BEFORE THE

MAINE PUBLIC UTILITIES COMMISSION

Maine Public Utilities Commission Continuing Investigation into Stranded Cost Rate Design	)	**Docket No. 2023-00230**

Direct Testimony of
Melissa Whited and Eric Borden

On Behalf of
The Maine Office of the Public Advocate

November 22, 2023

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Exhibit MW-EB-1: Resume of Melissa Whited

Exhibit MW-EB-2: Resume of Eric Borden

I. INTRODUCTION AND QUALIFICATIONS

Q Please state your name, title, and employer.

A **Ms. Whited:** My name is Melissa Whited. I am a Vice President at Synapse Energy Economics ("Synapse"), located at 485 Massachusetts Avenue, Suite 3, Cambridge, MA 02139.

Mr. Borden: My name is Eric Borden. I am a Principal Associate at Synapse Energy Economics ("Synapse"), located at 485 Massachusetts Avenue, Suite 3, Cambridge, MA 02139.

Q Please describe Synapse Energy Economics.

A Synapse is a research and consulting firm specializing in electricity and gas industry regulation, planning, and analysis. Our work covers a range of issues, including economic and technical assessments of demand-side and supply-side energy resources; energy efficiency policies and programs; integrated resource planning; electricity market modeling and assessment; renewable resource technologies and policies; and climate change strategies. Synapse works for a wide range of clients, including attorneys general, offices of consumer advocates, public utility commissions, environmental advocates, the U.S. Environmental Protection Agency, U.S. Department of Energy, U.S. Department of Justice, the Federal Trade Commission, and the National Association of Regulatory Utility Commissioners. Synapse has over 30 professional staff with extensive experience in the electricity industry.

Q Please summarize your professional and educational experience.

A **Ms. Whited:** I have 13 years of experience in economic research and consulting and have worked extensively on issues related to rate design and utility regulatory models. In addition to authoring numerous reports and testimony on rate design topics, I have been an invited panelist at annual meetings of both the National Association of Regulatory Utility Commissioners (NARUC) and the National Association of State Utility Consumer Advocates (NASUCA). I have also served as a guest lecturer at the University of Wisconsin, Department of Agricultural and Applied Economics.

I have sponsored testimony before the Maine Public Utilities Commission, the Georgia Public Service Commission, the Rhode Island Public Utilities Commission, the Public Service Commission of Maryland, the Massachusetts Department of Public Utilities, the California Public Utilities Commission, the Hawaii Public Utilities Commission, the Public Service Commission of Utah, the Public Utility Commission of Texas, the Virginia State Corporation Commission, Newfoundland and Labrador Board of Commissioners of Public Utilities, the Nova Scotia Utility and Review Board, and the Federal Energy Regulatory Commission. I hold a Master of Arts in Agricultural and Applied Economics and a Master of Science in Environment and Resources, both from the University of Wisconsin-Madison. My resume is attached as Exhibit MW-EB-1.

A **Mr. Borden:** I have over 10 years of experience in the energy industry and joined Synapse in 2022. From 2015 to 2022, I was a Senior Energy Expert at The Utility Reform Network ("TURN") in California, where I served as an expert witness in numerous proceedings before the California Public Utilities Commission. I provided in-depth

analysis to inform policy recommendations on a variety of energy issues, including several applications and policy-related proceedings related to electric vehicle infrastructure and policy. Prior to my role at TURN, I served as a Senior Energy Analyst at 4Thought Energy, where I conducted financial analyses based on multiple utility tariffs for a distributed generation natural gas combined heat and power firm. I also have previous consulting experience. I have a Bachelor's degree in finance from Washington University in St. Louis and a Master's in Public Affairs from the University of Texas at Austin. My resume is attached as Exhibit MW-EB-2.

Q On whose behalf are you testifying in this case?

A We are testifying on behalf of the Office of the Public Advocate (OPA).

Q What is the purpose of your testimony?

