THE STATE OF NEW HAMPSHIRE

BEFORE THE

PUBLIC UTILITIES COMMISISON

DE 19-064

Liberty Utilities (Granite State Electric) Corp. d/b/a/ Liberty Utilities,

Request for Change in Rates

City of Lebanon, NH

Testimony of Clifton C. Below

December 6, 2019

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I. Introduction and Qualifications

Q. Please state your name, business address and position relative to this docket.

A. My name is Clifton C. Below and my personal office address is 1 Court Street, Suite 300, Lebanon, NH 03766. The City's business address is 51 N. Park St, Lebanon, NH 03766. I am a Lebanon City Councilor, Assistant Mayor, and Chair of the Lebanon Energy Advisory Committee created by the Council. I am authorized by the City Manager and Council to represent the City in this proceeding on a volunteer basis.

Q. Have you previously testified before this Commission?

A. Yes, I provided pre-filed direct and rebuttal testimony and live testimony in DE 16-576 concerning alternative net metering tariffs and I provided pre-filed and live testimony in DE 17-189 concerning Liberty's battery storage pilot; both on behalf of the City of Lebanon.

Q. Please describe your relevant experience and expertise regarding electric utilities.

A. A background statement can be found as Attachment A hereto. I will only highlight a few keys elements of my background here. During my tenure as a State Representative from 1992-1998 I served on the House Science, Technology, and Energy Committee where I was heavily involved in energy and regulatory legislation. As Chair of the Policy Principles, Social and Environmental Issues Subcommittee of the Retail Wheeling and Restructuring Study Committee in 1995 I facilitated a consensus building legislative and stakeholder process that resulted in recommended "Restructuring Policy Principles" that became the core of NH's Electric Utility Restructuring statute, RSA 374-F, that was enacted to restructure and guide the future regulation of electric utilities in NH . In 1998 I was elected to the NH Senate, serving on the energy and utility policy committees throughout my six-year tenure. From 1997-2004 I served on the Advisory Council on Energy of the National Conference of State Legislatures

(NCSL), including 3 years as Chair, which advised NCSL staff on emerging energy issues. I also served on the Energy & Electric Utilities Committee, Assembly on Federal Issues of NCSL where, as Chair in 2000-2001, I facilitated a consensus based comprehensive update of NCSL's National Energy Policy. I testified on behalf of NCSL before the United States Senate Committee on Energy and Natural Resources on "Electric Industry Restructuring," focusing on transmission and jurisdictional issues. I also served as a member of the National Council on Electricity Policy Steering Committee from 2001-2004, which was a policy collaborative with NARUC, NGA, and NASEO.

In late 2005 I was appointed to serve as a NHPUC Commissioner with my tenure ending in February 2012. During that time, I served on the FERC-NARUC Smart Grid and Demand Response Collaborative, 2008-2011, and on the Electric Power Research Institute (EPRI) Advisory Council, 2009-2011 and its Energy Efficiency/Smart Grid Public Advisory Group, 2008-2010. Through my involvement in NCSL, NARUC, NECPUC, ISO New England stakeholder processes and particularly with EPRI I was fortunate to enjoy numerous deep dives into emerging issues in the electric utility industry at the intersection of technology, science, policy, markets, and regulation, including grid modernization, smart rates, market design, energy efficient technologies, and distributed energy resource issues.

II. Overview of the City's Position and Proposed Conditions

Q. Would you summarize your testimony?

A. Yes. My testimony focuses on four issues regarding Liberty's proposed updates to its street lighting tariff and offerings, including the interpretation and application of current and proposed tariff language. I also offer brief comments on Liberty's proposed EV charging rate

at the end of my testimony. Here is a summary of the four main issues:

1) While the City applauds Liberty's proposed LED-2 tariff option that would allow municipalities to select and pay for the capital cost of LED street lights of their own choosing, the City objects to Liberty's insistence that upon installation of such luminaires ownership is to transfer to Liberty as a Contribution in Aid of Construction (CAIC) as unreasonable and contrary to the public interest. The City proposes that the Commission's approval be conditioned on a requirement that Liberty modify its LED-2 rate proposal to allow the state and its subdivisions to continue to own streetlights that they purchase once installed. Governmental entities should also be allowed to own and operate advanced adaptive networked street lighting controls that allow trimming, dimming and brightening of luminaires and other functionalities that can support smart city and smart grid applications. In addition, if such lighting controls are equipped with built-in revenue metering that is verified by independent meter testing laboratories to meet current ANSI standards for metering accuracy, after an appropriate period of pilot testing and verification and additional Commission review, such revenue grade metering should be allowed to be used to determine any kWh and kW charges instead of estimated energy consumption based on photocells and schedules.

