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SOAH DOCKET NO. 473-17-0684
PUC DOCKET NO. 46368

APPLICATION OF AEP TEXAS NORTH COMPANY FOR REGULATORY APPROVALS RELATED TO THE INSTALLATION OF UTILITY-SCALE BATTERY FACILITIES	§ § § § § § §	**BEFORE THE STATE OFFICE OF ADMINISTRATIVE HEARINGS**

OFFICE OF PUBLIC UTILITY COUNSEL'S POST HEARING INITIAL BRIEF

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OFFICE OF PUBLIC UTILITY COUNSEL'S POST-HEARING INITIAL BRIEF

The Office of Public Utility Counsel (OPUC) respectfully submits this Post-Hearing Initial Brief in the above-referenced proceeding. Per agreement, this brief follows the Preliminary Order's list of issues in sequence and substance. In support of OPUC's position that AEP Texas's (AEP) application should be denied,[1] OPUC respectfully shows the following:

INTRODUCTION

Regardless of the pre-defined category this service is ultimately found to fall within, at essence, the batteries AEP seeks to install and the manner in which AEP seeks to use them impermissibly cross into the competitive marketplace and should not be allowed. Moreover, AEP has failed to demonstrate any justification sufficient to approve its proposal. As the evidence in this proceeding shows, AEP's assertion that the battery facilities are necessary to cost-effectively address system outage and reliability issues has

[1] By letter dated February 1, 2017, Applicant submitted notice that AEP Texas North Company and AEP Texas Central Company have merged with their immediate parent company, AEP Utilities, Inc., to become AEP Texas Inc., effective December 31, 2016. For clarity, all references to Applicant in this proceeding in this motion are made to "AEP."

not been established.[2] Nor has AEP demonstrated a reasonable understanding of the battery facilities itself or their use. As discussed below, not only does the Company lack a full understanding of how the batteries would operate on their system, there is an apparent lack of planning with regard to AEP's proposed use of the batteries or for determining how and when it would utilize similar batteries for other parts of its service area. The "cost effectiveness" touted by AEP comes into question when these issues are examined. Consequently, OPUC concurs with the recommendations of Commission Staff witness Dr. Mark T. Bryant that there are policy concerns that arise from AEP's application and that "[t]he construct proposed by TNC does not scale well."[3] As noted by both Dr. Bryant and OPUC Witness William P. Marcus, there is concern that if approved and more installations arise, these installations could become commonplace and collectively result in greater costs than benefits and confuse the market.

For these reasons, OPUC recommends TNC application be denied; alternatively, if the Commission finds that AEP's proposed installations are not precluded by law, OPUC recommends that the Commission require a CCN for the battery storage facilities. By requiring a CCN, "necessity" will be more fully addressed prior to battery storage facilities being recovered in rates through a DCRF proceeding (which does not address

[2] The reasonableness and prudence of the batteries, if approved, will not be considered until AEP's next base rate case. At that time, the "cost effectiveness" of the batteries would be fully addressed as part of the prudence determination. Alternatively, at least the need for the batteries (but not the prudence) would be addressed as part of a CCN for the batteries if the Commission determines that a CCN is required. Preliminary Order at 4-5.

[3] Staff Ex. 1, Bryant Direct at 10 of 14.

the prudence of investments).[4] Finally, if the application is approved, OPUC also recommends that the Commission initiate a rulemaking project to address the following: 1) the market concerns addressed in Staff witness Dr. Bryant's testimony; 2) the concerns raised by OPUC about the need for standards or criteria relating to the TDU's service area and the analysis of long run costs before a battery installation is allowed; and 3) to require a prudence review or a CCN[5] prior to recovering these costs in rates.

ARGUMENT

I. AEP's proposed battery storage facilities are not distribution assets or distribution facilities under PURA but are instead generation assets. [P.O. Issues 3 and 4]

The proposed battery storage facilities are generation assets, not distribution assets as the Company alleges. PURA Section 35.151 states that PURA Subchapter E applies to "electric energy storage equipment or facilities that are intended to provide energy or ancillary services at wholesale." PURA Subsection 35.152(a) states that such equipment or facilities are generation assets. Used as contemplated under AEP's proposal, the battery storage facilities would constitute generation assets under the statutory definition because they are in fact electric energy storage equipment or facilities, and would provide energy on a wholesale basis. While AEP contends this section does not apply because it

[4] The criteria for granting a CCN is instructive and the Commission can view the current application with this in mind: *does the public convenience and necessity require the installation of these batteries?* Also, the Commission's rule can be amended to specifically require a CCN for TDU battery storage facilities.

[5] The Commission could amend the CCN rule to apply to TDU battery storage facilities if the Commission finds that TDUs may own or operate such facilities.

does not intend to "sell energy or ancillary services at wholesale,"[6] AEP's argument fails for two reasons. First, the load AEP serves with energy from the batteries is settled at ERCOT as wholesale. Whether or not AEP charges a separate price for the energy does not overcome the fact that as proposed, they provide some amount of wholesale energy to load that must be settled at ERCOT. Second, PURA § 35.152 also includes subsection (c) which exempts "determinations made by the commission in a final order issued before December 31, 2010" from subsection (a)'s definition of "generation assets."[7] Legislative history makes clear that the reference in subsection (c) was intended to exempt the Presidio battery storage facility from being considered a generation asset under subsection (a). The bill analysis for the enrolled version of S.B. 943 states, "S.B. 943 provides an exemption for the storage device, previously approved by the Public Utility Commission of Texas, which is providing reliability services in South Texas."[8] This exemption demonstrates that battery storage facilities such as those used in Presidio and those at issue in this case do fall under subsection (a), absent any applicable exemption. The legislature is presumed to use every word for a purpose;[9] if battery storage facilities such as those used in Presidio were not generation assets under (a), there would be no

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[6] AEP Application at 4; AEP Ex. 2, Talavera Direct at 8.

