



February 11, 2021

VIA E-FILE

Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street, 2nd Floor North
P.O. Box 3265
Harrisburg, PA 17105-3265

Re: Petition of Duquesne Light Company for Approval of its Act 129 Phase IV Energy Efficiency and Conservation Plan, Docket No. M-2020-3020818

CAUSE-PA § 5.412a filing of admitted evidence

Secretary Chiavetta:

Pursuant to 52 Pa. Code § 5.412a and the attached *Interim Order Adopting Joint Stipulation For Admission of Evidence and Admitting Evidence Into the Record* in the above referenced proceeding, enclosed, please find copies of the Coalition for Affordable Utility Services and Energy Efficiency in Pennsylvania's (CAUSE-PA) admitted evidence, including:

- CAUSE-PA Statement 1, the Direct Testimony of Jim Grevatt
 - Appendix A – Resume of Jim Grevatt
 - Appendix B – Cited Interrogatory Responses
 - Testimony Verification of Jim Grevatt
- February 8, 2021 *Interim Order Adopting Joint Stipulation For Admission of Evidence and Admitting Evidence Into the Record*

Pursuant to the Commission's Emergency Order issued on March 20, 2020, and as indicated on the attached Certificate of Service, service on the parties was accomplished by email only.

Respectfully submitted,



Ria M. Pereira, Esq.
Counsel for CAUSE-PA

CC: Certificate of Service

Encl.

BEFORE THE PENNSYLVANIA PUBLIC UTILITY COMMISSION

Petition of Duquesne Light Company :
for Approval of its Act 129 Phase IV : Docket No. M-2020-3020818
Energy Efficiency and Conservation Plan :

Certificate of Service

I hereby certify that I have this day served copies of the *CAUSE-PA § 5.412a filing of admitted evidence*, upon the parties of record in the above captioned proceeding in accordance with the requirements of 52 Pa. Code § 1.54 and consistent with the Commission’s Emergency Order issued on March 20, 2020.

VIA Email Only

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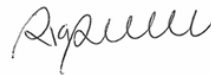
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February 11, 2021

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Petition of Duquesne Light Company for :
Approval of its Act 129 Phase IV Energy : Docket No. M-2020-3020818
Efficiency and Conservation Plan :

DIRECT TESTIMONY OF JIM GREVATT
ON BEHALF OF
THE COALITION FOR AFFORDABLE UTILITY SERVICES AND
ENERGY EFFICIENCY IN PENNSYLVANIA (“CAUSE-PA”)

January 14, 2021

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PREPARED DIRECT TESTIMONY OF JIM GREVATT

I. INTRODUCTION

Q. Please state your name, title, and employer.

A. My name is Jim Grevatt. I am a Managing Consultant at Energy Futures Group, located at 10298 Route 116, Hinesburg, VT 05461.

Q. Please describe Energy Futures Group.

A. Energy Futures Group (“EFG”) is an energy efficiency consulting firm established in 2010. EFG specializes in the design, implementation, and evaluation of energy efficiency programs and policies, with an emphasis on cutting edge strategies to cost-effectively achieve deep levels of savings and broad program participation. EFG has worked on behalf of utilities and other energy efficiency program administrators, government and regulatory agencies, and environmental, low income, and affordable housing advocacy organizations in 40 states and Canadian provinces, as well as several countries in Europe. EFG’s recent work has included serving as advisors on the development of efficiency program portfolios and policies in eight of the ten highest-ranking states in the American Council for an Energy-Efficient Economy’s (“ACEEE”) 2018 State Energy Efficiency Scorecard. In addition, EFG played key roles in developing a report on lessons learned from leading residential retrofit programs in North America and Europe; an analysis on the key pitfalls that can be encountered in performing energy efficiency potential studies; a study of emerging practices in the use of energy efficiency to defer or entirely avoid electric transmission and distribution upgrades; the development of a regional residential lighting strategy for the Northeast; and an assessment of the effectiveness of leading efficiency financing initiatives.

1 **Q. Please summarize your professional and educational experience.**

2 A. I have worked in the energy efficiency industry since 1991 in a wide variety of roles. Prior
3 to joining EFG in 2013, I served as the Director of Residential Energy Services at Efficiency
4 Vermont and the District of Columbia Sustainable Energy Utility. I also helped develop and launch
5 the award-winning natural gas energy efficiency programs at Vermont Gas Systems, where I
6 worked for eleven years, including four years as the Manager of Energy Services. I have extensive
7 hands-on experience conducting hundreds of energy audits for Vermont's Low-Income
8 Weatherization Assistance Program and Vermont Gas Systems' DSM programs.

9 In my current role as Managing Consultant at EFG, I have advised regulators, utilities, and
10 other energy efficiency program administrators, environmental organizations, and low income and
11 affordable housing advocates in numerous states, including California, Colorado, Delaware,
12 Illinois, Indiana, Iowa, Kentucky, Maine, Maryland, Mississippi, Missouri, Nevada, New
13 Hampshire, New Jersey, New Mexico, North Carolina, Pennsylvania, Vermont, Virginia, and
14 West Virginia, as well as the Canadian provinces of British Columbia and Manitoba. I focus on
15 using my in-depth knowledge of energy efficiency program management and operations as well
16 as experience in strategic planning to ensure that programs achieve their desired market impacts.

17 I received a B.F.A. from the University of Illinois.

18 My resume, included as Appendix A, provides additional detail regarding my professional
19 and educational experience.

1 **Q. Have you previously testified in any proceeding before the Pennsylvania Public**
2 **Utilities Commission?**

3 A. Yes, I recently testified on behalf of Coalition for Affordable Utility Services and Energy
4 Efficiency in Pennsylvania (“CAUSE-PA”) in Docket No. P-2014-2459362. I have also testified
5 before utility commissions in Colorado, Florida, Illinois, Iowa, Indiana, Kentucky, Nevada, North
6 Carolina, Vermont, Virginia, and West Virginia, as well as in the Canadian provinces of British
7 Columbia and Manitoba.

8 **Q. On whose behalf are you testifying in this case?**

9 A. I am testifying on behalf of CAUSE-PA.

10 **Q. What is the purpose of your testimony?**

11 A. The purpose of my testimony is to offer observations on the portfolio of energy efficiency
12 programs that Duquesne Light Company (“Duquesne” or “the Company”) proposes in hopes that
13 I may inform the Commission’s consideration of the Company’s Petition. The Company filed a
14 Petition for Approval of its Act 129 Phase IV Energy Efficiency and Conservation Plan (Phase IV
15 Plan) on November 30, 2020 with the Pennsylvania Utility Commission (Commission). The Phase
16 IV Plan was filed pursuant to the requirements of Act 129 and the Commission’s Act 129 Phase
17 IV Implementation Order, Energy Efficiency and Conservation Phase IV Implementation Order
18 (Implementation Order), entered on June 18, 2020, at Docket No. M-2020-3015228 (Phase IV
19 Implementation Order). Specifically, I discuss the sufficiency of the Company’s approach to
20 programs that are intended to reduce the energy bills of those customers who lack the financial
21 means to make investments in energy efficiency, i.e. households with income at or below 150%
22 of the federal poverty income level (FPL). Throughout this testimony, the term “low income” as

1 applied to persons or households will refer to those individuals and/or households whose income
2 is at or below 150% FPL.

3 **Q. What are your principal observations about the Company's filing?**

4 A. My principal observations are as follows:

- 5 1. The Company's low income initiatives span a variety of measures for both individual
6 homes and multifamily buildings that collectively are intended to achieve compliance with
7 the Companies' requirement to achieve 18,566 MWh of energy efficiency savings,¹ equal
8 to 5.3% of its total portfolio savings requirement for low income customers;
- 9 2. A few of the low income measures the Company proposes offer the potential for significant
10 bill savings for participants, but the savings the Company plans for compliance with the
11 low income savings requirement are dominated by multifamily common area lighting
12 measures that are slated to contribute 63% of planned low income savings. These measures
13 are valuable in reducing the operating costs of affordable housing, which helps to improve
14 and maintain the availability of low income housing generally, but will not provide direct
15 electric bill savings to the Company's low income customers;
- 16 3. The Company further proposes to obtain over 25% of its low income savings from its Low
17 Income Behavioral Energy Efficiency Program ("LI-BEEP"), which will provide meager,
18 short-lived savings on average to individual customers who participate;
- 19 4. The Company proposes to offer several building shell improvement measures, such as
20 insulation and air sealing for electrically-heated homes, but collectively these are only
21 expected to amount to 2.1% of the Company's planned low income savings;

¹ Table 2: Final Phase IV Targets, by EDC; Implementation Order at 8.

1 5. Ductless mini-split heat pumps and heat pump water heaters – measures that also offer
2 significant savings potential – together amount to less than 1.0% of the Company’s planned
3 low income savings.

4 **Q. What are your recommendations for the Commission?**

5 A. My overarching recommendation is that the Commission reject the Company’s Plan as
6 filed and require it to amend the Plan to provide for a much greater focus on comprehensive, long-
7 lived energy efficiency measures that will provide meaningful savings to participating low income
8 households. To accomplish this, I specifically recommend the following:

- 9 1. Increase expected participation in appliance replacements to reach 10% of the required low
10 income savings;
- 11 2. Increase expected participation in heating, cooling, and water heating measures to reach
12 20% of the required low income savings;
- 13 3. Increase expected participation in building shell (air sealing and insulation) measures to
14 reach 25% of the required low income savings;
- 15 4. Increase expected participation in direct install and EE kits measures to reach 10% of the
16 required low income savings;
- 17 5. Reduce common area lighting to be no more than 30% of the low income savings that are
18 reported towards compliance with the low income savings target; and
- 19 6. Reduce LI-BEEP to be no more than 5% of the low income savings that are reported
20 towards compliance with the low income savings target.

21 I discuss these recommendations in detail below.

II. BACKGROUND OF ACT 129 PROGRAMMING

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Q. Please summarize the low income energy savings requirements for Phases I, II, III, and IV of Act 129.

A. Act 129 requires that each Electric Distribution Company (EDC) include in its Energy Efficiency and Conservation Plan specific energy efficiency measures for low income households in proportion to that sector’s share of the total energy usage in a given service territory.² The Commission enforced this statutory requirement for all Phase I EDC Plans, but did not require EDCs to achieve a specific percentage of overall consumption savings from the low income sector.

In Phase II, the Commission continued to require that each plan include specific measures for low income households in proportion to the sector’s percentage of usage. In addition, the Commission required that each EDC obtain a minimum of 4.5% of its overall consumption reduction requirements from the low income sector.³ Eligibility for the Phase II low income sector programs was limited to low income households; however, low income customers could participate in any general residential program. To determine whether an EDC met its 4.5% target, the Commission allowed EDCs to include all savings achieved through dedicated low income programs, as well as a portion of savings achieved through non-low income programs based on estimated low income participation.⁴

In Phase III, the Commission again continued implementation of the statutory measure requirement and increased the low income consumption reduction requirement from 4.5% to 5.5%

² 66 Pa. C.S. §2806.1(b)(1)(i)(G).

³ Phase II Implementation Order at 55.

⁴ Id. at 58.

1 of the overall savings achieved.⁵ In calculation of Phase III compliance, the Commission provided:
2 “[s]avings counted towards the 5.5% target may only come from specific low income programs or
3 low income verified participants in multifamily housing programs. Savings from non-low income
4 programs will not be counted for compliance.”⁶ In addition to the specific savings carve-out, the
5 Commission further directed that “low-income savings should primarily come from measures that
6 are directly provided to low-income households.”⁷

7 For Phase IV, the Commission again increased the minimum low income savings
8 requirement from 5.5% to 5.8% of total consumption reduction,⁸ and maintained its requirement
9 from Phase III that low income savings be derived from programs “solely directed at low income
10 customers or low income-verified participants in multifamily housing programs.”⁹ In setting the
11 low income savings requirement, the Commission reiterated that the 5.8% savings requirement is
12 drawn from the Statewide Evaluator’s assessment of program potential, “which is significantly
13 below the maximum achievable potential.”¹⁰ For Duquesne, the 5.3% low income savings
14 requirement equates to 18,566 MWh.¹¹

⁵ Phase III Implementation Order at 69.

⁶ Id. Order at 69.

⁷ Id.

⁸ The Phase IV Implementation Order reduced the requirement for Duquesne to 5.3%. See Implementation Order at 8, Table 2: Final Phase IV Targets, by EDC.

⁹ Phase IV Implementation Order at 28.

¹⁰ Id. at 33.

¹¹ Id. at 35.