A The purpose of our testimony is to provide comments regarding the equity impacts of various rate designs for recovering stranded costs in response to the Commission's September 12, 2023, Notice of Investigation into stranded cost rate design.

Q Was your testimony prepared by you or under your direction?

A Yes. Our testimony was prepared by us or under our direct supervision and control.

II. SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

Q Please summarize your testimony.

A Our analysis indicates that recovering stranded costs through fixed charges is likely to worsen equity, with disproportionate bill increases for lower-income residential customers and small commercial customers. To mitigate these impacts, we recommend that:

- Increases in the residential minimum charge should be accompanied by an increase in the number of kilowatt-hours included in the minimum charge; and
- Stranded costs should be recovered from commercial customers through a demand charge that increases based on the customer's kilowatt (kW) demand.

III. SUMMARY OF CURRENT FIXED CHARGES AND FAIRNESS CONCERNS

Q Please summarize the delivery rates for residential customers.

A The standard residential delivery rate (Rate A) consists of a flat monthly charge (the "minimum charge") and a volumetric rate. The minimum charge functions as a fixed charge, as it does not vary from month-to-month based on usage, but unlike a typical fixed charge, it includes a customer's first 50 kilowatt-hours. Thus, customers who use no energy at all pay the same bill as a customer using 50 kWh/month.

In addition to distribution costs, a residential customer's minimum charge includes transmission costs, energy efficiency program costs, electric lifeline program costs, and a stranded cost adjustment. On July 1, 2022, CMP's residential minimum charge was

$13.73.[1] On July 1 of 2023, the stranded cost adjustment was increased by $6.72 to include net energy billing (NEB) costs,[2] which raised the minimum charge to $21.91 per month.[3] Including NEB costs in the minimum charge has therefore resulted in a residential fixed charge increase of 60 percent.

Q Please summarize the delivery rates for small commercial customers.

Small commercial customers tend to be served on one of the utilities' general service rates. For Central Maine Power (CMP), these include Rate SGS (Small General Service) and Rate MGS (Medium General Service). Versant Power offers rate schedules for General Service (B-1) and Medium Power (M-1 or M-2). The applicability of these schedules is largely determined by customer demand. At CMP, Rate SGS is available to customers with a maximum monthly demand not in excess of 20 kW, while Rate MGS is available to customers with a maximum monthly demand of 20 kW to 400 kW. Similarly, customers of Versant Power with demand of less than 25 kW may be served on schedule B-1, while customers with demand of 25 kW or more may take service on schedule M-1 or M-2.

The fixed charge (referred to as the "service charge") varies significantly across these rate schedules and has increased dramatically for commercial CMP customers due to the recent inclusion of stranded costs. For SGS customers, the fixed charge increased by 53

[1] CMP response to EXM-007-001, Attachment 1, Page 5 of 85, Docket No. 2022-152.
[2] Stipulation filed May 31, 2023, Attachment 1, Page 5 of 85, Docket No. 2022-152.
[3] CMP Electric Delivery Rate Tariff, Rate Schedule A, Page 10, Effective July 1, 2023, available at https://www.cmpco.com/documents/40117/46385123/a+06.29.23.pdf/7833bb9c-f399-d9dd-4df9-cf5d7abe8dd3?t=1688064881192.

percent relative to July 2022, while for MGS customers the fixed charge increased by more than 400 percent. The monthly fixed charges for CMP rate schedules SGS and MGS (at single phase secondary service) are as follows:

CMP Rate Schedule	Demand	July 2022 Fixed Charge	July 2023 Fixed Charge	Increase 2022-2023
SGS	20 kW or less	$20.16	$30.91	53%
MGS	> 20 kW to 400 kW	$38.42	$192.62	401%

Q What concerns do you have with respect to the fixed charges for residential and small commercial customers?

A We are concerned that fixed charges for residential customers worsen equity by saddling lower-income customers with disproportionate increases in their bills without providing any tools to mitigate such increases. We also have concerns that including stranded costs in the fixed charge for lower-usage general service customers results in substantial bill increases and unfairly burdens these customers. We explain each of these concerns in more detail below.

