

STATE OF NORTH CAROLINA
UTILITIES COMMISSION
RALEIGH

DOCKET NO. E-100, SUB 180

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of:)	<u>INITIAL COMMENTS</u>
Investigation of Proposed Net Metering)	<u>OF DONALD E OULMAN</u>
Policy Changes)	

Pursuant to the North Carolina Utilities Commission's ("NCUC" or "Commission") *Order Requesting Comments* entered on January 10, 2022 in the above-referenced docket, as extended by the Commission's *Order Granting Extension of Time* entered on March 3, 2022, Intervenor Donald E. Oulman hereby submits the following Initial Comments:

Situation:

My wife Bonnie and I, who live at 2742 Old Sugar Rd, Durham, NC 27707, contracted Southern Energy Management to install a 6.5 kW PV solar system on the roof of our home in April 2016. We did so to do our part to reduce our home's dependence on fossil fuel sources. We also enjoyed a reasonable long term financial return on our investment via the Duke Energy net energy metering

(NEM) rate structure. The system is equipped with an eGauge data collection system that provides us with a means of easily measuring our electrical generation, import and export rates so that we can better evaluate how to manage our electrical energy usage in a responsible manner. As a result of this capability, in 2019 we chose to replace a failed natural gas hot water heater with an electric hot water heater. In September of 2021 we purchased an electric vehicle. Both of these purchases further reduced our fossil fuel dependence.

I recently learned about Duke Energy's application to change the NEM rate structure and wanted to evaluate its potential impact on my annual cost of electricity. Based on my analysis that follows, I believe that Duke Energy is intentionally trying to dissuade the installation of roof-top solar installations by making the economics much less attractive. Since I already have a PV solar system installed on my home, and since Duke's application exempts legacy NEM customers only until January 1, 2027, the proposed NEM rate structure will have a significant negative financial impact.

Facts:

As a Chemical Engineer, I have spent over 50 years analyzing data and relished the challenge of transforming my eGauge data to fit the proposed Duke Energy NEM model to see what financial impact I would experience if the new NEM rate structure is allowed to be implemented. I was shocked to see that the proposed NEM rate structure versus the current flat-rate tariff would result in a 100% increase in my cost of electricity for the one-year period that I evaluated (see Appendix 1 columns A and B and Appendix 2).

I also modeled the proposed NEM rate structure versus the current flat-rate tariff, assuming that my solar system was not operational, and showed a 9% increase in my cost of electricity for the one-year period that I evaluated. (see Appendix 1 columns C and D and Appendix 3). The models show the disproportionate impact that the TOU-CPP tariff has on NEM customers. The larger percentage of total electrical usage that is provided by rooftop solar production and subsequently the less provided by Duke Energy, the larger the cost difference between the proposed NEM tariff and the current flat-rate tariff. The reason for this reduction in financial return is that the proposed NEM rate structure primarily amounts to month-to-month net metering vs annual net metering. So, excess energy that I bank during high solar production months would no longer benefit usage during low solar production months as it does under the existing NEM rate structure.

If the proposed TOU-CPP tariff for NEM customers is a prelude to implementing a similar rate structure for all customers, the TOU-CPP will result in rate increases for everyone.

In my model, I assumed that Duke Energy's proposed highest 'critical on-peak' 20 days per year were 5.48% of each month's peak days (20/365). In reality, Duke Energy would presumably call a CPP event on the 20 highest on-peak demand days each year, which means that my current model underestimates my financial loss, since I would be importing a higher-than-average amount of power on those days.

I downloaded Duke Energy 2021 hourly demand data from the 'Real-time Operating Grid - U.S. Energy Information Administration (EIA)' website to

understand how my PV solar system energy generation supports reduction in Duke Energy peak demand for electricity. I was also surprised to see that the windows for summer and non-summer on-peak energy demand in the TOU-CPP tariff, 6:00 PM – 9:00 PM and 6:00 AM – 9:00 AM, respectively, did not line up with the actual peak energy demand, which is approximately 2:00 PM – 7:00 PM and 7:00 AM – 11:00 AM, respectively (see Appendix 4). Duke Energy's proposed time windows seem to intentionally negatively impact roof-top solar producers financially while benefiting from solar producer energy production during the real peak demand periods.