1 Notably, while the 5.8% savings requirement is higher in terms of the percentage of overall
2 savings, the actual MWh savings requirement from the low income customer segment is lower
3 than in Phase III because the overall portfolio savings targets are lower, “due to the higher
4 portfolio-level acquisition costs used to set the Phase IV targets.”¹² This is an important point to
5 keep in mind generally in assessing the adequacy of the Company’s proposed Phase IV Plan as a
6 whole, and specifically the adequacy of its proposed low income programs. Indeed, the
7 Commission explained that the overall portfolio savings requirements were established based on
8 higher acquisition costs for two primary reasons:

9 First, a sizeable share of low-cost savings in prior phases have been driven by
10 residential lighting measures, which are expected to play a very limited role in
11 Phase IV and were modeled as such. Second, though the Commission
12 acknowledges it is possible to design programs that capture savings at a lower
13 average acquisition cost in Phase IV than modeled by the results of the [potential
14 study], directing the EDCs to do so would be in contravention of the Commission’s
15 stated encouragement for EDCs to pursue comprehensive portfolios with a greater
16 focus on longer-lived, deeper-savings measures. The [potential study] included a
17 comprehensive mix of measures to reflect this Commission position.”¹³

18 On this last point – encouraging EDCs to pursue “comprehensive portfolios with a greater
19 focus on longer-lived, deeper-savings measures”, the Commission “strongly encourage[d] EDCs
20 to submit EE&C plans that adhere to this recommendation and encourage[d] stakeholders to
21 engage in proceedings related to those plans.”¹⁴ In my view, the Company falls short in this regard,
22 as I will discuss further below.

¹² Phase IV Implementation Order at 36.

¹³ Id. at 15.

¹⁴ Id.

1 Regarding coordination of Act 129 and the utilities’ Low Income Usage Reduction
2 Programs (“LIURP”), the Commission “encourages stakeholders to consider more comprehensive
3 proposals describing the nature, structure, and implications of potential alternate approaches to
4 coordination in future proceedings.”¹⁵ I take that to mean proposals for enhanced coordination of
5 Act 129 and LIURP should be considered in the instant proceeding.

6 With regard to multifamily savings, the Commission declined to require a specific
7 multifamily savings carve-out but directed the EDCs “to report savings achieved in multifamily
8 housing, both for the low income carve-out and for their portfolio programs.”¹⁶ The Commission
9 reiterated its direction from Phase III “that savings from multifamily housing, up to the percentage
10 of verified low income households living in the multifamily housing, are eligible for the low
11 income carve-out.”¹⁷

12 **III. THE NEED FOR LOW INCOME ENERGY EFFICIENCY**

13 **Q. How many low income customers does Duquesne have?**

14 A. This is a difficult question to answer precisely at this point in time due to the economic
15 effects of the COVID-19 pandemic – however, it is clear that low income customers make up a
16 very large portion of the Company’s overall customer base. The Commission publishes data about

¹⁵ Phase IV Implementation Order at 37.

¹⁶ Id.

¹⁷ Id.

1 the Company's low income customers annually in its Universal Service Report; however, the most
2 recent report only includes data through 2019, prior to the onset of the COVID 19 pandemic.¹⁸

3 Unfortunately, the economic landscape has and continues to change drastically as a result
4 of the pandemic, which has likely caused a substantial increase to the number of low income
5 households in the Company's service territory.¹⁹

6 **Q. Given the changing economic landscape, what is it possible to say about how many
7 low income customers the Company has currently?**

8 A. EDCs report their low income customer population two ways: estimated low income
9 customers and confirmed low income customers.²⁰ The "estimated low income" customer number
10 is derived using local census data, scaled against residential customer counts in a given geographic
11 area, to approximate the percentage of low income households in a utility's service territory.²¹ The
12 "confirmed low income" number is a count of those customers for whom the Company has
13 obtained information that would reasonably indicate that their income is at or below 150% of the
14 federal poverty level (FPL).²² In 2019, the Company reported that it had 538,534 residential
15 customers, of which 103,720 (19.3%) were estimated low income and 48,373 (9.0%) were

¹⁸ See Pa. PUC, BCS, 2019 Report on Universal Service Programs & Collections Performance, at 4 (Dec. 2019) (herein 2019 Universal Service Report), available at: https://www.puc.pa.gov/General/publications_reports/pdf/EDC_NGDC_UniServ_Rpt2019.pdf.

¹⁹ See Kris Maher and Eric Morath, Pennsylvania, With Most Jobless Claims in U.S., Could Foretell High Numbers Elsewhere, Wall Street Journal (March 27, 2020), available at: <https://www.wsj.com/articles/pennsylvania-with-most-jobless-claims-in-u-s-could-foretell-high-numbers-elsewhere-11585323969>; see also Pa. Office of Unemployment Compensation, UC Claim Statistics, available at: <https://www.uc.pa.gov/COVID-19/Pages/UC-Claim-Statistics.aspx>.

²⁰ 2019 Universal Service Report at 4-6.

²¹ Id. at 6.

²² Id. at 2.

1 confirmed low income.²³ Thus, it is likely that between 9.0% to 19.3% of the Company's
2 residential customers were low income customers before the onset of the pandemic. The pandemic
3 has caused much economic struggle throughout the Company's service territory, and the impact
4 continues to grow at this time.

5 **Q. You say above that the Universal Service Reports may not capture all of the**
6 **Company's low income customers. Do you mean that the Company has more low income**
7 **customers than are reported?**

8 A. Since these data only reflect the subgroup of customers that the Company has confirmed
9 meet its definition of low income, many low income customers are not included. The actual
10 number of low income customers is estimated to be significantly higher – and due to the pandemic,
11 there is little doubt that the number is growing. As such, the number of households in poverty who
12 are terminated and without electric service each year is likely to grow.

13 **Q. How much income must a household earn each month to be considered low income?**

14 A. With some exceptions, most utility assistance programs require households to have income
15 that is not greater than 150% of the federal poverty level ("FPL") to qualify. The FPL is a measure
16 of poverty based exclusively on the size of the household, but not the composition of the household
17 (i.e., whether the household consists of adults or children) or geography. Under current federal
18 guidelines, a family of four at 150% FPL would have a gross annual income of just \$39,300, while
19 for a family of four at 50% FPL the number would be just \$13,100.²⁴ For context, a full time (40
20 hour/week) worker making minimum wage (\$7.25/hour) would have a gross annual income of

²³ 2019 Universal Service Report at 4-7.

²⁴ U.S. Dept. of Health and Human Services, 2020 U.S. Federal Poverty Guidelines, available at <https://aspe.hhs.gov/2020-poverty-guidelines>.

1 \$15,080, assuming no time off. This is substantially less than a household needs to meet their
 2 basic expenses.²⁵ For reference, the self-sufficiency standard (the income needed to afford basic
 3 needs without assistance) for Pennsylvania for a family of four with two adults, one preschooler,
 4 and one school aged child is \$65,155.²⁶ Thus, a similarly situated family with income at 150%
 5 FPL would need to come up with an additional \$25,855 just to afford necessary expenses. Thus,
 6 these families are forced, on a monthly basis, to make impossible choices between necessary goods
 7 and services such as utility service, rent, food, and medicine.

8 In its 2019 Universal service Report, the Commission acknowledges that low income
 9 consumers in Pennsylvania often have income below 150% of FPIG.²⁷ The report states:

10 According to the U.S. Bureau of Labor Statistics, the definition of a “working poor”
 11 household begins with a wage-earner who works full time (35+ hrs/week) at a minimum-
 12 wage job. In 2019, minimum wage in Pennsylvania was \$7.25 per hour, the same as it has
 13 been since 2009. Annual income for an individual wage earner who works at a full time
 14 (40hr/week) minimum-wage job is \$15,080, which equates to 121% of FPIG in 2019 and
 15 118% FPIG in 2020.²⁸

16 **For all 2019 participants in universal service programs statewide, average annual**
 17 **household income for electric customers was \$14,594.**²⁹ The average electric CAP household
 18 (two persons) had an income of \$14,387, which placed these households’ incomes at

²⁵ See PathWays PA, Overlooked and Undercounted 2019 Brief: Struggling to Make Ends Meet in Pennsylvania, available at: <http://www.selfsufficiencystandard.org/Pennsylvania>.

²⁶ See Philadelphia County Self Sufficiency Standard, <http://www.selfsufficiencystandard.org/Pennsylvania> (the Self Sufficiency Standard is a tool that measures the income that a family must earn to meet their basic needs and consists of the combined cost of 6 basic needs – housing, child care, food, health care, transportation, and taxes – without the help of public subsidies.).

²⁷ 2019 Universal Service Report at 44.

²⁸ Id.

²⁹ Id. at 41.

1 approximately 85% of FPIG (for two persons) for 2019, and 83% for 2020.³⁰ Electric customers
2 who received LIURP services in 2019 had average annual household incomes of \$17,947.³¹

3 **Q. Is there evidence that Company's low income customers struggle to afford service?**

4 A. Yes. According to the Commission's Universal Service Reports shows that the Company's
5 confirmed low income customers are terminated for nonpayment at more than double the rate of
6 its non-low income customers. In 2019, the termination rate for the Company's residential
7 customers was 5.1%, but for confirmed low income customers the termination rate was 13.8%.³²
8 Confirmed low income customers are also more likely to be payment troubled. Despite making up
9 only 9.0% of residential customers, confirmed low income customers make up 18.4% of payment
10 arrangements and 23.3% of payment troubled customers (failing to maintain at least one payment
11 arrangement).³³

12 **Q. Has the pandemic worsened these struggles?**

13 A. Yes. Customer arrearages have grown significantly since the onset of the COVID-19
14 pandemic.³⁴ As of November 30, 2020, DLC's residential customers owed over \$52 million in
15 arrears – up 72% year over year – and 100,419 were eligible for termination.³⁵ These are staggering
16 numbers, and are evidence of the clear need for comprehensive energy efficiency with meaningful
17 bill savings potential to help struggling consumers to better afford their bills. Also, as a result of

³⁰ 2019 Universal Service Report at 44.

³¹ Id. at 41.

³² Id. at 13.

³³ Id. at 5, 8-9.

³⁴ See Public Utility Service Termination Moratorium – Modification of March 13, 2020 Emergency Order, Letter of Duquesne Light Company, Docket No. M-2020-3019244, at 6 (filed Dec. 15, 2020).

³⁵ Id.

1 the deep economic impact of the pandemic, energy usage patterns in the short term have changed
2 and may continue to change. Many Pennsylvanians who used to go to work and school every day
3 now find themselves at home during the day and are using more electricity as a result. While we
4 do not yet know the extent of the impact on electric consumption and the state's economy, energy
5 efficiency programming is even more important for low income families who are most profoundly
6 impacted by the economic repercussions of the pandemic.

7 **Q. Does the Company's customer assistance program alleviate these struggles?**

8 A. In 2019, nearly 36,000 Duquesne customers were enrolled in CAP.³⁶ This represents nearly
9 three-quarters of the Company's confirmed low income customers, yet only one-third of
10 Duquesne's 103,000+ estimated low income customers.³⁷ Thus, it is likely that at least one-quarter,
11 and perhaps as many as two-thirds of low income customers are *not* enrolled in CAP. All of these
12 customers must pay the full residential rate.

13 **Q. What is the relationship between energy efficiency and CAP?**

14 A. CAP costs are recovered through a rider assessed to all customers; thus, lowering energy
15 costs for CAP participants brings down the cost of service for other ratepayers.³⁸ Additionally,
16 CAP participants are required to make efforts to conserve usage and stay within required
17 consumption limits.³⁹ CAP customers also have a limited amount of CAP credits, which is the

³⁶ 2019 Universal Service Report at 50.

³⁷ Id. at 50, 6.

³⁸ See Duquesne Light Company 2017-2019 Universal Service and Energy Conservation Three Year Plan, Universal Service and Energy Conservation Plan, Amended Three-Year Plan 2017-2019, Docket No. M-2016-2534323, at 8 (USECP filed March 12, 2018).

³⁹ Id. at 4-6.

1 dollar amount of the discount given to the customer (i.e. the difference between the full rate and
2 the discount rate), customers that expend their maximum CAP credits too soon due to high usage
3 must pay the full rate until the credits reset.⁴⁰ Thus, providing comprehensive and effective EE&C
4 programing to CAP customers helps them to afford their bill and helps control costs for all
5 ratepayers.

