# Alaska EV Working Group

Technical Session

March 2, 2020

**Notes**

Michelle – welcome, today's discussion will focus on utility specific siting considerations of level 3 EV fast charging. Josh Craft will give use an overview of the EV Task Force's work on this issue. Today's discussion with a few of the utilities and AEA will help inform the conversation of level 3 siting consideration that we will have with a wider array of stakeholders at the next Technical Session.

Intros:

Tim Leach - SparkBox
Tim DeMarre – Golden Valley Electric Association (GVEA)
Michelle Wilber – Alaska Center for Energy and Power (ACEP)
Josh Craft – Matanuska Electric Association (MEA)
Shelly Schmitt – Chugach Electric Association (CEA)
Erin Whitney - ACEP
Chris Pike – ACEP
Betsy McGregor - Alaska Energy Authority (AEA)

Betsy – AEA desires a fair and transparent process as we discuss EV charging siting considerations and develop siting criteria.

Josh Craft – Overview siting considerations from utility perspective
The utility effort on EVs and siting considerations predates Josh's efforts, however he was asked to add capacity to the effort when he was hired.

So far, no utilities that have been part of the Alaska conversation are interested in owning and operating level 3 fast chargers. However, the utilities are interested in promoting EV growth and recognize the need for a network of level 3 fast chargers.

Utilities see EV charging as an intermittent load.

Josh's discussion starts at the member seeking a level 3 fast charger and steps up through each point in the grid that may be impacted.

Transformer - Utilities will look to see if the transformer is sized correctly for 150 – 300 kW chargers. They will ask how many chargers are planned for the site? Tesla wants to install no less than 8 chargers per site which would create a 1.5 MW demand if all chargers used simultaneously.

We should be aware of potential supply chain disruptions. 6-8 months is the minimum order time for transformers. We may experience delays with everything going on in the world (coronavirus).

Distribution lines - Is the line capacity adequate for the existing load and addition of EV charging? Lines in MEA territory are commonly 25 mVA. Level 3 charging typically requires 3 Phase lines, with the exception of battery supported fast charging (like eCamion). While it is site specific, existing line capacity should be ok for addition of a single 50-kW EV fast-charger. If there are 8 fast-chargers installed, this may require a new transformer.

Tim DeMarre - GVEA has some lines that are 12.5 kV lines. Note, this is voltage on the line. Capacity on the line is site specific. Some are 3 phase, some are single phase.

Josh – Most likely will be dealing with 25 mVA capacity on distribution lines, in MEA territory. Any single installation of a 50 kW fast charger won't likely be an issue for capacity on the system.

MEA did pledge some support during the DOE VTO grant proposal

Shelly – CEA does offer credits for upgrading distribution infrastructure for big customers, recouped through demand charges. If a large new customer is coming into an area that serves other larger customers, CEA will contribute funds (rate-based?) to the upgrades required. If the new large customer comes into an area that does *not* serve other large customers, the new customer will be responsible for costs associated with the upgrade.

Betsy – Tesla did reach out to AEA last week to talk about how to leverage VW funding with Tesla investment.

Josh – MEA has been contacted by a private entity that will contribute $20k to a fast-charger siting in their territory.

Each utility would need to spend ~ $100k to do system-wide assessment to identify where level 3 chargers. A system-wide assessment doesn't necessarily need to be done though.

Tim DeMarre – planning is critical. A lot of the cost is the specialized labor and material to engineer and install the connection. If a customer wants to install one level 3 now but is planning to install several more later it makes sense to know that upfront. A bigger pad can be poured when installing the first to save costs later.

Josh – MEA is developing a level 2 charger application for customers interested in siting level 2.

Given that a system-wide assessment is cost-prohibitive, utilities could do site-specific assessment once we identify roughly where we need level 3 chargers to establish a fast-charging corridor.

Betsy – while we do have the VW money, this group is also looking beyond the VW opportunity.