IV. FIXED CHARGES DISPROPORTIONATELY BURDEN LOWER-INCOME RESIDENTIAL CUSTOMERS

Q Please explain why fixed charges disproportionately burden lower-income customers.

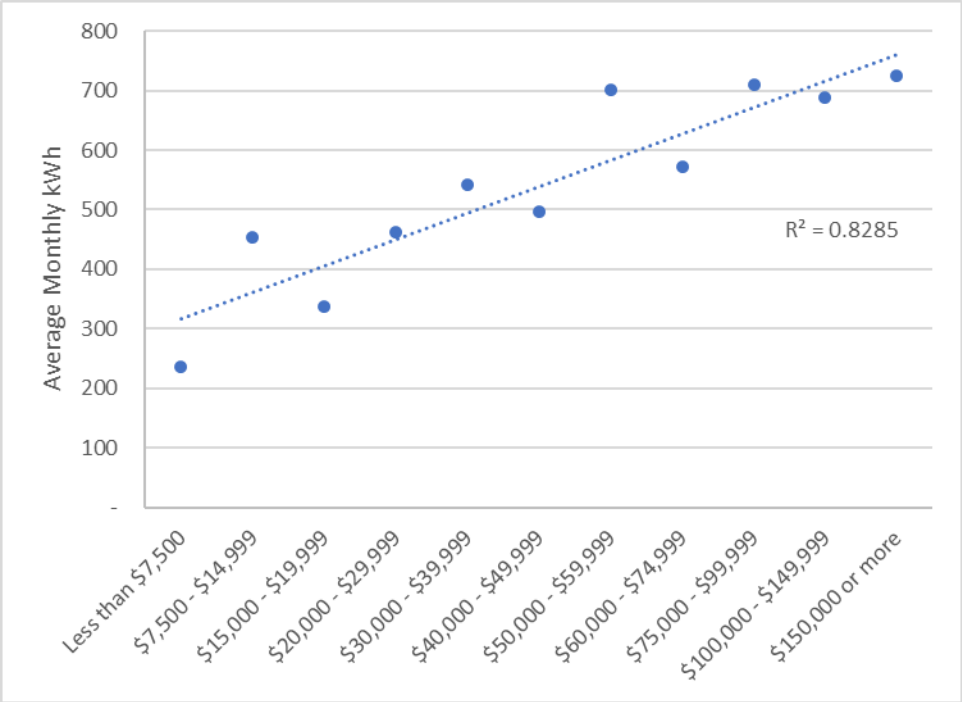
Increasing the fixed charge results in a larger bill impact for low-usage customers than for high-usage customers on a percentage basis. In contrast, an increase in volumetric

rates will increase bills for high-usage customers more than low-usage customers. This is important because data indicates that low-income customers tend to consume less electricity than high-income customers. Thus, rate designs that increase bills for low-usage customers are likely to burden lower income customers more than relatively higher income customers. In other words, higher fixed charges will raise electricity bills most for those who can least afford it and compound the already regressive impacts of utility bills.

Q What data support your conclusion that low-income customers tend to use less energy than average residential customers?

A Data from the U.S. Energy Information Administration's (EIA) Residential Energy Consumption Survey (RECS) has long supported the relationship between income and annual electricity consumption. The most recent RECS survey data containing income and electricity consumption information was released this past summer. It is superior to prior surveys in that it allows for state-level analysis as opposed to only regional analysis. The latest data clearly indicates a positive correlation between income and electricity consumption, as depicted in Figure 1, below. The figure highlights the relationship of between electricity usage and income, with an increase in monthly electricity consumption as income increases. This correlation is very strong, with an R-squared value of 0.83. (A perfect correlation between usage and income would have an R-squared value of 1.0, while an absence of correlation would have an R-squared value of zero.)