6 **Q. Does the Company's LIURP satisfy the need for low income energy efficiency**
7 **programming?**

8 A. Not by itself. While there are similarities between Act 129 and LIURP, the two programs
9 each provide distinct and important benefits to low income households. Specifically, Act 129
10 programs allow any low income household to access energy efficiency measures without being
11 subject to the LIURP minimum usage thresholds. This benefit is particularly important for low
12 income residents in multifamily buildings and small single-family homes, who may have relatively
13 high usage but may not meet the usage threshold to qualify for LIURP.⁴¹ LIURP, on the other
14 hand, is specifically designed to target the very highest users to help reduce collections and
15 universal service costs.⁴²

16 Thus, the Company must be careful that coordination between Act 129 and LIURP
17 programs does not compromise the integrity of the distinct program budgets. I understand from
18 counsel that Act 129 requires that EDC's respective Act 129 low income expenditures to be *in*
19 *addition to* LIURP expenditures.⁴³ It is thus critical that the integrity of each program be

⁴⁰ Id.

⁴¹ EDCs generally require LIURP participants to have an annual usage of 6,000 kWh. Pa. PUC, BCS, 2018 Report on Universal Service and Collections Performance, at 46 (Dec. 2019).

⁴² See id.; see also 52 Pa. Code § 58.1.

⁴³ 66 Pa. C.S. § 2806.1(b)(i)(G).

1 maintained – even as we move to harmonize the two programs to streamline services and delivery
2 to low income consumers.

3 **IV. ACT 129 PHASE IV LOW INCOME PROGRAMS**

4 **Q. Please summarize the Company’s low income offerings in its proposed Phase IV**
5 **Plan.**

6 A. The Company proposes two programs that in combination will deliver its required low
7 income savings: the Low Income Energy Efficiency Program (“LIEEP”) and the Low Income
8 Behavioral Energy Efficiency Program (“LI-BEEP”). LIEEP is a broad, encompassing program
9 that includes a variety of measures, from energy efficiency kits, to building shell efficiency
10 measures such as insulation and air sealing, to equipment measures such as heat pumps and heat
11 pump water heaters, to lighting efficiency measures for commercially-metered common areas in
12 affordable multifamily housing. LI-BEEP is essentially similar to the Company’s Residential
13 Behavioral Energy Efficiency Program (“R-BEEP”) in that both rely on home energy reports
14 (“HERs”) to educate and motivate customer to take actions to reduce their energy use. The only
15 difference between LI-BEEP and R-BEEP is that “customers enrolled in the LI-BEEP program,
16 who have limited available income to invest in energy efficiency, will be provided with
17 recommended actions that are free or low-cost. LI-BEEP recipients will also receive
18 promotions for applicable limited income programs.”⁴⁴

19 **Q. Does the Company explain the process it used to determine the content of its proposed**
20 **programs?**

⁴⁴ Duquesne Light Company Response to CAUSE-PA I-9.a.

1 A. The Company states that it “developed the Phase IV Plan in partnership with
2 implementation providers to leverage industry expertise and streamline the transition from Phase
3 III”⁴⁵ and that “[t]he EE&C Plan forecast measure detail is directly linked to CSP responses to
4 competitive solicitations.”⁴⁶ I have no doubt that these potential bidders were able to make
5 significant contributions to the Company’s planning and development process based on their actual
6 field experience implementing programs. However, there can be risks with being overly reliant on
7 this approach.

8 **Q. What risks do you refer to that could be inherent in relying on implementation**
9 **vendors to provide the Company with direction on how best to plan its programs?**

10 A. Program vendors are in business to make a profit, which is only fair and reasonable.
11 However, this could put them in the conflicted position of having to make choices between
12 recommending measures and programs that best serve customers’ needs or recommending
13 measures and programs that are lowest risk to the vendor with respect to predictability, reliability,
14 and profitability. Please understand that I do not mean to be critical of the vendors – not at all. My
15 point is only that the Company must be expected to lead, rather than follow. Given the concerns I
16 raise about the portfolio below, it may be the case that the program vendors understandably
17 minimized program measures in the portfolio that they perceived to be higher risk from a
18 deliverability standpoint, and that the Company deferred to the vendors’ expertise – with the result
19 that the low income portfolio is far too reliant on measures that do not deliver comprehensive
20 savings to low income households.

⁴⁵ Duquesne Energy Efficiency and Conservation Plan, p. 8 of 225.

⁴⁶ Id.

1 **Q. Does the Company explain its understanding of the Commission’s use of the term**
 2 **“comprehensive” in its plan?**

3 A. Not specifically. While “comprehensive” or “comprehensiveness” appear at least fifty
 4 times in the Plan, I was not able to find a clear definition of Duquesne’s use of the term. In response
 5 to discovery from CAUSE-PA, the Company states that comprehensive “as used by the Company...
 6 refers generally to a broad range of measures tailored to meet customer needs, and includes
 7 measures such as weatherization and updates to HVAC and water heating systems.”⁴⁷ This is a
 8 different definition than what I have commonly found in my years in this industry. In my
 9 experience, comprehensive programming refers to energy efficiency projects that include a range
 10 of measures installed at the same time, so that deep savings are achieved across multiple end uses.
 11 I believe this definition to be consistent with the Commission’s use of the term in its
 12 Implementation Order.⁴⁸ In contrast, it seems that Duquesne considers comprehensive to mean
 13 that a range of measures is *available*, rather than that multiple measures are actually installed in
 14 projects.

15 **Q. Does LI-BEEP provide comprehensive opportunities for participants to obtain**
 16 **meaningful electric bill savings?**

17 A. Like most behavioral programs, LI-BEEP makes a significant contribution to meeting the
 18 Company’s savings requirement without providing significant savings to the average participant.

⁴⁷ Duquesne Response to CAUSE-PA I-4.b.

⁴⁸ See Implementation Order at 22; Act 129 Energy Efficiency and Conservation Program Implementation, Statement of Chairman Gladys Brown Dutricuille – Phase IV Tentative Implementation Order, Docket No. M-2020-3015228 (Statement dated March 12, 2020) (“The Tentative Order proposes the utilities design plans which provide more focus on comprehensive energy efficiency measures. This concept is a natural evolution from simple measures such as lighting to all-encompassing measures such as updating HVAC, weatherization, and water heating for a building.”).

1 The Company estimates that on average a participant in LI-BEEP will save 96 kWh per year,⁴⁹
2 worth about \$15 per year, or about \$1.25 per month in electric bill savings.⁵⁰ While any bill savings
3 for low income customers are worth pursuing, I believe that savings at this level are unlikely to
4 materially change households' ability to pay their energy bills or increase their access to other
5 necessities such as food and health care. In my view, behavior programs such as LI-BEEP are
6 more useful in reducing electric distribution system loads broadly than in providing savings to
7 individual customers. Both objectives are important, but the Commission's directives with respect
8 to its low income energy savings requirement are more focused on providing bill savings to
9 customers.

10 Importantly, savings from behavioral programs like Duquesne's LI-BEEP are short-lived,
11 and require ongoing program implementation year after year to maintain bill savings. Again, this
12 is in contrast to the Commission's directive that Phase IV focus on achieving deeper, longer-lasting
13 savings for consumers than in past years.

14 **Q. In contrast to LI-BEEP, does the Company's LIEEP provide the bill savings for low**
15 **income customers that you refer to?**

16 A. LIEEP includes measures that *have the potential* to deliver the meaningful bill savings I
17 would hope the Company would provide. If those measures – such as heat pump water heaters,
18 mini-split heat pumps, building insulation and air sealing – were projected to be furnished to large

⁴⁹ Duquesne Plan, Table 8A Estimated Savings and Participants - Residential.

⁵⁰ Bill savings calculated using EIA Average residential price for Duquesne of \$0.1602/kWh, EIA Table 6, 2019 Utility Bundled Retail Sales-Residential, available at: https://www.eia.gov/electricity/sales_revenue_price/. There was not time in preparation of my testimony to fully analyze Duquesne's savings assumptions for its behavioral program, but I note that its 96 kWh/year savings projection is nearly double PECO's estimated 52 kWh/year behavior program savings.

1 numbers of low income customers, then I would say that yes, LIEEP does provide the bill savings
2 that I think the Commission should expect.

3 **Q. Why do you say, “if those measures...were projected to be furnished to large numbers
4 of low income customers”?**

5 A. I say “if” because the Company’s projections are far too low to achieve meaningful bill
6 savings for the Company’s low income customers. In fact, the Company projects that it will provide
7 air sealing and ceiling insulation to 112 homes over the five-year implementation period, or
8 roughly 22 homes per year. These two building shell efficiency measures, in combination, are
9 estimated to provide 1,932 kWh per year savings,⁵¹ worth \$310 per year⁵² in electric bill savings
10 to a low income family. However, only a small fraction of the Company’s low income customers
11 will be lucky enough to receive benefits of this magnitude.

12 **Q. Are there other measures that are theoretically available in LIEEP that could also
13 provide significant electric bill savings for customers?**

14 A. Yes. The Company’s Plan includes, for example, heat pump water heaters as a LIEEP
15 measure. This measure is estimated to save on average 1,387 kWh per year⁵³ for a customer who
16 presumably would otherwise have a conventional electric water heater. This single measure would
17 be worth around \$220 per year in electric bill savings.⁵⁴ Unfortunately, as with the two building
18 shell measures I refer to above, the Company’s projections for this measure are low. It only projects

⁵¹ DLC-Measure Detail, CAUSE-PA I-7 Res, Tab “Measure Detail.”

⁵² Bill savings calculated using EIA Average residential price for Duquesne of \$0.1602/kWh, EIA Table 6, 2019 Utility Bundled Retail Sales-Residential, available at: https://www.eia.gov/electricity/sales_revenue_price/.

⁵³ DLC-Measure Detail CAUSE-PA I-7 Res, Tab “Measure Detail.”

⁵⁴ Bill savings calculated using EIA Average residential price for Duquesne of \$0.1602/kWh, EIA Table 6, 2019 Utility Bundled Retail Sales-Residential, available at: https://www.eia.gov/electricity/sales_revenue_price/.

1 it will furnish 63 such water heaters to low income customers over the five-year program
 2 implementation period, or less than thirteen per year on average.

3 **Q. You have discussed the Company’s substantial reliance on LI-BEEP, which produces**
 4 **relatively small, short-term bill savings, and its low projections for measures that provide**
 5 **significant savings through LIEEP. In your opinion, is Duquesne’s Plan consistent with the**
 6 **Commission’s directive regarding comprehensiveness?**

7 A. No. I believe that the Company’s low income programs are inconsistent with the
 8 Commission’s directives regarding comprehensiveness, and inconsistent with the SWE’s cost
 9 analysis that suggested reduced annual savings as a trade-off for more comprehensive, longer-
 10 lived savings. As illustrated in Table 1 below, the Company proposes that barely 2% of its low
 11 income savings will come from air sealing and insulation building shell measures, and that only
 12 another 1.48% will come from efficient heating, cooling, and water heating equipment upgrades.

13 *Table 1: Duquesne Low Income Savings⁵⁵*

Measure Category	% of planned LI savings
Refrigerator, freezer, room A/C replacement	3.51%
Connected thermostat, heat pump water heater, ductless mini-split heat pump, central A/C, air source heat pump	1.48%
Air sealing and insulation	2.06%
EE kits	3.75%
Common area lighting - multifamily	63.23%
LI-BEEP	25.96%
Total	100.00%

14

⁵⁵ DLC-Measure Detail CAUSE-PA I-7 Res, Tab “Measure Detail,” LI-BEEP savings from Tab “CAUSE-PA Set 1 Analysis.”

1 **Q. The Company is only projecting meager participation numbers for the**
2 **comprehensive building shell and equipment measures you reference above. What other**
3 **measures will provide the savings the Company needs to meet its low income savings**
4 **requirement?**

5 A. The Company proposes to replace 1,650 refrigerators for customers over the plan period,
6 and each is estimated to save 560 kWh per year,⁵⁶ which would be worth about \$90 in annual
7 electric bill savings⁵⁷ for participants and about 3.2% of the Company's planned low income
8 savings. There are also a number of other measures it proposes to offer, some of which could
9 provide meaningful bill savings. However, quite strikingly, the vast majority of the Company's
10 low income savings are expected to come from common area lighting measures in affordable
11 multifamily housing. The detail provided by the Company in response to discovery from CAUSE-
12 PA illustrates this clearly, showing that 85% of the Company's planned savings in LIEEP are slated
13 to come from these measures, or 63% of total low income savings when the LI-BEEP savings are
14 factored in.⁵⁸

15 **Q. What do you find striking about the amount of common area lighting the Company**
16 **plans to rely on to meet its low income savings target?**

17 A. It is striking because low income households will not receive a single cent in direct energy
18 bill reductions from 63% of the proposed low income savings. This is antithetical to the

⁵⁶ DLC-Measure Detail CAUSE-PA I-7 Res, Tab "Measure Detail."