[7] One such determination is the Presidio battery case: *Application of Electric Transmission Texas, LLC for Regulatory Approvals Related to Installation of a Sodium Sulfur Battery at Presidio, Texas*, Docket No. 35994, Order (Apr. 6, 2009).

[8] Senate Committee on Business & Commerce, Bill Analysis at 1, Tex. S.B. 943, 82d Leg., R.S. (2011).

[9] *Laidlaw Waste Systems (Dallas), Inc. v. City of Wilmer*, 904 S.W.2d 656, 659 (Tex.1995) *quoting Cameron v. Terrell & Garrett, Inc.*, 618 S.W.2d 535, 540 (Tex. 1981).

need for the exemption. For these reasons, the Commission should find that the proposed battery storage facilities are generation assets that cannot be owned or operated by AEP.[10]

Contrary to the provisions of PURA §§ 35.151-.152, AEP describes the battery storage facilities as "distribution assets" because they are facilities below 60kV and because they may fall within FERC account 363.[11] However, AEP's support for characterizing the batteries as "distribution assets" fails on both counts. First, there are three separate accounts under the FERC Uniform System of Accounts that the battery storage facilities may fall within.[12] Each of the three accounts relating to energy storage equipment have virtually identical account descriptions and therefore battery storage facilities may be assigned to any of the three.[13] In fact, AEP witness Ms. Talavera acknowledges that it was AEP's option as to which of the three accounts to assign the batteries.[14] Thus, the fact that the batteries were assigned to FERC account 363 by AEP is not dispositive as to what type of asset the batteries are.

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[10] Because PURA § 35.152 applies to the proposed battery storage facilities, AEP cannot own or operate them. Under PURA § 31.002(10)(A), a "power generation company" includes "the owner or operator of electric energy storage equipment or facilities." A power generation company is prohibited from owning transmission and distribution facilities (except those facilities necessary to interconnect a generation facility with the transmission or distribution network) and cannot have a certificated service area. PURA § 31.002(10)(B) and (C).

[11] AEP Application at 4; AEP Ex. 2 Talavera Direct at 8.

[12] Account 348 (Energy Storage Equipment Energy Storage Equipment – Production), Account 351 (Energy Storage Equipment-Transmission), and Account 363 (Energy Storage Equipment-Distribution). 18 C.F.R. Part 101 (2017); Tr. at 64-67. The description of these accounts are provided as an Attachment to this brief.

[13] "This account shall include the cost installed of energy storage equipment used to store energy for load managing purposes. Where energy storage equipment can perform more than one function or purpose, the cost of the equipment shall be allocated among production, transmission, and distribution plant based on the services provided by the asset and the allocation of the asset's cost through rates approved by a relevant regulatory agency." 18 C.F.R. Part 101 (2017). *See* Attachment.

[14] Tr. at 67.

Second, the voltage level of an asset is not the sole determinative factor of how it is categorized. The nature of the asset must also be considered, otherwise "distributed generation" could be considered a "distribution asset." In support of its argument that 60kV is the determining factor for distribution assets, AEP's application cites to 16 TAC § 25.341(5) which defines "distribution" for purposes of the Commission's cost separation proceedings rule, 25.344(g)(2)(C):

> [D]istribution relates to system and discretionary services associated with facilities below 60 kilovolts *necessary to transform and move electricity* from the point of interconnection of a generation source or third-party electric grid facilities, to the point of interconnection with a retail customer or other third-party facilities, and related processes necessary to perform such transformation and movement.[15]

The quoted definition was adopted in January 2000 and included in the Commission's rules for a specific purpose, i.e., the functional cost separation cases that were filed as a part of the Commission's unbundling process following the passage of electric restructuring legislation, SB 7.[16] Even if it were not expressly limited in application to the cost separation proceedings, AEP's proposed battery facilities fail to meet this definition of "distribution" because the battery facilities are not "necessary to transform and move electricity" from generating facilities to the point of interconnection with retail customers or other third-party facilities. The batteries in fact add an additional step or detour in the movement of electricity between the transformer and point of interconnection with retail customers or other third-party facilities. Nothing about AEP's

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[15] 16 TAC § 25.341(5) (emphasis added).

[16] *Cost Unbundling and Separation of Utility Business Activities, Including Separation of Competitive Energy Services and Distributive Generation,* Project No. 21083 (Jan. 19, 2000).

proposal establishes that the batteries are "necessary" as required under the plain language of the rule.