The City does greatly appreciate Liberty's willingness to offer a special contract (filed in DE 19-187) to allow it to continue to own its selected streetlights, including smart controls, which can serve as a pilot for these innovative new technologies and opportunities, but for reasons further described in the next elaborating section, believes these new approaches should eventually be incorporated into regular tariffs..

2) Liberty's proposed LED-1 tariff offering is limited to luminaires that operate with a color temperature of 4000° Kelvin (K), with the exception of the post-top luminaire and what

was called a “Barn” light in it original filing in this case and renamed a “Caretaker” light (30 watts) in its 11/22 corrections and update filing (at 49). While the City appreciates that the 3000° K Caretaker “light is designed to be used on secondary roadways and parking areas, mostly residential areas,” the City contends that only offering 4000° K 30, 50, and 130 watt LED roadway and 90 and 130 watt flood lights is contrary to the public interest and any Commission approval should be conditioned on a requirement that Liberty make each of these offerings available in 3000° K or warmer color temperatures at the choice of customer or communities.

3) Liberty’s proposed LED-1 rates appear to be based on an estimated capitalized cost that include installation of new mounting brackets and line taps. While this is appropriate for new LED streetlight installations, most uses of the proposed LED-1 tariffs are likely to be for conversions of existing high-pressure sodium (HPS or HS) and mercury vapor (MV) streetlights where the existing mounting brackets and line taps are reused. In the many or most instances where such equipment used for public streetlights has been in use for more than the 23-year depreciation life the City understands is used for depreciating streetlight investments, such equipment would be fully depreciated. Liberty’s one size fits all approach could result in significant double recovery of costs and unreasonable and inequitable rates that are higher than they should be, including resulting buy-out costs for undepreciated value should a community choose to discontinue the use of 4000° K LED streetlights previously installed by Liberty.

The City requests that the Commission condition any approval of the proposed LED-1 rate on requiring Liberty to back-out capitalized mounting bracket and line tap wiring from the rate calculation for LED fixtures where the existing equipment is reused for LED conversions.

This could be done by making the bracket and line tap equipment an accessory charge or by having two separate rates depending on whether such equipment is new or existing and reused.

4) Finally, Liberty's existing and proposed tariffs for outdoor lighting call for customers to pay "the undepreciated value of the existing light" (or similar language) when discontinuing service or converting to LED. However, Liberty's records for capitalized street lighting costs, at least for the City of Lebanon, apparently do not conform to the Uniform System of Accounts Prescribed for Public Utilities that Granite State Electric (GSE) has long been required to follow pursuant to Puc 307.04. Liberty attributes this problem to the condition of the accounts as acquired from National Grid when they purchased GSE in mid-2012.

For instance, Liberty is apparently unable to determine the undepreciated value for almost any existing streetlight in the City or even large, but specific groups of lights, such as those paid for by the City, because the records are inadequate for such a purpose. Hence, through data requests and an actual proposal for determining such value in a recent request by the City for a quote on removal of 76 street lights the City wants to discontinue, Liberty has indicated how it intends the records that is does have (supposedly for 335 streetlight fixtures out of the approximately 1,234 paid for by customers in Lebanon, of which about 827[1] are attributed to the City) as a proxy for missing records. This looks like it will have the effect of having the City pay for more than the average net book value per fixture for all generally unidentifiable items in Liberty's street lighting account 373, even though the City is of the belief that the vast majority of the luminaires currently being used by the City were placed in service more than 23

[1] There are still minor discrepancies between the City's GIS inventory, Liberty's electric bills, and Liberty's inventory ranging from 813 to 835, even as the effort to reconcile these started a decade ago with an early realization that the City had long been billed about $5,000 per year for 28 fixtures that were no longer in use. No back credit for overbilling was given but at least National Grid removed them from the bill shortly before selling to Liberty.

years ago and most likely more than 23 years before Liberty acquired GSE in mid-2012. By now they should be fully depreciated or nearly so if annual depreciation averaged less than 4.33% in the past (due to a longer depreciation period than 23 years).

The City requests that the Commission condition any approval of Liberty's new outdoor lighting tariffs on a commitment to work with the City and other potentially effected governmental entities, under PUC staff facilitation, to propose a more reasonable and equitable method for recovering undepreciated values for converted or discontinued streetlights, including, in particular, for the 27 LED streetlights that Liberty installed in the City as part of its initial piloting of such to inform its subsequent development of its LED rate and tariff.

III. Detailed Discussion of the Issues and Proposed Conditions

Q. Regarding your first issue, why does the City believe that it is unreasonable and contrary to the public interest to require governmental entities to turn over ownership to Liberty upon installation of streetlight fixtures that the state or its subdivisions have purchased.

