

Exhibit No. ____ (TC - 2)

**BEFORE THE
VIRGIN ISLANDS PUBLIC SERVICES COMMISSION**

Docket No. 612

**PREPARED DIRECT TESTIMONY OF
BRUCE R. OLIVER**

**ON BEHALF OF
THE PUBLIC SERVICES COMMISSION'S
TECHNICAL CONSULTANTS**

July 3, 2013

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Bruce R. Oliver. My business address is 7103 Laketree Drive, Fairfax Station, Virginia, 22039.

Q. BY WHOM AND IN WHAT CAPACITY ARE YOU EMPLOYED?

A. I am employed by Revilo Hill Associates, Inc. I serve as President of the firm. I manage its operations and direct its preparation and presentation of consulting studies on energy, utility and regulatory policy matters for the firm's clients. For the purposes of this proceeding, I have been engaged as a subcontractor to the Georgetown Consulting Group (hereinafter "Georgetown" or "GCG") which for the purposes of this proceeding serves as Technical Consultants to the Virgin Islands Public Services Commission (hereinafter "PSC" or "the Commission").

Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS PROCEEDING?

A. My testimony in this proceeding is presented on behalf of the Technical Consultants to the Public Services Commission (i.e., Georgetown).

Q. WHAT IS THE PURPOSE OF YOUR PREPARED DIRECT TESTIMONY IN THIS PROCEEDING?

A. This prepared direct testimony addresses rate structure issues relating to the Virgin Islands Water and Power Authority (hereinafter “WAPA” or “the Authority”) requested electric rate increase. My testimony responds primarily to the prepared direct testimony of witness Shepard that has been filed on behalf the Authority. More specifically, my testimony addresses (1) WAPA’s calculation of revenues at present in proposed rates; (2) Load Loss Issues and their relationship to pricing of electric service; (3) the distribution of the proposed rate increase both among and within rate classes; (4) Curtailable Service pricing; (5) WAPA’s miscellaneous service charges; and (6) the need for the development of pricing for LED Lamps for Street Lighting.

Q. PLEASE SUMMARIZE YOUR EXPERIENCE AND QUALIFICATIONS.

A. I am an economist specializing in the areas of utility rates, energy, and regulatory policy matters. I have over 40 years of experience in the analysis of energy and utility policy issues. That experience includes employment in management positions in the rate departments of two major utilities (the Pacific Gas and Electric Company and the Potomac Electric Power Company), as well as service in management and senior staff positions for three firms engaged in energy, utility and public policy consulting. Those firms include: Revilo Hill Associates, Inc., the Resource Dynamics Corporation, and ICF Incorporated.

As a consultant, I have served a diverse group of clients on issues encompassing a wide range of energy and utility related matters. My clients have included state regulatory commissions, utilities, state Attorneys General, statefunded consumer advocacy groups, municipal governments, federal agencies, commercial and industrial energy users, hospitals and universities, suppliers of equipment and services to utility markets, residential consumer intervenors, the Electric Power Research Institute (EPRI), and the World Bank. Projects for those clients have included investigations of rate and regulatory policy matters relating to both publicly-owned and privately-owned utilities engaged in the provision of electric, natural gas, water, and wastewater utility services. I have also been engaged to address analyses and forecasts of supply, demand, and prices for utility and nonutility energy markets, as well as to assist commercial and industrial energy users in the negotiation of energy service contracts (including contracts for the procurement of competitive electricity and natural gas services).

To date, I have filed more than 400 separate pieces of testimony in over 250 proceedings before regulatory commissions in 24 jurisdictions. The regulatory jurisdictions in which I have testified include: the states of Pennsylvania, New York, New Jersey, Maryland, Delaware, Virginia, North Carolina, Rhode Island, Massachusetts, Vermont, Connecticut, Ohio, Illinois, Wisconsin, Arizona, New Mexico, South Dakota, and California, as well as the District of Columbia, Guam, the Virgin Islands, the City of

Philadelphia, the Province of Alberta, Canada, and the U.S. Federal Energy Regulatory Commission (FERC). My testimonies in those jurisdictions have addressed such topics as industry restructuring, utility mergers and acquisitions, divestiture of generation assets, siting of energy facilities, utility revenue requirements, revenue decoupling mechanisms, performance-based ratemaking, capacity planning, costs of capital, cost of service allocations, rate design, rate unbundling, incentive ratemaking, capacity expansion planning, demand-side management, energy conservation, economic development rates, lifeline rates, contracts for non-tariff service provided to large energy users, natural gas purchasing practices, gas transportation service, natural gas processing, competitive bidding, economic development rates, load research, load forecasting, weather normalization, metering, fuel procurement, fuel pricing, and asset management issues.

Q. WERE THIS TESTIMONY AND THE ATTACHED EXHIBITS PREPARED BY YOU OR UNDER YOUR DIRECT SUPERVISION AND CONTROL?

A. Yes, they were.

II. SUMMARY

Q. WHAT ARE THE KEY FINDINGS OF YOUR REVIEW OF WAPA'S RATE STRUCTURE PRESENTATION IN THIS PROCEEDING?

A. The findings of my review of WAPA's electric rate structure proposals in this proceeding include:

- There are substantial errors in WAPA's calculation of revenues at present and proposed rates.
- WAPA's original and revised distributions of kWh by rate block for the Large Power class are inconsistent with the structure of those energy blocks as set forth in the tariff.
- Given the Authority's concerns regarding losses of sales, WAPA should consider adoption of a **revenue decoupling mechanism** that would make its base rate revenues less susceptible to changes in customer usage between rate cases and provide WAPA with greater revenue stability.
- WAPA has made no use of load curtailment capability under its Curtailable Large Power Service rates and does not

anticipate the use of such curtailment capabilities given its current generation resources.

- At this point, most of the costs that WAPA recovers through its base rates for electric service are fixed distribution and customer-related costs that do not vary with changes in customers' monthly kWh consumption. Yet, WAPA continues to recover the vast majority of its base rate revenue requirement through kWh charges.
- Movement toward the recovery greater portions of the Authority's base rate revenue requirements through charges or rate mechanisms that are less subject to fluctuations in monthly customer usage could significantly improve the predictability of WAPA's revenues.
- Since Docket No. 533 (i.e., roughly a decade) WAPA has made no progress toward the development of a load research study and class cost of service allocations upon which the reasonableness and equity of its rates can be assessed, and its presentation in this proceeding raises new concerns regarding the likelihood the meaningful load

research and class cost of service study results will be forthcoming in the foreseeable future.

- LED lighting fixtures are presently being added to WAPA's electric system with no applicable rate for those fixtures.

Q. PLEASE SUMMARIZE YOUR RECOMMENDATIONS TO THE PSC REGARDING RATE STRUCTURE AND REVENUE RELATED ISSUES IN THIS PROCEEDING.

A. The primary recommendations of this testimony may be summarized as follows:

1. The Commission should find that the Authority has erroneously calculated its base rate revenue for the test year (FY 2011), as well as the revenue it can expect under its projected billing determinants for FY 2014.
2. The Commission should find that WAPA's test year (FY 2011) revenue at July 2009 rate levels should be increased by **\$2,203,000** to reflect the proper application of rates to the Authority's projected billing determinants. In addition, WAPA's FY 2014 revenue at July 2009 rate should be increased by **2,079,000**.

3. The Commission should require WAPA to investigate “*revenue decoupling*” options and offer recommendations regarding the deployment of revenue decoupling measures for its system.
4. Based on the record of this proceeding, the Commission should not accept or approve WAPA’s proposal for a new approach to the completion of a cost of service study, but it should establish a separate forum for further investigation and consideration of that proposal.
5. The Commission should allow for continuation of WAPA’s pilot program for Curtailable Large Power Service as presently structured.
6. In the absence of any effort by the Authority to update its **Miscellaneous Service Charges**, the Commission should require WAPA to increase those charges by not less than **35%**. The Commission should also require WAPA to prepare and submit, not less than 120 days prior to its next base rate filing, analyses to support the identification of cost-based levels for each of its Miscellaneous Service Charges. In the

absence of a cost of service study, any added revenue derived from increasing the Authority's existing Miscellaneous Service Charges should be used to proportionally reduce base rate charges for all classes of electric service.

7. The Commission should require WAPA to implement separate charges for LED lighting fixtures under its Public Street Lighting and Private Outdoor Lighting rate schedules.

