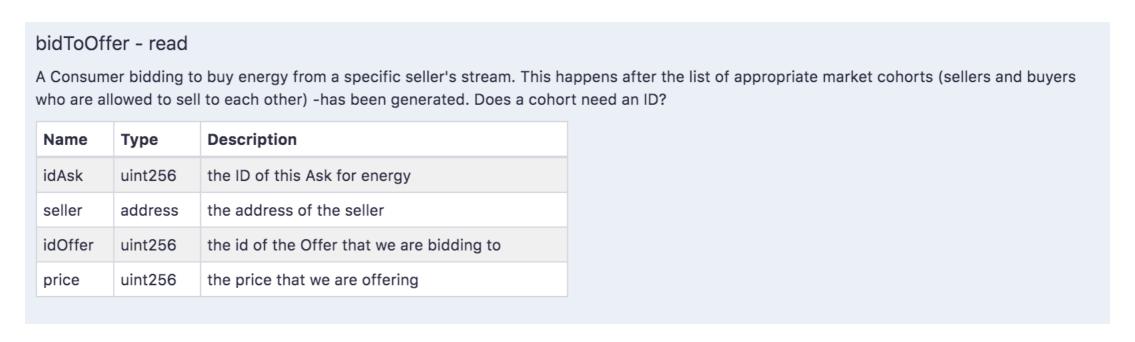4. Initial Posting to Offer and to Ask for energy

offerEnergy   (not a read function)

offerEnergy - read

A participant registers a desire to SELL an energy stream in a market

Name	Type	Description
_energy	tuple	The energyStream contains amount of kWh, the time that the energy is going to be available, etc

```
// energyStream is for requesting and offering energy
struct energyStream {
    address addr; // consumer or prosumer's public key
    uint64 timestamp; // timestamp for when the energy offer/ask was submitted
    uint startDeliveryTimestamp;
    uint endDeliveryTimestamp;
    uint price; // starting price before bids
    uint64 energy;  // energy requested or available
}
```

offerEnergy   (not a read function)

askForEnergy - read

A participant registers a desire to buy an energy stream in a market

Name	Type	Description
_energy	tuple	contains the amount of energy and when it is desired

The initial posting is to find out who the participants are in this market.

The sorting will occur when a buyer asks for …

findAppropriateSellers - read

findAppropriateSellers() is called by the buyers to loop through the sellers offers to get a list of appropriate sellers. it is a view function

Name	Type	Description
id	uint256	The ID of the buyer who calls this function... or is this the ID

Returns:

Name	Type	Description
matches	tuple[]	

What information is visible someone bidding on an Offer?

5. A consumer then bids to a specific offer that appears in their list of offers from appropriate sellers.
   bidToOffer - this is not a payable function - payment is on the honor system

bidToOffer - read

A Consumer bidding to buy energy from a specific seller's stream. This happens after the list of appropriate market cohorts (sellers and buyers who are allowed to sell to each other) -has been generated. Does a cohort need an ID?

Name	Type	Description
idAsk	uint256	the ID of this Ask for energy
seller	address	the address of the seller
idOffer	uint256	the id of the Offer that we are bidding to
price	uint256	the price that we are offering

6. The current highest bid is visible to other buyers in the cohort -
   - do we need a view function to return the current highest bid?