A. First let me again say that the City greatly appreciates Liberty's willingness to propose and negotiate a mutually aggregable special contract that not only allows the City to retain ownership of its streetlights, including networked adaptive controls, but also receive credit for reducing kWh consumption from fixed trimming and dimming schedules, along the lines of Eversource's Massachusetts tariff for such. If approved by the Commission that would be a big step allowing the City to move forward and essentially pilot this approach. However, the City would prefer to transition to a tariff with similar terms that would allow the state and other municipalities the same opportunities for additional electricity cost and carbon emission

savings. The City does not want to be perceived by neighboring towns as having a more favorable status and opportunity in this regard than they have. We know that in the three neighboring towns served by Liberty around us, Hanover, Enfield and Plainfield there is interest in converting their streetlights to LED along the lines of what we are trying to do.

A key reason why turning over ownership to the utility is contrary to the public interest is that it creates significant unnecessary costs for ratepayers for no apparent reason. Recent changes in state and federal tax policy have created new tax costs for government provided CAIC to utilities. The Tax Cuts and Jobs Act (TCJA) (Pub. L. 115-97, 131 Stat. 2054, Dec. 22, 2017) removed the exemption from taxable income for CAIC to utilities from governmental entities for the first time and instead requires government (nonshareholder) contributions to corporate capital in the form of CAIC to be treated as taxable income to the recipient. In discovery Liberty indicated that they did not specifically take this into account in designing the LED-2 rate, but indicated that the required tax gross-up of 1.3714 “would be included in the Company’s overall revenue requirement which then would get recovered from the various customer classes under an approved rate design.” Whether this approach is used or the tax gross-up is charged to the entity making the CAIC, as Commission staff recommended and the Commission approved in DW 18-189, the result is to increase costs and likely raise rates over time, compared with allowing governmental entities to continue to own the fixtures they pay for. For each $1,000 investment in LED streetlights the cost for this one requirement will be increased by $371.40.

Likewise with regard to property taxes, the enactment of HB 700 (Chapter 117, NH Laws of 2019) effective 8/20/19 includes “contributions in aid of construction (CIAC)” in the definition of "[u]tility company assets" and establishes a “unified method of valuing the utility

company assets" including formulas that factor in "each asset's original cost" and "each asset's net book cost" that apparently will create new property tax liability for governmental CAIC. In discovery Liberty stated because of the recent enactment of HB 700 it had not taken this issue into account in the Rate LED-2 proposal and "has not yet determined how it will value CAIC for purposes of the LED-2 tariff or how it will be taken into account for purposes of the tariff rate, if at all." Liberty further stated that "[p]roperty taxes are generally recovered from customers as part of their distribution consumption rate. As the proposed LED-2 rate includes a per kWh charge, it is likely that a portion of that charge will recover property taxes." Again, this is an unnecessary cost that creates upward pressure on electric rates, contrary to the public interest statutory goal under RSA 374-F of reducing ratepayer costs. It is particularly ironic that unnecessary tax costs should be incurred for the provision of an essential governmental function paid for by taxpayers to light public ways for public safety on poles located on public property the use of which is licensed to the utility by municipalities with no rent being charged. If the issue is somehow utility control of luminaires attached to its brackets and power lines, the municipality could license the control and operation of the fixture to the utility as needed to address any such concerns, just as the municipality licenses the use of its public way by the utility for its poles, wires, transformers and other equipment.

The NH General Court this year agreed that the state and its subdivision should be able to own the street lights that they pay for, "including the use of smart adaptive street lighting with networked lighting controls," through the passage of SB 307 on voice votes without any debate on the floor of the Senate and House. The bill received a 4-0 vote out of the Senate Energy & Natural Resources Committee, Ought to Pass with Amendment, the development of which was facilitated by a stakeholder meeting facilitated by PUC staff to address utility and

their own concerns about the bill as introduced. The House Science Technology & Energy Committee voted the bill Ought to Pass (OTP) 19-1 and the Municipal & County Government Committee in a 2nd review for fiscal impact voted the bill OTP 12-3. The minority report to kill the bill was based on an objection to section 1 of the bill that pertained only to state agencies installing outdoor lighting. That was the basis for the Governor's veto but with regard to section 2, the PUC and utility street lighting issues, the Governor expressed no opposition but offered in his short veto message that "the PUC is already able to address these issues through ongoing dockets" so that is what the City is asking the PUC to do.

A copy of SB 307 as sent to the Governor and his veto message can be found as Attachments B and C. The Senate sustained the Governor's veto on a 14 to 10 vote to override that failed lacking the necessary two-thirds vote. I note that there are political reasons for members of the Governor's own party to sustain a veto other than the substance and merits of a bill and the Governor's veto message.