Figure 1. Average monthly electricity consumption in Maine by income group



Source: Synapse analysis of U.S. Energy Information Administration Residential Energy Consumption Survey (2020).

Not only do the data above show that usage generally increases with income, the data also indicate that households with gross incomes of $150,000 or more consume nearly twice as much electricity as households with gross incomes of less than $30,000.[4]

Because of the correlation between electricity usage and income, low-income customers with the highest energy burdens will be the ones experiencing the highest percentage bill increases as a result of costs being recovered through fixed charges as opposed to

[4] U.S. EIA. 2020 RECS Survey Data. https://www.eia.gov/consumption/residential/data/2020/index.php?view=microdata.

variable rates. Thus, recovering stranded costs through fixed charges is regressive and likely to worsen equity in Maine.

V. MITIGATING EQUITY IMPACTS ON RESIDENTIAL CUSTOMERS

Q Could the fixed charge be adjusted to reduce impacts on lower-income customers?

A Yes. As discussed above, residential customers face both a "minimum charge" and a volumetric charge. The minimum charge currently includes a customer's first 50 kWh, and thus functions as a minimum bill. An increase to the minimum charge could be accompanied by an increase in the number of kilowatt-hours included in the minimum charge to reduce the impacts of a fixed charge on lower-usage customers, while still recovering a minimum amount of revenue from even the lowest-usage customers.

For example, the Commission could increase the minimum charge to include 300 kWh per month rather than CMP's current level of 50 kWh. This would ensure that all customers contribute towards system costs recovered by the fixed charge while mitigating the regressive impacts described above on most customers with lower usage.

Q Have you analyzed the bill impacts of your proposal?

A We have approximated the bill impacts on residential customers' distribution bills based on information from CMP's most recent rate case.[5] We modeled the impacts based on the three scenarios shown in the table below. The first scenario shows a minimum charge of

[5] Docket No. 2022-00152.

$13.73, which includes 50 kWh. This is akin to the rate that was in effect in July 2022. The second scenario shows an increase in the minimum charge to $25 and a corresponding substantial decrease in the variable rate due to no increase in the kilowatt-hours included in the minimum charge. Finally, we modeled a representation of our proposal, which envisions an increase in the minimum bill coupled with a corresponding increase in the number of kilowatt-hours included to 300 kilowatt-hours.

Table 1. Bill impact scenarios modeled

	$13.51 Min Charge, 50 kWh included	**$25 Min Charge, 50 kWh included**	**$25 Min Charge, 300 kWh included**
Minimum Charge	$13.73	$25.00	$25.00
kWh Included in Min Charge	50	50	300
Variable Rate ($/kWh)	$0.047	$0.024	$0.038

To maintain revenue neutrality of the rate designs, we used the percentage of customers by usage level provided by CMP in its rate case in Exhibit RD-3.[6] The usage data and bill results are shown below:

[6] Docket No. 2022-00152.