Since periods of peak demand require peak energy generation capacity to ensure Duke Energy's ability to meet customer demand, I used the same website source to determine peak generation rate and found that Duke Energy's base load is supplied by nuclear generation and the peak demand and variable load is primarily supplied by natural gas and coal generation with some contribution from Duke solar and hydro generation (see Appendix 5).

It doesn't make sense to me that there need to be two on-peak demand periods: one in the summer months and one in the non-summer months. All of the Duke Energy designated summer months' peak demands except one month (May) exceed all of the non-summer months' peak demands, i.e., June, July, August and September (see Appendix 4).

I and other distributed PV solar roof-top energy producers provide North Carolina and Duke Energy with several environmental and economic benefits:

- Reduced I²R line loss in the Duke Energy distribution system.
- Power factor improvement throughout the Duke Energy distribution system.
- Energy peak shaving during high energy demand periods, reducing the need for Duke Energy-owned under-utilized energy generation capacity.
- Increased energy production from renewable resources.
- Reduced energy production from fossil fuel resources.
- Helping North Carolina meet energy and environmental goals.

NOTE: The native Excel file model is available upon request.

Conclusions:

- My PV solar system data analysis indicates that the Duke Energy application for changes to NEM rate structure will retroactively create a significant change in the economics of our decision to install a PV solar system on our home, and it will have the same impact on all other home owners who made and will make similar decisions to help reduce our dependence on fossil fuels.
- The time windows that Duke Energy has identified in their proposed TOU-CPP tariff do not reflect their real demand peak periods in such a way that disadvantages solar sourced alternative energy sources in favor of fossil fuel energy sources.

- I believe that Duke Energy should not be allowed to implement the proposed NEM rate structure. I recommend that the North Carolina Utilities Commission deny the Duke Energy request to implement the proposed TOU-CPP tariff.
- In response to Duke Energy's attempt to discourage rooftop solar installations in North Carolina, I recommend that the North Carolina Utilities Commission eliminate the current NEM tariff provision that allows any unused monthly carryover of excess energy credits to be returned to Duke Energy at the end of May each year.
- Other states like Massachusetts allow excess solar generation energy credits from rooftop solar to be continuously carried over from month to month and even transferred within the same utility authority to other utility account holders, i.e.: charities, non-profits, individuals.
- Individual Duke Energy account holders need to be supported in their efforts to continue to do their part in reducing North Carolina's dependence on fossil fuel sources of electricity generation.

This the 28th day of March, 2022.



Donald E. Oulman

2742 Old Sugar Rd.

Durham, NC 27707

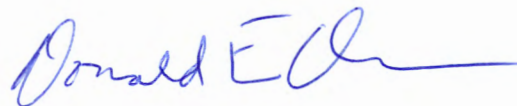
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CERTIFICATE OF SERVICE

I hereby certify that I have this day served a copy of the foregoing document upon all counsel of record by email transmission.

This the 28th day of March, 2022.



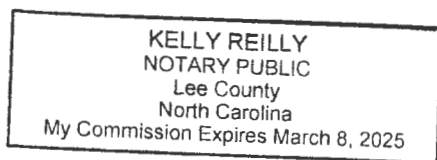
Donald E. Oulman

Sworn to and subscribed before me,
this the 28 day of March, 2022.