III. DISCUSSION OF ISSUES

Q. HOW IS YOUR DISCUSSION OF RATE STRUCTURE-RELATED ISSUES ORGANIZED?

A. This discussion of rate structure-related issues addresses five basic topics. Those topics include:

1. Errors in WAPA's calculation of Revenue at Present and Proposed Rates;
2. Loss of sales, rate design, and revenue decoupling considerations;
3. WAPA's Curtailable Large Power Service program;
4. WAPA's Miscellaneous Service charges; and
5. Encouragement of LED Lighting Options;
6. Overall Rate Design Recommendations.

A. WAPA's Revenue Calculations

Q. HAVE YOU REVIEWED THE SCHEDULES THAT WAPA PRESENTS TO COMPUTE REVENUES AT PRESENT AND PROPOSED RATES?

A. Yes, I have. WAPA Exhibit 2-5 provides calculations to support the Authority's assessment of its revenues at its July 2009 rates, at its August 2012 interim rates, and at the July 2013 rate levels WAPA proposes in this proceeding. In each case revenue by class is computed using WAPA's projected billing units for its Fiscal Year ended June 30, 2014. Those calculations are intended to provide a "proof of revenue" (i.e., a demonstration that the rates proposed produce the level of base revenue that the Authority requests in this proceeding).¹ The "proof of revenue" presentation is intended to document the revenues that will be produced by multiplying the Authority's previously approved (July 2009), interim (August 2012), and proposed (July 2013) charges for service by the Authority's projected test year billing units (i.e., measures of numbers of customers billed, kWh used, kW demands recorded, and numbers of public and private lighting fixtures).

¹ I note that WAPA's presentation of "proof of revenue" calculations marks a step forward in its ratemaking practices. In Docket No. 575 no such calculations were offered.

Q. ARE THE CALCULATIONS THAT SUPPORT THE AUTHORITY'S DETERMINATION OF TEST YEAR REVENUE BY RATE CLASS PROPERLY COMPUTED?

A. No. The calculations provided in WAPA Exhibit 2-1 erroneously compute revenue for the Commercial class. At present, interim, and proposed rates, the computations presented in Exhibit 2-1 reflect a misapplication of rates for the Commercial class. In each case, billing units for the **Commercial** class (i.e., customers, kWh, and kW demands) are multiplied by the Authority's charges for **Residential Service** (i.e., rather than its charges for **Commercial Service**). As shown in Table 1 below, the appropriate charges for Commercial Service are in all cases greater than WAPA's charges for Residential Service.

**Table 1
Comparison of Charges for
Residential and Commercial Service**

Charge	C u s t o m e r		C u s t o m e r
	Charge Single <u>Phase</u>	Energy Three <u>Phase</u>	Charge <u>All kWh</u>
July 2009 Rates			
Residential	\$5.54	\$11.81	\$0.0838255
Commercial	\$7.21	\$14.41	\$0.1182590
August 2012 Rates			
Residential	\$6.22	\$11.81	\$0.0838255
Commercial	\$7.21	\$14.41	\$0.1182590
July 2013 Rate (Proposed)			
Residential	\$7.64	\$16.27	\$0.1147350
Commercial	\$9.93	\$19.85	\$0.1630000

As a result of these differences in charges by rate classification and the Authority's misapplication of Residential charges to Commercial Service, WAPA's presentation in this proceeding significantly **understates** expected FY 2014 revenue from the Commercial class.

Q. HAVE YOU COMPUTED THE DOLLAR AMOUNT BY WHICH WAPA'S COMMERCIAL SERVICE REVENUE FOR FY 2014 IS UNDERSTATED?

A. Yes. Based on WAPA's FY 2011 billing determinants the Authority's total revenue at **July 1, 2009** rate levels is understated by **\$4,971,000**. That difference represents roughly **29%** of the total revenue for the Commercial Service class when properly computed. This also suggests that WAPA's total base revenue at its July 2009 rates is **understated** by **\$4,971,000**. Similarly, the Authority's computed FY 2014 revenue for the Commercial class (and in total) at its **August 2012 Interim rate** levels and its projected FY 2014 billing determinants is **understated** by **\$5,671,000**. Further, WAPA's computed base rate revenue for the Commercial class (and in total) using its **proposed July 1, 2013 rate levels** and on its projected FY 2014 billing determinants is **understated** by **\$6,963,000**.²

Q. HAS WAPA VERIFIED THE ERROR IN ITS CALCULATION OF COMMERCIAL REVENUE AT PRESENT RATE LEVELS?

² The referenced changes in total revenue assume that no changes are made to billing determinants for any class that are reflected in WAPA's original filing in this proceeding.

A. Yes. During an informal discovery conference on June 7, 2013, the Authority agreed that its calculated revenues for the Commercial class were inadvertently computed using its Residential Service charges. However, the Authority suggested that the error in the calculation of its Commercial class revenue does not impact its total revenue because its billing determinants and revenue for Large Power Service were “backed into.” Thus, the Large Power Service revenue actually reflects the **residual revenue** that results from subtracting the computed revenue for the Authority’s other rate classes (i.e., Residential, Commercial, and Public and Private Lighting) from its actual total system revenue.³ Moreover, to reconcile the resulting Large Power revenue with the July 2009 rates that were in effect during FY 2011, WAPA indicated it would adjust the distribution kWh by energy charge block.

Q. HAS WAPA PROVIDED A REVISED SPREADSHEET SHOWING ITS CORRECTED COMMERCIAL SERVICE REVENUE AT PRESENT RATE LEVELS AS WELL AS THE ADJUSTMENTS MADE TO THE DISTRIBUTION OF LARGE POWER KWH BY RATE BLOCK?

A. Yes. On a revised spreadsheet was received by e-mail on June 25, 2013.

Q. ARE THE REVISED REVENUE CALCULATIONS IN THE SPREADSHEET WAPA PROVIDED ON JUNE 25, 2013 REASONABLE?

³ “Backing into” a class’s revenue is not a standard industry practice for ratemaking purposes, and it should not be permitted by this Commission as a substitute for analysis of actual historical relationships between usage and revenue.

A. The revised spreadsheet properly computes Commercial Service revenue for the test year (FY 2011). As anticipated, that spreadsheet reflects an additional **\$4,971,000** of Commercial Service revenue for FY 2011. It also shows total base rate revenue for all cases that is unchanged from the total revenue it has previously reported for FY 2011. However, to achieve the same level of total revenue it has reduced its previously computed Large Power Service revenue by a fully offsetting dollar amount, and premised the reduced Large Power revenue on a substantial redistribution of Large Power kWh among the four energy rate blocks applicable to Large Power Service customers under Rate Schedule LPS. Upon further analysis of WAPA's revised distribution of Large Power kWh by energy rate block, I conclude that neither the original distribution of kWh by that WAPA assumed nor the June 25, 2013 revised distribution kWh by rate block is appears reasonable, although the revised distribution is probably somewhat closer to reality than the initial distribution.

The observed differences in the distribution of kWh by rate block and the questionable basis for either of the distributions WAPA has used are important due to large differences in WAPA's base rate energy charges by rate block for the Large Power class. Under the July 2009 rates the charge for usage in the first energy block is \$0.118133 per kWh. The charge for usage in the fourth energy block is \$0.055927. Thus, WAPA received **more than twice as much** base revenue for a kWh in the first block than it received for a kWh of usage billed at the fourth block

rate. The July 2009 charges for all of the energy rate blocks under WAPA's Large Power Service rate schedule were as follows:

First Block	\$0.118133
Second Block	\$0.102610
Third Block	\$0.062236
Fourth Block	\$0.055927

It should also be noted that the average rate for the first two block is about **11 cents per kWh** while the average charge for the third and fourth rate blocks is **less than 6 cents per kWh**.

Q. WHAT IS THE BASIS FOR YOUR CONCLUSION THAT NEITHER OF WAPA'S DISTRIBUTIONS OF KWH BY RATE BLOCK FOR THE LARGE POWER CLASS IS REASONABLE?