II. Does TNC need to obtain a certificate of convenience and necessity (CCN) for the proposed facilities under PURA § 37.051 and 16 TAC § 25.101? [P.O. Issue 5]

PURA states that an electric utility "may not directly or indirectly provide service to the public" unless the utility "first obtains from the commission a certificate that states that the public convenience and necessity requires or will require the installation, operation, or extension of the service." While the Commission's rules excepts the construction or upgrading of distribution facilities within the electric utility's service area from the CCN requirement, the battery storage facilities in question are not distribution facilities or assets, they are generation assets under PURA. Consequently, the Commission should reject AEP's application for failing to meet the criteria for issuing a CCN under PURA § 37.051. Further, if the Commission were to determine that the battery storage facilities are distribution assets, the Commission should still apply the CCN standards in deciding whether to approve AEP's application.[17] It has been over ten years since AEP's last base rate case, and the Company admits they have no plans for filing the next one.[18] If these facilities are approved, the Company can begin recovering the cost of the batteries through DCRF proceedings which would not address the prudence of, or the need for the battery storage facilities.

[17] Further, as discussed in Section III, the Commission should amend the CCN rule to explicitly require CCNs for battery storage facilities such as these proposed by AEP.

[18] Tr. at 69.

As stated in the CCN statute, "need" is a criterion for granting a CCN. However in this proceeding, the record evidence indicates that there is no actual need for the batteries. While the company claims that the battery storage facilities are the most "cost effective" solution to the problems faced at Paint Rock and Woodson, the company has not proven this to be the case, nor has the Company established that there is a need that must be addressed in this manner. For instance, The Company claims its proposal is supported by cost effectiveness but AEP only analyzed the capital costs of the proposal;[19] it did not look at the revenue requirement impacts[20] or factor in the net price of energy if it is required to purchase the energy to charge the battery and sell what is discharged.[21] Nor did the Company consider the opportunity costs of its decision only to make partial use of the asset itself.[22]

Under the Company's proposal, AEP would have the batteries sitting idle for the vast bulk of the year and would turn its batteries on when "needed" but immediately recharge when they are not needed.[23] In fact, AEP would only turn on the batteries an average of 12.6 times per year at Paint Rock (producing 1132 kWh of energy or a 0.02% capacity factor) and 4.6 times per year at Woodson (producing 4859 kWh of energy or a

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[19] Even with regard to capital costs, AEP's analysis is incomplete. *See* Tr. at 132 (re. costs of degradation management strategies).

[20] Tr. at 79.

[21] At least 19-20% of the battery's energy is used in charging and discharging the battery. Tr. at 42 and 122.

[22] *See* OPUC Ex. 1, Marcus Direct at 6:6-7:2.

[23] OPUC Ex. 1, Marcus Direct at 6; OPUC Ex. 2 at 4 (AEP Response to OPUC RFI No. 1-2).

0.05% capacity factor).[24] An "opportunity cost" is "the benefit that could have been gained from an alternative use of the same resource."[25] AEP's proposal fails to take full advantage of the batteries which results in an opportunity cost related to the batteries themselves. Further, by investing money in the batteries rather than another asset that could be used to serve a larger number of feeders such as a substation, or an asset that may cost substantially less than the batteries, AEP experiences monetary opportunity costs as well. Furthermore, the Company did not conduct a cost-effectiveness analysis, showing the amount of reliability (avoided customer outages and the value of that lost service) that would be gained for the amount spent on the batteries, versus potential other projects on its service area.

Regarding need, AEP has failed to demonstrate that there is a sufficient need for the battery storage facilities, or that AEP's limited use of the batteries is a reasonable use of these assets. As the evidence in this case demonstrates, neither the service AEP has provided to Paint Rock nor to Woodson (via the Bush Knob feeder) has been unreliable. In fact, AEP witness Mr. Brower, the Director of Distribution Engineering for AEP Texas, was asked whether the service provided by AEP at either Paint Rock or Woodson is unreliable and Mr. Brower declined to characterize either as unreliable.[26] At worst, Mr. Brower characterized Bush Knob as "less reliable" than the service provided to some

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[24] OPUC Ex. 1, Marcus Direct at 6; *see* OPUC Ex. 2 at 19-23 (AEP Response to OPUC RFI No. 1-5).

[25] *Opportunity Cost.* Collins English Dictionary - Complete & Unabridged 10th Edition, Dictionary.com, http://www.dictionary.com /browse/opportunity-cost (last visited Jun. 26, 2017).

[26] Tr. at 97:11-99:3.

customers, but he also agreed that Bush Knob was also more reliable than the service provided to others.[27] Mr. Brower also admitted that AEP's application in this proceeding is not intended to address the "handful of feeders that continuously show up in the top 20" of the worst reliability performers as listed in the AEP Service Quality Reports.[28] When questioned at the hearing on the merits, Mr. Brower also acknowledged that there have been zero outages of the Paint Rock substation associated with the overloading of the substation transformer.[29] Moreover, AEP has also indicated that there has been essentially no load growth of consequence at Paint Rock, with one internal email referring to the 0.01 MVA growth rate at Paint Rock as being more of a fluctuation than a "growth."[30] Further, AEP only considered the transformer peak loading when determining that Paint Rock required the proposed battery installation to avoid overloading. However, evidence provided by AEP itself shows that Paint Rock's highest single load, and many of Paint Rock's loads above 1000 kW, occurred during the winter.[31] This is significant because it is well understood that in winter, a transformer does not have as great a thermal response as in summer because the outside air is cool

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[27] Tr. at 98:15-99:15 and 100:11-19.

[28] Tr. at 104:11-18; Luminant Ex. 2, AEP Service Quality Reports (2006-2016).