⁵⁷ Bill savings calculated using EIA Average residential price for Duquesne of \$0.1602/kWh, EIA Table 6, 2019 Utility Bundled Retail Sales-Residential, available at: https://www.eia.gov/electricity/sales_revenue_price/.

⁵⁸ DLC-Measure Detail CAUSE-PA I-7 Res, Tab "Measure Detail," LI-BEEP savings from Tab "CAUSE-PA Set 1 Analysis."

1 Commission's directive that "low-income savings should primarily come from measures that are
2 directly provided to low-income households."⁵⁹ These measures are valuable for managing
3 operating costs of affordable housing, which helps to improve and preserve affordable low income
4 housing, and it is reasonable that the Company should be encouraged to provide robust
5 programming for multifamily buildings. However, efficiency treatment in common areas for
6 multifamily buildings does not directly and materially improve the financial condition of low
7 income households. Thus, I do not believe Duquesne should be relying on savings from treatment
8 in common areas of multifamily buildings to provide anywhere near the contribution to the
9 Company's low income savings that it has proposed.

10 **Q. If the Companies reach their low income savings requirement, why does it matter**
11 **whether the savings meet the Commission's directive for comprehensiveness?**

12 A. The Company's reliance on LI-BEEP and common area lighting measures in multifamily
13 buildings provides limited savings to low income households. The Commission has made it clear
14 that for Phase IV of Act 129, it wants the Companies to provide more focus on providing
15 comprehensive measures that provide longer-lasting savings, including for low income
16 households.⁶⁰ The Commission stated in its Phase IV Tentative Implementation Order:

17 We note that the EE&C Programs have matured enough so that EDCs can **increase their**
18 **focus on more comprehensive measures** which tend to require greater implementation
19 timeframes.⁶¹

20 The Commission also stated that it:

⁵⁹ Phase III Implementation Order at 69.

⁶⁰ Ph. IV TO at 8,17.

⁶¹ TO at 8.

1 ...proposes to require each EDC to obtain a minimum of 5.8% of its total consumption
2 reduction target from the low-income sector...from programs solely directed at low-
3 income customers or low-income-verified participants in multifamily housing programs.
4 Savings from non-low-income programs, such as general residential programs, would not
5 be counted toward these targets.⁶²

6 The Commission echoes its preference for longer-lived measures in its discussion of
7 demand savings targets when it says “because EE measures typically have multiple years of useful
8 life, their associated incremental annual peak demand reductions will continue to provide value
9 beyond the year in which they are claimed as incremental annual peak demand reductions in EE&C
10 programs. The Commission prefers the lasting peak demand reductions achieved by EE
11 measures.”⁶³ In short, the Companies’ programs as proposed do not meet the needs of their low
12 income customers and do not comply with the directives of the Commission.

13 **Q. Do you recommend the Company promote fewer common area lighting**
14 **improvements for multifamily housing?**

15 A. No, these are important measures that are cost-effective, and that will provide important
16 benefits to affordable housing providers by helping to manage operating costs. The Company
17 should maintain its projections for these lighting measures. Rather than reduce these measures, it
18 should make significant increases to its projections for comprehensive building shell and heating,
19 cooling, and water heating measures. It should also limit the savings from LI-BEEP that it counts
20 towards its low income savings target.

21 **Q. What do you recommend as an appropriate allocation of savings for the Company for**
22 **achieving the low income savings target?**

⁶² TO at 17.

⁶³ Tentative Order, p. 34.

1 A. I recommend significant reapportioning of the low income savings, which I have illustrated
 2 below in Table 2. I believe that an allocation such as this would be far more responsive to the
 3 Commission’s stated expectations for the EDCs’ low income programs.

4 *Table 2: EFG Proposed Allocation of Low Income Savings Sources*

Measure Category	EFG Proposed % of LI savings
Refrigerator, freezer, room A/C replacement	10.0%
Connected thermostat, heat pump water heater, ductless mini-split heat pump, central A/C, air source heat pump	20.0%
Air sealing and insulation	25.0%
EE kits	10.0%
Common area lighting - multifamily	30.0%
LI-BEEP	5.0%
Total	100.0%

5
 6 **Q. If the Commission were to adopt your recommendation and direct the Company to**
 7 **modify its Plan accordingly, would there be cost implications?**

8 A. I have not attempted to conduct an analysis of the costs that would be associated with my
 9 proposal in the limited time available to review, but there is little doubt that costs could increase
 10 for the LI programs if my recommendations are adopted. However, the SWE’s analysis that was
 11 adopted by the Commission indicated that the Company could meet its low income savings target
 12 with comprehensive measures at a cost that is consistent with the Company’s proposed LIEEP and
 13 LI-BEEP budgets that, combined, are roughly 16% of the total portfolio costs.

14 **V. RECOMMENDATIONS**

15 **Q. What are your recommendations to the Commission regarding approval of the**
 16 **Companies’ Act 129 Phase IV Filing?**

1 A. My overarching recommendation is that the Commission reject the Company's Plan as
2 filed and require it to amend the Plan to provide for a much greater focus on comprehensive, long-
3 lived energy efficiency measures that will provide meaningful savings to participating low income
4 households. To accomplish this I specifically recommend the following:

- 5 1. Increase expected participation in appliance replacements to reach 10% of the required low
6 income savings;
- 7 2. Increase expected participation in heating, cooling, and water heating measures to reach
8 20% of the required low income savings;
- 9 3. Increase expected participation in building shell (air sealing and insulation) measures to
10 reach 25% of the required low income savings;
- 11 4. Increase expected participation in direct install and EE kits measures to reach 10% of the
12 required low income savings;
- 13 5. Reduce common area lighting to be no more than 30% of the low income savings that are
14 reported towards compliance with the low income savings target; and
- 15 6. Reduce LI-BEEP to be no more than 5% of the low income savings that are reported
16 towards compliance with the low income savings target.

17 These allocations are illustrated in Table 2, reproduced below for convenience.

1 *Table 2 (Reproduced): EFG Proposed Allocation of Low Income Savings Sources*

Measure Category	EFG Proposed % of LI savings
Refrigerator, freezer, room A/C replacement	10.0%
Connected thermostat, heat pump water heater, ductless mini-split heat pump, central A/C, air source heat pump	20.0%
Air sealing and insulation	25.0%
EE kits	10.0%
Common area lighting - multifamily	30.0%
LI-BEEP	5.0%
Total	100.0%

2

3 **Q. Does this conclude your Direct Testimony?**

4 A. Yes.

CAUSE-PA, St. 1
APPENDIX A:
RESUME OF JIM GREVATT

Jim Grevatt

Managing Consultant



Professional Summary

Jim Grevatt has 30 years of experience in energy efficiency program planning and operations. At Energy Futures Group Jim has advised regulators, program implementers, and advocates in Florida, Louisiana, West Virginia, Colorado, Nevada, British Columbia, Manitoba, Maryland, Pennsylvania, Delaware, Virginia, New Jersey, Illinois, Iowa, Indiana, Mississippi, North Carolina, South Carolina, California, Vermont, Maine, Kentucky, and New Hampshire, and has provided expert witness testimony in twelve of those jurisdictions. Jim has hands-on experience with industry-leading approaches to designing and managing energy efficiency programs, including multi-family, low income, residential retrofit, new construction, HVAC, and efficient products programs. His in-depth knowledge of program operations and clear understanding of strategic thinking and planning ensure that programs achieve their desired market impacts. Throughout his career, Jim has focused on building strong relationships with staff, peers, trade allies, regulators, and clients as the best way to understand the needs and challenges that each sector faces. In past leadership roles at Efficiency Vermont, the DCSEU, and Vermont Gas, Jim had overall responsibility both for program design and operations. He was responsible for finding successful consensus approaches among diverse groups of partners and stakeholders, and for policy interactions with regulators, assuring that program processes were efficient and effective.

Experience

2013-present: Managing Consultant, Energy Futures Group, Hinesburg, VT

2012-2013: Director, Targeted Implementation, Vermont Energy Investment Corp., Burlington, VT

2011-2012: Director, Residential Energy Services, District of Columbia Sustainable Energy Utility
for Vermont Energy Investment Corp., Washington, D.C. and Burlington, VT

2010-2012: Managing Consultant, Vermont Energy Investment Corporation, Burlington, VT

2005-2010: Director, Residential Services, Vermont Energy Investment Corp., Burlington, VT

2001-2005: Manager, Energy Services, Vermont Gas Systems, S. Burlington, VT

1998-2001: Manager, Residential Energy Services, Vermont Gas Systems, S. Burlington, VT

1996-1998: Manager, HomeBase Retrofit Program, Vermont Gas Systems, S. Burlington, VT

1994-1996: Technical Specialist, Vermont Gas Systems, S. Burlington, VT

1991-1994: Associate Director and Technical Specialist, Champlain Valley Weatherization Program, Burlington, VT

Education

B.F.A., University Honors, University of Illinois, 1982

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Selected Projects

- **The Coalition for Affordable Utility Services and Energy Efficiency in Pennsylvania (“CAUSE-PA”).** Provided expert witness testimony in Philadelphia Gas Works Petition for Approval of Demand-Side Management Plan for FY 2016-2020. (2020)
- **Appalachian Voices and Natural Resources Defense Council.** Provided expert witness testimony in Virginia Electric and Power Co. Phase VIII DSM Program Application. (2020)
- **Citizens Action Coalition of Indiana.** Provided expert witness testimony in Duke Energy Indiana 2020-2023 DSM Plan. (2020)
- **The Consumers’ Association of Canada (Manitoba) and Winnipeg Harvest.** Provided expert witness testimony in the Efficiency Manitoba 2020/23 Efficiency Plan proceeding. (2019-2020)
- **British Columbia Sustainable Energy Association.** Provided expert review, discovery, and evidence in DSM-related aspects of multiple proceedings with Fortis BC, BC Hydro, and FEI. (2017-2020)
- **Southern Environmental Law Center.** Provided technical support to environmental and social justice advocates in the Carolinas, and ongoing participation in the Duke Energy EE Collaborative (2019-2020) and Dominion South Carolina EE Advisory Group (2020).
- **Coalition of Maryland Energy Efficiency Advocates.** Prepared written comments and multiple appearances before the Commission to present evidence regarding Maryland utilities’ 2015-2017, 2018-2020, and 2021-2023 EmPOWER Maryland energy efficiency plans, and in additional proceedings related to utility goal setting, cost-effectiveness testing, best-practices in low-income programs, and energy efficiency financing. (2014-2020)
- **Southern Alliance for Clean Energy and Earthjustice.** Provided expert witness testimony in the Florida Energy Efficiency and Conservation Act goal setting proceeding. (2019)
- **Energy Efficient West Virginia, West Virginia Citizen Action Group, and Earthjustice.** Provided expert witness testimony in Appalachian Power Company and Wheeling Power Company’s Petition regarding EE/DR program approvals. (2019)
- **Alliance for Affordable Energy and Natural Resources Defense Council.** Provided expert technical support for Louisiana Public Service Commission EE Rulemaking and Entergy New Orleans DSM Plan. (2019-2020)
- **New Jersey Clean Energy Program.** Planning support for NJCEP implementation team. Facilitated focus groups, worked with Board of Public Utilities Staff, program administrators, utility companies, and other stakeholders to identify opportunities to improve NJCEP strategic direction and increase benefits for ratepayers. Lead author drafting strategic plan. (2015-2020)
- **Natural Resources Defense Council and Sierra Club.** Provided expert witness testimony in Public Service Company of Colorado’s Strategic Issues, 2019-2020 DSM Plan, and 2021-2022 DSM Plan proceedings. (2017-2020)
- **Natural Resources Defense Council and Sierra Club.** Provided expert witness testimony in Nevada Energy Company’s 2019-2038 Triennial Integrated Resource Plan and 2019-2021 Energy

