

Supply Adequacy Working Group
AEP Office – 41st Floor Renaissance Tower

Dallas, Texas

August 27th and 28th, 2019

Day 1: 8:00AM - 5:00PM

Day 2: 8:00AM - 12:00PM

• A G E N D A •

Day 1

Member Attendance

Aaron Castleberry	Oklahoma Gas & Electric
Aaron Ramsdell	Basin Electric Power Coop.
Adam Graff	Heartland Consumers Power District
Bennie Weeks	SPS (Xcel Energy Services)
Brad Hans	Municipal Energy Agency of Nebraska
Douglas Jasa	KCPL and Westar, Evergy Companies
Ernesto Perez	GDS Associates, Inc.
Jim Jacoby	American Electric Power
Jon Iverson	Omaha Public Power District
John Varnell	Tenaska
Kenny Hale	City Utilities of Springfield, MO
Natasha Henderson	Golden Spread Electric Cooperative
Phillip Schaeffer	Western Farmer Electric Cooperative
Rob Janssen	Dogwood
Tom Hestermann	Sunflower Electric Power Corporation
Thomas Saitta	Kansas Municipal Energy Agency
Traci Bender	Nebraska Public Power District (<i>proxy Jim Fehr</i>)
Walt Cecil*	Missouri PSC

* CAWG Liaison Member

Day 2

Member Attendance

Aaron Castleberry	Oklahoma Gas & Electric
Aaron Ramsdell	Basin Electric Power Coop.
Bennie Weeks	SPS (Xcel Energy Services)
Brad Hans	Municipal Energy Agency of Nebraska
Douglas Jasa	KCPL and Westar, Evergy Companies
Eric Alexander	Grand River Dam Authority
Ernesto Perez	GDS Associates, Inc.
Jim Jacoby	American Electric Power
Jon Iverson	Omaha Public Power District
John Varnell	Tenaska
Kenny Hale	City Utilities of Springfield, MO
Natasha Henderson	Golden Spread Electric Cooperative
Phillip Schaeffer	Western Farmer Electric Cooperative
Rob Janssen	Dogwood (<i>proxy Larry Holloway</i>)

Tom Hestermann
Thomas Saitta
Traci Bender
Walt Cecil*

Sunflower Electric Power Corporation
Kansas Municipal Energy Agency
Nebraska Public Power District (*proxy Jim Fehr*)
Missouri PSC

* CAWG Liaison Member

Day 1 Administrative Items

- Brans Hans call the meeting to order at 8:00 a.m.
- Roll Call and Introductions.
- The draft agenda reviewed and unanimously approved. The motion to approve made by Tom Saitta and seconded by Tom Hestermann.

SAWG Scope Review (Approval Item)

Chris Haley gave an overview of the SAWG scope and the only additional item added to the scope was regarding the Event Analysis Review Team. The scope will to MOPC in October for approval.

Motion: Natasha Henderson made the motion to approves as is and seconded by Brian Berkstresser. It was approved unanimously.

ELCC Solar Study Report Review

Alex Crawford gave a brief overview of the ELCC Solar Study Report. The results in the report were presented to the SAWG at the July meeting. Solar and wind will be studied and allocated separately. There was much discussion around the assumptions used in the ELCC study, but those assumptions will be vetted in the 2020 ELCC studies for both wind and solar. Behind the meter solar will be need to be re-addressed in the DER whitepaper. The report will be an approval item at the September SAWG meeting. Chris stated that comments needed to be submitted by COB September 13.

ELCC Wind and Solar Accreditation Whitepaper Review

Chris Haley gave an overview of the revised ELCC Wind and Solar Accreditation Whitepaper. The newly revised whitepaper includes both solar and wind accreditation together, which are very similar. Most of the initial discussion centered on the study assumptions, which will not be included in the accreditation whitepaper. The study will be thoroughly vetted by staff and the stakeholders, in the annual study process. There was discussion centered around curtailments and how they could be added back into wind and solar data. The SPP Market staff has the ability to identify this data and staff added a footnote to the whitepaper to include this discussion in the scoping efforts.

NREL Battery Energy Storage Presentation

Paul Denholm from NREL gave the group an overview of the battery storage study that NREL performed. The presentation did focus on the SPP footprint, as well as other areas, and one point of interest was that the battery penetration with no solar was around 2,000MW for a four hour duration product. This was based on their assumptions and was not a formal ELCC study. The do state that a robust ELCC study would be needed and much more informative.

NextEra/WFEC Energy Storage Overview

Phil Schaeffer (WFEC) and Jeffery Plew (NextEra) gave an overview of the Skeleton Creek resources. This point of interconnection will contain a solar and battery resource along with a wind farm at difference buses. The presentation focused on the solar and battery resources and the opportunities in the SPP Market for this type of product along with an overview of energy storage. There was much discussion around accreditation, it was stated that right now there is a four-hour accreditation based on the SPP Planning Criteria. Of course, this is subject to change based on the results of the Astrape study that is due in early November.

