

DEP Redacted Exhibit 2

Avoided Cost Calculations

Docket No. E-100, Sub 167

DUKE ENERGY PROGRESS, LLC
Energy Credits
Uncontrolled Solar Generation

Distribution
Based on 2021-2022 Costs (Variable Rate)
Cents per KWH

	DEP Summer Prem-Peak (Cents/KWH)	DEP Summer PM-Peak (Cents/KWH)	DEP Summer Off Peak (Cents/KWH)	DEP Winter Prem-Peak (Cents/KWH)	DEP Winter AM-Peak (Cents/KWH)	DEP Winter PM-Peak (Cents/KWH)	DEP Winter Off Peak (Cents/KWH)	DEP Shoulder Peak (Cents/KWH)	DEP Shoulder Off Peak (Cents/KWH)
1. Avoided Energy Cost (Note 1)	3.67	2.78	2.75	4.04	2.10	3.70	2.68	2.98	2.23
2. Working Capital Factor (Note 2)	1.015	1.015	1.015	1.015	1.015	1.015	1.015	1.015	1.015
3. Marginal Loss Factor (Note 3)	1.032	1.030	1.017	1.029	1.022	1.023	1.016	1.015	1.012
4. Unadjusted Energy Credits (L1*L2*L3)	3.84	2.91	2.84	4.22	2.17	3.84	2.76	3.07	2.29
5. Integration Services Charge (Note 4)	-0.239	-0.239	-0.239	-0.239	-0.239	-0.239	-0.239	-0.239	-0.239
6. Energy Credits (L4 + L5)	3.60	2.67	2.60	3.98	1.93	3.60	2.52	2.83	2.05

Distribution
Based on 2021-2030 Costs (10 Year Fixed)
Cents per KWH

	DEP Summer Prem-Peak (Cents/KWH)	DEP Summer PM-Peak (Cents/KWH)	DEP Summer Off Peak (Cents/KWH)	DEP Winter Prem-Peak (Cents/KWH)	DEP Winter AM-Peak (Cents/KWH)	DEP Winter PM-Peak (Cents/KWH)	DEP Winter Off Peak (Cents/KWH)	DEP Shoulder Peak (Cents/KWH)	DEP Shoulder Off Peak (Cents/KWH)
1. Avoided Energy Cost (Note 1)	3.50	2.99	2.89	3.35	3.03	3.88	3.13	3.11	2.33
2. Working Capital Factor (Note 2)	1.015	1.015	1.015	1.015	1.015	1.015	1.015	1.015	1.015
3. Marginal Loss Factor (Note 3)	1.032	1.030	1.017	1.029	1.022	1.023	1.016	1.015	1.012
4. Unadjusted Energy Credits (L1*L2*L3)	3.66	3.13	2.99	3.50	3.14	4.03	3.23	3.20	2.39
5. Integration Services Charge (Note 4)	-0.239	-0.239	-0.239	-0.239	-0.239	-0.239	-0.239	-0.239	-0.239
6. Energy Credits (L4 + L5)	3.42	2.89	2.75	3.26	2.90	3.79	2.99	2.96	2.15

Notes

- From Page 5
- From Page 20
- Marginal Loss Factor = 1 / (1 - % loss/100)

Based on marginal % losses of: Applies to:	Transmission Losses (Incl Step Up and Step down Transformer) Distribution level Interconnections	Step Up Transformer Losses Transmission level Interconnections
	DEP Summer Prem-Peak	3.064%
DEP Summer PM-Peak	2.955%	0.135%
DEP Summer OffPeak	1.694%	0.077%
DEP Winter Prem-Peak	2.838%	0.130%
DEP Winter AM-Peak	2.116%	0.097%
DEP Winter PM-Peak	2.264%	0.103%
DEP Winter OffPeak	1.617%	0.074%
DEP Shoulder Peak	1.488%	0.068%
DEP Shoulder OffPeak	1.154%	0.053%

- Solar Integration Services Charge of \$2.39/MWH for DEP per E-100 Sub 158.