[29] Tr. at 124:24-125:2; *see* Luminant Ex. 2, AEP Service Quality Reports (2006-2016).

[30] Luminant Ex. 9, AEP's Response to RFI No. 1-23, Attachment 15.

[31] Data were provided in OPUC Ex. 2, at 7-19. The highest fifteen-minute load recorded on the Paint Rock transformer during the five years from 2012 to 2016 was 1158 kW on December 31, 2014 at 6:00 p.m. OPUC Ex. 2 at 13; *See also* OPUC Ex. 2 at 7 (Attachment 1 to AEP's Response to OPUC RFI 1-4, only 2012 overloads on December 28 and 29), at 8-10 (Attachment 2, to AEP's Response to OPUC RFI 1-4, 2013 overloads occurred on November 22 and 23 and December 6, 7, and 29 among other dates), at 11-14 (Attachment 3, 2014 overloads occurred on January 6, February 5 and 6, March 3, and December 31 among other dates), and at 15-16 (Attachment 4, 2015 overloads occurred on January 1, 5, 7, and 8, and December 31 among other dates).

and as a result, the transformer has a greater capacity than its nameplate kVa rating would indicate.[32,33]

Likewise, AEP has not demonstrated through long-term or other planning that a future need will exist for the battery storage facilities. As noted in the direct testimony of OPUC witness Mr. Marcus, there is a concern that battery installation without proper planning could result in projects with costs greater than benefits or less efficient than other alternatives.[34] AEP has not demonstrated proper planning in this case. AEP Witness Mr. Brower for instance, did not have a clear understanding of the battery's ability to hold a charge before discharging, or how long the battery can hold a full charge, and acknowledged that AEP did not investigate this aspect of the batteries.[35] More telling, AEP witness Mr. Brower acknowledged that the Greensmith report the Company commissioned stated that a degradation strategy was instrumental to the effectiveness of the battery plan but stated that the Company did not have a proposal for which of the

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[32] *See e.g.* James H. Harlow, Electric Power Transformer Engineering, Third Edition vol. 2, 3-37 (2012) (ebook) ("Utilities often assign loading limits to distribution transformers that are different from the transformer's nameplate kVA. This is based on three factors: the actual ambient temperature, the shape of the load curve, and the available air for cooling. For example, a transformer can have one loading limit for the summer and a larger loading limit for the winter."); AEP looked to "address the situation in Paint Rock when the load gets beyond the rating of the transformers at that station." Tr. at 46:8-10.

[33] One can calculate from OPUC Ex. 2, at 19-20 (Attachment to OPUC RFI 1-5, relating to when the Paint Rock battery would have operated) that, if used as it proposes in this case, AEP would have used the battery 33 times in the months of November through March in the five years starting in 2012 – even though the higher loads causing battery operation were caused by peaks when the ambient air temperature was cooler than under summer conditions.

[34] OPUC Ex. 1, Marcus Direct at 4.

[35] Tr. at 143:18-145:2.

three possible degradation management strategies the Company would use.[36] The three strategies include:

- "oversizing" the battery in its initial installation so that as it degrades over time, at the end of its lifetime, it will be at the level is needed;[37]
- "augmentation" of the battery where every two or three years you upgrade the battery so that it is continually degrading to the level needed;[38] and
- "declining" battery, where it is understood that the battery is going to degrade or "decline" over time and that's a tolerance that is acceptable.[39]

However, at least the first two degradation strategies must be chosen at the time of battery selection because these degradation strategies relate to the "size" or level of the battery to be utilized. Moreover, the Company was unclear whether there would be increased costs associated with adopting one or more of the degradation strategies, or whether the costs numbers proposed by Greensmith for AEP includes the cost of a particular strategy.[40] If AEP has not chosen a specific strategy, then those associated costs may not be accounted for in its claim that the proposed battery storage facilities are "cost effective."

Further, it appears that AEP's limited planning was results-oriented. As shown in the table below, AEP's discovery responses indicate that the Company was intrigued by the possibility of installing batteries wherever they could on its systems, and deliberately

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[36] Tr. at 130 and 132:11-24. The three degradation management strategies were presented to AEP in a document prepared by Greensmith Energy. Tr. at 129-130.

[37] Tr. at 131:18-25.

[38] Tr. at 132:1-5.

[39] Tr. at 132:6-10.

[40] Tr. at 132:16-24.

set out to find places where batteries of some sort could fit. These responses also reflect a lack of actual need for the installations proposed in this docket.

Exhibit	Item	Description
Luminant Ex. 4	AEP Response to Luminant RFI No. 1-6, Attach. 1	AEP emails describing: the "top level interest and frankly potential value for AEP Texas" of putting batteries on the grid, with an intent "to enable AEP to earn a regulated return on these investments." "AEP and AEP Texas should desire to own and operate the storage technology applicable to the grid and be able to recover the capital investment in base rates."
Luminant Exs. 11& 16	AEP Response to Luminant RFI No. 1-23, Attach. 19&24	List and prioritized list of 19 "potential sites for the Greensmith battery installations."
Luminant Ex. 17	AEP Response to Luminant RFI No. 1-23, Attach. 33	"different battery applications we might pursue." • Starting large motors at a power plant for a Blackstart situation • Radial Transmission • Radial Distribution • Peak Shaving /Reliability Installations with distribution as the charging source (high transmission cost) • Padmounted backyard unit for residential application • Special customer circumstances – like Goodfellow AFB
Luminant Ex. 18	AEP Response to Luminant RFI No. 1-23, Attach. 79	Re. possible battery locations and a new idea for distribution battery installations: "The new idea is to install the batteries away from the substation, possibly toward the end of the line and use them to back-feed a portion of the distribution circuit for a couple of hours until we can restore service. ***The types of loads we would be targeting could be almost anything*** from