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- Supply Plan, and 2019 and 2020 DSM Update proceedings and participated in stakeholder collaboratives. (2018-2020)
- **Environmental Law & Policy Center and Iowa Environmental Council.** Provided expert witness testimony in DSM proceedings regarding MidAmerican Energy Company's and Interstate Power and Light's 2019-2023 Energy Efficiency Plans. (2018)
 - **Pueblo County Colorado.** Provided expert witness testimony in DSM proceedings regarding Black Hills Energy Company's 2019-2021 DSM Plan. (2018)
 - **Sierra Club.** Provided expert witness testimony in proceedings regarding Kentucky Power Company's DSM programs and cost-effectiveness. (2017-2018)
 - **California Alternative Energy and Advance Transportation Financing Authority.** Provide technical assistance on development of commercial energy efficiency financing pilot. (2017-2019)
 - **Energy Efficiency for All.** Expert technical support for affordable multifamily energy efficiency advocacy in Pennsylvania and Virginia. Worked with a coalition of energy efficiency and affordable housing advocates to shape advocacy efforts with utilities and regulators. (2015-2020)
 - **Southern Environmental Law Center.** Provided expert witness testimony in DSM proceedings with Duke Energy Progress and Dominion Virginia, as well as technical support for SELC staff regarding pre-pay programs and other policy issues. (2015-2019)
 - **Regulatory Assistance Project.** Researched and co-authored with Chris Neme: The Next Quantum Leap in Efficiency: 30 Percent Electric Savings in Ten Years, addressing program and policy questions related to doubling the best efficiency program results. (2016)
 - **Natural Resources Defense Council.** Provided expert witness testimony in support of NRDC's intervention in Ameren Illinois' 2014-2016 energy efficiency plan. Testimony demonstrated that Ameren would be capable of capturing significantly greater efficiency savings than it had proposed. (2013)
 - **Regulatory Assistance Project.** Expert technical support for DSM in China. Worked with various government agencies and grid companies, as well as advocacy organizations to provide technical support related to advancing DSM and energy efficiency in China. (2015)
 - **Vermont Public Service Department.** Evaluation of Clean Energy Development Fund. Conducted interviews of staff and key stakeholders under contract to NMR and prepared memo outlining process findings and recommendations. (2014-2015)
 - **Evaluation of Efficiency Maine Low-Income Multi-Family Weatherization Program.** Responsible for program staff and building owner interviews and process evaluation under contract to NMR and Efficiency Maine. (2014-2015)
 - **Northeast Energy Efficiency Partnerships.** Researched and co-authored meta-study of the use of energy efficiency to defer T&D investments. (2014)
 - **Northeast Energy Efficiency Partnerships-** Researched and co-authored meta-study of ductless heat pump performance and market acceptance. (2014)
 - **New Hampshire Electric Co-op.** Conducted assessment of the co-op's environmental and social responsibility programs' promotion of whole building efficiency retrofits, cold climate heat pumps and renewable energy systems. Presented recommendations to the co-op Board. (2014)

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- **High Meadows Fund.** Co-authored a study assessing the market viability of “High Performance Homes” in Vermont. (2014)
- **Energy Savings Potential Study, Delaware Department of Natural Resources.** Led narrative development for the residential programs for a study of the energy efficiency savings potential in Delaware. (2013-2014)
- **Regulatory Assistance Project.** Provide technical support to energy efficiency advocates in proceedings in Maryland, Mississippi, and Missouri. (2013-2017)
- **Better Buildings Solutions Center, U. S. Department of Energy.** Energy Futures Group’s lead author in drafting and reviewing web content for ten how-to “handbooks” detailing proven approaches to designing and implementing residential retrofit efficiency programs. (2013-2014)
- **Utility Program Benchmarking.** Led research on behalf of a large IOU to compare the cost of saved energy across ~10 leading utility portfolios. The research sought to determine if there are discernable differences in the cost of saved energy related to utility spending in specific non-incentive categories, including administration, marketing, and EM&V. (2013)
- **Research on trends in multi-family, HVAC, and new construction programs.** Developed an analysis of emerging program trends on behalf of a leading energy efficiency industry firm. (2013-2014)
- **Efficiency Power Plant, Regulatory Assistance Project.** Partnered with RAP to develop a demonstration tool to show how energy efficiency measures can be used to mitigate air quality impacts related to power production. (2013)
- **Natural Gas Energy Efficiency Analysis, the Green Energy Coalition.** Provided analytical support to demonstrate in testimony that Enbridge Gas could reduce the scale of its proposed pipeline expansion by implementing aggressive energy efficiency programs. (2013)
- **Targeted Implementation, VEIC.** Responsible for market analysis and strategic planning for a new division expanding VEIC’s energy efficiency program implementation projects. (2012-2013)
- **DC Sustainable Energy Utility.** Led the planning and startup implementation of Residential programs for the DC SEU, including single and multi-family and retail market programs. Led the development of the initial portfolio-level Annual Plan. Led client and partner interactions around planning and policy development. Member of DC SEU Senior Management Team. (2011-2012)
- **EmPOWER Maryland Critical Program Review.** Expert consultant to the Maryland Office of Peoples’ Counsel in EmPOWER Maryland hearings regarding utility energy efficiency planning and reporting. Represented the OPC in stakeholder meetings that informed the current 2012-2014 EmPOWER plans. Multiple appearances before the Maryland Public Service Commission. (2010-2012)
- **Efficiency Vermont 20 year Forecast of Efficiency Potential.** Senior Advisor in developing the forecast scenarios that led to significantly increased efficiency investment in Vermont. (2010-2011)
- **Efficiency Vermont Residential Programs.** Directed 100% growth in program budgets to nearly \$10M annually. Responsible for strategic direction, leadership, and results for Efficiency Vermont’s award-winning residential retrofit, new construction, retail, and low-income programs. Supported excellence in a staff of 30. (2005-2010)

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Jim Grevatt

Managing Consultant



- **Vermont Gas Systems Efficiency Program Leader.** Directed strategic planning and program operations that led to six programs and portfolio as a whole being recognized as exemplary in Responding to the Natural Gas Crisis: America's Best Natural Gas Energy Efficiency Programs (ACEEE, 2003). Built contractor infrastructure and internal support to consistently meet program objectives. Led development of Annual Reports, planning and budgeting. Collaborated with Efficiency Vermont staff to develop a fuel-blind, state-wide, jointly offered residential new construction program. (2001-2005)
- **Residential Retrofit Program Development.** Enhanced design and performance of VGS' residential retrofit offerings by streamlining delivery and building strong relationships with contractors, homeowners, and property managers. (1994-2005)
- **Demonstrated Technical Excellence in Approaches to Residential Retrofits.** Conducted hundreds of residential energy audits and quality assurance inspections for natural gas and alternative-fueled homes. Trained and coached installers to obtain desired quality. Worked to satisfy homeowners through explanation, education, sound listening to concerns, and ultimately assuring that concerns were addressed. Trained new staff in auditing techniques. (1991-1998)

Selected Presentations

Keys to the House: Unlocking Residential Savings with Program Models for Home Energy Upgrades- ACEEE 2016 Summer Study on Energy Efficiency in Buildings, August, 2016

Home Upgrade Program Design & Implementation Models for Acquiring Savings in Multiple Climate Zones- 2016 National Home Performance Conference, April, 2016

EERS Advancements in Maryland: EmPOWER After 2015- Presentation at ACEEE Energy Efficiency as a Resource Conference, September, 2015

Leveling the Playing Field for Distributed Energy Resources- Panelist discussing the use of energy efficiency to defer T&D investments, Acadia Center forum on Envisioning Our Energy Future, February, 2015

Residential Retrofit Programs: What's Working? Perspectives from National Program Leaders- Panelist at AESP National Conference 2012

Elements of Retrofit Program Incentive Design- DOE Technical Assistance Program Publication, April, 2011

Designing Effective Incentives to Drive Residential Retrofit Participation- DOE Technical Assistance Program Webinar, October, 2010

Quality Assurance for Residential Retrofit Programs- DOE Technical Assistance Program Webinar, October, 2010

Home Performance with ENERGY STAR, Quality Assurance in Vermont- Panelist at the ACI Home Energy Retrofit Summit, April 2010

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Delivering on the Promise-Engaging Communities and the Public- Panelist at 2010 NEEP Summit, March, 2010

Home Performance with Energy Star in Vermont - Presentation at CEE Member meeting, June 2009

Leading by Example: Exemplary Low Income Energy Efficiency Programs –Presented on Efficiency Vermont’s Residential low income services at California’s Low Income Energy Efficiency Symposium, June 2006

“Natural Gas Efficiency Policies, Responding to the Natural Gas Crisis One Therm at a Time” - Co-presented with Dan York and Anna Monis Shipley of American Council for an Energy-Efficient Economy (ACEEE) -ACEEE/CEE Market Transformation Symposium, 2004

CAUSE-PA, St. 1
APPENDIX B:
CITED INTERROGATORY
RESPONSES

THE COALITION FOR AFFORDABLE UTILITY SERVICES AND ENERGY EFFICIENCY
IN PENNSYLVANIA (CAUSE-PA)
Interrogatories

Duquesne Light Company
Docket No. P-2020-3015228

Set I

Witness: David Defide

CAUSE-PA- 4

4. Reference item 20, pdf p.13.
 - a. Specifically, how were program goal allocation and budgets “adjusted to accommodate the Phase IV Implementation Order” with respect to program comprehensiveness?
 - b. Please provide the definition of “comprehensive” that the Company used to guide its plan development process to ensure that it would comply with Phase IV requirements.

Response:

- a. Program goal allocation and associated program budgets were designed based upon SWE Energy Efficiency Potential Study and adjusted to accommodate the Commission’s Implementation Order, which required segment carve-outs for the low income segment and specified program comprehensiveness requirements. Goal allocation for the remaining customer segments was based on segment energy use, as well as requirements to achieve mandated reductions at authorized budgets. Further explanation can be found in Section 1.1 on page 7 of 225 and Section 1.2 on page 8 of 225.
- b. “Comprehensive” as used by the Company as a guide in its plan development process. It refers generally to a broad range of measures tailored to meet customer needs, and includes measures such as weatherization and updates to HVAC and water heating systems. Please note that the Commission did not establish a definition of “comprehensive” for Phase IV. See Phase IV final implementation order pp. 23-24.

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Duquesne Light Company
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Set I

Witness: Dave Defide

CAUSE-PA I-7

7. Provide the Figure 4: Projected Portfolio Savings on page 19 of 225 in fully functional electronic Excel format with all formulas intact
 - a. Provide the incremental annual savings by program, by year, for each of the listed programs.
 - b. For each of the listed programs, provide the following:
 - i. A listing of the measures that the Company projects will be implemented in each program, by year
 - ii. The quantity of each of these measures that the Company projects will be installed, by program, by year
 - iii. The expected incremental annual savings by measure category, by program, by year

Response:

The following three Excel format files are provided with formulas intact:

- Attachment 1 (DLC-Measure Detail CAUSE-PA I-7 C-I.xlsx)
- Attachment 2 (DLC-Measure Detail CAUSE-PA I-7 Res.xlsx)
- Attachment 3 (DLC-Portfolio Detail Summary + Figures and Tables.xlsx)

Attachment 1 provides measure-level detail for the C&I sector programs, Attachment 2 provides measure-level detail for Residential sector programs. Both Attachments 1 & 2 have a tab marked "Measure Detail Summary" that links to and reconciles with measure-level information in each file's "Measure Detail" tab. Savings algorithms and cost data are provided in files 1 & 2. Attachment 3 incorporates output from Attachments 1 & 2 and provides all other additional detail required to populate the EE&C Plan tables and figures.

EE&C Plan Figure 4: Projected Portfolio Savings and Figure 17: Cumulative Portfolio and Program Reductions in Consumption is located in Attachment 3 in the tab marked "Figure 4 and 17".

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CAUSE-PA I-7

- a. Provide the incremental annual savings by program, by year, for each of the listed programs.

Incremental Annual Savings is provided for each program in Section 3 of the EE&C Plan. These values can be found in Attachment 3 identified above at the “Program Tables” tab.

- b. For each of the listed programs, provide the following:
- i. A listing of the measures that the Company projects will be implemented in each program, by year

Measures are identified for the Residential sector programs at Table 8A and for the Nonresidential sector programs at Table 8B.

- ii. The quantity of each of these measures that the Company projects will be installed, by program, by year

Measures are identified with annual Phase IV projections for Participants for the Residential sector programs at Table 8A and for the Nonresidential sector programs at Table 8B. Per the PPUC Phase IV EE&C Plan Template, Table 8 “Participation” counts should use the same units identified in Table 7 Eligible Measures.

- iii. The expected incremental annual savings by measure category, by program, by year

Measures are identified with annual Phase IV projections for savings (MWh and MW) for the Residential sector programs at Table 8A and for the Nonresidential sector programs at Table 8B.