Q. Regarding your second issue, why do you believe only offering utility provided roadway and flood lights in 4000° K without an option for 3000° K or warmer color temperatures is unreasonable and contrary to the public interest?

A. There is a growing understanding and body of scientific evidence that outdoor lighting cooler than 3000° K is more harmful to human and ecological health than warmer color temperatures and hence utilities and the public are increasingly choosing 3000° K or warmer outdoor lighting over cooler color temperatures. In 2016 the American Medical Association adopted an official policy statement calling for LED streetlights to have a color temperature no greater that 3000° K "to minimize potential harmful human health and environmental effects." The International Dark Sky Society also strongly calls for 3000° K or preferably even warmer

color temperatures, such as 2700° K (the color of incandescent lighting), for street and other outdoor lighting. RSA 9-E:3, the "New Hampshire Dark Sky Policy," states:

> It shall be the policy of the state of New Hampshire to encourage municipalities to enact such local ordinances and regulations as they deem appropriate to conserve energy consumed by outdoor lighting; to minimize light pollution and glare; and to preserve dark skies as a feature of rural character wherever practicable.

While the City has adopted a policy to use 3000° K or warmer luminaires for public street, place, and parking lot lighting, it does not appear to have the jurisdiction to require Liberty to offer such to private outdoor lighting customers, but the PUC clearly does. I have attached my written testimony to the House Science Technology & Energy Committee in support of the passage of SB 307, and a couple of the attachments thereto, as further explanation and evidentiary support of the City's position as Attachments D, E, and F.

Q. Regarding your third issue, what is the basis for your assertion that the proposed LED-1 tariffs incorporate duplicative costs for brackets and wire taps that should be separated out for LED conversions when the existing bracket and wire taps are reused?

A. In data request CoL TS 1-4 the City asked for additional detail on the capitalized cost components for equipment and material beyond the luminaire that were provided as part of their filing and an earlier data request, CoL 2-2.c. Liberty provided a spreadsheet with the itemized detail. In reviewing this detail, it appeared to me that a significant part of the capitalized cost was for new brackets and line taps (wire and fittings from the power line to the fixture, typically via the bracket). To provide some confirmation of what I was seeing I spoke with John Branagan of Affinity LED Lighting of Dover, NH, a manufacturer of roadway style LED streetlight luminaires that they have installed (with contract crews) for a number of municipalities in NH and elsewhere, as well as for the NH Department of Transportation. He

indicated that they are almost always able to reuse the existing brackets and line taps for such roadway style fixtures. We went over the detailed itemization in Liberty's spreadsheet and he agreed with my analysis. He indicated that they rarely incur any of these questionable costs in their installations and they all appear to pertain to new installations that require new brackets and line taps. Attachment G is my analysis for the 30, 50 and 13O watt roadway LEDs from Liberty's data response that shows the estimated total of these questionable costs in dollars and the portion of the total capitalized cost apparently attributable to brackets and line taps, which ranges from about 30% for the 30 and 50 watt fixtures to about 20% for the 130 watt fixture.

1n the City's own analysis of the cost and benefit of converting to LED streetlights under Liberty's current LED rate, notwithstanding the energy savings the actual overall cost to the City would increase by about 5% to convert non-LED street lights to LED, due to the higher fixed monthly charge being used to amortize the initial capitalized cost. The City is concerned that such apparent lack of savings by converting to LED using Liberty's offering is a barrier to greater adoption of this energy efficient technology for non-governmental customers that don't have the option to purchase their own luminaires. The City appreciates that Liberty's switching to the lower cost Eaton luminaires instead of the originally offered GE fixtures will help in this regard but removing the assumed new bracket and line tap when not used would help even more.

Presumably similar capitalization of new brackets and line taps were assumed for Liberty's existing LED rate. Beyond the ongoing charge this is an issue for the City as it desires to replace the 27 thirty watt 4000° K LED luminaires installed in Lebanon's downtown with 3000° K or warmer LEDs that are dimmable and although those original LEDs were installed using existing brackets and line taps as part of Liberty's initial piloting of LED luminaires in 2014 before it developed its initial LED rate proposal Liberty has indicated that they would

charge us for the undepreciated balance of the capitalized cost of those installations as if they had been made under its LED rate.[2] Although the City did ask to be a pilot site, we had no idea that Liberty's capitalized cost per fixture would be $861.90 for a luminaire that apparently costs roughly $300.

The City asks that the Commission address this issue for municipalities that hosted Liberty's piloting of LEDs and choose at some point to discontinue their use by directing Liberty to back out bracket and line tap costs assumed for the conversion if the existing ones were reused and further split the remaining undepreciated value between the municipality and Liberty since they were installed as part of Liberty's pilot, before an LED tariff was developed and these GE fixtures, which are currently only about five years old, are nearly current technology and both the luminaire and the new photocells that were installed with them still have most of their useable life and could be returned to inventory and reused or have significant salvage value as lightly used recent high quality fixtures.