A. WAPA's initial and revised distributions of energy use by rate block are as follows:

	<u>Original Distribution</u>		<u>Revised Distribution</u>	
	Million kWh	Percent of Total	Million kWh	Percent of Total
First Block	84.4	25.0%	27.0	8.0%
Second Block	84.4	25.0%	50.6	15.0%
Third Block	67.5	20.0%	118.2	35.0%
Fourth Block	<u>101.3</u>	<u>30.0%</u>	<u>141.8</u>	<u>42.0%</u>
Total	337.6	100.0%	337.6	100.0%

As indicated above, WAPA initially assumed that **50%** of Large Power usage would be in the first and second rate blocks (i.e., 255 in each block). However, the revised distribution reflects only **23%** of total kWh

energy use in the first and second rate blocks. Likewise, the revised distribution of test year kWh by rate block for the Large Power class assumes that 77% of total energy use for that class is billed in the third and fourth rate blocks, where WAPA's originally filed revenue calculations assumed that 50% of Large Power energy use was in the first two rate blocks. In the context of the large differences in charges per kWh by rate block shown above, the shifting of 27% or more than one-fourth of WAPA's total Large Power kWh use from the first and second energy blocks to the third and fourth energy blocks represents a substantial change that warranted further investigation.

Q. WHAT DID YOUR FURTHER INVESTIGATION AND ANALYSIS OF WAPA'S LARGE POWER ENERGY USE BY RATE BLOCK FIND?

A. My investigation next turned to the actual structure of WAPA's energy charges for Large Power customers. The four blocks of the energy charges under Rate Schedule LPS are applied as follows:

First Block	The First 10 kWh per kW of Billing Demand
Second Block	The Next 90 kWh per kW of Billing Demand
Third Block	The Next 100 kWh per kW of Billing Demand
Fourth Block	All Additional kWh per kW of Billing Demand

For FY 2011 WAPA represents that its Large Power customers had a total of 1,360,400 kW of Billing Demand (i.e., summed over the 12 months ended June 30, 2011). It also indicates that its Large Power customers used 337,652,000 kWh over the same twelve month period. Dividing that total kWh use by the reported billing demand, the average kWh per kW of billing demand for the Large Power class for FY 2011 is **248.2 kWh per kW**.

Given that the first block covers only 10 kWh per kW, it appears reasonable to assume that most bills for Large Power Service customers use the full first energy block. We can also deduce that the maximum use billable under the first block rate is 10 kWh times 1,360,400 kW of Billing Demand or **13,604,000 kWh** or about **4%** of total kWh for all Large Power customers during FY 2011. However, WAPA Initial Distribution of kWh by rate block assumed that **84,400,000 kWh** or **25%** of total Large Power kWh would be billed at the first block rate. That is more than **six times the maximum** billable at the first block rate based on WAPA's reported billing demand for the Large Power class.

The Authority's Revised Distribution moves in the right direction and reduces the usage assumed to be billed at the first energy block. Yet, even WAPA's Revised Distribution assumes **27,012,000 kWh** would be billed at the first block rate, and that is still roughly **twice the maximum** billable at the first block rate. Thus, neither of the distributions of Large Power kWh reflects a reasonable or acceptable number of kWh in the first

energy block. Moreover, since the first energy block has the highest charge in terms of \$/kWh, any correction that lowers the kWh in the initial block and increases the kWh use in the second, third, or fourth block, will necessarily lower both WAPA's total Large Power Base Rate revenue and its Total System Base Rate revenue for FY 2011.

Q. DID YOU UNDERTAKE SIMILAR ASSESSMENT OF THE KWH THAT WAPA HAS ASSIGNED TO THE SECOND, THIRD, AND FOURTH ENERGY BLOCKS OF ITS LARGE POWER RATE SCHEDULE REASONABLE?

A. Yes, to the extent possible given the available data.

Q. WHAT DID YOU CONCLUDE REGARDING THOSE ELEMENTS OF WAPA'S ASSIGNMENT OF ENERGY USE (KWH) BY RATE BLOCK?

A. WAPA's Initial Distribution of kWh to the second, third, and fourth energy blocks is totally unsupportable. Although WAPA's Revised Distribution for those rate blocks appears to move closer to a realistic distribution of kWh use by rate block, it still has notable shortcomings. The most obvious problems associated with WAPA's Revised Distribution are most prominent in its substantial understatement of second block kWh and its overstatement of third block kWh.

Q. WHAT IS THE BASIS FOR YOUR CONCLUSION THAT THE REVISED DISTRIBUTION OF KWH FOR THE LARGE POWER CLASS UNDERSTATES THE KWH APPROPRIATELY ASSIGNED TO THE SECOND ENERGY BLOCK?

A. My assessment of the kWh in the second block of WAPA's Revised Distribution has two parts. First, following the approach used in assessing the appropriateness of the kWh assigned to the first energy block, my analysis seized on (1) the fact that the second block is limited to 90 kWh per kW and (2) that the sum of maximum use under the first and second blocks is only 100 kWh per kW per month. The second part of my analysis compared WAPA's distributions of kWh by rate block for the Large Power Class in this proceeding with more a more detailed presentation of kWh usage by rate block for the Large Power class from Docket No. 575.

Q. PLEASE EXPLAIN THE FIRST PART OF YOUR ANALYSIS AND ITS FINDINGS.

A. Multiplying the **maximum kWh per kW allowed** in the second block (i.e., **90 kWh per kW**) times the Large Power billing demand for FY 2011, the maximum kWh billable in the second energy rate block is **122,436,000 kWh**. That total is **38 million kWh** or **45% more** than the **84,413,000 kWh** WAPA assigned to that block in its Initial Distribution. It is also nearly **2.4 times** (or 72 million kWh above) the **50,648,000 kWh** assigned to the second block in WAPA's Revised Distribution of kWh by rate block for the

Large Power class. To support either of WAPA's assignments of kWh to the second energy block, there would need to be substantial evidence that large numbers of Large Power bills do not use at least 100 kWh per kW (i.e., the sum of the maximum allowable kWh use for the first and second rate blocks). However, I find no such evidence. Rather, Thus, 100 kWh per kW represents a month load factor of only 13.7%, and that is a comparatively low load factor by industry standards. It is also low compared to the **248.2 kWh per kW**, computed earlier in this discussion, as the average use per kW for the Large Power class. Based on these observations, the likelihood that significant numbers of Large Power bills reflect usage of at least 100 kWh per kW is extremely low. In fact, these observations suggest that the Commission should expect that a high percentage of total large power bills use the full second block usage allowance. Therefore, the kWh billed at the second energy block rate should not be substantially below the **122,436,000 kWh** that would result if all bills used the full second block kWh allowance.

Although it should not be expected that the actual kWh for the second energy block would equal the maximum use for that block, the data reviewed suggest that a high percentage of Large Power bills would reflect use more than 100 kWh per kW and therefore use the entire allowance of kWh for the second energy block. In this context, a reasonable assessment of the kWh usage that should be billed in the second energy block should fall somewhere between 90% of the

maximum (i.e., 110 million kWh) and 70% of the maximum or about 85 million kWh. The 84.4 million kWh that WAPA assigned to the second block in its Original Distribution is close to the low end of my expected range and might be possible (although less likely). The 50.6 million kWh assigned to the second energy block in WAPA's Revised Distribution represents only 37 kWh per kW or less than half of the maximum allowable kWh per kW for that rate block. I find that result highly unlikely.

Q. DID THE SECOND PART OF YOUR ANALYSIS OF SECOND BLOCK ENERGY USE FOR THE LARGE POWER CLASS PRODUCE SIMILAR FINDINGS?

A. Yes. One of the spreadsheet files that WAPA provided in Docket No. 575 included a detailed breakdown of kWh, numbers of bills, and kW demands for each of the components of the Large Power class (i.e., Large Power accounts, Large VI Government accounts, Other Large Government accounts, and Primary Service accounts). That detail supports an aggregate distribution kWh by rate block for the entire Large Power class based on a total of 364 kWh for the class for FY 2008. That information, which is presented in **Exhibit BRO-E-1, page 1 of 2**, attached to this testimony, 118.5 million kWh or 32.6% of total kWh for the Large Power class in the second energy block. If that 32.6% factor is applied to the 337,652,000 kWh that WAPA uses for the Large Power class for FY 2011, the resulting kWh for the second energy block would be **109,913,000 kWh**

or nearly **60 million kWh above** the kWh attributed to the second energy block in WAPA's revised distribution.