DUKE ENERGY PROGRESS, LLC
Energy Credits
Uncontrolled Solar Generation

Transmission
Based on 2021-2022 Costs (Variable Rate)
Cents per KWH

	DEP Summer Prem-Peak (Cents/KWH)	DEP Summer PM-Peak (Cents/KWH)	DEP Summer Off Peak (Cents/KWH)	DEP Winter Prem-Peak (Cents/KWH)	DEP Winter AM-Peak (Cents/KWH)	DEP Winter PM-Peak (Cents/KWH)	DEP Winter Off Peak (Cents/KWH)	DEP Shoulder Peak (Cents/KWH)	DEP Shoulder Off Peak (Cents/KWH)
1. Avoided Energy Cost (Note 1)	3.67	2.78	2.75	4.04	2.10	3.70	2.68	2.98	2.23
2. Working Capital Factor (Note 2)	1.015	1.015	1.015	1.015	1.015	1.015	1.015	1.015	1.015
3. Marginal Loss Factor (Note 3)	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001
4. Unadjusted Energy Credits (L1*L2*L3)	3.73	2.82	2.80	4.11	2.13	3.75	2.72	3.03	2.26
5. Integration Services Charge (Note 4)	-0.239	-0.239	-0.239	-0.239	-0.239	-0.239	-0.239	-0.239	-0.239
6. Energy Credits (L4 + L5)	3.49	2.58	2.56	3.87	1.89	3.51	2.48	2.79	2.02

Transmission
Based on 2021-2030 Costs (10 Year Fixed)
Cents per KWH

	DEP Summer Prem-Peak (Cents/KWH)	DEP Summer PM-Peak (Cents/KWH)	DEP Summer Off Peak (Cents/KWH)	DEP Winter Prem-Peak (Cents/KWH)	DEP Winter AM-Peak (Cents/KWH)	DEP Winter PM-Peak (Cents/KWH)	DEP Winter Off Peak (Cents/KWH)	DEP Shoulder Peak (Cents/KWH)	DEP Shoulder Off Peak (Cents/KWH)
1. Avoided Energy Cost (Note 1)	3.50	2.99	2.89	3.35	3.03	3.88	3.13	3.11	2.33
2. Working Capital Factor (Note 2)	1.015	1.015	1.015	1.015	1.015	1.015	1.015	1.015	1.015
3. Marginal Loss Factor (Note 3)	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001
4. Unadjusted Energy Credits (L1*L2*L3)	3.56	3.04	2.94	3.41	3.08	3.94	3.18	3.16	2.36
5. Integration Services Charge (Note 4)	-0.239	-0.239	-0.239	-0.239	-0.239	-0.239	-0.239	-0.239	-0.239
6. Energy Credits (L4 + L5)	3.32	2.80	2.70	3.17	2.84	3.70	2.94	2.92	2.12

Notes

- From Page 5
- From Page 20
- Marginal Loss Factor = 1 / (1 - % loss/100)

	Transmission Losses	
Based on marginal % losses of:	(Incl Step Up and Step down Transformer)	Step Up Transformer Losses
Applies to:	Distribution level Interconnections	Transmission level Interconnections
DEP Summer Prem-Peak	3.064%	0.140%
DEP Summer PM-Peak	2.955%	0.135%
DEP Summer OffPeak	1.694%	0.077%
DEP Winter Prem-Peak	2.838%	0.130%
DEP Winter AM-Peak	2.116%	0.097%
DEP Winter PM-Peak	2.264%	0.103%
DEP Winter OffPeak	1.617%	0.074%
DEP Shoulder Peak	1.488%	0.068%
DEP Shoulder OffPeak	1.154%	0.053%
4. Solar Integration Services Charge of \$2.39/MWH for DEP per E-100 Sub 158.		

