NextGrid Working Group 5
Meeting 4
Discussion of Survey and Draft Outline

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Survey results

- Focus
  - Identifying what functionality requirements and design principles are more/less important
  - Identifying areas of consensus
- Not statistically significant (n=11), so interpret these results as suggestive and not definitive
- Punch line
  - Broad consensus at a high level, all important, but some more important than others
  - Equity definitions matter – focus on access equity

Q1: Functionality requirements

Functionality requirement	Minimum	Maximum	Mean	Std Deviation	Variance
Expect reliable delivery services	1	2	1.11	0.31	0.1
Market operator and grid operator can manage large numbers of transactions	1	2	1.11	0.31	0.1
Flexible and transparent wholesale market integration (e.g., industrial direct access, communication of price signals between retail and wholesale)	1	2	1.11	0.31	0.1
Transact in an energy market	1	2	1.22	0.42	0.17
Ability to choose to contract with an independent retailer for energy services	1	3	1.33	0.67	0.44
Expect customer data protection and privacy	1	2	1.33	0.47	0.22
Provide data access with customer consent	1	3	1.44	0.68	0.47
Provide a platform for customers to discover and transact for energy services	1	3	1.44	0.68	0.47
Automate participation in energy market	1	3	1.67	0.67	0.44
Invest in distributed energy resources (DERs)	1	3	1.67	0.82	0.67
Market participation that is technology neutral	1	4	1.78	0.92	0.84
Transact to provide grid services (e.g., voltage or frequency regulation)	1	3	1.89	0.74	0.54
Ability to choose bill stabilization or a fixed-price contract	1	4	2.22	0.92	0.84
Interconnect (either individuals or commercial microgrids) with distribution grid using interoperable standards and rules without additional gatekeeping (i.e., how the internet works)	1	4	2.22	0.92	0.84

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Q2: Other functionality requirements

Identify and address grid implications/constraints
Ability to see and respond to efficient price signals that reflect marginal costs
Ensuring cost allocation based on cost causation
Reflect transaction benefits/costs in prices at the appropriate market level
Access to technology and services to efficiently manage demand
Avoid free ridership (use of the grid at the expense of inactive conventional consumers.
Enable equitable access
Utility recovery of residual grid costs in excess of marginal costs (without distorting marginal cost pricing)

Q3: Design principles ranked by importance

Design principle	Minimum	Maximum	Mean	Std Deviation	Variance
Transparency and verifiability	1	12	4.64	3.26	10.60
Reliability	1	11	4.82	2.92	8.51
Resilience	1	15	5.45	3.55	12.61
Dynamic economic efficiency: enable coordination and innovation in products and services	1	14	7.00	3.91	15.27
Static economic efficiency: enable coordination and resource allocation through price discovery	1	11	7.09	2.81	7.90
Ease of use	1	15	7.55	5.47	29.88
Equity across consumers	2	18	8.00	5.72	32.73
Consumer protection	1	14	8.36	3.91	15.32
Cyber security	3	14	8.45	3.09	9.52
Data privacy	2	15	9.36	3.62	13.14
Rules are flexible and extensible to enable adaptation	1	15	10.00	4.67	21.82
Utility's role is market-agnostic	2	18	11.00	4.79	22.91
Technology-neutral	3	18	11.82	4.43	19.60
Technologies are flexible, extensible, and interoperable to enable adaptation	3	16	12.09	3.70	13.72
Low market entry barriers	2	17	12.18	5.06	25.60
Ease of automation	4	17	12.91	3.63	13.17
Contribute to greenhouse gas reduction	5	18	15.09	4.94	24.45
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Q4: Other design principles

Adherence to engineering realities
Incentive-compatible market design
Prices must be developed using same design principles used at wholesale level by PJM and MISO, which ultimately have been approved by FERC - sophisticated customers won't buy in if price development is not industry standard and subject to the same rigorous vetting at existing LMPs and other wholesale level prices
Customer-enabling

Q5: Equity definitions

Neutral, unbiased access to T&D system and data (pricing, etc.). Equal opportunity, technology agnostic, to provide energy, capacity and ancillary services from both the distribution and transmission levels.
All customers have equal ability to access products and services from utilities, retail electric suppliers, and other third parties.
Equal and open access to price information and market participation.
There are at least 4 different concepts of equity that have been applied in utility regulation: 1) Conditional Pareto Optimality: Accepting pre-existing starting points for all individuals, there are no transactions that could make someone better off with making another worse off; 2) Bonbright's A. Vertical, B. Horizontal (A&B are consistent with price differences based on differences in marginal costs), & C. Anonymous (no uneconomic bypass) equities; 3) Transitional (Gradualism): Recognition of prior investments made under the assumption of a continuation of pre-existing regulatory policies; & 4) Rawlsian: Distributive justice including low income protections.
This is an issue on which where specific stakeholders stand depends on where they are sitting presently. Changes in rules and regulations generally lead to winners and losers compared to status quo. Equity in market design is to design the rules such that you end up with win-win outcome for all. At a minimum this requires incorporating incremental cost allocation based on incremental cost causation.
Equal access to the market, plus fair market price determination.

Discussion

Draft outline of report

1. Introduction – motivation of “why retail markets” in Illinois
   - DER market growth, falling costs
   - Broader economic growth
   - Climate change and cost-effective decarbonization
2. Relevant literature-data-evidence
   - Consumer information, consumer behavior
   - Transactive energy
   - Platform economics
3. Market functionality requirements
   - Define
   - Report on discussions
4. Market design principles
   - Define
   - Report on discussions
5. Conclusion: Guidance to Commission

Discussion

- Suggestions to modify the outline

- Top two points for guidance to the Commission

Discussion: outline

Discussion: conclusions