		residential, to manufacturing."[41] Specifications: • "Not too large (500 – 1000kw) • Moderate to high priority loads • *Moderate* to poor reliability over the past few years • Easy to sectionalize from the substation • The portion of line that is served via the batteries should have a low probability of being the reason for the outage"[42] also • "Typical Restoration time needs to be consistently less than two hours"
Luminant Ex. 18	AEP Response to Luminant RFI No. 1-23, Attach. 79	Re. possible battery locations and a new idea for distribution battery installations: "Town of Gillet – 12 miles south of Nixon on a radial line from Nixon. • Not large. 850 connected kVa, population 120. • A couple of critical loads (stuff like water tower) • Very high on the SAIDI lists in 2015 • Sectionalizing can happen with any automated switch just north of town • Outages occur due to cross-country feeder" "There is a hidden benefit . . . the battery may be able to help stabilize intermittent voltage concerns in the area (due to large loads outside of town, on the source side of the proposed sectionalizing device.)"

From the discovery responses described in this table, Paint Rock and Woodson/Bush Knob appear to be the "home" for the batteries AEP desired to use in this proceeding,

[41] (Emphasis added).

[42] (Emphasis added).

rather than problems needing a solution. Ratepayers should not finance battery facilities, regardless of what category they fall within, when there is no real need presented. Batteries or new technology for new technology's sake is not sufficient justification for regulatory approval.

III. If ultimately determined to be legal and appropriate, the Commission should place conditions on AEP's ownership and operation of the proposed storage facilities. [P.O. Issue 5]

If the Commission were to determine that AEP is not prohibited from owning and operating the proposed battery storage facilities, OPUC recommends that the Commission require a CCN be obtained for the battery storage facilities so that at least the need for the batteries will be more fully addressed prior to being recovered in rates through a DCRF.[43] Finally, if the application is approved, OPUC recommends that the Commission condition this approval on AEP coming in for a base rate case for rate recovery of the batteries within one year of the first battery installation so that the prudence of the assets can be fully reviewed under the prudence standard prior to being recovered in rates. OPUC also recommends that the Commission first initiate a rulemaking project to address the following: 1) the market concerns addressed in Staff witness Dr. Bryant's testimony; 2) the concerns raised by OPUC about the need for planning and standards or criteria relating to the TDU's service area and the long run costs before a battery installation is allowed (versus a costlier, piecemeal approach); and

[43] PURA § 37.051. Also, the Commission's rule should be amended to specifically require a CCN for TDU battery storage facilities.

3) to require a CCN (amend the CCN rule to apply to TDU battery storage facilities) and/or a prudence review prior to recovering *these costs* in rates.

PRAYER

For the above reasons, OPUC respectfully prays that the ALJ and Commission deny AEP's application and issue an order consistent with this brief. Finally, OPUC prays that it be granted such other and further relief to which it may be justly entitled.

Dated: July 7, 2017

Respectfully submitted,

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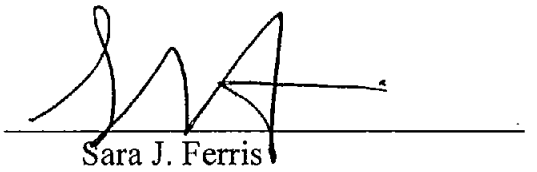
CERTIFICATE OF SERVICE
SOAH Docket No. 473-17-0684
PUC Docket No. 46368

I hereby certify that today, July 7, 2017, a true copy of the Office of Public Utility Counsel's Post-Hearing Initial Brief was served on all parties of record via hand delivery, facsimile, or United States First-Class Mail.



Sara J. Ferris

SUBCHAPTER C—ACCOUNTS, FEDERAL POWER ACT

PART 101—UNIFORM SYSTEM OF ACCOUNTS PRESCRIBED FOR PUBLIC UTILITIES AND LICENSEES SUBJECT TO THE PROVISIONS OF THE FEDERAL POWER ACT

AUTHORITY: 16 U.S.C. 791a–825r, 2601–2645; 31 U.S.C. 9701; 42 U.S.C. 7101–7352, 7651–7651o.

SOURCE: Order 218, 25 FR 5014, June 7, 1960, unless otherwise noted.

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting part 101, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at *www.fdsys.gov*.

EFFECTIVE DATE NOTE: At 58 FR 18004–18006, Apr. 7, 1993, part 101 was amended by redesignating Definitions 30 through 38 as 31 through 39 and adding new Definition 30; adding paragraph 21 under the General Instructions; adding Accounts 158.1, 158.2, 182.3, and 254 under Balance Sheet Accounts; adding Accounts 407.3, 407.4, 411.8, and 411.9 under Income Accounts; and adding Account 509 under Operation and Maintenance Expense Accounts. The added text contains information collection and recordkeeping requirements and will not become effective until approval has been given by the Office of Management and Budget.

