



Study Update and Public Comment Session Meeting Summary

August 16, 2018

9:30-11:30 am

Location: Dunn-Richmond Economic Development Center, 1740 Innovation Drive, Carbondale

WebEx Information: www.webex.com or 1-415-655-0002

Meeting number (access code): 800 238 278

Meeting password: 2zF777At

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

Attendee List

NextGrid Project Team:

In Person:

- Pete Sauer, *University of Illinois, NextGrid Lead Facilitator*
- George Gross, *University of Illinois, NextGrid Lead Facilitator*
- Terrance Garmon, *Illinois Commerce Commission*
- Katharine McErlean, *Illinois Commerce Commission*

WebEx:

- Dominic Saebeler, *Working Group 3 Co-Leader*

Public

In-Person:

- Chris Foley, *ComEd*
- Mike Abba, *Ameren Illinois*
- Vickie Crawford, *Illinois Commerce Commission*
- Kevin Hade
- Dwane

WebEx:

- Phillip Roy, *ComEd*
- Wei Chen, *Illinois Commerce Commission*

**A sign in sheet was available but no one signed it.*

Agenda Item I: Welcome and Overview

Dr. Gross welcomed everyone to the study update and public comment session, opened the meeting under the Open Meetings Act, took attendance, reviewed meeting agenda and welcomes public comments.



OMA Opening Remarks:

Pursuant to the Illinois Open Meetings Act, I am calling to order today's meeting of NextGrid Study Update and Public Comment Session.

Before I begin with introductions, I want to make a few preliminary remarks. First, because this is being conducted as an Open Meeting, members of the public are invited to observe this meeting and, at the appropriate time in our agenda, participate by making comments – regardless of whether they are participating in person, on the telephone, or by WebEx. To facilitate the discussion, we request that members of the public who are interested in making a public comment fill out a speaking card and hand it to Katharine McErlean. If you are participating by WebEx, you may indicate your desire to make a comment by clicking on the hand icon and announce your name prior to making your comments. And if you are participating by telephone, you may send an email to ICC.NextGrid@illinois.gov, and we will attempt to call you on at the appropriate time. More details about the public comment period will be provided when we reach that part of the agenda.

Second, minutes are being taken but there will be no verbatim transcript of this meeting. [Members of the public may record the meeting, but I ask that this be done without interrupting our speakers.]

Finally, before we begin, I will take attendance. Let's conduct a roll call, indicating your name and organization, starting with people in the room. [Roll is taken.] Now, individuals participating by WebEx. [Roll is taken.] Any individuals participating by telephone. Any other individuals I have not called on? [Roll is taken.] See attendee list above.

Agenda Item II: Introduction of NextGrid Lead Facilitator by Gr. Gross, University of Illinois (See Presentation):

- Welcome to the third NextGrid study public update, we are interested in soliciting the views of the stakeholders who have come today, here at the SIU and on WebEx.
- Going to give you a bit of flavor of why we are doing this project and talk about role as the Lead Facilitator.
- The entire idea for this NextGrid study stems from transition team from Governor Rauner that put this particular item on the map. The Illinois Commerce Commission to proposals, the University of Illinois responded and the University of Illinois is Lead Facilitator.
- Goals of the study: Big issues- focus on critical issues, focus on new technologies as we developed needed analytical tools and to bring about greater customer choice, lower prices, reliable, clean and resilient electricity.
- Through this study interested to pave the road of implementation of modernization and continue with a preeminent position that Illinois has developed in Grid modernization. GridWise Alliance has rated various states in terms of grid modernization. The last rating, they did, Illinois ranked second just behind California and we want to maintain that position.
- Chart of notable achievements with renewable energy in various parts of the world-Illinois has developed quite a few wind resources along with neighboring state Iowa. 37% of wind power.
- Notable achievements all over the world. Everywhere in the country getting more electricity generated by renewable resources, with marked renewable standards. Site two, California, will have

50% by 2030 and by 2035 Hawaii is planning to have a 100%. California has recently implemented a energy storage directive by 2025 and operating by 2024.

- Recent disturbance events- Solar price decline has been a big driver, tremendous reductions in price, see chart price per unit reduction. Resulting developments of wind has led to deeper penetrations of wind. The Midwest happens to have some of the best wind. Dakotas are by far the ideal places. Challenges is need transmission to bring out that energy if the rest of the country needs it. Demand is a much more active participant in meeting balance. When looking at balance, can reduce demand to make balance come around.
- Next disturbance event- storage- developments in battery storage, price reductions has started, still expensive, prices will come down, first time this industry is going to have inventory, prototypically just in time manufacturing system.
- Deeper penetration of renewables at transmission level. Growing number of projects are being integrated at distribution level. Changing fabric of the industry.
- New developments of achieving the goal of better reliability and resilience- development of micro-grids. New electrification loads coming from transportation side. Most visible is going to be electric vehicles. Some very interesting forecasts of having 25% of vehicles in U.S. by 2025 being EVs.