Q. Regarding your 4th and final major issue, what evidence does the City have to support its contention that the vast majority of the Liberty luminaires currently being paid for by the City under tariffed rates were placed in service more than 23 years ago and most likely more than 23 years before Liberty acquired GSE in mid-2012 and hence should be fully depreciated or nearly so?

A. Let me start with my own personal belief why this is so. Even before adulthood I was cognizant of different types of outdoor and tunnel lighting. My father served in the US Navy and was stationed to the Brunswick Naval Air Station in Maine in the early '60s when I attended

[2] Prior to the Commission's approval of Liberty's LED rate in DE 16-576 Liberty charged the City for these pilot fixtures as if they were the former HPS streetlights and did not charge the City for removal of what were likely fully depreciated fixtures.

grades K-3. My parents bought a summer home on the coast during that time. During grades 4-9 we lived primarily in Maryland and Virginia until my father's final Navy posting back in Brunswick where I finished high school. Every year while living in the mid-Atlantic (and often latter for other reasons) our family drove back and forth along the eastern seaboard to Maine. My parents often drove late into the evening and night during these trips where I spent many hours looking out the car windows. I distinctly remember noticing the different types of lighting, even if I didn't know the names for them, including the extreme monochrome low pressure sodium (LPS) lights that washed out nearly all color except a sick yellow in some urban areas and tunnels, such as the Holland and Baltimore harbor tunnels, and other tunnels that had strips of bare fluorescent bulbs, many of which were often burned out. I noticed the contrast between blue-green mercury vapor lights and the warm golden glow of HPS that was increasingly being used in the late 60s and 70s and I wondered why they were so different as I developed my own preference for incandescent and HPS over MV and LPS.

I moved to Lebanon in 1977 and have lived here ever since except for part of the month of June 1978 when I was between apartments. In the late 1980s and early 90s I was the managing general partner of two real estate partnerships that each developed commercial buildings on empty sites in downtown Lebanon, the first of which was primarily for retail and the second for offices and a restaurant, One Court Street, which I continue to manage to this day. As owner's representative I worked closely with the architect who largely deferred to me to research and select the indoor and outdoor lighting. Starting no later than January 1987 I subscribed to the trade journal "Architectural Lighting" for about 5 years. During that time I learned about comparative color temperature, color rendering index (CRI, the extent and balance of the visible spectrum of light colors), and energy efficiency of the range of available lighting

technologies, answering the questions of my childhood.[3] We specified CFL fixtures when they were just emerging as an option, some metal halide high intensity discharge (HID) lights for large open retail spaces and color improved HPS for some exterior lighting that was more white with much higher CRI than regular HPS. Around this time there were highway style cobra head HPS fixtures along Court Street that we wanted to replace with more pedestrian scale decorative lights posts. I matched as closely as I could currently available historic style post lights with acorn globes with those I could see in old black & white postcards of downtown Lebanon. I wanted to improve upon the light quality of the existing HPS and we purchased a more expensive color improved HPS from the Japanese manufacturer Iwasaki (Eye Lighting International). While the post lights have become a standard in downtown Lebanon, I was disappointed when the City added more equipped with lower cost and more orange regular HPS bulbs. (Some have now been converted to LED and the City has appropriated funds to convert the rest as part of our LED street lighting program.)

As I have had occasion to walk and drive most of the streets in Lebanon during my life here and as I became rather observant about such matters by the late 1980s, I am confident that the vast majority of streetlights paid for by the City to Liberty today are the same HPS fixtures that were in use throughout the City by the late 1980s. (HPS, MV and metal halide, all HID lamps, each require different ballast drivers that are typically part of the light fixture, so the lamps are not interchangeable and at least the ballast also has to be changed to convert).

Unfortunately, the City does retain copies of electric bills going back 23 years to document the streetlights we were paying back then and apparently neither does GSE. However, ss further evidence I offer the following:

[3] Attachment H is an article that explains and illustrates color temperature and CRI rather well.

1) Attachment I, an affidavit from Deputy City Manager Paula Maville, who is a lifelong resident of the City attesting to her recollection and belief the vast majority of streetlights in the City have been HPS since 1986 or earlier.

2) Attachment J, an affidavit from Mayor Timothy McNamara who also grew up in Lebanon and has lived here most of his life, attesting to his recollection and belief that the vast majority of streetlights in Lebanon have been HPS since the mid-1990s or earlier.