DUKE ENERGY PROGRESS, LLC
Energy Credits
All but Uncontrolled Solar Generation

Distribution
Based on 2021-2022 Costs (Variable Rate)
Cents per KWH

	DEP Summer Prem-Peak (Cents/KWH)	DEP Summer PM-Peak (Cents/KWH)	DEP Summer Off Peak (Cents/KWH)	DEP Winter Prem-Peak (Cents/KWH)	DEP Winter AM-Peak (Cents/KWH)	DEP Winter PM-Peak (Cents/KWH)	DEP Winter Off Peak (Cents/KWH)	DEP Shoulder Peak (Cents/KWH)	DEP Shoulder Off Peak (Cents/KWH)
1. Avoided Energy Cost (Note 1)	3.67	2.78	2.75	4.04	2.10	3.70	2.68	2.98	2.23
2. Working Capital Factor (Note 2)	1.015	1.015	1.015	1.015	1.015	1.015	1.015	1.015	1.015
3. Marginal Loss Factor (Note 3)	1.032	1.030	1.017	1.029	1.022	1.023	1.016	1.015	1.012
4. Energy Credits (L1*L2*L3)	<u>3.84</u>	<u>2.91</u>	<u>2.84</u>	<u>4.22</u>	<u>2.17</u>	<u>3.84</u>	<u>2.76</u>	<u>3.07</u>	<u>2.29</u>

Distribution
Based on 2021-2030 Costs (10 Year Fixed)
Cents per KWH

	DEP Summer Prem-Peak (Cents/KWH)	DEP Summer PM-Peak (Cents/KWH)	DEP Summer Off Peak (Cents/KWH)	DEP Winter Prem-Peak (Cents/KWH)	DEP Winter AM-Peak (Cents/KWH)	DEP Winter PM-Peak (Cents/KWH)	DEP Winter Off Peak (Cents/KWH)	DEP Shoulder Peak (Cents/KWH)	DEP Shoulder Off Peak (Cents/KWH)
1. Avoided Energy Cost (Note 1)	3.50	2.99	2.89	3.35	3.03	3.88	3.13	3.11	2.33
2. Working Capital Factor (Note 2)	1.015	1.015	1.015	1.015	1.015	1.015	1.015	1.015	1.015
3. Marginal Loss Factor (Note 3)	1.032	1.030	1.017	1.029	1.022	1.023	1.016	1.015	1.012
4. Energy Credits (L1*L2*L3)	<u>3.66</u>	<u>3.13</u>	<u>2.99</u>	<u>3.50</u>	<u>3.14</u>	<u>4.03</u>	<u>3.23</u>	<u>3.20</u>	<u>2.39</u>

Notes

- From Page 5
- From Page 20
- Marginal Loss Factor = 1 / (1 - %)

Based on marginal % losses of: Applies to:	Transmission Losses (Incl Step Up and Step down Transformer) Distribution level Interconnections	Step Up Transformer Losses Transmission level Interconnections
	DEP Summer Prem-Peak	3.064%
DEP Summer PM-Peak	2.955%	0.135%
DEP Summer OffPeak	1.694%	0.077%
DEP Winter Prem-Peak	2.838%	0.130%
DEP Winter AM-Peak	2.116%	0.097%
DEP Winter PM-Peak	2.264%	0.103%
DEP Winter OffPeak	1.617%	0.074%
DEP Shoulder Peak	1.488%	0.068%
DEP Shoulder OffPeak	1.154%	0.053%

DUKE ENERGY PROGRESS, LLC
Energy Credits
All but Uncontrolled Solar Generation

Transmission
Based on 2021-2022 Costs (Variable Rate)
Cents per KWH

	DEP Summer Prem-Peak (Cents/KWH)	DEP Summer PM-Peak (Cents/KWH)	DEP Summer Off Peak (Cents/KWH)	DEP Winter Prem-Peak (Cents/KWH)	DEP Winter AM-Peak (Cents/KWH)	DEP Winter PM-Peak (Cents/KWH)	DEP Winter Off Peak (Cents/KWH)	DEP Shoulder Peak (Cents/KWH)	DEP Shoulder Off Peak (Cents/KWH)
1. Avoided Energy Cost (Note 1)	3.67	2.78	2.75	4.04	2.10	3.70	2.68	2.98	2.23
2. Working Capital Factor (Note 2)	1.015	1.015	1.015	1.015	1.015	1.015	1.015	1.015	1.015
3. Marginal Loss Factor (Note 3)	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001
4. Energy Credits (L1*L2*L3)	<u>3.73</u>	<u>2.82</u>	<u>2.80</u>	<u>4.11</u>	<u>2.13</u>	<u>3.75</u>	<u>2.72</u>	<u>3.03</u>	<u>2.26</u>