The data WAPA has provided in support of its rate application in this proceeding offer little insight into the appropriate distribution of kWh to the third and fourth energy blocks of the Large Power Service rate schedule. The 248.2 average kWh per kW for the Large Power class would appear to suggest that the average customer in the class uses more than the upper bound of the third block (i.e., 200 kWh per kW). However, that average could be achieved through many difference combinations of third block and fourth block usage. On one hand, that average could be the result of a high percentage of customers using the full third block allowance and having comparatively small amount of usage actually billed in the fourth block. On the other hand, it could reflect a combination of a few very high load factor customers and a large number of customers who do not use the full third block usage allowance. These two alternatives could yield the same average kWh per kW but yield very different distributions of kWh for the third and fourth energy blocks. Under the first alternative, third block usage could approach the maximum use for the block (i.e., 100 kWh times 1,360,400 kW = **136.4 million kWh**). That could leave as little as **65 million to 70 million kWh** in the fourth block. Under the second alternative, use in the third block could equal less than half of the maximum allowance for third block usage, and with

such limited energy use in the third block, fourth block energy use would increase significantly.

Q. WERE YOU ABLE TO OBTAIN ANY FURTHER INSIGHT REGARDING THE DISTRIBUTION OF KWH BETWEEN THE THIRD AND FOURTH BLOCKS OF RATE SCHEDULE LPS?

A. Yes. My review of materials provided in Docket No. 575 identified an analysis of projected billing units by rate that included kWh by rate block for the Large Power class for FY 2007 through FY 2014. Throughout that data WAPA shows the same distribution of kWh by rate block for the Large Power class. That distribution includes is as follows:

First Block	5.95%
Second Block	36.12%
Third Block	22.61%
Fourth Block	<u>35.30%</u>
Total	100.00%

Although the use of the 5.95% for the first block clearly overstates the kWh allowable in the first block based on WAPA's projected FY 2011 and FY 2014 kWh sales, kW demands, and numbers of customers for the Large Power class, the remainder of this distribution is consistent with the provisions of the tariff and generally in-line with reasonable expectations regarding the distribution of kWh to the third and fourth blocks.

Q. IS THERE A REASONABLE SOLUTION TO THESE PROBLEMS REGARDING WAPA'S DISTRIBUTION OF KWH BY ENERGY RATE BLOCK FOR THE LARGE POWER CLASS?

A. Based on the tariff and the past WAPA assessments of Large Power usage by rate block, that I have reviewed, a reasonable distribution of kWh by rate block for the purposes of this proceeding is as follows:

	<u>FY 2011 Distribution</u>		<u>FY 2014 Distribution</u>	
	Percent of Total	Million kWh	Percent of Total	Million kWh
First Block	4.0%	13.5	4.0%	12.7
Second Block	36.0%	121.5	36.0%	114.7
Third Block	22.5%	76.0	22.5%	71.7
Fourth Block	<u>37.5%</u>	<u>126.6</u>	<u>37.5%</u>	<u>119.5</u>
Total	100.0%	337.6	100.0%	318.6

This distribution represents a slight modification of the distribution of kWh by rate block used by WAPA in the assessment of billing units by rate block for the large power class cited above. To be consistent with the tariff, I have shifted 2% of usage out of the first block and conservatively place that usage in the fourth rate block where it generates the least revenue. I have also rounded the percentages of kWh by block to the nearest half of one percent.

This distribution of kWh for the first and second blocks is consistent with the limits on usage within those blocks set forth in WAPA's tariff. Moreover, the distribution of kWh between the third and fourth blocks reflect consideration of past WAPA assessments of usage within those

blocks coupled with consideration of the influences of changes in overall kWh use for the Large Power class.

Q. WHAT IMPACT OF THE DISTRIBUTION OF KWH BY RATE BLOCK THAT YOU RECOMMEND ON WAPA'S REVENUE AT JULY 2009 RATES?

A. The distribution of kWh by rate block for the Large Power class that I propose generates greater revenue than WAPA has computed at July 1, 2009 rate levels for both FY 2011 billing units and FY 2014 billing units. For July 1, 2009 rates and FY 2011 billing units, my analyses and revised billing determinants indicate that WAPA has understated its revenue by **\$2,203,000**. For July 1, 2009 rates and FY 2014 billing units, WAPA's unsupportable distribution of kWh by rate block for the Large Power class understates its expected revenue by **\$2,079,000**. The FY 2014 impact is somewhat lower due to the lower total kWh that WAPA uses for FY 2014. In both cases, my analyses show the importance of using a distribution of kWh by rate block that is consistent with the limits on usage in the first and second rate blocks and the manner in which usage by rate block is determined properly determined.

B. Loss of Sales, Rate Design, and Revenue Decoupling

Q. DO THE AUTHORITY'S RATE STRUCTURE PROPOSALS IN THIS PROCEEDING ADDRESS ATTEMPT TO PROACTIVELY ADDRESS ITS CONCERNS REGARDING POTENTIAL LOSSES OF SALES AND REVENUE?

A. No, they do not. WAPA's rate design proposals simply apply essentially equal percentage rate increases to all classes of service and all charges applied to customers within each rate class **without consideration** of the Authority's costs of providing service by rate class, by function (i.e., generation costs, distribution costs, or customer costs), or by cost classification (i.e., customer-related costs, demand-related costs, and energy-related costs).

Q. IS WAPA'S THE POTENTIAL LOSS OF SALES A MATTER THAT SHOULD INFLUENCE THE COMMISSION'S RATE DESIGN CONSIDERATIONS IN THIS PROCEEDING?

A. Yes. Given that significant portions of the revenue that WAPA seeks to recover through energy charges reflect costs that do not vary with changes in kWh use, losses of sales can impede the Authority's ability to recover its full costs of providing service. Although the factors contributing to WAPA's concerns regarding loss of sales may be somewhat unique to the situation in the Virgin Islands, utilities and utility regulators throughout

the industry are faced with similar problems. The response in other jurisdictions has generally reflected a trend toward greater reliance on ***“revenue decoupling mechanisms.”***

Q. CAN YOU DESCRIBE FURTHER THE PARAMETERS OF REVENUE DECOUPLING MECHANISMS?

A. The structure and scope of mechanisms deployed to address *“revenue decoupling”* issues can vary significantly. Typically the approaches to revenue decoupling employed to date fall into three categories. Each category has its advantages and disadvantages. However, the key elements of these categories may not be mutually exclusive. As a result, some utilities have pursued hybrid approaches that combined less complex rate structure changes with the deployment of rate adjustment mechanisms.

The first category which involves the most simple and straightforward approaches to revenue decoupling reduce a utility’s exposure to revenue loss as a result of reductions in sales by shifting some or all of the fixed costs previously recovery from energy charges into demand and customer charges. The advantage of this approach is that it can be easily implemented without significant changes in bill procedures or bill formats. A disadvantage of this rate design approach to revenue decoupling is that it can cause noticeable changes in the bills of individual customers, and if rate changes are not implemented with considerable

sensitivity to the principle of gradualism, smaller and lower-load factor customers within each rate class may experience dramatic increases in their monthly bills.

The second category, which involves mechanisms of intermediate complexity, involves the implementation of a rate surcharge/crediting mechanism under which actual revenues billed are monitored on a monthly or annual basis, and shortfalls/over-collections of revenue when compared to approved revenue levels is surcharged/credited to customers in a subsequent period. Key determinations for such a program typically relate to: (1) the frequency of rate adjustments; (2) the classes to which the mechanism is applied; (3) whether revenue adjustments are made separately by rate class or a single uniform rate adjustment factor is applied to all classes.

An advantage of a rate adjustment or surcharge/credit mechanism is that the utility is provided greater certainty regarding the amount of revenue it can expect to recover. This approach may enable the utility to book revenue as billed and treat any subsequently identified under-or over-recovery amounts as Deferred Revenue in a Regulatory Asset account. Furthermore, revenue deferrals tend to be relatively short-lived.

A disadvantage of such rate adjustment approaches to revenue decoupling is that they can create substantial interclass and intra-class rate inequities. Where large changes in energy use are experienced in one class, but not in others, a rate adjustment mechanism that applies

rate adjustments to all classes can result in noticeable shifting of costs responsibilities among rate classes. On the other hand, class specific rate adjustment mechanisms can yield significant rate volatility for classes that have comparatively small numbers of customers and/or classes in which usage is dominated by a small number of very large customers (e.g., large power classes) where the start-up or closing of facilities or changes in operations may have inappropriate and unacceptably large rate impacts on comparatively smaller customers within the same class.