NOTE: Order 141, 12 FR 8503, Dec. 19, 1947, provides in part as follows:

Prescribing a system of accounts for public utilities and licensees under the Federal Power Act. The Federal Power Commission acting pursuant to authority granted by the Federal Power Act, particularly sections 301(a), 304(a), and 309, and paragraph (13) of section 3, section 4(b) thereof, and finding such action necessary and appropriate for carrying out the provisions of said act, hereby adopts the accompanying system of accounts entitled "Uniform System of Accounts Prescribed for Public Utilities and Licensees Subject to the Provisions of the Federal Power Act," and the rules and regulations contained therein; and *It is hereby ordered:*

(a) That said system of accounts and said rules and regulations contained therein be and the same are hereby prescribed and promulgated as the system of accounts and rules and regulations of the Commission to be kept and observed by public utilities subject to the jurisdiction of the Commission and by licensees holding licenses issued by the Commission, to the extent and in the manner set forth therein;

(b) That said system of accounts and rules and regulations therein contained shall, as to all public utilities now subject to the jurisdiction of the Commission and as to all present licensees, become effective on January 1, 1937, and as to public utilities and licensees which may hereafter become subject to the jurisdiction of the Commission, they shall become effective as of the date when such public utility becomes subject to the jurisdiction of the Commission or on the effective date of the license;

(c) That a copy of said system of accounts and rules and regulation contained therein be forthwith served upon each public utility subject to the jurisdiction of the Commission, and each licensee or permittee holding a license or permit from the Commission.

This system of accounts supersedes the system of accounts prescribed for licensees under the Federal Water Power Act; and Order No. 13, entered November 20, 1922, prescribing said system of accounts, was rescinded effective January 1, 1937.

Applicability of system of accounts. This system of accounts is applicable in principle to all licensees subject to the Commission's accounting requirements under the Federal Power Act, and to all public utilities subject to the provisions of the Federal Power Act. The Commission reserves the right, however, under the provisions of section 301(a) of the Federal Power Act to classify such licensees and public utilities and to prescribe a system of classification of accounts to be kept by and which will be convenient for and meet the requirements of each class.

This system of accounts is applicable to public utilities, as defined in this part, and to licensees engaged in the generation and sale of electric energy for ultimate distribution to the public.

This system of accounts shall also apply to agencies of the United States engaged in the generation and sale of electric energy for ultimate distribution to the public, so far as may be practicable, in accordance with applicable statutes.

In accordance with the requirements of section 3 of the Act (49 Stat. 839; 16 U.S.C. 796(13)), the "classification of investment in road and equipment of steam roads, issue of 1914, Interstate Commerce Commission", is published and promulgated as a part of the accounting rules and regulations of the Commission, and a copy thereof appears as part 103 of this chapter. Irrespective of any rules and regulations contained in this system of accounts, the cost of original projects licensed under the Act, and also the cost of additions thereto and betterments thereof, shall be determined under the rules and principles as defined and interpreted in said classification of the Interstate Commerce Commission so far as applicable.

conduit, special supports for conduit, switchboards, batteries, special housing for batteries, protective screens, doors, etc.

5. Station buses, including main, auxiliary transfer, synchronizing and fault ground buses, including oil curcuit breakers and accessories, disconnecting switches and accessories, operating mechanisms and interlocks, reactors and accessories, voltage regulators and accessories, compensators, resistors, starting transformers, current transformers, potential transformers, protective relays, storage batteries and charging equipment, isolated panels and equipment, conductors and conduit, special supports, special housings, concrete pads, general station ground system, special fire-extinguishing system, and test equipment.

NOTE A: Do not include in this account transformers and other equipment used for changing the voltage or frequency of electric energy for the purpose of transmission or distribution.

NOTE B: When any item of equipment listed herein is used wholly to furnish power to equipment included in another account, its cost shall be included in such other account.

346 Miscellaneous power plant equipment.

This account shall include the cost installed of miscellaneous equipment in and about the other power generating plant, devoted to general station use, and not properly includible in any of the foregoing other power production accounts.

ITEMS

1. Compressed air and vacuum cleaning systems, including tanks, compressors, exhausters, air filters, piping, etc.
2. Cranes and hoisting equipment, including cranes, cars, crane rails, monorails, hoists, etc., with electric and mechanical connections.
3. Fire-extinguishing equipment for general station use.
4. Foundations and settings, specially constructed for and not expected to outlast the apparatus for which provided.
5. Miscellaneous equipment, including atmospheric and weather indicating devices, intrasite communication equipment, laboratory equipment, signal systems, callophones, emergency whistles and sirens, fire alarms, and other similar equipment.
6. Miscellaneous belts, pulleys, countershafts, etc.
7. Refrigerating system including compressors, pumps, cooling coils, etc.
8. Station maintenance equipment, including lathes, shapers, planers, drill presses, hydraulic presses, grinders, etc., with motors, shafting, hangers, pulleys, etc.
9. Ventilating equipment, including items wholly identified with apparatus listed herein.

NOTE: When any item of equipment, listed herein is used wholly in connection with equipment included in another account, its cost shall be included in such other account.

347 Asset retirement costs for other production plant.

This account shall include asset retirement costs on plant included in the other production function.