NextGrid Process overview:

- To undertake the work- divided study into 7 different working group to make the process manageable. 7 groups met separately. So many issues that overlap more than one group, also have intergroup discussions.

Responsibilities as Lead Facilitator:

- Includes a variety of tasks, see slide list.
- Working closely with two major utilities in Illinois and ICC. Involved with ICC staff in preparations of meetings. Involved in identifying opportunities and challenges. Closely monitoring the work of each of the working groups and facilitating work across the working groups. Monitoring the progress but also the draft reports and it is University of Illinois' responsibility to compile the reports for public comment and the introduction, and very active in making sure all the stakeholders are being heard and their comments are taken into account in terms of producing the drafts.
- Working Groups: each one of the working groups, not only aware of scope of activities but also limits of scope. Have participated in many meetings that each group has had. Facilitated interface across the working groups. In addition to working groups have a Stakeholder Advisory Group and Technical Advisory Council. All those meetings had U of I's involvement.
- Consumer oriented process: stakeholder input has been particularly important. Solicited input from public interest groups, solar, communities, vendors, load side, academic circles to correctly document in the report the state of art where we are interested in going.
- Key Deliverable – is the final report.
- Interested in process to try to bring into one document to bring identification to bring about increased efficiencies to drive the costs further down. Even though at the time Illinois utilities find themselves in the favorable spot of being close to the average price of electricity. The report will address need for formulation of policy, and opportunities needed with application of new technology.



- The NextGrid Study will create better educated consumers of electricity.
- Other goals: investigate what can happen in transactive energy, what are road blocks that have to be removed when we get there. Looking at schemes for outage detection and better efficiency.
- Like to go now to the smarter grid- beyond the smart grid. This process will facilitate such transition.

Dr. Gross opens the floor for questions. No questions are received.

Agenda Item III: Introduction of the Working Group Leaders presentation by Professor Sauer:

- Thank you, George, good morning everyone. Happy to be down here near my childhood home near St. Louis. This is the third series of meetings we would like to get input from anyone who has interest in this topic.
- **University of Illinois Electrical and Computer Engineering, Power and Energy Systems areas of study include:** Bioengineering, Acoustics Circuits, Signal Processing Communications, Control Computer Engineering Electromagnetics, Sensing Microelectronics, Photonics Nanotechnology Power, and Energy Systems
- UIUC People on the Project:
 - George Gross, Professor of ECE
 - Peter W. Sauer, Grainger Professor of ECE
 - Alejandro Domínguez-García, Associate Professor ECE
 - Subhonmesh Bose, Assistant Professor ECE Rizwan Uddin, Head of Nuclear, Plasma and Radiological Engineering
 - Joyce Mast, Program Administrative Assistant
 - Lynnea Johnson
- NextGrid Project is roughly 18 months, started last summer, will present final draft report to ICC sometime in October and will be posted for public comment. After revisions, ICC will hopefully publish the report by the end of the year.
- NextGrid project is approximately an 18-month project. Started last summer. Focus has been on customers and communities, to improve service, lower price and make more resilient grid. Goals are to assess challenges and opportunities of new technologies. U of I will present final draft report to ICC sometime in October and will be posted for public comment. After revisions, ICC will hopefully publish the report by the end of the year.
- Stakeholder input: anyone interested in topics, utilities, manufactures, vendors, customers, are invited to provide feedback.
- 7 working groups are identified. They have met, approximately 4 times each and are preparing drafts that will go into final report that will make available for public comment There are drafts available on the NextGrid website.
- About the Working Groups:
 - WG 1: New Technology and Grid Integration lead by Dr. Mohammad Shahidehpour at IIT.