The third category of revenue decoupling mechanisms includes approaches which incorporate such features as multi-year rate plans, automatic inflation adjustments to operating costs, and/or provisions for the pass through of certain types of capital expenditures. Such approaches are clearly the most complex. They also may essentially replace the existing regulator process with an on-going requirement for regulatory review and oversight of the utility's activities.

These more complex mechanisms embody the advantages and disadvantages of the rate adjustment mechanisms discussed above, while also introducing other features which add other advantages and disadvantages. An additional advantage of these more complex mechanisms is that they can provide the utility that has a relatively stable customer base and operating costs longer-term certainty regarding the adequacy of its revenues relative to its costs without requirements for periodic rate filings. Additional disadvantages of these more complex

mechanisms may include: (1) a lack of flexibility to address large or unanticipated changes in cost relationships; and (2) less frequent opportunity for public input to the ratemaking process; (3) greater on-going oversight responsibilities for regulators who may require addition staffing of consulting support to monitor utility costs, revenue collections, and rate adjustment calculations; and (4) limits on the ability of regulators to examine utility operations and costs from a holistic perspective when faced with important regulatory policy considerations.

Q. ARE YOU PROPOSING THAT THE COMMISSION ADOPT A REVENUE DECOUPLING MECHANISM FOR WAPA IN THIS PROCEEDING?

A. No, I am not offering such a proposal. Rather, I am suggesting that given the Authority's concerns regarding losses of sales and the impacts of such losses on its revenue collections, the Authority and/or the Commission may find further investigation of revenue decoupling options to be a timely and appropriate endeavor. Ideally, the Authority would have come forward with such a proposal as part of its rate request in this proceeding that would enable the Commission to take more timely action on revenue decoupling issues. However, in the absence of such a proposal, the should Commission should take the initiative and require WAPA's timely consideration revenue decoupling options.

Q. MUST FUTURE CONSIDERATION OF REVENUE DECOUPLING ISSUES AWAIT THE RESULTS OF LOAD RESEARCH AND CLASS OF SERVICE STUDIES?

A. No. Certainly, the information derived from such studies would represent useful input to any attempt to address rate structure-related regulatory policy issues. However, for a publicly-owned utility, such as WAPA, improvement of the certainty of revenues may warrant consideration even in the absence of load research and class cost of service studies.

C. Load Research and Cost of Service Studies

Q. HAS THE DEVELOPMENT OF LOAD RESEARCH AND CLASS COST OF SERVICE STUDIES BEEN AN ISSUE IN PRIOR PROCEEDINGS?

A. Yes, it has. This Commission's expression of interest in achieving greater progress in those areas now dates back more than more than two decades. The last cost of service study actually prepared by WAPA dates back to **1974**.⁴ Yet, to date no appreciable progress has been made on either study.

In Docket No. 533 GCG noted that a major obstacle impeding the Authority's efforts to improve the efficiency of its overall operations is the absence of reliable class cost of service data upon which to design rates

⁴ See WAPA's response to Commission Data Request 3-2 in Docket No. 575 in which WAPA indicated that its proposed rates in that case were purportedly premised on a study performed in 1974 (i.e., nearly 40 years ago).

and evaluate demand-side management (DSM) programs.⁵ Furthermore, the testimony of WAPA witness Syzmankiewicz in Docket No. 533 indicated that completion of the load research and cost allocation studies that were essential to the development of DSM programs and improved rate designs. He also noted in that at that time that WAPA was still approximately two years from completion of such studies.⁶ Subsequent to Docket No. 533 (i.e., nearly 10 years ago), WAPA established a separate restricted “Load Research Program Fund.” That fund was originally set up with \$250,000. Yet, as of the time of the Authority’s last base rate case (Docket No. 575), none of those funds had been expended. By the end of December 2008 the balance in WAPA’s Load Research Program Fund had grown to \$343,491.⁷

In Docket No. 575 GCG again raised concerns regarding the general lack of progress by WAPA toward the completion of load research and cost of service studies. Despite the passage of several years, WAPA once again could demonstrate no progress toward the completion of either a load research study or a class cost of service study. However, WAPA indicated that it expected to **begin** its Load Research Program in January

⁵ See Docket No. 533, Exhibit TC-2, Direct Testimony of Bruce R. Oliver, pages 45-50.

⁶ Witness Syzmankiewicz’s Direct Testimony on behalf of WAPA in Docket No. 533 (pages 8-9) suggested that a comprehensive cost of service study would be filed with the PSC in approximately two (2) years. At the time, GCG viewed that target date as optimistic given the time requirements for LRP sample design, metering equipment acquisition, data collection, and data analysis. Yet, GCG did not anticipate the total absence of progress toward that objective nearly ten years later.

⁷ See WAPA’s response to Commission Data Request 2-13 in Docket No. 575.

2010, and complete it by January 2011.⁸ In the Settlement in Docket No. 575, efforts to facilitate WAPA's completion of a load research study were directly addressed in the Settlement entered into as part of the resolution of issue in that case. That Settlement included a provision which call for the development of a time schedule for completion of WAPA's load research program as well as a funding mechanism for that program. On April 19, 2010, WAPA's Governing Board approved the Authority's request for \$350,000 for its Load Research Program. On October 14, 2010, WAPA submitted a revised Load Research Implementation Plan to the Commission which called for completion of data collection to the Commission by the beginning of load research data collection efforts by July 1, 2011.

Q. WHAT IS THE CURRENT STATUS OF WAPA'S EFFORTS IN RECENT PERIODS TO COMPLETE A LOAD RESEARCH STUDY AND DEVELOP A CLASS COST OF SERVICE STUDY?

A. Nearly a decade has passed since the completion of Docket No. 533, and still WAPA has not commenced any data gathering or analyses to satisfy the already funded Commission mandate for the performance of a load research study. Likewise, the Authority has yet to prepare and present a class cost of service study.⁹ Rather, WAPA, through the testimony of witness Hodge in this proceeding, now indicates that the Authority wants

⁸ See WAPA's response to Commission Data Request 3-5 in Docket No. 575.

⁹ WAPA's response to Commission Data Request 3-5 in Docket No. 575.

to alter the Authority's approach to the development of load research and costs of service studies.

According to witness Hodge, WAPA indicates that WAPA now expresses a **preference** for **dispensing** with the performance of its **already funded load research study**, and instead focusing the efforts of a consultant on "*the cost of service study using **more conventional methods.***" (Emphasis Added.) However, WAPA offers no specifics regarding the purportedly "*more conventional methods*" on which it would rely in the absence of a detailed load research study. Witness Hodge also offers no information regarding WAPA's evaluation of the costs and timing of the alternatives that WAPA considered in the process of identifying its preferred approach.

The Commission should also be sensitive to the fact that "**Conventional methods**" for the performance of class cost of service studies in the electric utility industry **rely heavily on load research study results** to develop appropriate relationships for allocating costs among classes. **Load data is not an option in the performance of a conventional class cost of service study; it is a necessity.** If actual load research derived from metering data for Virgin Islands electric customers is not used, then some other source of load data must be employed. What WAPA plans to use as a substitute for load research is not explained; nor does witness Hodge explain how a cost of service study that is performed in the absence of a load research study can possibly

represent use of “*more conventional*” methods than a cost of service study which incorporates detailed load research study results. Witness Hodge also does not indicate whether it is the intent of the Authority pursue a load research study at some future point in time or totally remove the pursuit of load research from its longer-term (e.g., 3-5 year) budgeting and planning. If WAPA’s intent is a deferral of load research activities, then continued accrual of some or all of the currently escrowed funds may be appropriate. If it is WAPA’s intent to totally drop its pursuit of load research and use the funds presently earmarked for the performance of a load research study to fund the proposed cost of service study or/or other activities, then this Commission needs to required greater demonstration of the reasonableness of the alternative approach that WAPA now wants to employ. The Commission must also ask for more detailed exposition of information regarding: (1) the source of load data WAPA intends to use in the performance of the cost of service study it has retained SAIC to perform; and (2) how the Authority intends to assess the representativeness of as a substitute for the collection of actual load data for the Authority’s electric customers.