Transmission
Based on 2021-2030 Costs (10 Year Fixed)
Cents per KWH

	DEP Summer Prem-Peak (Cents/KWH)	DEP Summer PM-Peak (Cents/KWH)	DEP Summer Off Peak (Cents/KWH)	DEP Winter Prem-Peak (Cents/KWH)	DEP Winter AM-Peak (Cents/KWH)	DEP Winter PM-Peak (Cents/KWH)	DEP Winter Off Peak (Cents/KWH)	DEP Shoulder Peak (Cents/KWH)	DEP Shoulder Off Peak (Cents/KWH)
1. Avoided Energy Cost (Note 1)	3.50	2.99	2.89	3.35	3.03	3.88	3.13	3.11	2.33
2. Working Capital Factor (Note 2)	1.015	1.015	1.015	1.015	1.015	1.015	1.015	1.015	1.015
3. Marginal Loss Factor (Note 3)	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001
4. Energy Credits (L1*L2*L3)	<u>3.56</u>	<u>3.04</u>	<u>2.94</u>	<u>3.41</u>	<u>3.08</u>	<u>3.94</u>	<u>3.18</u>	<u>3.16</u>	<u>2.36</u>

Notes

- From Page 5
- From Page 20
- Marginal Loss Factor = 1 / (1 - % loss/100)

	Transmission Losses (Incl Step Up and Step down Transformer) Distribution level Interconnections	Step Up Transformer Losses Transmission level Interconnections
Based on marginal % losses of:		
Applies to:		
DEP Summer Prem-Peak	3.064%	0.140%
DEP Summer PM-Peak	2.955%	0.135%
DEP Summer OffPeak	1.694%	0.077%
DEP Winter Prem-Peak	2.838%	0.130%
DEP Winter AM-Peak	2.116%	0.097%
DEP Winter PM-Peak	2.264%	0.103%
DEP Winter OffPeak	1.617%	0.074%
DEP Shoulder Peak	1.488%	0.068%
DEP Shoulder OffPeak	1.154%	0.053%

DUKE ENERGY PROGRESS, LLC

Avoided Energy Costs

DEP Summer Prem-Peak	DEP Summer PM-Peak	DEP Summer Off Peak	DEP Winter Prem-Peak	DEP Winter AM-Peak	DEP Winter PM-Peak	DEP Winter Off Peak	DEP Shoulder Peak	DEP Shoulder Off Peak
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Year	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)
2021									
2022									
2023									
2024									
2025									
2026									
2027									
2028									
2029									
2030									
Fuel Hedge									

DEP Summer Prem-Peak	DEP Summer PM-Peak	DEP Summer Off Peak	DEP Winter Prem-Peak	DEP Winter AM-Peak	DEP Winter PM-Peak	DEP Winter Off Peak	DEP Shoulder Peak	DEP Shoulder Off Peak
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Adjusted for Fuel Hedge	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)	(Cents/KWH)
2021									
2022									
2023									
2024									
2025									
2026									
2027									
2028									
2029									
2030									

2 Year Present Value	6.68	5.05	5.01	7.35	3.81	6.72	4.87	5.42	4.05
Levelized Value	3.67	2.78	2.75	4.04	2.10	3.70	2.68	2.98	2.23
10 Year Present Value	25.07	21.41	20.72	24.00	21.71	27.78	22.42	22.27	16.66
Levelized Value	3.50	2.99	2.89	3.35	3.03	3.88	3.13	3.11	2.33

Notes:

- Present values and levelized values are derived using a discount rate of 6.59%
- Energy costs include emission costs and fuel hedge value

3. Energy Hour definition:

(Period definitions are stated in terms of hour-ending)