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Supplemental Response: Upon review, the Company has identified an arithmetic totaling error in Tables 2 and 3 in the Plan, as well as the corresponding figures in Attachment 3 provided January 8, 2020. Therefore, please find enclosed CAUSE-PA I-7 Supplemental Attachment 3, which corrects this error. All updates in Supplemental Attachment 3 are shown in highlight. The Company will incorporate these corrections into its final revised Phase IV Plan.

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CAUSE-PA I-7

EE&C Plan Figure 4: Projected Portfolio Savings and Figure 17: Cumulative Portfolio and Program Reductions in Consumption is located in Attachment 3 in the tab marked “Figure 4 and 17”.

- a. Provide the incremental annual savings by program, by year, for each of the listed programs.

Incremental Annual Savings is provided for each program in Section 3 of the EE&C Plan. These values can be found in Attachment 3 identified above at the “Program Tables” tab.

- b. For each of the listed programs, provide the following:
- i. A listing of the measures that the Company projects will be implemented in each program, by year

Measures are identified for the Residential sector programs at Table 8A and for the Nonresidential sector programs at Table 8B.

- ii. The quantity of each of these measures that the Company projects will be installed, by program, by year

Measures are identified with annual Phase IV projections for Participants for the Residential sector programs at Table 8A and for the Nonresidential sector programs at Table 8B. Per the PPUC Phase IV EE&C Plan Template, Table 8 “Participation” counts should use the same units identified in Table 7 Eligible Measures.

- iii. The expected incremental annual savings by measure category, by program, by year

Measures are identified with annual Phase IV projections for savings (MWh and MW) for the Residential sector programs at Table 8A and for the Nonresidential sector programs at Table 8B.

Appendix B, DLC-Measure Detail CAUSE-PA I-7 Res, Measure Detail Summary

These data are transferred to the Phase IV Portfolio Detail Summaries + Plan Tables.xlsx file, Residential tab, and are used to populate all EE&C Plan figures and tables.

Program	Delivery Channel	Qty	kWh	kW	Lifecycle kWh	Measure Cost	Incentives	Summer On-Peak	Summer Off-Peak	Winter On-Peak	Winter Off-Peak	Shoulder On-Peak	Shoulder Off-Peak	Energy A-C	T&D A-C	Capacity A-C	O&M A-C	Penalty	Water A-C	Total A-C	Measure Cost	Admin	TRC Cost	TRC	
REEP	Direct Install	225,740	21,386,149.19	2,490.99	194,743,766	4,285,160.31	9,238,053.79	1,049,394.90	950,206.88	1,139,985.31	1,101,374.48	956,777.30	931,318.46	6,129,057.33	1,039,747.25	868,106.02	1,167,311.20	(1,001.49)		575,578.44	9,778,798.74	4,285,160.31	5,325,711.00	9,610,871.31	1.02
	Appliance Recycling	11,774	8,447,770.25	1,210.25	42,408,993.42	772,717.35	772,717.35	316,408.34	235,056.57	209,469.00	179,349.40	222,100.94	183,344.57	1,345,728.83	282,443.90	237,395.41	-	-	-	1,865,568.14	772,717.35	983,857.00	1,756,574.35	1.06	
	Downstream	193,637	23,698,779.83	2,591.22	227,949,905.51	4,907,236.54	2,754,042.53	1,426,709.98	1,085,271.77	1,370,416.12	1,236,389.88	1,075,804.14	971,106.11	7,165,698.00	1,165,968.30	972,892.94	860,719.59	-	6,106,115.56	16,271,394.40	4,907,236.54	2,865,040.00	7,772,276.54	2.09	
	Midstream	5,010	596,319.48	127.07	6,106,011.90	178,058.33	144,594.08	39,836.70	31,127.19	33,818.20	28,991.75	32,227.31	27,390.57	193,391.73	59,861.50	49,931.28	-	(2,345.48)	-	6,106,115.56	300,839.03	178,058.33	69,448.00	247,507.33	1.22
	Upstream	1,039,525	13,605,983.03	1,425.71	202,771,041.36	5,763,397.54	2,176,562.09	1,207,624.74	814,269.19	1,448,200.30	917,829.03	1,231,181.88	823,553.93	6,442,650.08	936,290.22	771,024.88	-	(820,637.98)	-	7,319,316.99	5,763,397.54	1,584,496.00	2,347,893.64	1.00	
	Total REEP	1,249,946	46,947,953	5,354	479,235,952	11,621,410	5,847,916	2,990,580	2,165,716	3,061,904	2,362,560	2,561,314	2,005,395	15,147,469	2,434,554	2,031,244	860,720	-822,983	6,106,116	25,757,119	11,621,410	5,502,842	17,124,252	1.50	
		1,475,686	67,734,102	7,845	673,979,718	15,906,570	15,085,970	4,039,975	3,115,923	4,201,889	3,463,935	3,518,092	2,936,714	21,276,526	3,474,301	2,899,350	2,028,031	-823,985	6,681,694	35,535,917	15,906,570	10,828,553	26,735,123	1.33	

Program ID	Program Name	Delivery Channel	Sector	TRC ID
50	LIEEP	Direct Install	Residential	44
50	LIEEP	Direct Install	Residential	46
50	LIEEP	Direct Install	Residential	22
50	LIEEP	Direct Install	Residential	6
50	LIEEP	Direct Install	Residential	25
50	LIEEP	Direct Install	Residential	9
50	LIEEP	Direct Install	Residential	14.1
50	LIEEP	Direct Install	Residential	14.2
50	LIEEP	Direct Install	Residential	12.1
50	LIEEP	Direct Install	Residential	13
50	LIEEP	Direct Install	Residential	2
50	LIEEP	Direct Install	Residential	4
50	LIEEP	Direct Install	Residential	3
50	LIEEP	Direct Install	Residential	19
50	LIEEP	Direct Install	Residential	20
50	LIEEP	Direct Install	Residential	10
50	LIEEP	Direct Install	Residential	23
50	LIEEP	Direct Install	Residential	11
50	LIEEP	Direct Install	Residential	24
50	LIEEP	Direct Install	Residential	
50	LIEEP	Direct Install	Residential	
50	LIEEP	Direct Install	Residential	28
50	LIEEP	Direct Install	Residential	27
50	LIEEP	Direct Install	Residential	18.1
50	LIEEP	Direct Install	Residential	18
50	LIEEP	Direct Install	Residential	26

Measure Name	Baseline Assumption	Unit
Refrigerator Replacement	Existing equipment	Refrigerator
Room AC Replacement	Existing equipment	Rm A/C
Freezer Replacement	Existing equipment	Freezer
Connected Thermostat- Electric Heat	Manual thermostat or conventional programr	Unit
Heat Pump Water Heater	Federal Standard	Heater
Ductless Mini-Split Heat Pump (1.5-Ton, 20 SEER / 9.6 hspf) Midstream	Existing Equipment. Assumes equal mix of ele	Unit
Central Air Conditioner SEER 16, 3-Ton	Base SEER 13	Ton
Central Air Conditioner SEER 17, 3-Ton	Base SEER 13	Ton
Air Source Heat Pump - 16 SEER / 9.0 HSPF (Base 14 SEER, 8.2 HSPF)	Base 14 SEER, 8.2 HSPF	Ton
Air Source Heat Pump - 17.5 SEER / 9.7 HSPF (Base 14 SEER, 8.2 HSPF)	Base 14 SEER, 8.2 HSPF	Ton
Air Sealing	3,000 CFM50; reduced by 750 CFM50	Home
Ceiling Insulation - Electric Heat	R-13 to R-49, mix of electric heat/cool; 1,000 s	Home
Basement Wall Insulation - Electric Heat	Uninsulated (R-5) to R-11; 800 s.f.	Home
Exterior Wall Insulation - Electric Heat	Uninsulated (R-5) to R-11; 1,000 s.f.	Home
Floor Insulation - Electric Heat	Uninsulated (R-5) to R-11; 1,000 s.f.	Home
Electric Hot Water Kit (SF or MF, Mail-Out)	Variable	Kit
Gas Hot Water Kit (SF or MF, Mail-Out)	Variable	Kit
Electric Hot Water Kit (SF or MF, Verified Install)	Variable	Kit
Gas Hot Water Kit (SF or MF, Verified Install)	Variable	Home
H&S measures, Walkthrough		Home
H&S measures, Comprehensive		Home
LED Replacement Lamps (Tubes)-4'	Assumes F41ILL baseline, 15W LED	Lamp
LED Replacement Lamps (Tubes)-2'	Assumes F21ILL baseline, 8W LED	Lamp
ENERGY STAR Screw-in LED Bulb (Standard)	Residential - A-Line 24.4W (45 lumen/W)	Lamp
ENERGY STAR Screw-in LED Bulb (Standard)	11W LED replacing 23W (1100 lumen)	Lamp
LED Parking Garage and Canopy Fixtures and Retrofit Kits	5000 lumen fixture (215 W baseline per Table	Fixture

Measure Detail

Quantity	Unit kWh	Unit kW	Total kWh	Total kW	Lifetime kWh	Buidling Type	Unit Cost
1,650	559.7	0.0626	923,448	103.33	5,540,687.62	SF, MF	\$588.00
270	50.1	0.1093	13,503	29.47	121,529.95	SF, MF	\$479.00
172	445.7	0.0499	76,611	8.57	383,056.95	SF, MF	\$493.00
112	918.0	0.0000	102,473	0.00	1,127,206.03	SF, MF	\$234.33
63	1,386.5	0.1116	87,109	7.01	871,089.47	SF, MF	\$650.96
286	684.6	0.0752	195,791	21.52	2,936,860.27	SF, MF	\$529.62
55	282.5	0.1212	15,535	6.66	233,030.77	SF, MF	\$145.93
29	354.5	0.1536	10,138	4.39	152,064.00	SF, MF	\$624.64
9	670.1	0.0526	5,897	0.46	88,450.12	SF, MF	\$507.78
9	1,141.3	0.0992	10,043	0.87	150,651.63	SF, MF	\$785.11
112	946.5	0.0121	105,652	1.35	1,584,780.69	SF, MF	\$888.00
112	985.8	0.0329	110,038	3.67	1,650,566.19	SF, MF	\$2,610.00
57	1,439.1	0.0099	82,383	0.57	1,235,742.17	SF, MF	\$1,632.00
112	1,763.6	0.0630	196,866	7.04	2,952,986.73	SF, MF	\$2,590.00
57	1,763.6	0.0630	100,957	3.61	1,514,352.17	SF, MF	\$1,180.00
155	240.6	0.0000	37,181	0.00	305,623.84	SF, MF	\$47.75
1,391	130.0	0.0091	180,855	12.66	1,425,973.12	SF, MF	\$29.77
589	299.3	0.0268	176,318	15.78	1,449,314.93	SF, MF	\$47.75
5,301	130.0	0.0091	689,258	48.24	5,434,542.00	SF, MF	\$29.77
440			0	0.00	0.00	SF, MF	
262			0	0.00	0.00	SF, MF	
116,600	95.2	0.0117	11,100,320	1,361.89	77,702,240.00	MF (Common Area)	\$10.06
34,320	71.4	0.0088	2,450,448	300.64	17,153,136.00	MF (Common Area)	\$10.06
1,100	14.6	0.0014	16,090	1.55	241,352.89	Res - Interior	\$2.89
62,040	71.4	0.0088	4,429,656	543.47	66,444,840.00	MF (Common Area)	\$2.89
440	612.7	0.0187	269,579	8.23	4,043,688.00	MF (Exterior)	\$157.52