WAPA indicates that it has retained a consultant (i.e., SAIC) to perform a cost of service study, but no scope of work or timeline for completion of that study has been offered.¹⁰ It is also unclear whether the

¹⁰ During a telephonic discovery conference on June 7, 2013 a request was made of WAPA to provide a copy of the scope of work for the cost of service study project that SAIC has been retained to undertake, but to date no scope of work for that project has be provided.

consultant that has been retained is expected to perform on the cost of service study the witness Hodge describes as WAPA's preferred approach, or a "plan" for the completion of both a load research study and a cost of service study. At this point, WAPA has created at least two other "plans" for the completion of load research and cost of service studies, and the further expenditure of funds for the development of another plan does not appear to represent a production use of ratepayer funds. A well-devised RFP should be able to obtain a most of the "plan" for completion of the requested studies as part of the bidding process. A consulting firm, experienced in the performance of load research and cost of service studies, should have sufficient understanding of load research methods, metering equipment, data collection and processing procedure, and cost of service analyses to present a plan for the completion of such studies as part of the proposal for the project. WAPA should not have to pay a consultant to devise such a plan, particularly when it has already submitted a plan for a load research study to this Commission. A competent consulting firm should be able to review the load research plan already devised, assess its strengths and weakness in the context of the objectives for that study and the cost of service study that WAPA specifies in a RFP, and set forth all but the most refined details of a plan for completion of those studies.

Furthermore, with respect to the approach that the Authority now presents as its preferred approach, the Commission should be open to

consideration of reasonable options that will produce timely and usable cost of service allocation results. However, substantial questions regarding the manner in which WAPA proposes to pursue its “preferred” alternative plan for performing a cost of service study without the benefit of a load research study that reflects actual energy use patterns for electricity consumers in the Virgin Islands. For these reasons, the Commission should be cautioned against blind acceptance of any proposal for the performance of a class cost of service study in the absence of a detailed load research study. GCG has long sought “incremental” improvements in the Authority’s understanding of its customer usage patterns and costs of service by rate class, and GCG has been, and remains, open to options that will provide usable data on a timely basis while lowering costs. However, after ten years of no progress on these matters, there is concern that this latest proposed change in approach will only result in either further delays in the performance of such studies, and/or the production of substantial less meaningful and less useful cost analyses.

Q. SHOULD THE COMMISSION ACCEPT THE AUTHORITY’S NEW PLAN FOR THE PRODUCTION OF A COST OF SERVICE STUDY WITHOUT THE BENEFIT OF A LOAD RESEARCH STUDY?

A. No. As I have explained above, there are too many unanswered questions regarding WAPA new “preferred” approach and adoption or acceptance of that alternative without further development of the details

and implications of that plan is not recommended. Given the limited time for consideration of this matter within the current base rate proceeding, I would suggest that the Commission consider the establishment of a separate forum for further development of information regarding the attributes of WAPA's new "preferred" approach and other potentially viable alternatives. Given that GCG continues to believe that WAPA's timely completion of both load research and cost of service studies will serve the best interests of both WAPA and its ratepayers, GCG does not seek lengthy delays in the pursuit of those activities, only sufficient time to understand and evaluate this new approach for which WAPA has provided only the most cursory support.

Q. DO YOU HAVE ANY FURTHER OBSERVATIONS REGARDING THE AUTHORITY'S EFFORTS TO DEVELOP A STRONGER COST BASIS FOR ITS RATES AND CHARGES BY CLASS OF SERVICE?

A. Yes, I do.

The lack of cost basis for WAPA's proposed rates by class of service should be viewed by the Commission as highly problematic. At a time when the Authority expresses concerns regarding sales losses and the impact of such losses on revenue, an understanding of the relationship between rates that the Authority charges by class of service and its costs of providing service by customer class becomes increasingly important. WAPA's development of proposed rates in this proceeding without the aid

of a reasonably current assessment of its costs of providing service only serves to increase opportunities for mismatches between its costs and revenues, and amplify WAPA's exposure to potential revenue erosion. Despite nearly a decade of discussing the need for, and planning of, class load research and cost of service studies, WAPA has not produced either study.

WAPA indicates that it has recently contracted for a consulting assistance on these matters, but it remains unclear whether that consultant has been retained to prepare a cost-of-service study or to prepare a "plan" for completion of both a cost of service study and a load research study. Regardless, any study or plan resulting from those efforts will obviously not be available in time for use in this proceeding. When, and if, a cost of service study does become available, the Commission should consider docketing a separate proceeding (apart from base rate determinations) to gain a stronger understanding of that study and its ratemaking implications before ratemaking policy matters are addressed within the time pressures of the Authority's next base rate proceeding.

Numerous cost of service models already exist within the industry, and either the development of a new model or the modification of an existing model to address the attributes of WAPA's electric system should not be a long, time consuming, or particularly costly undertaking if acceptable load data inputs can be identified. However, the availability of acceptable load data inputs is the lynchpin for this endeavor. If acceptable

load data inputs are not readily available, then there may be no alternative to the completion of a load research study developed from metering data collected from WAPA's electric service customers.

D. Curtailable Service

Q. IN DOCKET NO. 575 A STIPULATION WAS REACHED REGARDING THE PILOT IMPLEMENTATION OF CURTAILABLE SERVICE RATES FOR LARGE POWER CUSTOMERS. IS WAPA PRESENTLY PROVIDING SERVICE TO CUSTOMERS UNDER ITS CURTAILABLE LARGE POWER SERVICE ELECTRIC RATE SCHEDULE CLP?

A. Yes, it is.

Q. HOW DOES THE AUTHORITY'S PILOT CURTAILABLE LARGE POWER RATE DIFFER FROM ITS STANDARD LARGE POWER SERVICE RATE LP?

A. There are four key distinctions between the Authority's Curtailable Large Power Service, Rate Schedule CLP, and its standard Large Power Service, Rate Schedule LPS.

First, Rate Schedule LPS provides only **firm service**. Rate Schedule CLP designates a portion of the customer's service as curtailable at the request of the Authority, and thus, any load designated

as curtailable is subject to interruption by the Authority under the terms set forth in that rate schedule.

Second, the monthly customer charge for Rate Schedule CLP customers is higher (i.e., \$168.26 per month for CLP customers versus \$62.17 per month for LPS customers).

Third, Rate Schedule CLP customers are subject to a minimum demand of 500 kilowatts (kW) where the minimum demand for Rate Schedule LPS customers is 25 kW.

Fourth, Rate Schedule CLP customers receive a credit for the amount of load that they agree to make available for curtailment when called upon by the Authority. That credit is \$2.22 per kW per month for the amount of load that is designated as Curtailable Demand.

Q. HAS THE AUTHORITY REQUESTED ANY CURTAILMENTS (I.E., INTERRUPTIONS) OF SERVICE TO RATE CLP CUSTOMERS SINCE THE IMPLEMENTATION OF THE CURRENT PILOT RATE?

A. No, it has not. It must be remembered that under the Rate Schedule CLP tariff provisions, customers served under that rate are only subject to load curtailment when power and energy is **available** from the Authority's generating resources and the power that is available from those resources is "*required to maintain service to the Authority's firm power service customers*". Thus, the Authority's curtailment capability is not effective during periods, such as major storm events, when service is not available.

The lack of value of the current curtailable service program during and following major storm outages is evidenced by the fact that WAPA reports that it experienced 4 major storm-related outages of service over the last three years, but made no use of its curtailment capabilities either during the recovery periods for those storm-related outages.

Q. IS THERE ANY EXPECTATION THAT THE AUTHORITY WILL REQUIRE CURTAILMENTS OF SERVICE BY RATE CLP CUSTOMERS IN THE FORSEEABLE FUTURE?

A. No. With the installation of additional generation resources and little or no expected growth in sales, the likelihood that curtailment requests will be required in the foreseeable future.

Q. WHAT ARE THE TOTAL DOLLARS ASSOCIATED WITH THE CREDITS PROVIDED TO CURTAILABLE SERVICE CUSTOMER ON AN ANNUAL BASIS?

A. WAPA has not provided the currently effective measures of Curtailable Demand for each Rate Schedule CLP customer. Thus, the current annual revenue impact of Curtailable Demand credits cannot be precisely determined. However, the program is limited to 7,500 kW of Curtailable Demand from all participants. Based on a maximum of 7,500 kW of Curtailable Demand and a monthly Curtailable Service credit of \$2.22 per kW, the annual cost of Curtailable Service demand credits cannot be

greater than \$199,800 (i.e., \$2.22 per kW per month times 12 months times 7,500 kW).