3) Attachment K, consisting of p. 28 from GSE's 1967 and 1973 tariff No. 6, showing its Outdoor Lighting Service Rate M, when in 1967 GSE offered incandescent and mercury vapor streetlights and added to those options "sodium vapor lights" effective 1/1/73. While in theory "sodium vapor" could refer to low-pressure sodium, there is no evidence to suggest GSE ever offered LPS lights, which were apparently first commercialized in the 1930s. GSE's current and proposed outdoor lighting tariff today still uses the term "sodium vapor lights" interchangeably with high pressure sodium lights. HPS was first commercialized by GE in the 1960s and was apparently being widely adopted by the mid-1970s as noted in Attachment H.

4) Attachment L, which is a view, like a map, of the Lebanon created by City GIS Coordinator Mark Goodwin in the Planning Department. That plans shows all the City and State streets and roads in the Lebanon plus private roads (though not dirt ones). The location of all buildings constructed prior to 1996 (more than 23 years ago) are shown as a plus sign in tan and building constructed from 1996 to present in red plus signs, overlaid with all of the approximately 827 streetlights owned by Liberty and being paid for by the City in little yellow circles. The other 400 or so Liberty street and flood lights paid for by other entities are not shown. A close examination of this plan shows that all or virtually all of the City's streetlights are located along roads that are populated with buildings built before 1996. While there is a

scattering of newer buildings that have been built in the past 23-24 years along these same roads throughout the City, the dense concentrations of newer buildings are off of city roads and along private roads, where there are no City paid for streetlights. In a table in the upper right is a list of 10 new private developments since 1995 (mostly on private roads), of which 9 have privately paid for streetlights and one has no streetlights. All of this is to establish the fact that although there has been significant growth and new development over the past 23 years the City has not been expanding its public streetlighting in any material way over that time period.

While there may be a few cases where the City has added a streetlights here and there in the past 23 years, including along roads that have been expanded, such as along route 120 north of downtown, and maybe a few failed or damaged fixtures have been replaced, the cost of which was capitalized by GSE, it seems highly unlikely that those new streetlights investments would be more than 5% or so (about 40) of the total City paid for Liberty streetlights today. On the other hand it seems highly likely that new private developments, buildings and parking lots, and maybe NHDOT expansion of I-89 exits 18 and 20 would account for a large portion of GSE investment in new streetlight installations in Lebanon over the past 23 years, where there is still undepreciated value on the books of GSE.

Q. Would you elaborate on your assertion that Liberty's 373 accounts for streetlighting in the City of Lebanon "apparently do not conform to the Uniform System of Accounts Prescribed for Public Utilities" contrary to Puc 307.04?

A. Yes, the Uniform System of Accounts under "General Instructions" ¶ 2 states:

> A. Each utility shall keep its books of account, and all other books, records, and memoranda which support the entries in such books of account so as to be able to furnish readily full information as to any item included in any account. Each entry shall be supported by such detailed information as will permit ready identification, analysis, and verification of all facts relevant thereto.

Pursuant to ¶ 11 utilities are required to keep their books on an accrual basis and ¶ 4 requires:

> Each utility shall keep its books on a monthly basis so that for each month all transactions applicable thereto, as nearly as may be ascertained, shall be entered in the books of the utility.

Based on the information provided to the City to date, Liberty's books of account for its streetlight and signaling systems within the City of Lebanon do not appear to conform with either of the requirements stated above.

In the spring of 2018 as we were preparing a budget for a CIP proposal to convert all City paid for street lights to LED, I asked Liberty to provide an estimate of what the total undepreciated book value is of the approximately 835 street lights that the City was paying for from Liberty at that time. The answer was $121,572.72. I asked for detailed backup and Heather Tebbetts provided a document from their plant accounting records that shows the date placed in service, cost basis, net book value and unit quantity of a list of investments. I have attached both that email and a print-out of that spreadsheet, with highlighting added by me, as Attachment M.

The total quantity count of these assets shown at line 194 is 335; hence Liberty has presumed that that represents data on 335 streetlights and posits that National Grid simply failed to provide data on the other roughly 900 streetlights in Liberty's total inventory for Lebanon.[4] However, the cost basis for these 335 items ranges from $0.12 (line 72) to $13,407.22 (line 90). It seems extremely unlikely that either of these represent the installed cost of a single streetlight. Hence the total quantity number probably does not correspond to a number of streetlights; they could represent a single bolt or screw at 12 cents or some package of work at 5 digits. The

[4] In DE 17-136 in response to data request OCA 2-019 Liberty indicated that they have a total 1,234 streetlights. That data response is referenced and linked to in Exhibit 12 of that proceeding on Bates pp. 3 and 55 found here: https://www.puc.nh.gov/Regulatory/Docketbk/2017/17-136/TESTIMONY/17-136_2018-11-02_OCA_DTESTIMONY_LOITER.PDF

transmittal email notes that for Column C, the "Asset Description," which is only a number "we don't know what they represent. We assume they may be types of lights, but have nothing to confirm." That is clearly not "such detailed information as will permit ready identification, analysis, and verification of all facts relevant thereto" as required by the Uniform System of Accounts. I will note that most (though not all) of the asset descriptions starting in 2012 when Liberty took over do have enough of a description to identify whether they are a luminaire or pole and what of what type or size.