Total Cost	Unit Incentive	Total Incentives	Admin	TRC Cost	TRC
\$970,200.00	\$740.56	\$1,221,928.15	\$ 229,962.71	1,200,162.71	0.19
\$129,103.67	\$487.91	\$131,505.87	\$ 3,362.68	132,466.35	0.20
\$84,746.03	\$572.28	\$98,374.93	\$ 19,078.24	103,824.28	0.16
\$26,157.48	\$563.31	\$62,880.30	\$ 25,518.53	51,676.00	0.79
\$40,897.07	\$546.66	\$34,344.11	\$ 21,692.41	62,589.47	0.55
\$151,471.32	\$2,978.42	\$851,829.52	\$ 48,757.01	200,228.33	0.61
\$8,026.15	\$2,816.88	\$154,928.34	\$ 3,868.72	11,894.87	1.23
\$17,864.63	\$2,829.69	\$80,929.06	\$ 2,524.53	20,389.16	0.47
\$4,468.46	\$1,738.35	\$15,297.52	\$ 1,468.43	5,936.89	0.58
\$6,908.94	\$1,822.18	\$16,035.21	\$ 2,501.08	9,410.02	0.64
\$99,124.48	\$1,015.37	\$113,342.91	\$ 26,310.13	125,434.60	0.46
\$291,345.59	\$2,785.36	\$310,920.92	\$ 27,402.28	318,747.87	0.20
\$93,422.93	\$1,888.02	\$108,078.54	\$ 20,515.48	113,938.41	0.39
\$289,113.05	\$2,903.74	\$324,134.79	\$ 49,024.73	338,137.79	0.33
\$67,548.44	\$1,493.74	\$85,508.30	\$ 25,140.89	92,689.33	0.62
\$7,380.24	\$81.09	\$12,534.01	\$ 9,259.03	16,639.27	7.77
\$41,407.55	\$51.97	\$72,291.05	\$ 45,037.62	86,445.17	0.57
\$28,126.91	\$91.55	\$53,926.75	\$ 43,907.74	72,034.65	7.12
\$157,808.77	\$51.97	\$275,509.23	\$ 171,643.36	329,452.13	0.57
	\$200.00	\$88,000.00	\$ -	-	
	\$600.00	\$157,145.27	\$ -	-	
\$1,172,996.00	\$27.00	\$3,147,704.03	\$ 2,764,270.27	\$3,937,266.27	1.06
\$345,259.20	\$22.76	\$781,185.31	\$ 610,225.70	\$955,484.90	1.00
\$3,179.00	\$5.49	\$6,041.39	\$ 4,006.88	\$7,185.88	1.19
\$179,295.60	\$15.00	\$930,712.28	\$ 1,103,100.30	\$1,282,395.90	2.18
\$69,308.80	\$234.01	\$102,966.00	\$ 67,132.28	\$136,441.08	1.02

Appendix B, DLC-Measure Detail CAUSE-PA I-7 Res, CAUSE-PA Set I Analysis

	Savings kWh	2021 kWh	2022 kWh	2023 kWh	2024 kWh	2025 kWh	Total kWh
LIEEP							
Direct Install							
Total Savings from Measures Excluding LED Screw-based Lighting	16,940,403	3,388,081	3,388,081	3,388,081	3,388,081	3,388,081	16,940,403
LED Screw-Based Lighting Savings	4,445,746	889,149	889,149	889,149	889,149	889,149	4,445,746
LED Screw-Based Lighting Percentage Total Savings	20.8%	20.8%	20.8%	20.8%	20.8%	20.8%	20.8%
Total Program Savings	21,386,149	4,277,230	4,277,230	4,277,230	4,277,230	4,277,230	21,386,149
Program Percentage Savings per Year (continuing program)		20.0%	20.0%	20.0%	20.0%	20.0%	
REEP							
Appliance Recycling Total							
Total Savings from Measures Excluding LED Screw-based Lighting	8,447,770	1,267,166	1,774,032	1,858,509	1,774,032	1,774,032	8,447,770
LED Screw-Based Lighting Savings	0	0	0	0	0	0	0
LED Screw-Based Lighting Percentage Total Savings		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Program Savings	8,447,770	1,267,166	1,774,032	1,858,509	1,774,032	1,774,032	8,447,770
Program Percentage Savings per Year		15.0%	21.0%	22.0%	21.0%	21.0%	
REEP - Downstream							
Total Savings from Measures Excluding LED Screw-based Lighting	20,406,740	3,877,281	4,081,348	4,081,348	4,081,348	4,285,415	20,406,740
LED Screw-Based Lighting Savings	3,292,040	625,487.562	658,407.96	658,407.96	658,407.96	691,328.358	3,292,040
LED Screw-Based Lighting Percentage Total Savings	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%
Total Program Savings	23,698,780	4,502,768	4,739,756	4,739,756	4,739,756	4,976,744	23,698,780
Program Percentage Savings per Year		19.0%	20.0%	20.0%	20.0%	21.0%	
REEP - Midstream							
Total Savings from Measures Excluding LED Screw-based Lighting	558,637	106,141	111,727	111,727	111,727	117,314	558,637
LED Screw-Based Lighting Savings	37,683	7,160	7,537	7,537	7,537	7,913	37,683
LED Screw-Based Lighting Percentage Total Savings	6.3%	6.3%	6.3%	6.3%	6.3%	6.3%	6.3%
Total Program Savings	596,319	113,301	119,264	119,264	119,264	125,227	596,319
Program Percentage Savings per Year		19.0%	20.0%	20.0%	20.0%	21.0%	
<i>Includes: A-line, reflectors, down light kits, globe and specialty lighting</i>							
REEP - Upstream							
Total Savings from Measures Excluding LED Screw-based Lighting	420,537	79,902	84,107	84,107	84,107	88,313	420,537
LED Screw-Based Lighting Savings	13,184,546	2,505,064	2,636,909	2,636,909	2,636,909	2,768,755	13,184,546
LED Screw-Based Lighting Percentage Total Savings	96.9%	96.9%	96.9%	96.9%	96.9%	96.9%	96.9%
Total Program Savings	13,605,083	2,584,966	2,721,017	2,721,017	2,721,017	2,857,067	13,605,083
Program Percentage Savings per Year		19.0%	20.0%	20.0%	20.0%	21.0%	
Summary							
LIEEP Savings from Measures Excluding LED Screw-based Lighting							
LED Screw-Based Lighting Savings	4,445,746	844,692	889,149	889,149	889,149	933,607	4,445,746
LED Screw-Based Lighting Percentage Total Savings	20.8%	20.8%	20.8%	20.8%	20.8%	20.8%	20.8%
REEP Savings from Measures Excluding LED Screw-based Lighting							
LED Screw-Based Lighting Savings	16,514,269	3,137,711	3,302,854	3,302,854	3,302,854	3,467,996	16,514,269
LED Screw-Based Lighting Percentage Total Savings	35.6%	35.6%	35.6%	35.6%	35.6%	35.6%	35.6%
Total Residential Savings (kWh)							
LED Screw-Based Lighting Savings	20,960,015	3,982,403	4,192,003	4,192,003	4,192,003	4,401,603	20,960,015
LED Screw-Based Lighting Percentage Total Savings	30.9%	30.9%	30.9%	30.9%	30.9%	30.9%	30.9%
Nonresidential Total Savings							
LED Screw-Based Linging Savings	4,172,711	717,764	845,701	886,807	892,829	829,609	4,172,711
	1.6%	2.0%	1.5%	1.6%	1.6%	1.6%	1.6%
Behavioral Program Savings							
R-BEEP	49,700,000	8,100,000	11,500,000	10,400,000	11,400,000	8,300,000	49,700,000
LI-BEEP	7,500,000	1,091,418	1,567,164	1,679,104	2,042,910	1,119,403	7,500,000
Total Behavioral	57,200,000	9,191,418	13,067,164	12,079,104	13,442,910	9,419,403	57,200,000
Portfolio Total							
LED Screw-Based Linging Savings	25,132,726	4,700,166	5,037,704	5,078,810	5,084,832	5,231,212	25,132,726
	6.5%	8.1%	6.0%	6.2%	6.1%	6.9%	6.5%

THE COALITION FOR AFFORDABLE UTILITY SERVICES AND ENERGY EFFICIENCY
IN PENNSYLVANIA (CAUSE-PA)
Interrogatories

Duquesne Light Company
Docket No. P-2020-3015228

Set I

Witness: David Defide

CAUSE-PA- 9

9. Regarding the R-BEEP and LI-BEEP programs:
- a. Describe, in specific detail, the differences between the R-BEEP reports and the LI-BEEP reports.
 - b. Compare and contrast the specific messages and recommendations that each of the reports are expected to include.
 - c. Will the LI-BEEP reports include recommendations for actions that recipients can take to save energy?
 - d. If yes, how will the reports reflect the likelihood that LI recipients will not have available funds to invest in energy efficiency improvements?

Response:

- a. The R-BEEP and LI-BEEP reports will be tailored to suit the needs of the respective populations being served under each program. The primary difference between the R-BEEP and LI-BEEP reports will be the different insights, recommended actions, and promotions that are relevant to the respective populations. The individual personalization behind each report is driven through algorithms that use data about each recipient, such as CAP program enrollment, online energy audit data, and census-level income data. This personalization provides each customer with a customized report, with recommendations that more closely match their ability to invest in energy efficiency. For example, this means that customers enrolled in the LI-BEEP program, who have limited available income to invest in energy efficiency, will be provided with recommended actions that are free or low-cost. LI-BEEP recipients will also receive promotions for applicable limited income programs.
- b. Both R-BEEP and LI-BEEP reports are personalized for each customer using a proprietary tip targeting application that filters and prioritizes tips based on a number of household characteristics, including home ownership and size. Reports utilize a library of 300+ energy savings tips

THE COALITION FOR AFFORDABLE UTILITY SERVICES AND ENERGY EFFICIENCY
IN PENNSYLVANIA (CAUSE-PA)
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Set I

Witness: David Defide

CAUSE-PA- 9

that range from free or low-cost recommended actions, such as thermostat settings, to more cost-intensive recommendations, such as A/C retrofit. LI-BEEP reports utilize a subset of the overall tip library, only including tips that are either free or low-cost. If appropriate, there are a number of tips that are relevant to LIHEAP (focused on heating, cooling and weatherization) included in the low-income tip library.

- c. Yes, the reports will include recommendations for actions that recipients can take to save energy that will be personalized based on each customer's profile. In order to present low-income customers with tips that they would actually be able to implement, the low-income tip library only includes tips that are either free or low-cost, such as utilizing sensors and timers, unplugging devices not in use and changing thermostat set-points. Where appropriate, the reports will also provide information about additional programs that can help the customer save energy, such as LIHEAP, as well as other customer assistance programs.
- d. See CAUSE-PA I-9(a)-(c).

BEFORE THE PENNSYLVANIA PUBLIC UTILITY COMMISSION

Petition of Duquesne Light Company :
for Approval of its Act 129 Phase IV : Docket No. M-2020-3020818
Energy Efficiency and Conservation Plan :

**THE COALITION FOR AFFORDABLE UTILITY SERVICE AND
ENERGY EFFICIENCY IN PENNSYLVANIA (CAUSE-PA)
TESTIMONY VERIFICATION OF JIM GREVATT**

I, Jim Grevatt, verify that the following testimony was prepared by me or under my direct supervision, and is true and correct to the best of my knowledge, information, and belief:

- Direct Testimony of Jim Grevatt on Behalf of the Coalition for Affordable Utility Services and Energy Efficiency in Pennsylvania (**CAUSE-PA Statement 1**); Appendix A, Resume of Jim Grevatt; & Appendix B, Cited Interrogatory Responses.

I understand that statements made herein are made subject to the penalties of 18 Pa. C.S. §4904 (relating to unsworn falsification to authorities).



Jim Grevatt
jgrevatt@energyfuturegroup.com

Witness for CAUSE-PA

Date: February 5, 2021

Via electronic service only due to Emergency Order at Docket No. M-2020-3019262

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Petition of Duquesne Light Company for	:	M-2020-3020818
Approval of its Act 129 Energy Efficiency and	:	
Conservation Plan	:	

**INTERIM ORDER
ADOPTING JOINT STIPULATION FOR ADMISSION OF EVIDENCE AND
ADMITTING EVIDENCE INTO THE RECORD**

By Notice issued January 19, 2021, an evidentiary hearing in this matter was scheduled for February 8, 2021.

On February 5, 2021, Duquesne Light Company (DLC or Company), the Office of Consumer Advocate (OCA), the Coalition for Affordability Utility Services and Efficiency in Pennsylvania (CAUSE-PA), Peoples Natural Gas Company, LLC, and the Community Action Association of Pennsylvania (CAAP), all parties in the above-captioned proceeding (hereinafter collectively referred to as the Stipulating Parties), filed a “Joint Stipulation for Admission of Testimony and Exhibits into the Evidentiary Record (Joint Stipulation) in the above-captioned proceeding.”¹ The Joint Stipulation is attached to this Order as Attachment A.

Also on February 5, 2021, the Company’s counsel emailed the undersigned advising that all parties agreed to waive cross-examination and had reached a Settlement in this matter.² Counsel also requested that the evidentiary hearing be cancelled.

¹ The Office of Small Business Advocate (OSBA) is also a party in this proceeding. In his February 5, 2021 email to the undersigned, the Company’s counsel advised that, although OSBA is not a party to the Joint Petition, it had no objection to it.

² The Company’s counsel advised that, although OSBA was not joining the Settlement, it had no objection to it.

By Notice dated February 5, 2021, the evidentiary hearing was cancelled.