Q. DOES THE AUTHORITY'S EXPERIENCE WITH ITS PILOT PROGRAM TO DATE SUGGEST THAT CHANGES SHOULD BE CONSIDERED IN THE TERMS OR PRICING OF RATE SCHEDULE CLP?

A. No. The current Curtailable Service Program provides WAPA some flexibility for dealing with unforeseen supply disruptions. With the existing limit on participation in that program, the annual cost of the program does not appear excessive. However, there also appears to be no compelling reason to expand the size of the existing program at this time or to adjust the dollar amount of the monthly credit offered to participants.

E. Miscellaneous Service Revenue

Q. WHAT CHARGES DO YOU INCLUDE IN YOUR DISCUSSION OF MISCELLANEOUS SERVICE CHARGES?

A. For the purposes of this discussion, my reference is to charges, other than those billed on a monthly basis to all customers in a rate class, that established either in the WAPA's electric service tariff or its Electric System Rules and Regulations and which WAPA assess from time to time for such activities as:

- Service disconnections

- Service reconnections
- Service relocation
- Returned checks
- Customer-requested meter reads
- Service application fees
- Assessments for special bill collection activities

My discussion of adjustments to miscellaneous service charges is specifically not intended to apply to rate surcharges, late fees that are computed as a percentage of billed charges, primary voltage discounts, or demand credits provided to Curtailable Power Service customers.

Q. HAS THE AUTHORITY PROPOSED ANY CHANGES IN ITS MISCELLANEOUS SERVICE CHARGES IN THIS PROCEEDING?

A. No. WAPA has indicated in response to Commission Data Request 2-24 in this proceeding that it believes “*the current levels of its miscellaneous service charge are appropriate,*” and therefore, it proposes **no changes** in those charges. However, the Authority offers no data, analyses or studies to support its position. Moreover, the credibility of the Authority’s position must be further questioned in the context of WAPA’s agreement in the Settlement in Docket No. 575 that, “*The miscellaneous service charges for customer requested services should be updated to reflect current costs.*”

Q. WHEN WERE WAPA’S MISCELLANEOUS SERVICE CHARGES LAST ADJUSTED?

A. As discussed in my Direct Testimony in Docket No. 575, it appears that the last adjustments to WAPA's Miscellaneous Service Charges were made in 1991 (i.e., more than two decades ago). As I explained in Docket No. 575, adjustments to WAPA's miscellaneous service charges made simply to reflect the effects of inflation, as measured by the Consumer Price Index (CPI), since the end of 1991 would (at the time of Docket No. 575) have necessitated an increase of approximately 60% in each of those charges. With the passage of additional time since Docket No. 575, the adjustments necessary **just to track inflation**, as measured by the CPI, is now approximately **70%**.

Q. DOES THE RECORD OF THIS PROCEEDING SUPPORT A FINDING THAT WAPA'S CURRENT MISCELLANEOUS SERVICE CHARGES ARE APPROPRIATELY COST-BASED?

A. No. Despite the Authority's representation that its miscellaneous service charges are reasonable, the record of this proceeding is devoid of support for that representation. After more than two decades without any adjustment, the likelihood that the subject charges are currently representative of the costs WAPA currently incurs to provide those services is extremely low. Importantly, WAPA has adopted an unsupported position in this proceeding that is in direct conflict with the need for updating Miscellaneous Service Charges that WAPA recognized, and agreed to, in the Settlement in Docket No. 575.

The Commission should understand that Miscellaneous Service Charges are established to ensure that the utility is properly compensated for the provision of additional or special services for which (1) costs are not included in base rates and (2) the benefits of the services provided accrue primarily, if not exclusively, to the customer(s) to whom a Miscellaneous Service Charge is billed. In other words, Miscellaneous Service Charges are intended to ensure that customers, who place identifiable additional requirements on the Authority (i.e., service requirements that are over and above those for which customers are assessed through standard monthly billings) are charged directly for the costs of such of the additional services. A failure of the Authority's Miscellaneous Service Charges to keep pace with inflation can cause unnecessary and inappropriate subsidization of the costs of those additional services by other customers who do not impose such added costs on the system. Unless WAPA can demonstrate that the costs underlying its provision of the subject miscellaneous services have **not** increased over time with general inflationary pressures, I would urge the Commission to direct WAPA to begin the process of adjusting each of its Miscellaneous Service Charges upward to reflect the effects of inflation.

Q. WHAT ADJUSTMENTS TO WAPA'S MISCELLANEOUS SERVICE CHARGES DO YOU RECOMMEND IN THIS PROCEEDING?

A. Given that WAPA has made no effort to update these charges over an extended period of time despite recent encouragement to do so, the Commission needs to take the initiative and direct the Authority to begin the process of updating those charges. That process should be initiated by increasing each of its miscellaneous service charges by **half** of the inflation-based adjustment described above. This first step toward more cost-based charges would increase each of WAPA's Miscellaneous Service Charges by 35% (i.e., 50% of the identified 70% inflation-based adjustment). This limited initial adjustment will provide further time for more detailed analysis of the levels to which those charges should be adjusted in WAPA's next base rate proceeding while recognizing the need to move toward charges that better reflect cost increases over time. The Commission should also recognize that raising the levels of WAPA's Miscellaneous Service Charges it will also help reduce inappropriate subsidization of the Authority's costs of providing the subject services and moderate, at least slightly, the rate increases that WAPA's electric service customers would otherwise experience as a result of the Authority's rate request in this proceeding.

Q. IF WAPA'S MISCELLANEOUS SERVICE CHARGES ARE INCREASED BY 35%, HOW MUCH ADDITIONAL REVENUE WOULD BE GENERATED?

A. In response to Commission Data Request 2-23, WAPA has provided detail regarding its Miscellaneous Service Charges over its last three fully fiscal years and for FY 2013 to date. Focusing on the “Service Fees” within that data, I find that in FY 2011, WAPA had electric service fees totaling **\$1,352,492**.¹¹ Applying a 35% increase to those FY 2011 Service Fees, yields **\$473,372** of additional Miscellaneous Charge revenue for WAPA, and that added revenue from Miscellaneous Service Charges further reduces the dollar amount of the revenue requirement for which new base rate charges must be developed.

F. Implementation of Pricing LED Lighting

Q. ARE WAPA’S CURRENT PUBLIC STREET LIGHTING AND PRIVATE OUTDOOR LIGHTING RATES REASONABLY APPLICABLE TO A CUSTOMER THAT MAY CHOOSE TO DEPLOY LED LIGHTING FIXTURES?

A. No. Light Emitting Diode (LED) lighting fixtures represent a revolutionary change in the nature of lighting for both indoor and outdoor lighting applications. Among the many advantages that LED lighting offers are: (1) reduced energy consumption (2) reduced maintenance requirements; and (3) significantly longer life expectancy leading to fewer outages and less

¹¹ Other items for which revenues are listed in the response to Commission Data Request 2-23 (e.g., Large Charges, Rent from Electric Property, and Miscellaneous Interest Income) are not affected by my proposal for increased miscellaneous service charges and therefore are not included in determination of incremental miscellaneous charge revenue.

frequent requirements for change-out or replacement of fixtures. LED lights are purported to have a life expectancy of 15 years where mercury vapor streetlights have life expectancies of 5-6 years. The overall economics of LED lighting also offer faster paybacks on investments in new LED lighting equipment. Without utility incentives or rebates for the installation of LED lighting, users have reported investment paybacks of two to three years. With utility incentives or rebates, paybacks on investments in LED lighting may be as little as one-year.

Q. WHY SHOULD THE COMMISSION ADDRESS THE NEED FOR THE ESTABLISHMENT OF SEPARATE CHARGES FOR LED LIGHTING IN THIS PROCEEDING?

A. Although LED lighting is comparatively new, it is rapidly penetrating a variety of lighting applications including street lighting, traffic signals, and outdoor lighting. A number of utilities are actively promoting LED lighting for its energy savings characteristics. However, its benefits to both utilities and lighting customers extend well beyond energy cost savings. Yet, much of the economic value derived from the deployment LED lighting is associated with lowered energy consumption and reduced maintenance requirements, as a result the full value of investment in LED lighting can only be achieved when utility rates for such lighting options are established in a manner that directly reflects those characteristics. WAPA's current lighting service rates (Rate Schedules PLS and POL)

presently only include separate charges for Mercury Vapor and High Pressure Sodium lighting fixtures of specific sizes (i.e., wattage requirements). None of WAPA's existing charges for lighting services under Rate Schedules PLS and POL properly reflects the relevant characteristics of LED lighting.