Josh – along the Railbelt, Trapper Creek to Cantwell will likely be a gap for EV charging locations as the Railbelt Intertie exists in that corridor, with no distribution level infrastructure. It would be very expensive to connect distribution level infrastructure here to serve a level 3 charger.

Michelle – can utilities develop a map that shows where 3 phase power is available along the Railbelt? Wherever there is 25 kVA line. This could help inform the siting discussion with the group.

Tim DeMarre – he created the utility map that exists with basic info on system capacity along the Railbelt as well as location of possible level 2 and 3 EV charging sites. Tim D. will share it.

Josh – circling back to system capacity. If a substation change is needed, lead-time is about 5 years. Utility planners know where we have substation capacity. However, transformer capacity is more challenging. Reminder - MEA isn't speaking for all utilities.

Chris P. – CEA seems to break out EV charging stations into two groups for planning purposes, greater than and less than 750 kW. We could use this same for other utilities.

Michelle – is AEA looking at installing one 50 kW fast charger per site with VW funds?
Betsy – yes likely, but we also want to leverage Tesla investment if possible.

Josh – his assessment from last year shows VW funds could be used to support 120-420 level 2 and 8 – 18 level 3 chargers along the Railbelt, depending on site specific costs and the level of cost match required of the site hosts.

Taking one more step back, when looking at generation capacity and reserve, there will be a need for additional capacity at much higher EV penetration rates. While planning for new generation takes a considerable amount of time, we won't need to pay attention to this right away.

Michelle – recap of what's been said so far. VW funds will generally support one 50 kW at a site. Except for a few sites where individual 50 kW chargers will be collocated with a bank of Tesla Super Chargers, the group can use the 50 kW demand for siting discussion purposes.

Shelly – For stand-alone charging almost all charging stations will require a new transformer. We like to site the transformer right by the load and we will want to ensure there is adequate space for equipment and EV parking. It will be hard to remove demand charges for locations requiring a new transformer. This is different than siting level 3 chargers at a business that already has a large demand, where the EV fast charger can 'hide in the demand shadow' and use the infrastructure already installed.

Michelle – what is the cost of installing a new transformer?

Shelly - to install a 750 kW transformer, $29k for just the transformer, the pad is more expensive. Usually less than $60k total for a transformer install.

Josh – to cover all costs of installing level 3 chargers here are ballpark numbers:
$30 – 75k for transformer
$20 – 30k for install of transformer
$20-30k site work

Michelle – can GVEA provide tariff info that discusses how costs are recovered for installation of a new transformer, as well as discuss how removing the demand charge could influence this cost recovery?

Tim Demarre – yes, will send info to Betsy and Michelle to be passed on to the group.

Michelle – In Juneau, Devon found locations that did not require a transformer upgrade and *significantly* reduced the costs of installing level 3 chargers.

Josh – if we use Juneau's approach for the Railbelt it would limit the number/type of locations to big box stores and others who can hide the incremental EV charging demand in the existing demand. Put this question to the bigger group, do we want to limit the number and type of locations of level 3 fast chargers supported by the VW funds to large customers with large existing load?

Josh can provide an overview of the utility and DOT info that was compiled in the previous 8 – months by the EV Task Force to the wider audience at the next Technical meeting.

Next meeting 10am March 26th. Michelle will send out invites to include Railbelt utilities and non-utility stakeholders.

**Meeting Details**
**What:** AKEVWG Technical Meeting on Utility Considerations for Charging Infrastructure Siting
**When:** Monday March 2, 9:30 - 11AM
**Where:** 1901 Bragaw St. Suite 301 - ISER Conference Room (Note, this is a different floor of the building than last time - go up to the 3rd floor!)
**Remote meeting option:**
Join Zoom Meeting
https://alaska.zoom.us/j/775817029
Or dial
+1 669 900 6833
Meeting ID: 775 817 029