Table 2. Bill changes under different Minimum Charges

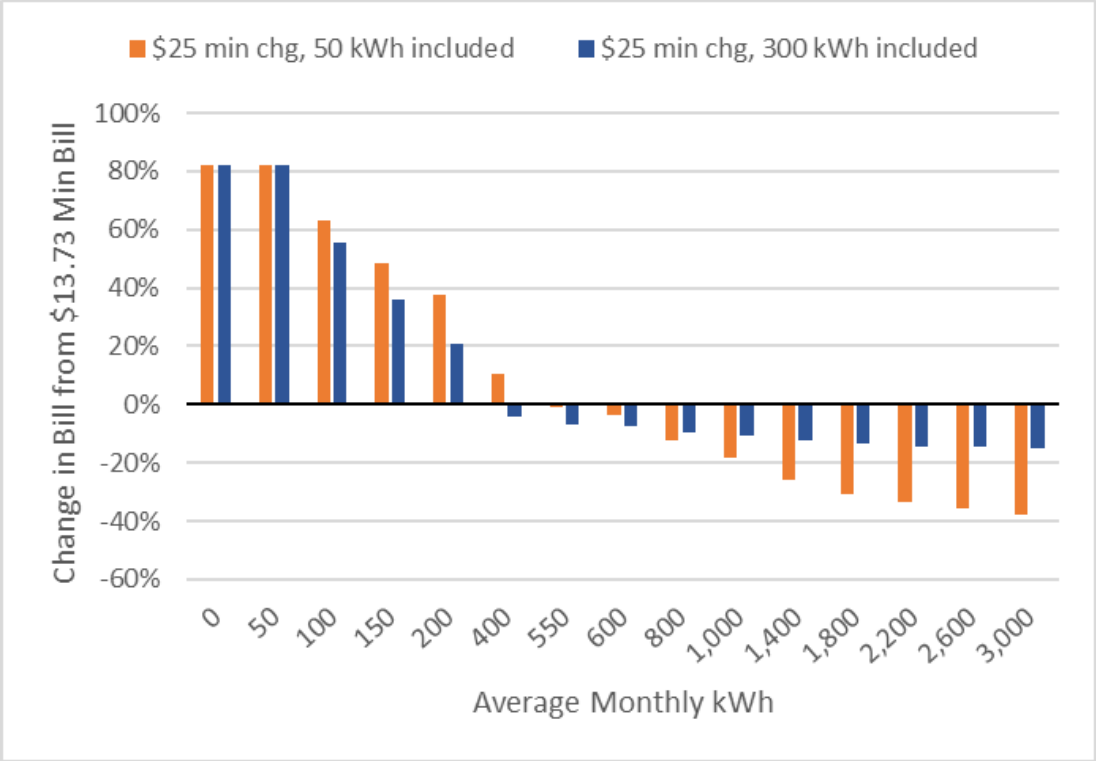
% of Customers	kWh Usage	$13.73 Min Chg, 50 kWh included	$25 Min Chg, 50 kWh included	$25 Min Chg, 300 kWh included
7.60%	0	$14	$25	$25
3.40%	50	$14	$25	$25
3.90%	100	$16	$26	$25
4.40%	150	$18	$27	$25
20.40%	200	$21	$29	$25
15.40%	400	$30	$33	$29
4.60%	550	$37	$37	$35
14.90%	600	$39	$38	$37
9.50%	800	$49	$43	$44
5.80%	1000	$58	$47	$52
3.5%	1200	$67	$52	$60
2.2%	1400	$77	$57	$67
1.4%	1600	$86	$62	$75
0.9%	1800	$95	$66	$83
0.6%	2000	$105	$71	$90
0.4%	2200	$114	$76	$98
0.3%	2400	$123	$80	$106
0.2%	2600	$133	$85	$113
0.1%	2800	$142	$90	$121
0.1%	3000	$151	$95	$129
0.1%	3200	$161	$99	$136
0.1%	3400	$170	$104	$144
0.0%	3600	$180	$109	$152
0.0%	3800	$189	$114	$159
0.1%	4000	$198	$118	$167
0.0%	4500	$222	$130	$186
0.2%	5000	$245	$142	$205
Average Revenue per Customer		$34.53	$36.55	$36.55

The change in bills relative to the $13.73 minimum charge scenario is shown graphically in Figure 2, with orange bars showing bill changes under the $25 minimum charge with 50 kWh included, and blue bars showing the $25 minimum charge with 300 kWh included. As indicated by the figure, simply increasing the minimum charge to $25 (with

only 50 kWh included) increases bills for all customers with less-than-average monthly usage (approximately 550 kWh). A frugal apartment dweller who uses only 200 kWh per month would see their bill increase by 38 percent under this scenario.

In contrast, increasing the number of kilowatt-hours included in the minimum charge to 300 kWh moderates these bill increases. In this case, an apartment dweller using 200 kWh per month would see their bill increase by 21 percent – still a substantial increase, but much less than 38 percent.