348 Energy Storage Equipment—Production

A. This account shall include the cost installed of energy storage equipment used to store energy for load managing purposes. Where energy storage equipment can perform more than one function or purpose, the cost of the equipment shall be allocated among production, transmission, and distribution plant based on the services provided by the asset and the allocation of the asset's cost through rates approved by a relevant regulatory agency. Reallocation of the cost of equipment recorded in this account shall be in accordance with Electric Plant Instruction No. 12, Transfers of Property.

B. Labor costs and power purchased to energize the equipment are includible on the first installation only. The cost of removing, relocating and resetting energy storage equipment shall not be charged to this account but to accounts Account 548.1, Operation of Energy Storage Equipment, and Account 553.1, Maintenance of Energy Storage Equipment., as appropriate.

C. The records supporting this account shall show, by months, the function(s) each energy storage asset supports or performs.

ITEMS

1. Batteries/Chemical
2. Compressed Air
3. Flywheels
4. Superconducting Magnetic Storage
5. Thermal

Note: The cost of pumped storage hydroelectric plant shall be charged to hydraulic production plant. These are examples of items includible in this account. This list is not exhaustive.

350 Land and land rights.

This account shall include the cost of land and land rights used in connection with transmission operations. (See electric plant instruction 7.)

351 Energy Storage Equipment—Transmission

A. This account shall include the cost installed of energy storage equipment used to store energy for load managing purposes. Where energy storage equipment can perform more than one function or purposes, the cost of the equipment shall be allocated among production, transmission, and distribution plant based on the services provided by the asset and the allocation of the asset's cost through rates approved by a relevant regulatory agency. Reallocation of the cost of equipment recorded in this account shall be in accordance with Electric Plant Instruction No. 12, Transfers of Property.

B. Labor costs and power purchased to energize the equipment are includible on the first installation only. The cost of removing, relocating and resetting energy storage equipment shall not be charged to this account but to Account 562.1, Operation of Energy Storage Equipment, and Account, 570.1, Maintenance of Energy Storage Equipment, as appropriate.

C. The records supporting this account shall show, by months, the function(s) each energy storage asset supports or performs.

ITEMS

1. Batteries/Chemical
2. Compressed Air
3. Flywheels
4. Superconducting Magnetic Storage
5. Thermal

352 Structures and improvements.

This account shall include the cost in place of structures and improvements used in connection with transmission operations. (See electric plant instruction 8.)

353 Station equipment.

This account shall include the cost installed of transforming, conversion, and switching equipment used for the purpose of changing the characteristics of electricity in connection with its transmission or for controlling transmission circuits.

ITEMS

1. Bus compartments, concrete, brick, and sectional steel, including items permanently attached thereto.
2. Conduit, including concrete and iron duct runs not a part of a building.
3. Control equipment, including batteries battery charging equipment, transformers, remote relay boards, and connections.
4. Conversion equipment, including transformers, indoor and outdoor, frequency changers, motor generator sets, rectifiers, synchronous converters, motors, cooling equipment, and associated connections.
5. Fences.
6. Fixed and synchronous condensers, including transformers, switching equipment blowers, motors and connections.
7. Foundations and settings, specially constructed for and not expected to outlast the apparatus for which provided.
8. General station equipment, including air compressors, motors, hoists, cranes, test equipment, ventilating equipment, etc.
9. Platforms, railings, steps, gratings, etc. appurtenant to apparatus listed herein.
10. Primary and secondary voltage connections, including bus runs and supports, insulators, potheads, lightning arresters, cable and wire runs from and to outdoor connections or to manholes and the associated regulators, reactors, resistors, surge arresters, and accessory equipment.
11. Switchboards, including meters, relays, control wiring, etc.
12. Switching equipment, indoor and outdoor, including oil circuit breakers and operating mechanisms, truck switches, and disconnect switches.
13. Tools and appliances.

354 Towers and fixtures.

This account shall include the cost installed of towers and appurtenant fixtures used for supporting overhead transmission conductors.

ITEMS

1. Anchors, guys, braces.
2. Brackets.
3. Crossarms, including braces.
4. Excavation, backfill, and disposal of excess excavated material.
5. Foundations.
6. Guards.
7. Insulator pins and suspension bolts.
8. Ladders and steps.
9. Railings, etc.
10. Towers.

4. Structures, constructed and maintained in connection with items included herein.

5. Trails, including grading, surfacing, culverts, etc.

NOTE: The cost of temporary roads, bridges, etc., necessary during the period of construction but abandoned or dedicated to public use upon completion of the plant, shall be charged to the accounts appropriate for the construction.

359.1 Asset retirement costs for transmission plant.

This account shall include asset retirement costs on plant included in the transmission plant function.

360 Land and land rights.

This account shall include the cost of land and land rights used in connection with distribution operations. (See electric plant instruction 7.)

NOTE: Do not include in this account the cost of permits to erect poles, towers, etc., or to trim trees. (See account 364, Poles, Towers and Fixtures, and account 365, Overhead Conductors and Devices.)

361 Structures and improvements.

This account shall include the cost in place of structures and improvements used in connection with distribution operations. (See electric plant instruction 8.)

362 Station equipment.

This account shall include the cost installed of station equipment, including transformer banks, etc., which are used for the purpose of changing the characteristics of electricity in connection with its distribution.

ITEMS

1. Bus compartments, concrete, brick and sectional steel, including items permanently attached thereto.

2. Conduit, including concrete and iron duct runs not part of building.

3. Control equipment, including batteries, battery charging equipment, transformers, remote relay boards, and connections.