Not surprisingly, the rapid deployment of LED lights is being experienced on a real time basis in the Virgin Islands. For example, the website for the Virgin Islands Energy Office indicates that the Department of Public Works (DPW) has recently received a \$965,000 grant under the American Recovery and Reinvestment Act, and a portion of the funds received under that grant is being used to convert **all traffic lights** in the Virgin Islands to LEDs. In addition, from October 1, 2009 through September 30, 2010, the Virgin Islands Energy Office offered a 30% rebate on the purchase of LED lighting. The Virgin Islands Energy Office also anticipates that its Energy Efficiency and Renewable Energy rebate program will soon be extended to provide further opportunities for assistance in the purchase of qualifying equipment including LED lights. The Virgin Islands Energy Office program provides rebates up to a maximum of \$1,000 for individual residential applications and rebates up to a maximum of \$2,000 for business applications of LED lighting. Thus, deployment of LED lighting in the Virgin Islands has already commenced, and further penetration of the Virgin Islands market by LED lighting should be anticipated. However, the LED traffic lights that DPW is presently

having installed do not have applicable charges under WAPA's current PSL and POL Rate Schedules.

Q. HOW SHOULD THE COMMISSION ADDRESS THE NEED FOR SEPARATE CHARGES FOR LED LIGHTING IN THE CONTEXT OF THIS PROCEEDING?

A. With proper pricing of electric service for LED lights, the deployment of LED lighting can benefit both WAPA and its customers. However, the current absence of charges directly applicable to LED lighting fixtures that reflect the favorable energy use, maintenance, and life-expectancy characteristics of LED lighting, can serve to contract the efforts of the Virgin Islands Energy Office and discourage further deployment of LED lighting. In that context, the Commission's adoption of separate charges for LED lighting under Rate Schedules PLS and POL can fill the current rate void and serve to facilitate, rather than discourage, use of LED lighting in the Virgin Island.

Q. WHAT CHANGES TO WAPA'S LIGHTING RATES SHOULD THE COMMISSION APPROVE?

A. Considering the much longer expected lives of LED lights and their lower maintenance requirements, I propose that WAPA's charges for LED lights be reduced to roughly one-third of the level of the Authority's present charges for Mercury Vapor and High Pressure Sodium lights. This

proposal would yield a charge of \$5.25 per month for LED lights requiring less than 200 watts, and a charge, of \$9.10 per month for LED lights with wattages greater than 200 watts. In addition, energy charges for these new types of street lights can be computed by through a formula which determines average monthly kWh use through a formula that relates energy use to the wattage of a LED light, average monthly burning hours, the adjustments for line losses and ancillary equipment.

I also note that these rate can be further refined as WAPA gains more experience with LED lighting and with WAPA's the completion of a new class cost of service study.

Q. ARE THER ANY ADDITIONAL BENEFITS THAT MAY ACCRUE TO WAPA AS A RESULT OF FURTHER DEPLOYMENT OF LED LIGHTS BY DPW?

A. Yes. As LED lighting fixtures become more broadly used for Public Street Lighting the lowering of WAPA's charges proposed for LED street lights (i.e., to reflect the longer lives and reduce maintenance requirements of LED lights) could favorably impact the magnitude of WAPA's street lighting-related uncollectible accounts expense.

F. Proposed Rate Design

Q. WHAT IS THE LEVEL OF THE PERMANENT ELECTRIC REVENUE REQUIREMENT THAT GCG RECOMMENDS FOR WAPA'S ELECTRIC OPERATIONS IN THIS PROCEEDING?

A. Exhibit GCG-10, line 5, reflects the Total Non-Fuel Revenue that GCG recommends for WAPA's electric service. That non-fuel revenue requirement is \$85,087,000. However, based on my recommended increase of in Miscellaneous Service Charges, \$473,000 of the identified \$85,087,225 non-fuel revenue requirement will not need to be collected through proposed base rates or surcharges. That levels a net non-fuel revenue requirement of **\$84,614,000**.

Q. HAVE YOU DEVELOPED RATES TO RECOVER THE \$84,613,853 NET NON-FUEL REVENUE REQUIREMENT FOR WAPA'S ELECTRIC SERVICE?

A. Yes, I have. The base rate charges and surcharges that GCG recommends for recovery of that revenue requirement are presented in **Exhibit BRO-E-2**.

Q. PLEASE EXPLAIN THE DEVELOPMENT OF EXHIBIT BRO-E-2.

A. Exhibit BRO-E-2, page 1 of 4, shows the development of electric non-fuel revenues for the island of St. Thomas based on WAPA's FY 2014 billing units by class and my proposed distribution of Large Power kWh by rate block. Revenues are calculated at both WAPA's July 1, 2009 rates and its

proposed July 1, 2013 rates. Page 2 of 4 of Exhibit BRO-E-2 provides a similar electric service revenue analysis for St. Croix. Exhibit BRO-E-2, page 3 of 4, shows combine FY 2014 revenue results for St. Thomas and St Croix at both July 1, 2009 and WAPA's proposed July 1, 2013 rate levels that WAPA proposes.

Exhibit BRO-E-2, page 4 of 4, builds from the base rate revenue at July 2009 rate levels to produce a set of base rates and surcharges that yield a total amount of non-fuel revenue consistent with GCG's electric non-fuel revenue requirement. The first step of the rate design process was to separate out the non-fuel revenue amounts associated with each of four cost tracking mechanisms that GCG recommends. Those cost tracking surcharge mechanisms and their associated non-fuel revenue requirements are:

(1)	Line Losses surcharge	\$ 1,743,000
(2)	OPEB surcharge	\$ 5,469,000
(3)	Self-Insurance surcharge	\$ 1,310,000
(4)	Maintenance Surcharge	\$33,567,000

The sum of the revenue requirements associated with the surcharges listed above is \$41,892,000. Thus, after establishing those surcharge amounts, the remaining non-fuel revenue requirement to be

recovered through base rates is \$42,722,000. That equates to an average increase in base rate charges of 16.02%.

Q. WHAT ARE THE ACTUAL SURCHARGE RATES THAT YOU HAVE COMPUTED?

A. The surcharges the GCG recommends are as follows:

Line Loses surcharge	\$0.002465 per kWh
OPEB surcharge	\$0.007453 per kWh
Self-Insurance surcharge	\$0.001853 per kWh
Maintenance Surcharge	\$0.047482 per kWh

Q. HOW DID YOU DETERMINE THE GCG PROPOSED BASE RATE CHARGES?

A. The determination of base rate charges starts with increasing each of the customer charges, demand charges, and lamp charges for lighting customers by the overall average increase (i.e., 16.02%). After computing the revenue generated by those increases, the energy charges were adjusted through an iterative process to ensure that the overall increase (i.e., the increase in the total non-fuel charges) for each energy rate block and energy rate block also equals the average increase of 16.02%. As a result, the “GCG Proposed Non-Fuel Total Charges” shown in the far right-hand column of Exhibit BRO-E-2, page 4 of 4, equal the amount that would be proposed for each charge if no surcharges are approved and the full increase is spread on an equal percentage basis to all charges.

It should be noted that due to the amount of costs moved into the surcharges, all base rate energy charges are significantly reduced. In addition, in the development of the proposed surcharges, it is assumed that the those surcharges would not be applied to Public and Private Lighting energy use as a reflection of the major changes in rate design for those classes that would result if a large portion of cost recovery for non-fuel revenue requirements for that class was shifted from fixed per lamp charges to \$/kWh charges.

Q. WHAT IS THE ADVANTAGE FROM A RATE DESIGN PERSPECTIVE OF THE PROPOSED SURCHARGE STRUCTURE THAT GCG PROPOSES?

A. Adoption of the proposed surcharge mechanism provides an opportunity for the Commission to ensure a closer matching of actual costs and actual revenue for WAPA on and on-going without the need for base rate adjustments. Furthermore, through an annual reconciliation process, these surcharges can serve as a form of revenue decoupling which can provide greater WAPA greater revenue stability over time.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes, it does.