It appears that Liberty may have found some more descriptive information for at least some of these items in an "Extended Asset Description Field" as the City recently asked for a quote for the removal of 76 streetlights that the City wants to discontinue. The document provided, Attachment N, along with the transmittal email from Nichole Thibodeau, purports to use the undepreciated balance on the oldest 76 fixtures as a proxy for missing data on the fixtures being removed. The descriptions appear to include some 18 floodlight assembles (when only one of the 76 requested removals is a floodlight), and the rest are poles and some "HEAD" and "STREETLT" assemblies. However, this extract from Liberty's 373 account has another problem. In comparing these two lists in Attachments M and N, I was able to map over all but 6 of the lines of 11/19 data back to the overall list of 343 assets in Lebanon based on the date placed in service and original costs basis. Of those with an undepreciated balance, all but 1 of them (line 56, with a blue highlight on the divergent net book values) have identical net book values to the list provided in May 2018 which was stated to be from "mid-2017." There are over 30 asset items here with positive net book value (all highlighted in pink) that apparently have had no depreciation applied in over 2 years, which would clearly be contrary to the Uniform System of Accounts requirement that accrual entries be posted on a monthly basis. Even the one item

that shows some decrease in net book value over more than 2 years has only decreased by $46.74 that is less than 1% of the cost basis and far less than the 4.33% (23 year) annual depreciation rate that Liberty has represented applies to this account.[5]

It is also interesting to note that while there are 23 items shown as fully depreciated, including one placed in service as of 4/1/2000 (line 63), which is less than 20 years ago, there are 30 items out of 38 with positive net book value that are shown as placed in service before October 1996 and so should be fully depreciated by now based on the 23 year life that Liberty has represented is used for this account. Either entries have not been made or there are different depreciation schedules being used here.

It is also important to note that under the Uniform Systems of Accounts the installed cost of equipment used wholly for traffic signaling systems, including transformers, are to be posted to the same account (373) as equipment for streetlights. It is possible that some of the undepreciated value of investments attributed to streetlights by Liberty may be for equipment for traffic control systems installed by GSE prior to Liberty's ownership, since their records apparently do not allow them to identify what, for whom, or where these investments were made, other than, presumably, within the City of Lebanon. Certainly, there has been an increase in the number of traffic lights throughout the City over the past 23 years, including new equipment installed by or for NHDOT around intersections they are responsible for, such as I-89 exits 18 and 20.

Q. What is the basis of your assertion that Liberty's method for how it intends to use existing data to approximate "the undepreciated value of the existing light" is unreasonable and inequitable?

[5] This was stated in response to data requests CoL 2-3 and CoL 2-4 attached hereto as Attachments O and P.

A. There have been 4 methods suggested or used by Liberty for how they would calculate the City's share of undepreciated value. First in the May 2018 estimate, the entire undepreciated balance is proposed to be charged to the City, less an estimated salvage value for the mounting brackets: $178,505.97 less $56,933.25 = $121,572.72 "total value charge Lebanon" (lines 194 to 202, p. 4 of Attachment M). That is clearly unreasonable as the City only pays for about 2/3 of total number of streetlights charged to Liberty customers in Lebanon. If the customers for the other roughly 400 streetlights wanted to convert or discontinue their lights after Lebanon, the only undepreciated balance left on Liberty's books would be for the assumed value of brackets.

That approach seems to have been superseded, first by an approach described by Liberty in their 10/10/19 response to data request CoL 2-3, Attachment O, which states that if the Company can't match billing information to plant accounting records for specific lights they would "identify the oldest of the requested lights for which there are records and use the remaining value of those lights as the basis to charge any undepreciated value as to the entire group of requested lights." Due to the apparent likelihood that they will have no ability to match any accounting records to any type of streetlight installed prior to 2012, much less any specific light, Liberty will be using net book value for relatively new and less depreciated fixtures as a proxy for fixtures that are much older on average. If we just pretend that Liberty's records actually do represent the installed cost of 335 streetlights, then it seems entirely possible that the records for the other unaccounted for ~1,100 streetlights may have been purged from GSE records under former ownership (NEES and National Grid) because they were fully depreciated. This approach could also result in the City paying for all or most of the total net book value of streetlights in the City.