Notary Public

My commission expires: 3/8/25



Appendix 1

2742 Old Sugar Rd Duke Energy NEM Impact

Donald E Oulman

3/6/2022

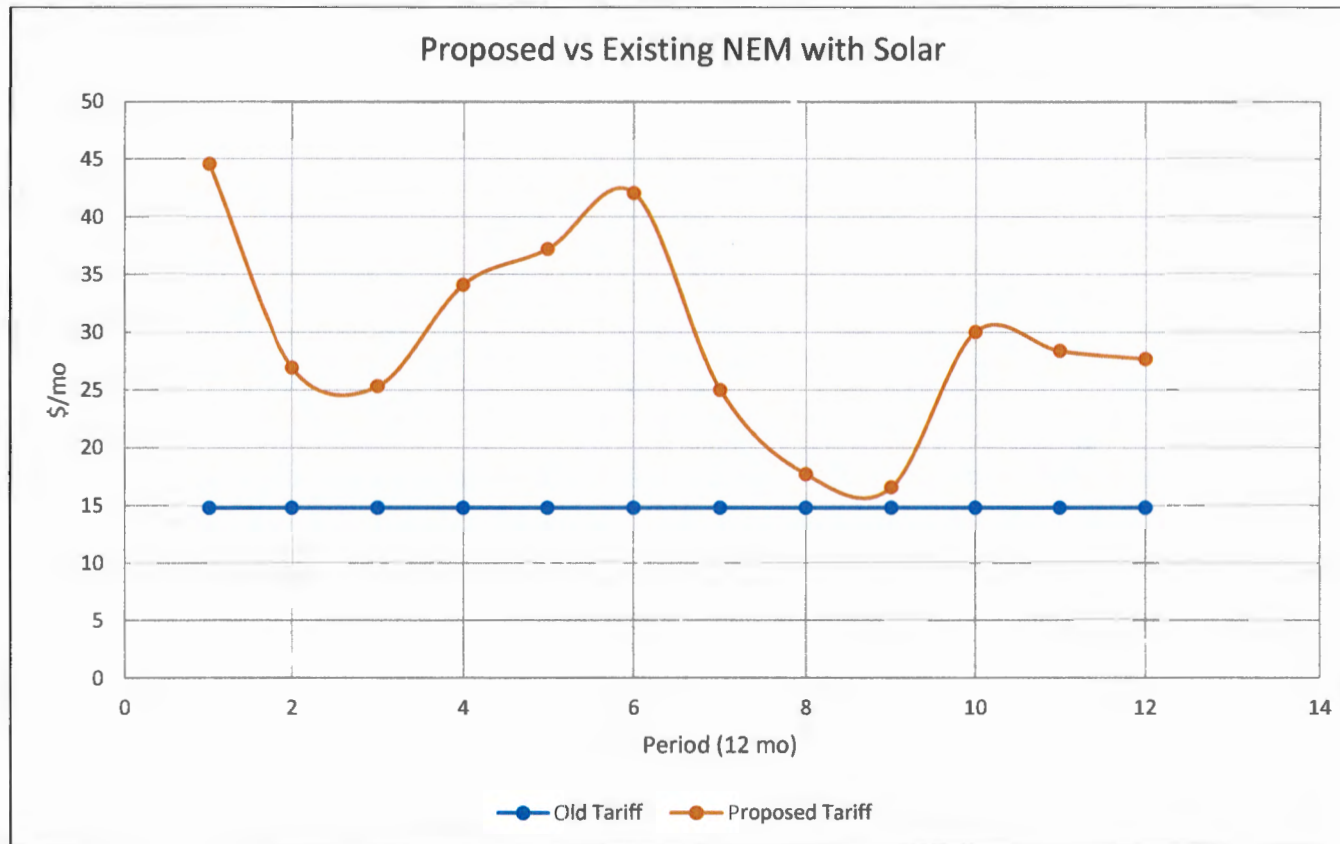
One story brick ranch home - 2,200 ft^2

6.5 kW PV system

Period	Bill Start	Bill End	A	B	C	D
			Existing NEM with Solar	Proposed NEM with Solar	Existing NEM without Solar	Proposed NEM without Solar
			\$	\$	\$	\$
1	8/14/2020	9/15/2020	14.78	44.58	88.11	96.02
2	9/15/2020	10/14/2020	14.78	26.96	53.57	59.56
3	10/14/2020	11/13/2020	14.78	25.34	55.67	60.57
4	11/13/2020	12/15/2020	14.78	34.10	63.01	66.95
5	12/15/2020	1/15/2021	14.78	37.22	57.76	62.25
6	1/15/2021	2/15/2021	14.78	42.06	66.16	72.06
7	2/15/2021	3/17/2021	14.78	25.01	61.07	66.86
8	3/17/2021	4/19/2021	14.78	17.72	56.21	66.86
9	4/19/2021	5/18/2021	14.78	16.56	47.81	54.47
10	5/18/2021	6/16/2021	14.78	30.02	71.35	81.20
11	6/16/2021	7/19/2021	14.78	28.38	78.43	73.85
12	7/19/2021	8/17/2021	14.78	27.68	64.59	73.85
Total			\$177.36	\$355.62	\$763.74	\$834.48
				Proposed vs Existing NEM with Solar		Proposed vs Existing NEM without Solar
				\$178.26	Annual Increase	\$70.74
				100.5%	Annual Increase	9.3%