- WG 2: Metering, Communications and Data lead by Matt Olson from Burns&MacDonnell.
- WG 3: Reliability, Resiliency and Cyber Security co-lead by Dr. M. Govindarasu from Iowa State University and Dominic Saebeler from the Illinois Commerce Commission.
- WG4: Customer and Community Participation lead by Marty Cohen from Cohen and Assoc.
- WG5: Electricity markets lead by Lynn Kiesling from Purdue University.
- WG6: Regulatory and Environmental Policy Issues lead by Mary Gade from Gade Environmental Group.
- WG 7: Ratemaking co-lead by Carl Pechman and Ken Costello from NNRI.
- Scopes are carefully defined. There has been overlap in groups and that is intentional. Collectively represent the power system business. Scope includes what they care about and part of U of I's work is to make sure WGs have addressed all issues. Outline, assess technology required, describe insights into the next generation of smarter grid, identify areas of agreement and disagreement, decided not to identify consensus. Analysis of issues for policy formulation and description of best practices. We let California do everything first so fix mistakes so being second is better. Recommendations for future grid will be in report, higher efficiency, more customer choice and effective policy.
- Currently, have 3 or 4 drafts out of the 7.
- UIUC team goes through those draft and identifies sections missing items, want to cover scope identified, may go back and clarify topics.
- Process- make sure report provides a clear understanding of opportunities and challenges of the future grid. Say opportunities and challenges to discuss the two sides of every issue.
- The draft process includes preparing the text and context to ensure seamless transition and provide linkages where there is overlap and draft report according to core questions.

Agenda Item IV: Progress Report of Working Groups 1,2,3,4,5,6,7 by Professor Sauer (See presentation):

WG 1: New Technologies- look at all the opportunities available with new things, computers, PMUS, new stuff usable for some new idea. Includes all the power controllers, smart meters and how they fit into the grid. Focus on all the technologies that other working groups need.

WG 2: Metering, Communications and Data- Meters are now digital, send information back to suppliers, for example when have blackout lets company know without power. Involves data and communications. Other data that comes into question is customer use. All devices have certain signatures, possible to correlate to run loads more efficiently and cheaper. Who owns the data? Customer? Supplier? Not sure of what the outcome of that question is. Still debated by ownership definitions. Communications based on existing communications links or wireless. Cover all forms of Communications.

WG 3: Reliability, Resiliency and Security – Working group is made up of broad groups of companies and entities reflected on the chart. Really great discussion from people in this area. Focus of discussion was on reliability, resiliency and cyber security.

- Reliability- want grid to be as secure as possible. Security has become more complex. Moved from area where biggest risk was physical, not have new cyber threats.
- Held multiple meetings, presentations from entities on slide. Held multiple 3-hour meetings, kicked off with presentations, broke topics down into people, process, technology and compliance.
- For example, much like technology area: possible areas within the areas as challenges and opportunities, started with a framework and moved through technology with specific areas, developed a chart listing topic that we discussed. Human resource aspect is a key aspect, but people are key to protecting and also the greatest risk.
- Process is critical to large complex organization. Look at business, organizational, and security approaches to keep system secure and looked at risk-based approaches. High impact, low probability vs. low probability and high impact.
- Regulation and compliance- more government oversight in last 30 years because of significant outages created framework security approach Compliance is a large aspect.
- Writing process- covered a lot of content and feedback, could have written 400-page document on this area alone. Document is 50pgs. On the website. Welcome suggestions and feedback. We are done meeting and are waiting for feedback from University of Illinois.
- Also identify cross cutting issues that discussed with other groups.

WG 4: Customer and Community Participation-Lead by Martin Cohen. Began in April and ends in August. 32 members. Key topics -most involves different types and sizes of customers and how needs are different from single family household all the way up to large corporations. Discussed customer engagement, innovative pricing options for customers using smart technologies and new technologies for transportation from a scooter to talk of electric passenger airplanes.

WG 5: Electricity Markets- Illinois involved in two major markets, MISO and PJM. Working Group is currently preparing the draft reports lead by Lynne Kiesling. Very complicated topic because depends on size of customer, market and stock market issues, long range/ short range problems.

WG 6: Regulatory and Environmental issues- Preliminary draft is posted on NextGrid website. Mary Gade is the Working Group Leader, former EPA director. Has about 40 members. Key topics include grid resiliency and environmental issues such as market value of carbon.

WG 7: Ratemaking- Want process to be beneficial to customers. Should we have flat 50 a month use all you can consume or how it should be done? Ratemaking co-lead by Carl Pechman and Ken Costello from NNRI. Began in June and will end in September.

Agenda item VI: Next steps for NextGrid

- There is a public participation opportunity on August 20th to discuss NextGrid draft chapters. Draft chapters will be posted for public comment. Can always go online and send comments to Working Groups for their consideration.
- If you want to submit a comment, please visit the NextGrid website.



Agenda Item VII: Public Comments Session:

Open the Floor for Public Comment. Hearing none, I want to thank all the participants here today and for any participation throughout the study. Please refer to the slide in terms of the web address because we do very much want to have your input. Please visit nextgrid.illinois.gov. We would love to have your comments to be reflected in the final report. Thank you.

Adjourn.