Apparently Liberty has tried to apply this approach with the actual estimate provided to the City on 11/1/19 for removal of 76 street lights, what I will call the 3rd approach because it deviates from the previous description by not attempting to match up any of the specific types of luminaires being removed to the line items being used as proxies, rather just using the oldest 76 items out of 335 that seem to be for streetlights as the proxies. In Attachment N the total amount due for net book value for 76 streetlights is figured to be $12,284.50 or $161.38 per streetlight, which is greater than the $144.54 average net book value per streetlights for all streetlights as of mid-2017 ($178,505/1,235) and that is apparently even though all of the oldest items for streetlights with zero net book value are used in this initial calculation. If Liberty moves forward in time down the list of items by install date for the next round of removals or conversions, this approach could result in a charge that is much greater than average net book value for all streetlights and hence result in substantial overcollection and a potential windfall for Liberty (depending if it comes in a case test year) that would be even more unreasonable and inequitable that their initial attempts to estimate this value.

Fourth and finally in its 11/6/19 response to CoL TS 1-6, Attachment Q, Liberty stated "the Company has said it will charge the City an average undepreciated value for a prorated number of the 335 lights (not all are billed to the City) to be converted due to the lack of data received from National Grid, potentially saving the City tens of thousands of dollars." On the contrary, the City contends that such an approach would very likely overcharge the City tens of thousands of dollars. Available evidence indicates that the vast majority of streetlights attributed to the City are more than 23 years old and very likely more than 30 years old. The City has not materially expanded its streetlighting coverage in the past 23 years, while there has been substantial new development of retail, office, commercial, manufacturing, and medical

474 services within the City and NHDOT has expanded two interstate interchanges during this time.
475 Nine new private roads have been developed with privately paid for streetlighting, some
476 undoubtedly provided by GSE. A pro rata share of net book value for investments made mostly
477 within the past 23 years would have the City pay on the order of 2/3 of those costs, while it is
478 quite likely that more than 1/3 of the streetlights installed or replaced (moved or upgraded to
479 HPS or LED) within the past 23 years have been for non-City customers. If 10% of the City's
480 streetlights were new or replaced in the past 23 to 30 years, say 82 fixtures, that would be a lot,
481 and more than seems likely based on available evidence. If Liberty's account balance actually
482 represented 335 lights installed over the past 30 or so years and that included 10% of the City's
483 total, the City might be responsible for a quarter of net book value today (82/335), not two-
484 thirds. That would be a difference of about $70,000. The City should not have to bear the
485 burden and cost of proving a negative when Liberty doesn't have the data to prove a positive
486 because of GSE's failure to conform to the requirements of Puc 307.04 and perhaps Liberty's
487 lack of due diligence when it acquired GSE.
488 I'm not sure what the solution is, particularly because the City wants to move forward
489 much sooner than later, but Commission staff, including audit staff, working with Liberty and
490 the City might be able to think through a more reasonable and equitable resolution. One
491 approach might be for Liberty to examine its records to determine which of its Lebanon
492 customers have requested new streetlights or for which they have had to replace fixtures during
493 the more than 5 years that they have owned GSE and use that as a proxy for City vs. non-City
494 share of undepreciated assets, taking into account the 27 LED conversions for Liberty's LED
495 pilot as an anomalous event. If this can't be timely resolved perhaps the City could make a
496 payment in escrow while a solution is worked through and approved by the Commission. In any

case, where Liberty/GSE cannot comply with the literal language of their tariff due to GSE's own violation of Puc 307.04, Liberty should not be allowed to wing it and make up their own interpretation, methods and estimates for applying their tariff, which could result in large windfalls benefiting their shareholders at the expense of municipalities and their taxpayers who are just trying to be as energy efficient and fiscally responsible as possible.

Q. What are your brief comments about Liberty's proposed EV rate?

A. The City commends Liberty for its proposed electric vehicle charging rate, Rate EV and urges the Commission to approve it and allow any residential customer to access it, even if it is for the entire home. Liberty confirmed in response to CoL 2-5 (Attachment R) that Liberty intends to update the filed illustrative rates consistent with the "Technical Statement Regarding Time-of-Use (TOU) Model" in DE 17-189 that I co-authored with Heather Tebbetts of Liberty and the OCA's then consultant Lon Huber. I stand ready to assist in that effort as contemplated in Order No. 26,209 at 39.

I also urge the Commission to encourage Liberty to develop and propose similar opt-in TOU rates for its non-resident customers, starting with the G-3 rate class, as that could use the same basic model structure and much of the same data as for residential customers, and then for G-2 and G-3 rate classes with demand charges more based on share of coincident peaks. I'd be happy to help with that too (in my spare time :). This would be a big step forward in terms of providing more appropriate cost causation-based price signals to customers as contemplated by RSA 374-F and grid modernization.

Q. Does that conclude your testimony?

A. Yes it does.