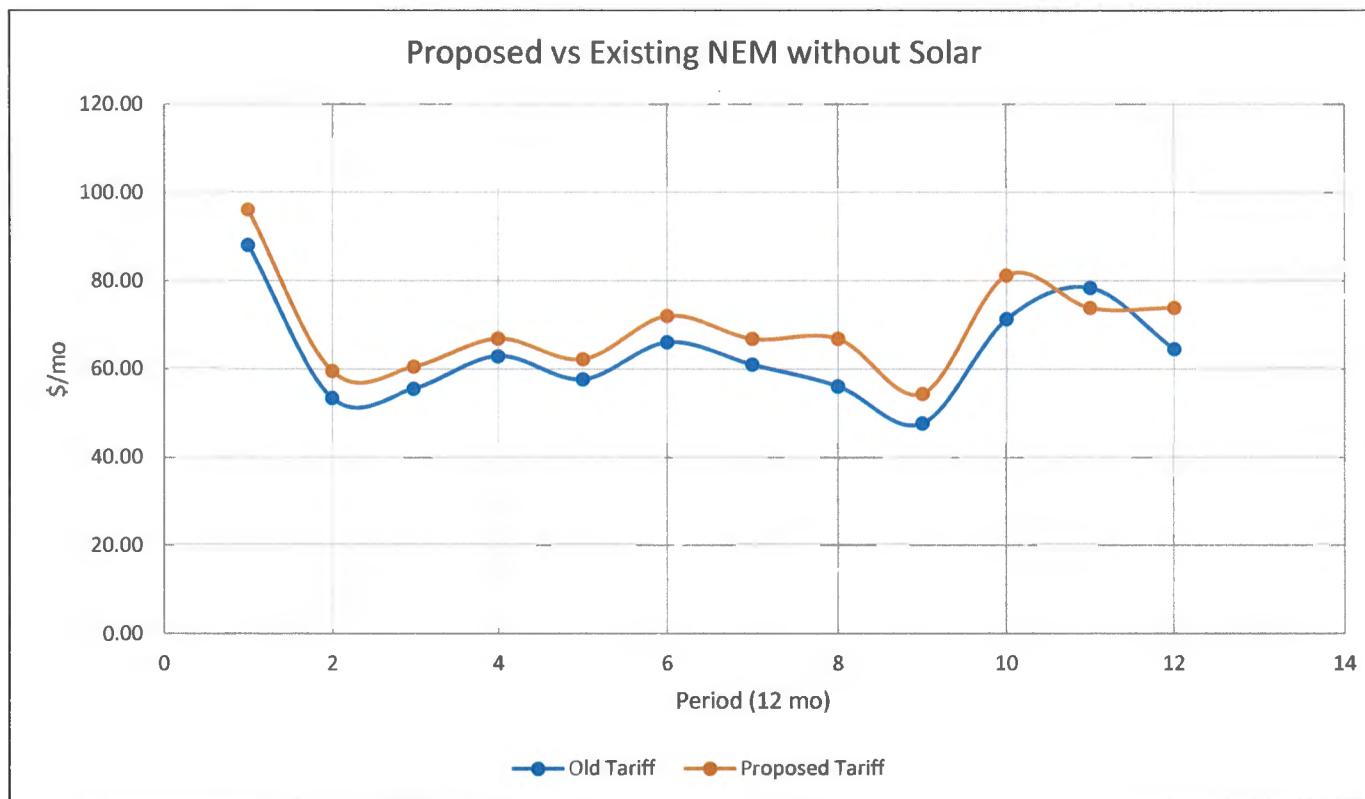
Appendix 2

2742 Old Sugar Rd Duke Energy NEM Impact with Solar Operational