Post Season Analysis

Alex Crawford gave an overview of the post-season analysis report. Chris stated that comments needed to be submitted by COB September 13.

Day 2 Administrative Items

- Brans Hans call the meeting to order at 8:01 a.m.
- Roll Call and Introductions.
- The draft agenda reviewed and unanimously approved.

Deliverability and LOLE Study Updates

Alex Crawford gave an overview of the deliverability assumptions and an overview of the grouping change. The grouping has been presented to the Transmission Working Group (TWG). Much of the discussion was centered on the LOLE study and what the timeline for the study is. With conservative operations being a hot topic, there was discussion around how much can be incorporated into the LOLE study. More discussion take place around sensitivities once the LOLE study is finalized and the results have been vetted.

Astrape Work Update

Alex Crawford gave an overview of the Astrape study, and when results might be expected.

Strategic Plan Kickoff Discussion

Chris Haley gave an high level overview of the strategic plan and the topics that need addressing over the next 2-3 years. In September there will be some timelines assigned to the activities and discussed. This plan will be finalized in Novemeber.

In closing, Chris Haley notified the group that the Chair nomination are due September 24, due to the SAWG Chair seat being up in January of 2020. This item will be discussed at the September meeting, if time allows.

Brad Hans adjourned the meeting at 12:00 p.m.

Respectfully Submitted,

Chris Haley

Secretary

August 27th Webex Attendance

<i>Ashley Gibbons (SPS)</i>	<i>ashley.gibbons@xcelenergy.com</i>
<i>Walt Cecil</i>	<i>walt.cecil@psc.mo.gov</i>
<i>Tom (KMEA)</i>	<i>saitta@kmea.com</i>
<i>Heather Starnes (MJMEUC)</i>	<i>heather@healylawoffices.com</i>
<i>Ashlyn Johnson</i>	<i>ajohnson@spp.org</i>
<i>Brian Johnson (AEP)</i>	<i>bajohnson1@aep.com</i>
<i>Matt Welch (GSEC)</i>	<i>mwelch@gsec.coop</i>
<i>jeff.little@wfec.com</i>	<i>jeff.little@wfec.com</i>
<i>Lee Elliott</i>	<i>lelliott@spp.org</i>
<i>Paul Denholm</i>	<i>paul.denholm@nrel.gov</i>
<i>Joe Helms</i>	<i>j.helms@rainbowenergy.com</i>
<i>John Tennyson (SPRM)</i>	<i>john.tennyson@cityutilities.net</i>

<i>Jon Sunneberg</i>	<i>jmsunne@nppd.com</i>
<i>Brian Rounds (AESL)</i>	<i>brian.rounds@aeslconsulting.com</i>
<i>Vince Vandaveer - SPRM</i>	<i>vince.vandaveer@cityutilities.net</i>
<i>Jeff P</i>	<i>jeffrey.plew@nee.com</i>
<i>Robert Tallman (OG&E)</i>	<i>tallmarj@oge.com</i>
<i>Jonathan Hathhorn (INDN)</i>	<i>jhathhorn@indepmo.org</i>
<i>Steve Gaw</i>	<i>rsgaw1@gmail.com</i>
<i>D Diaz</i>	<i>ddiaz@stonepigman.com</i>
<i>Rob Janssen (Dogwood Energy)</i>	<i>rob.janssen@kelsonenergy.com</i>
<i>David Mindham (EDPR)</i>	<i>david.mindham@edpr.com</i>
<i>Marisa Choate</i>	<i>mchoate@spp.org</i>
<i>Eric Alexander (GRDA)</i>	<i>ealexandeR@grda.com</i>
<i>Jon Iverson</i>	<i>jiverson@oppd.com</i>
<i>Jerry Bradshaw (SPRM)</i>	<i>jerry.bradshaw@cityutilities.net</i>
<i>Phillip Schaeffer</i>	<i>phillip.schaeffer@wfec.com</i>
<i>marlin@psanalytics.com</i>	<i>marlin@psanalytics.com</i>
<i>Jeff Knottek</i>	<i>jeff.knottek@cityutilities.net</i>
<i>Brandon McCracken</i>	<i>b_mccracken@wfec.com</i>
<i>Joe Ghormley</i>	<i>jghormley@spp.org</i>
<i>Clay Carr</i>	<i>c_carr@wfec.com</i>
<i>Ron Chartier</i>	<i>ronc@sunflower.net</i>
<i>Charles Hendrix</i>	<i>chendrix@spp.org</i>
<i>Adrienne Blaine</i>	<i>adrienne.blaine@wfec.com</i>
<i>Cindy Ireland</i>	<i>cireland@psc.state.ar.us</i>
<i>Scott Koehler (LES)</i>	<i>skoehler@les.com</i>
<i>Hailey Foote (GRDA)</i>	<i>hfoote@grda.com</i>
<i>Ella Caillouette</i>	<i>Ella.Caillouette@northwestern.com</i>
<i>Mike Kozar</i>	<i>mkozar@indepmo.org</i>
<i>Alex Crawford (SPP)</i>	<i>acrawford@spp.org</i>
<i>Chris Haley</i>	<i>chaley@spp.org</i>
<i>Chris Lyons</i>	<i>clyons@ces-ltd.com</i>
<i>Bennie Weeks (SPS)</i>	<i>bennie.weeks@xclenergy.com</i>
<i>Clifford Franklin</i>	<i>cfranklin@sunflower.net</i>
<i>Ray Bergmeier (SEPC)</i>	<i>rbergmeier@sunflower.net</i>
<i>Sam Loudenslager</i>	<i>sloudenslager@spp.org</i>