Stipulated Energy	DEC				DEP					
	Months	AM Period Peak	Premium Peak	PM Period Peak	Premium Peak	Months	AM Period Peak	Premium Peak	PM Period Peak	Premium Peak
Summer Weekdays	Jun - Sept			13-16, 21-22	17-20	Jun - Sept	5-6		14-16, 21	17-20
Winter Weekdays	Dec - Feb	6-10	7-9	18-22		Dec - Feb	10-11	7-9	19-22	
Shoulder Weekdays	Mar - May, Oct - Nov	7-10		17-23		Mar - May, Oct - Nov	8-10		18-23	

Off-Peak energy hours are all weekend hours, and all weekday hours not designated as On Peak and Premium Peak by season

DUKE ENERGY PROGRESS, LLC
All Generation but Hydroelectric Generation without Storage

Capacity Cost for Determination
of Capacity Credits

(2020 \$000s)

	Distribution		Transmission	
	CT Cost	FOM (6)	CT Cost	FOM (6)
1. Installed Combustion Turbine Cost (Note 1)	[REDACTED]			
2. Combustion Turbine Fixed Charge Rate (Note 2)	7.97%		7.97%	
3. Annual Combustion Turbine Carrying Cost (L1*L2)	[REDACTED]			
4. General Plant Factor (Note 4)	2.11%		2.11%	
5. Adjusted Annual Combustion Turbine Carrying Cost (L3 + (L3*L4))	[REDACTED]			
6. Combustion Turbine Fixed O&M Expenses	[REDACTED]			
7. Working Capital Factor (Note 4)		1.0516		1.0516
8. Subtotal (L5+(L6*L7))	[REDACTED]			
9. Performance Adjustment Factor (Note 5)	1.06	1.06	1.06	1.06
10. Marginal Loss Factor (Note 7)	1.0230	1.0230	1.0010	1.0010
11. Annual Capacity Cost (L8*L9*L10)	[REDACTED]			

Notes

1. Cost for new combustion turbine based on EIA data in EOY 2020\$
2. Real levelized carrying charge rates applicable to new combustion turbine installed cost
3. From Page 20
4. From Page 21
5. Applicable to all but hydroelectric generation without storage
6. FOM split out to apply O&M escalation rate
7. Distribution:
 - Based on marginal % loss of:

On Peak	2.249%	Loss factor = (1/(1 - On Peak loss%))
Transmission:		
Step-Up Transformer Loss:	0.103%	Loss factor = (1/(1 - Step up loss%))

DUKE ENERGY PROGRESS, LLC
All but Swine or Poultry Waste Generation and Hydroelectric Generation without Storage
Annual Avoided Capacity Costs

Year		Distribution				Transmission			
		CT Cost Annual Capacity (CT) Cost (1)		FOM Annual Capacity (FOM) Cost(1)		CT Cost Annual Capacity (CT) Cost (1)		FOM Annual Capacity (FOM) Cost(1)	
		(2020 \$000s)	(Nominal \$000s)	(2020 \$000s)	(Nominal \$000s)	(2020 \$000s)	(Nominal \$000s)	(2020 \$000s)	(Nominal \$000s)
2021	1	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
2022	2	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
2023	3	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
2024	4								
2025	5								
2026	6								
2027	7								
2028	8								
2029	9								
2030	10								

	Distribution			Transmission		
	Capacity (CT)	Capacity (FOM)	Capacity Cost	Capacity (CT)	Capacity (FOM)	Capacity Cost
2 Year Present Value (Note 2)	\$0	\$0	\$0	\$0	\$0	\$0
10 Year Present Value (Note 2)	\$74,832	\$5,096	\$79,927	\$73,224	\$4,986	\$78,210

Notes

- Annual Capacity Cost (Nominal \$) = Annual Capacity Cost (*20 \$) escalated at an annual rate of
 Annual CT cost portion of Capacity Cost from Page 6 escalated at an annual rate of 0.86%
 Annual FOM portion of Capacity Cost from Page 6 escalated at an annual rate of 2.50%
 Annual escalation starts in 2021
- Present values are derived using a discount rate of 6.59%
- Capacity value is included starting with the first year of capacity need