Appendix 3

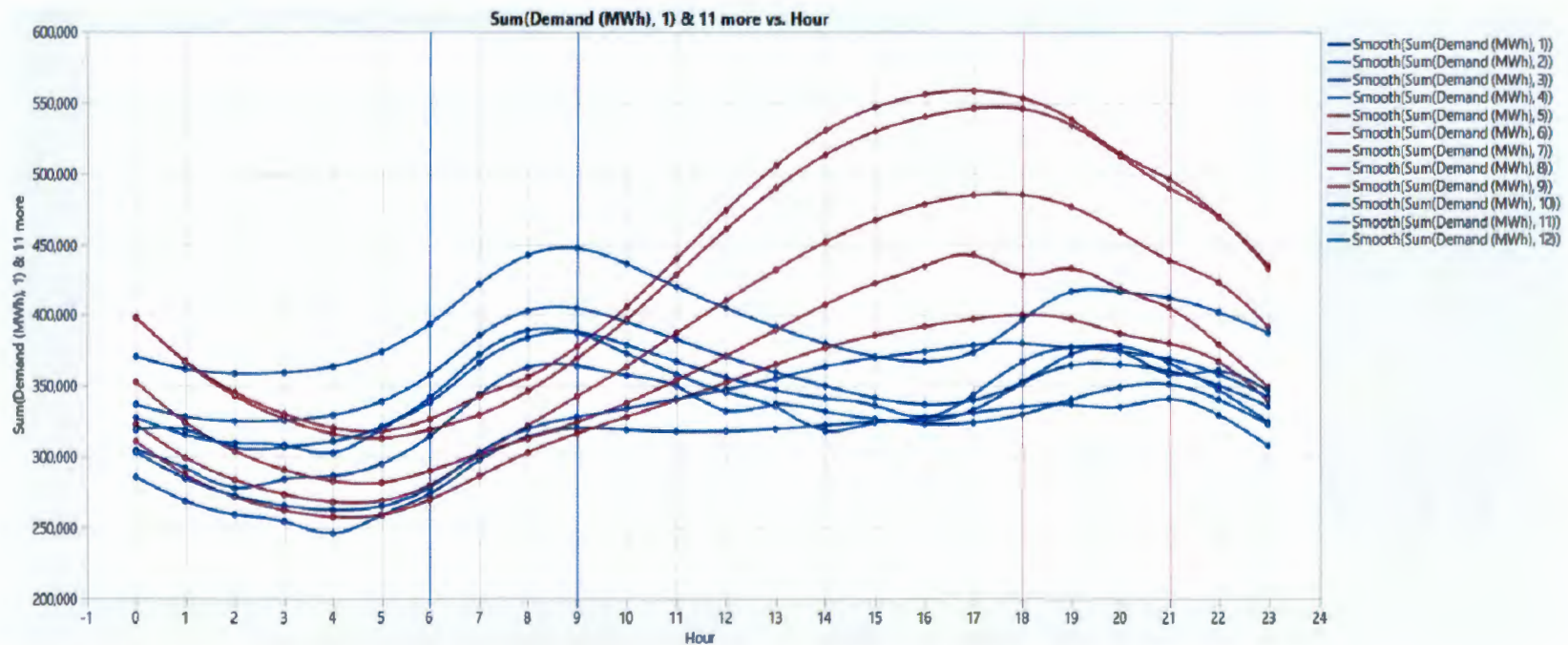
2742 Old Sugar Rd Duke Energy NEM Impact without Solar Operational