<i>Elizabeth Nielsen</i>	<i>elizabeth.nielsen@swpa.gov</i>
<i>Aaron Castleberry (OGE)</i>	<i>castlead@oge.com</i>
<i>david</i>	<i>dtheobald@oppd.com</i>
<i>Robert Pick (NPPD)</i>	<i>rjpick@nppd.com</i>
<i>Jerry Tielke (MRES)</i>	<i>jtielke@mrenergy.com</i>
<i>Adam Graff</i>	<i>agraff@hcpd.com</i>
<i>Garrett Schilling (BEPC)</i>	<i>gschilling@becp.com</i>
<i>Moses R</i>	<i>mrotich@spp.org</i>
<i>Aaron Ramsdell</i>	<i>aramsdell@becp.com</i>
<i>Julie Tackett (WFEC)</i>	<i>j_tackett@wfec.com</i>
<i>John Boshears</i>	<i>john.boshears@cityutilities.net</i>
<i>Lloyd Nichols</i>	<i>l.nichols@rainbowenergy.com</i>
<i>Calvin Daniels (WFEC)</i>	<i>calvin.daniels@wfec.com</i>
<i>Ernesto Perez</i>	<i>ernesto.perez@gdsassociates.com</i>
<i>Tim Owens (NPPD)</i>	<i>tjowens@nppd.com</i>
<i>Jason Mazigian</i>	<i>JMazigian@becp.com</i>
<i>AJ</i>	<i>amber.joyce@mdu.com</i>
<i>Tom Hestermann</i>	<i>thestermann@sunflower.net</i>
<i>Jodi Knutson WAPA</i>	<i>jknutson@wapa.gov</i>
<i>Chris Haley</i>	<i>chaley@spp.or</i>

August 28th Webex Attendance

<i>John Boshears</i>	<i>john.boshears@cityutilities.net</i>
<i>Ashlyn Johnson</i>	<i>ajohnson@spp.org</i>
<i>Ron Chartier</i>	<i>ronc@sunflower.net</i>
<i>D Diaz</i>	<i>ddiaz@stonepigman.com</i>
<i>Ernesto Perez (ETEC/NTEC)</i>	<i>ernesto.perez@gdsassociates.com</i>
<i>Tim Owens (NPPD)</i>	<i>tjowens@nppd.com</i>
<i>Garrett Crowson</i>	<i>gcrowson@spp.org</i>
<i>AJ</i>	<i>amber.joyce@mdu.com</i>
<i>Jason Mazigian (BEPC)</i>	<i>jmazigian@becp.com</i>
<i>marlin@psanalytics.com</i>	<i>marlin@psanalytics.com</i>
<i>Jerry Bradshaw (SPRM)</i>	<i>jerry.bradshaw@cityutilities.net</i>
<i>Jeff Knottek</i>	<i>jeff.knottek@cityutilities.net</i>
<i>Lee Elliott</i>	<i>lelliott@spp.org</i>
<i>Chris Haley</i>	<i>chaley@spp.org</i>

NWPS	Ella.Caillouette@northwestern.com
Calvin Daniels (WFEC)	calvin.daniels@wfec.com
Scott Koehler (LES)	skoehler@les.com
Brian Rounds (AESL)	brian.rounds@aeslconsulting.com
Garrett Schilling (BEPC)	gschilling@bepc.com
Aaron Castleberry (OGE)	castlead@oge.com
Cindy Ireland (AR PSC)	cireland@psc.state.ar.us
Robert Tallman	tallmarj@oge.com
Ashley Gibbons (SPS)	ashley.gibbons@xcelenergy.com
Jerry Tielke (MRES)	jtielke@mrenergy.com
Chris Lyons	clyons@ces-ltd.com
Steve Gaw	rsgaw1@gmail.com
Marisa Choate	mchoate@spp.org
Alex Crawford (SPP)	acrawford@spp.org
Robert Pick (NPPD)	rjpick@nppd.com
Jonathan Hathhorn (INDN)	jhathhorn@indepmo.org
Charles Hendrix	chendrix@spp.org
matt welch (gsec)	mwelch@gsec.coop
Aaron Ramsdell	aramsdell@bepc.com
Tom Hestermann	thestermann@sunflower.net
Jon Iverson	jiverson@oppd.com
Eric Alexander (GRDA)	ealexander@grda.com
Bennie Weeks (SPS)	bennie.weeks@xcelenergy.com
Jodi Knutson (WAPA)	jknutson@wapa.gov
Walt Cecil	walt.cecil@psc.mo.gov