Each of the Stipulating Parties stipulated to the authenticity of the statements and exhibits listed in the Joint Stipulation and requested that they be admitted into the record of this proceeding on the terms and conditions set forth in the Joint Stipulation.

As this request is reasonable, it will be granted.

THEREFORE,

IT IS ORDERED:

1. That the Joint Stipulation, filed on February 5, 2020, is hereby adopted.
2. That the testimonies and exhibits listed in the Joint Stipulation attached to this Order as Attachment A are admitted into the record of this proceeding on the terms and conditions set forth in the Joint Stipulation as if the same were fully set forth in this ordering paragraph.
3. That, by **4:00 p.m. on February 12, 2021**, the parties shall file the admitted evidence, with appropriate verifications, with the Commission's Secretary's Bureau pursuant to 52 Pa.Code § 5.412a.
4. That the parties shall, when filing their evidence pursuant to Ordering Paragraph 3, include in each filing: (a) a copy of this Order, and (b) a cover letter referencing the caption and Docket Number of this proceeding, the specific evidence included in the filing, and the fact that the evidence included in the filing is "admitted evidence."

5. That the parties shall, by **noon on Tuesday, February 9, 2021**, advise the presiding officers by email of their plan for the filing of their Settlement and Statements in Support.

Date: February 8, 2020

_____/s/_____
Emily I. DeVoe
Mark A. Hoyer
Administrative Law Judges

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Petition of Duquesne Light Company	:	
for Approval of its Act 129 Phase IV Energy	:	Docket No. M-2020-3020818
Efficiency and Conservation Plan	:	
	:	

**JOINT STIPULATION FOR ADMISSION
OF TESTIMONY AND EXHIBITS INTO THE EVIDENTIARY RECORD**

TO THE HONORABLE MARK HOYER AND HONORABLE EMILY DEVOE,
ADMINISTRATIVE LAW JUDGES:

I. INTRODUCTION

This Joint Stipulation for Admission of Testimony and Exhibits into the Evidentiary Record (“Joint Stipulation”) is entered into by Duquesne Light Company (“Duquesne Light”), the Office of Consumer Advocate (“OCA”), the Coalition for Affordable Utility Services and Energy Efficiency in Pennsylvania (“CAUSE-PA”), Peoples Natural Gas Company, LLC, and the Community Action Association of Pennsylvania (“CAAP”), parties to the above-captioned proceeding (hereinafter collectively referred to as the “Joint Petitioners”), by their respective counsel. The Joint Petitioners respectfully request that Administrative Law Judges Mark Hoyer and Emily DeVoe admit into the evidentiary record of this proceeding the previously distributed written testimony and exhibits prepared by the witnesses of Duquesne Light, the OCA, CAUSE-PA, and CAAP, as identified below. In support of this request, the Joint Petitioners aver and state as follows:

II. BACKGROUND

1. Duquesne Light is a public utility as the term is defined under Section 102 of the Public Utility Code, 66 Pa.C.S. § 102, certificated by the Commission to provide electric service in the City of Pittsburgh and in Allegheny and Beaver Counties in Pennsylvania. Duquesne Light is also an electric distribution company (“EDC”) and a default service provider as those terms are defined under Section 2803 of the Public Utility Code. 66 Pa.C.S. § 2803.

2. On November 30, 2020, pursuant to Act 129 of 2008 (“Act 129”), 66 Pa. C.S §§2806.1 and 2806.2, and the Implementation Order issued by the Pennsylvania Public Utility Commission (“Commission”) on June 18, 2020, Duquesne Light filed the above-captioned Petition with the Commission. With its Petition, Duquesne Light requested Commission approval of Duquesne Light’s Phase IV EE&C Plan, which covers the period from June 1, 2021 through May 31, 2026. The Phase IV Plan includes a range of energy efficiency and demand response programs designed to achieve the required 348,126 MWh of reduced energy consumption and the required demand reduction of 62 MW. Duquesne Light’s Phase IV EE&C Plan includes a total of twelve programs: five programs targeting the residential sector; four programs targeting the small/medium commercial and industrial sector; and three programs targeting the large commercial/industrial sector.

3. In conjunction with the filing of its Phase IV EE&C Plan, Duquesne Light filed the Direct Testimony of David Defide (Duquesne Light Statement No. 1) explaining the methodology employed to analyze, develop, and implement Duquesne Light’s Phase IV plan; and the Direct Testimony of David Ogden (Duquesne Light Statement No. 2) detailing Duquesne Light’s proposed cost recovery mechanism.

4. Duquesne Light's Plan proposes an Energy Efficiency and Conservation ("EEC") Surcharge, which is designed to fully recover all applicable EE&C-related costs. The EEC Surcharge is fully reconcilable and will be applied on a non-bypassable basis to customers who receive distribution service from the Company. The Plan includes a reconcilable adjustment clause tariff mechanism in accordance with 66 Pa.C.S. § 1307.

5. On December 11, 2020, CAUSE-PA filed its Petition to Intervene and Answer in this proceeding.

6. On December 21, 2020, OSBA filed its Notice of Intervention and Public Statement in this proceeding.

7. Also on December 21, 2020, CAAP filed its Petition to Intervene in this proceeding.

8. On December 30, 2020, a Prehearing Conference Order was issued, which scheduled a Prehearing Conference for January 6, 2021, and directed the parties to file prehearing conference memoranda on or before January 5, 2021.

9. On December 31, 2020, the OCA filed its Notice of Intervention and Public Statement in this proceeding.

10. On January 2, 2021, notice of Duquesne Light's Petition was published in the Pennsylvania Bulletin. The notice established a deadline of January 22, 2021 for the filing of comments on, and responsive pleadings to, the Company's Phase IV EE&C Plan.

11. On January 7, 2021, a Prehearing Order was issued, which established a litigation schedule for the proceeding.

12. On January 8, 2021, CAUSE-PA, CAAP, OCA, OSBA, the Commission on Economic Opportunity, the National Resources Defense Council, the Sustainable Energy Fund

of Central Pennsylvania, and the Tenant Union Representative Network filed a Joint Expedited Motion for Extension of Procedural Schedule (“Joint Expedited Motion”).

13. On January 14, 2021, ALJs Hoyer and DeVoe issued an Order denying the Joint Expedited Motion.

14. On January 14, 2021, OCA served OCA Statement No. 1, the Direct Testimony of Stacy L. Sherwood.

15. On January 14, 2021, CAUSE-PA served CAUSE-PA Statement No. 1, the Direct Testimony of Jim Grevatt.

16. On January 20, 2021, Peoples Natural Gas Company LLC (“Peoples”) filed a Petition to Intervene in the Proceeding.

17. On January 22, 2021, Comments on Duquesne Light’s Phase IV EE&C Plan were filed by the Energy Efficiency for All Pennsylvania Coalition, Daikin U.S. Corporation, Ceres, and Keystone Energy Efficiency Alliance.

18. On January 25, 2021, Duquesne Light served Duquesne Light Statement No. 1-R, the Rebuttal Testimony of David Defide and Duquesne Light Statement No. 2-R, the Rebuttal Testimony of David Ogden.

19. On January 25, 2021, CAAP served CAAP Statement No. 1-R, the Rebuttal Testimony of Susan Moore.

20. On February 5, 2021, the parties informed ALJs Hoyer and DeVoe of the achievement of a settlement, and requested cancellation of the evidentiary hearing.

21. In support of the Settlement, each Joint Petitioner will submit, as an appendix to the Joint Petition, individual Statements in Support of the Settlement.

22. The parties hereby stipulate to the admission into the evidentiary record of the following Testimony and Exhibits, and waive cross examination of the below witnesses:

- a. Duquesne Light Statement No. 1 (Direct Testimony of David Defide).
- b. Duquesne Light Statement No. 2 (Direct Testimony of David Ogden), and accompanying Exhibits DBO-1 through DBO-5.
- c. Duquesne Light Statement No. 1-R (Rebuttal Testimony of David Defide)
- d. Duquesne Light Statement No. 2-R (Rebuttal Testimony of David Ogden), and accompanying Exhibits DBO-1R through DBO-5R.
- e. CAUSE-PA Statement 1 (Direct Testimony of Jim Grevatt) and accompanying Appendices A and B.
- f. OCA Statement No. 1 (Direct Testimony of Stacy L. Sherwood) and accompanying Attachment A and Exhibit SLS-1.
- g. CAAP Statement No. 1-R (Rebuttal Testimony of Susan Moore).

23. Full copies of each of the aforementioned Statements are attached hereto for filing with the Commission, accompanied by signed Verifications.

24. This Joint Stipulation may be executed in any number of counterparts, all of which taken together shall constitute one and the same instrument.

NOW, THEREFORE, desiring to enter into this Joint Stipulation and intending to be bound hereby, the Joint Petitioners agree and stipulate to the following with respect to this proceeding:

That, the testimony and exhibits set forth in paragraph 22 shall be deemed to be made a part of the official evidentiary record of this proceeding and may be used for all proper and

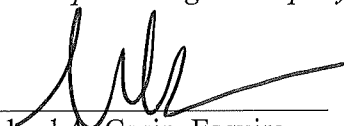
legal purposes in support of the Settlement and Joint Petition as if hearings had been conducted in this matter; and

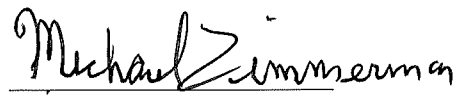
By entering into this Joint Stipulation, no Joint Petitioner makes any precedential concession or admission as to the sufficiency of the law, facts, positions or assumptions upon which the other Joint Petitioners' testimony statements or exhibits in this matter may be based. In addition, the Joint Petitioners agree that this Joint Stipulation may not be cited as precedent in any future proceeding, except to the extent required to implement and enforce the Joint Stipulation.

By their signatures below, the Joint Petitioners agree to the terms of this Joint Stipulation and represent that they are authorized to execute this Joint Stipulation on behalf of their respective clients/offices.

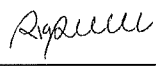
Respectfully submitted,

For: Duquesne Light Company

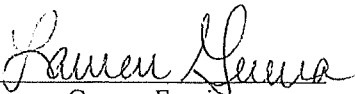

Michael A. Gruin, Esquire
Timothy McHugh, Esquire
Stevens & Lee, P.C.
17 North Second Street, 16th Floor
Harrisburg, PA 17101
Date: 2/5/21


Michael Zimmerman, Esq.
Duquesne Light Company
411 7th Ave.
Pittsburgh, PA 15219

For: CAUSE-PA


Ria M. Pereira, Esquire
Elizabeth Marx, Esquire
John Sweet, Esquire
CAUSE-PA
118 Locust Street
Harrisburg, PA 17101
Date: February 5, 2021

For: Office of Consumer Advocate



Lauren Guerra, Esquire
Aron Beatty, Esquire
Office of Consumer Advocate
555 Walnut Street
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Harrisburg, PA 17101
Date: 2/5/21

*For: Community Action Association of
Pennsylvania*

Joseph L. Vullo, Esq.
Burke, Vullo, Reilly, Roberts
1460 Wyoming Ave.
Forty Fort, PA 18704
Date: _____

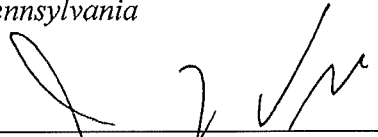
For: Peoples Natural Gas Company, LLC

William H. Roberts II, Esquire
Peoples Natural Gas Company, LLC
375 North Shore Dr.
Pittsburgh, PA 15212
Date: _____

For: Office of Consumer Advocate

Lauren Guerra, Esquire
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For: Peoples Natural Gas Company, LLC

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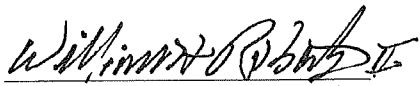
For: Office of Consumer Advocate

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For: Peoples Natural Gas Company, LLC



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Date: _____

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Petition of Duquesne Light Company for Approval :
of its Act 129 Phase IV Energy Efficiency and : Docket No. M-2020-3020818
Conservation Plan :

CERTIFICATE OF SERVICE

I hereby certify that true and correct copies of the enclosed Joint Stipulation have been served upon the following persons, in the manner indicated, in accordance with the requirements of § 1.54 (relating to service by a participant):

VIA ELECTRONIC MAIL ONLY

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Ria Pereira, Esq.
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February 5, 2021

Michael A. Gruin

M-2020-3020818 - PETITION OF DUQUESNE LIGHT COMPANY FOR APPROVAL OF ITS ACT 129 PHASE IV ENERGY EFFICIENCY AND CONSERVATION PLAN

Revised 1/21/21

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