Figure 2. Bill impacts of including 50 kWh and 300 kWh in minimum charge



Q What do you recommend regarding the residential minimum charge?

A For all of the reasons discussed above, we recommend that the Commission increase the number of kilowatt-hours included in the minimum charge, so as to ameliorate impacts on low-usage customers.

VI. MITIGATING DISPROPORTIONATE IMPACTS ON COMMERCIAL CUSTOMERS

Q Please explain your concern regarding impacts on low-usage commercial customers.

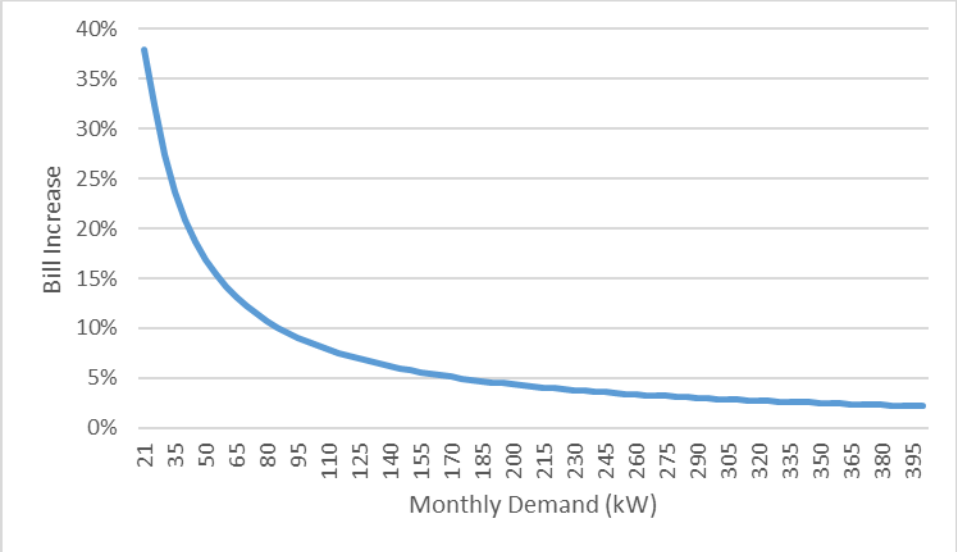
A Our concern is similar to that for residential customers. Lower usage commercial customers are likely to experience the highest percentage bill increases resulting from higher fixed charges due to stranded cost recovery. This is highlighted in the recent fixed charge changes for CMP customers. For SGS customers, the service charge increased by 53 percent relative to July 2022, while for MGS customers the service charge increased by more than 400 percent.

Given that commercial customers range significantly in respective demand on the system, relatively smaller customers will be disproportionately impacted by a single fixed charge set by class, and by increases to that charge. For example, the medium general service class for Central Maine Power ranges from 20kW to 400kW. The fixed charge for MGS customers increased by more than $150 from July 2022 to July 2023, largely due to stranded costs. This represents an increase of only $0.39/kW for a customer with 400 kW of demand, but an increase of over $7.00/kW for a customer with 21 kW of demand. In

terms of bill impacts, this represents a bill increase of $1,850 (or nearly 40 percent) for MGS customers with 21 kW of demand.

The figure below illustrates the percent bill increases due to the increased fixed charge for an MGS customer with a 30 percent load factor at various levels of demand. Customers with relatively low demand (less than 100 kW) experience bill increases of ranging from 10 percent to 38 percent, while the bill increases for high demand customers (250 kW or more) total only 2 or 3 percent.

Figure 3. Bill impacts for MGS customers



Q What do you recommend the Commission do to mitigate disproportionate intraclass bill impacts on commercial customers?

A We recommend that the Commission recover stranded costs through demand charges, which better reflect the size of the customer, as opposed to increases in the fixed charge. This design would mitigate bill impacts for lower-usage customers and improve fairness.

Q Does this conclude your testimony?

A Yes, it does.