



NextGrid: Utility of the Future Study

Working Group 5

Meeting No. 3
Electricity Markets
June 25, 2018

[Note: descriptions of presentations and discussion are condensed summaries and paraphrases]

Item I: Opening and Introductions

Working Group Leader, Dr. Lynne Kiesling, opened the meeting and welcomed participants.

Item II: Presentation by Farrokh Rahimi OATI (See presentation)

Discussion

- Orange box -DSO operations box really outlines what we are doing now with ComEd's marketplace and solar interconnections.
- Yellow – box. Was thinking of it more as an insurance model, where if prosumer, can enter into a contract and use you when I need you.
 - talking about when you unbundle the services in several components and the participants can choose to sell components or buy components. These are the menu of services the DSO can provide.
 - but it's possible for both to co-exist. Some prosumers are going to be active and others who if something goes wrong, just want to make sure they get grid services.
- Can you break down the pay as you go option?
 - under pay as you go, there is a fee, but the components of the fee is broken down into several buckets that you can choose from. a lot of confusion on that today.
 - There are customer services and distribution services. We are now asking to break them down into many more groups with different rates for services, we may be adding more to the confusion
- Re: slide of LMP+D vs DLMP
 - look at recent FERC order 841 with distribution participating bulk power
 - Sometimes you have an LMP+D where D is administrative costs.
 - When talk about LMP+D, you have to know what D is.
 - on the slide, it's a zonal price.
 - if you are a consumer, you are getting the zonal price. If you are a prosumer, you are getting paid as a generator.



- I'm concerned about the opposite case, where you have too much solar on a feeder and sending a negative price signal.
- can you talk about how DSO can be someone other than the utility?
 - yes, would not be an aggregator. The cost of an independent entity operating the market will be a huge expense.
 - The driver of the costs goes beyond just access to information. Whoever operates the grid need assets to be able to handle the large number of transactions into the grid. We also need an operator who will ensure reliability

Item III: Presentation by Paul Centolella (Platform Markets and Grid Services: a Market and Functional Model (See Presentation))

Discussion

- What are your thoughts on the utility being service platform operator?
 - We looked at the utility being service platform sponsor or service platform operator. Utilities have data about the customers that would be useful. Can see the utility saying they want to be the sponsor and share that data.
 - platform sponsor would have ownership interest but wouldn't be involved in day to day operations. Can have 1 sponsor and 1 operator or various sponsors and operators.
 - Some people like to think about transactive energy separate from day to day operations of the grid, but people can't think like that.
 - Think about Texas and well quarantined monopoly model and service platform model you flushed out, would that be the wires companies the service platforms but apps are the retails?
 - yes, that is one example of a joint sponsor.it would provide a place where customers could mix and match and provide different services to their needs.
- In a couple of key arguments against market solution, one has been you cant handle the complexity. There are too many transactions to be able to cope with. But I am hearing that our computational capabilities are advancing dramatically. This cant be an argument anymore. Another is the value of central power station power plant and actual versatility.
 - We have lots of devices that have computational values. What we are lacking is a pricing signal that would enable these computational capabilities.
- Fast forward 10 years from now, will this be state specific or more universal?
 - See a possibility, but there would need to be understanding between policy makers, leaders, stakeholders, and the community.



Item IV: Representative End User Scenario Worksheet (See Worksheet)

Dr. Kiesling – want to take time to talk about the previous discussions and inputs and how they fit in designing thinking. I want to capture your ideas within the next 40 minutes based on the worksheet attached.

Working Group members broke into small groups to discuss things that would be important to specific end users through a transactive grid.

- Perspective responses - residential household
 - automatic and easy to use tech/service
 - easy connection process(s)
 - strong consumer protection
 - existing context
 - utility tariff
 - incumbent default service provider
 - help customer understand the range of value streams.
 - effective pre-screening and having provider explain customer's locational value
 - understand motivation

- Perspective responses - residential – rental, low income or senior
 - think of working family of 4 who have rental property in 2025. Want to save where possible
 - They work, don't want to install panels on rental property. Willing to do some DR.
 - willing to prepay to give \$
 - transactive devices help save \$
 - simplicity and ease of transaction
 - freed from regulatory constraints previously defined as consumer protections (ex. Pre=pay)
 - opportunity for autonomy and empowerment
 - ability to finance the devices
 - financing go w/the meter
 - behavior is the key here – provide the price

- Perspective responses - High-rise building owner
 - EV Charging tokenize solar
 - tokenize/share in trade comm. Solar blockchain
 - provide common info to tenant & owner to enable tenant to make informed choice
 - building thermal inertia – owner could bid into market and based on ability to change settings
 - siting & permitting issues



- change be being a hedge against power spikes
- resilience
- info about local district markets
- how will instruments be compensated?
- distribution grid

- Perspective responses – building manager
 - internal balancing and management
 - battery storage

- Perspective responses - Manufacturer of large equipment
 - currently have generation/co-gen on site
 - ability to find additional value in generating assets
 - ability to see from generation, excess capacity, incentive to decrease output production when price of energy is high
 - security of contracts important. E.g. w/nearby neighborhood
 - contract from standards
 - ability to respond to DLMP. Accurate, transparent, verifiable, auditable info.
 - understandable to c suite and shareholders

- Perspective responses – Microgrid
 - resiliency

- Perspective responses – Mayor
 - urban infrastructure

The Working Group Leader adjourned the meeting.