Appendix 4

Duke Energy Demand by Month and Hour

Source: Real-time Operating Grid - U.S. Energy Information Administration (EIA)



Vertical whiskers are Duke Energy proposed NEM on-peak and critical on-peak hours

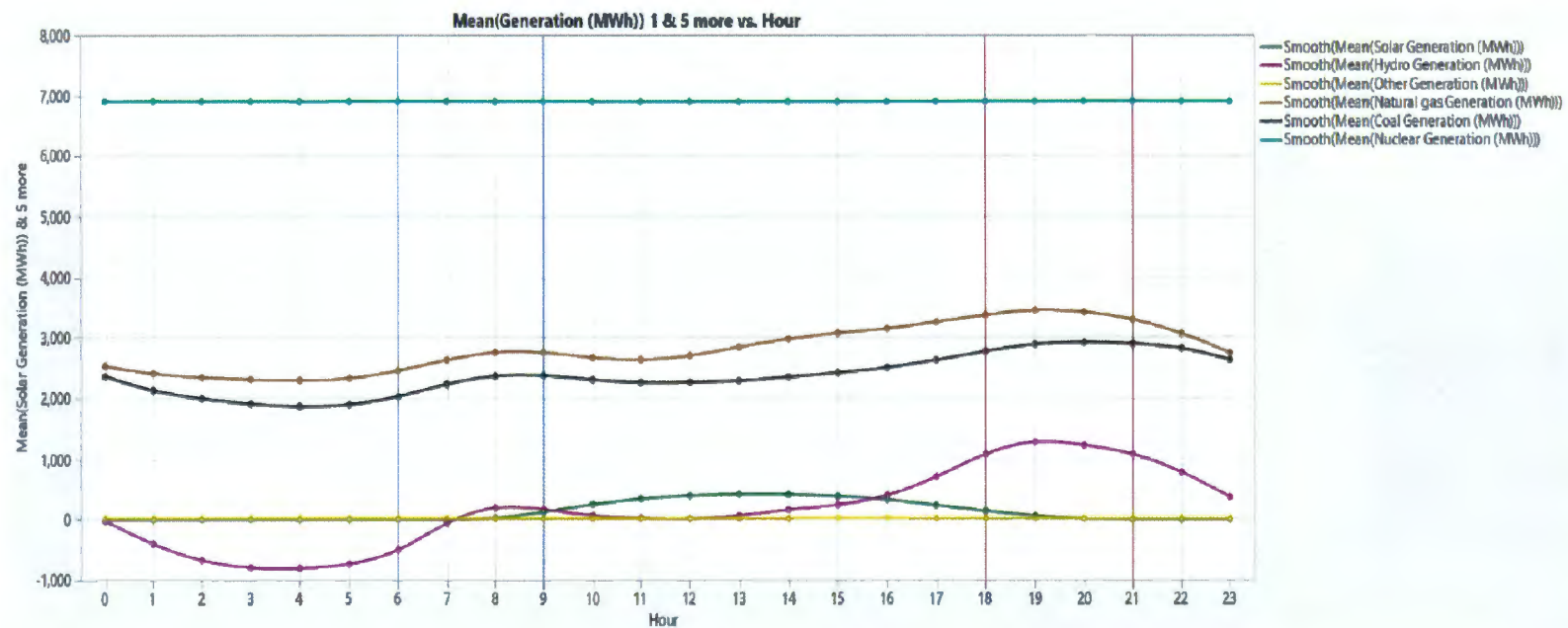
Blue lines are non-summer demands by hour (see legend at right)

Red lines are summer demands by hour (see legend at right)

Appendix 5

Duke Energy Generation by Source and Hour

Source: Real-time Operating Grid - U.S. Energy Information Administration (EIA)



Vertical whiskers are Duke Energy proposed NEM on-peak and critical on-peak hours

Blue lines are non-summer demands by hour (see legend at right)

Red lines are summer demands by hour (see legend at right)