4. Conversion equipment, indoor and outdoor, frequency changers, motor generator sets, rectifiers, synchronous converters, motors, cooling equipment, and associated connections.

5. Fences.

6. Fixed and synchronous condensers, including transformers, switching equipment, blowers, motors, and connections.

7. Foundations and settings, specially constructed for and not expected to outlast the apparatus for which provided.

8. General station equipment, including air compressors, motors, hoists, cranes, test equipment, ventilating equipment, etc.

9. Platforms, railings, steps, gratings, etc., appurtenant to apparatus listed herein.

10. Primary and secondary voltage connections, including bus runs and supports, insulators, potheads, lightning arresters, cable and wire runs from and to outdoor connections or to manholes and the associated regulators, reactors, resistors, surge arresters, and accessory equipment.

11. Switchboards, including meters, relays, control wiring, etc.

12. Switching equipment, indoor and outdoor, including oil circuit breakers and operating mechanisms, truck switches, disconnect switches.

NOTE: The cost of rectifiers, series transformers, and other special station equipment devoted exclusively to street lighting service shall not be included in this account, but in account 373, Street Lighting and Signal Systems.

363 Energy Storage Equipment—Distribution

A. This account shall include the cost installed of energy storage equipment used to store energy for load managing purposes. Where energy storage equipment can perform more than one function or purpose, the cost of the equipment shall be allocated among production, transmission, and distribution plant based on the services provided by the asset and the allocation of the asset's cost through rates approved by a relevant regulatory agency. Reallocation of the cost of equipment recorded in this account shall be in accordance with Electric Plant Instruction No. 12, Transfers of Property.

B. Labor costs and power purchased to energize the equipment are includible on the first installation only. The cost of removing, relocating and resetting energy storage equipment shall not be charged to this account but to Account 582.1, Operation of Energy Storage Equipment, and Account, 592.1, Maintenance of Energy Storage Equipment, as appropriate.

C. The records supporting this account shall show, by months, the function(s) each energy storage asset supports or performs.

ITEMS

1. Batteries/Chemical
2. Compressed Air
3. Flywheels
4. Superconducting Magnetic Storage
5. Thermal

364 Poles, towers and fixtures.

This account shall include the cost installed of poles, towers, and appurtenant fixtures used for supporting overhead distribution conductors and service wires.

ITEMS

1. Anchors, head arm, and other guys, including guy guards, guy clamps, strain insulators, pole plates, etc.
2. Brackets.
3. Crossarms and braces.
4. Excavation and backfill, including disposal of excess excavated material.
5. Extension arms.
6. Foundations.
7. Guards.
8. Insulator pins and suspension bolts.
9. Paving.
10. Permits for construction.
11. Pole steps and ladders.
12. Poles, wood, steel, concrete, or other material.
13. Racks complete with insulators.
14. Railings.
15. Reinforcing and stubbing.
16. Settings.
17. Shaving, painting, gaining, roofing, stenciling, and tagging.
18. Towers.
19. Transformer racks and platforms.

365 Overhead conductors and devices.

This account shall include the cost installed of overhead conductors and devices used for distribution purposes.

ITEMS

1. Circuit breakers.
2. Conductors, including insulated and bare wires and cables.
3. Ground wires, clamps, etc.
4. Insulators, including pin, suspension, and other types, and tie wire or clamps.
5. Lightning arresters.
6. Railroad and highway crossing guards.
7. Splices.
8. Switches.
9. Tree trimming, initial cost including the cost of permits therefor.
10. Other line devices.

NOTE: The cost of conductors used solely for street lighting or signal systems shall not be included in this account but in account 373, Street Lighting and Signal Systems.

366 Underground conduit.

This account shall include the cost installed of underground conduit and tunnels used for housing distribution cables or wires.

ITEMS

1. Conduit, concrete, brick and tile, including iron pipe, fiber pipe, Murray duct, and standpipe on pole or tower.
2. Excavation, including shoring, bracing, bridging, backfill, and disposal of excess excavated material.
3. Foundations and settings specially constructed for and not expected to outlast the apparatus for which constructed.
4. Lighting systems.
5. Manholes, concrete or brick, including iron or steel frames and covers, hatchways, gratings, ladders, cable racks and hangers, etc., permanently attached to manholes.
6. Municipal inspection.
7. Pavement disturbed, including cutting and replacing pavement, pavement base, and sidewalks.
8. Permits.
9. Protection of street openings.
10. Removal and relocation of subsurface obstructions.
11. Sewer connections, including drains, traps, tide valves, check valves, etc.
12. Sumps, including pumps.
13. Ventilating equipment.

NOTE: The cost of underground conduit used solely for street lighting or signal systems shall be included in account 373, Street Lighting and Signal Systems.

367 Underground conductors and devices.

This account shall include the cost installed of underground conductors and devices used for distribution purposes.

ITEMS

1. Armored conductors, buried, including insulators, insulating materials, splices, potheads, trenching, etc.
2. Armored conductors, submarine, including insulators, insulating materials, splices in terminal chamber, potheads, etc.
3. Cables in standpipe, including pothead and connection from terminal chamber or manhole to insulators on pole.
4. Circuit breakers.
5. Fireproofing, in connection with any items listed herein.
6. Hollow-core oil-filled cable, including straight or stop joints, pressure tanks, auxiliary air tanks, feeding tanks, terminals, potheads and connections, etc.