DUKE ENERGY PROGRESS, LLC
All but Swine or Poultry Waste Generation and Hydroelectric Generation without Storage
 Capacity Credits
 Variable Rate
 Based on 2021-2022 Costs

	<u>Distribution</u> (Note 6)	<u>Transmission</u> (Note 6)
1. Avoided Capacity Cost Present Value of 2020-2021 (Note 1)	\$0	\$0
2. Monthly Avoided Capacity Cost L1 x (A/P) (Note 2)	\$0	\$0
3. Annual Avoided Capacity Cost L2 x 12 months	\$0	\$0

<u>SEASONAL CREDITS</u> (Note 3)	Summer	Winter	Winter	Summer	Winter	Winter
	Months PM	Months AM	Months PM	Months PM	Months AM	Months PM
4. Seasonal Allocation (Note 4)	0%	70%	30%	0%	70%	30%
5. Seasonal Allocation of annual capacity cost L3 x L4	\$0	\$0	\$0	\$0	\$0	\$0
6. Rating -MW (Note 5)	225	225	225	225	225	225
7. Seasonal Capacity Credit (\$/KW) L5/L6	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
8. Seasonal Peak Hours	248	363	363	248	363	363
9. Seasonal Capacity Credits (cents/KWH) L7/L8 * 100	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>

Notes

1. From Page 7

2. Ordinary annuity factor where $i =$ (1.0659 $^{(1/12)-1} * 100 =$ 0.5332%
and $n =$ 24 months

3. Capacity Hour Definition:

(Period definitions are stated in terms of hour-ending)

Stipulated Capacity	DEC			DEP		
	Months	AM Period On Peak	PM Period On Peak	Months	AM Period On Peak	PM Period On Peak
Summer	Jul-Aug		17-20	Jul-Aug		17-20
Winter	Dec - Mar	7-9	19-21	Dec - Mar	7-9	19-21

4. Based on LOLH

5. Rating for new combustion turbine

6. \$ in 000s except as noted

DUKE ENERGY PROGRESS, LLC
All but Swine or Poultry Waste Generation and Hydroelectric Generation without Storage
 Capacity Credits
 10 Year Fixed
 Based on 2021-2030 Costs

	<u>Distribution</u> (Note 6)	<u>Transmission</u> (Note 6)
1. Avoided Capacity Cost Present Value of 2021-2030 (Note 1)	\$79,927	\$78,210
2. Monthly Avoided Capacity Cost L1 x (A/P) (Note 2)	\$903	\$884
3. Annual Avoided Capacity Cost L2 x 12 months	\$10,841	\$10,608

<u>SEASONAL CREDITS</u> (Note 3)	Summer	Winter	Winter	Summer	Winter	Winter
	Months PM	Months AM	Months PM	Months PM	Months AM	Months PM
4. Seasonal Allocation (Note 4)	0%	70%	30% ##	0%	70%	30%
5. Seasonal Allocation of annual capacity cost L3 x L4	\$0	\$7,589	\$3,252	\$0	\$7,426	\$3,182
6. Rating -MW (Note 5)	225	225	225	225	225	225
7. Seasonal Capacity Credit (\$/KW) L5/L6	\$0.00	\$33.73	\$14.45	\$0.00	\$33.00	\$14.14
8. Seasonal Peak Hours	248	363	363	248	363	363
9. Seasonal Capacity Credits (cents/KWH) L7/L8 * 100	<u>0.00</u>	<u>9.29</u>	<u>3.98</u>	<u>0.00</u>	<u>9.09</u>	<u>3.90</u>

Notes

1. From Page 7

2. Ordinary annuity factor where $i =$ (1.0659 $^{(1/12)-1} * 100 =$ 0.5332%
and $n =$ 120 months

3. Capacity Hour Definition:

(Period definitions are stated in terms of hour-ending)

Stipulated Capacity	DEC			DEP		
	Months	AM Period On Peak	PM Period On Peak	Months	AM Period On Peak	PM Period On Peak
Summer	Jul-Aug		*7-20	Jul-Aug		*7-20
Winter	Dec - Mar	7-9	*9-2*	Dec - Mar	7-9	*9-21

4. Based on LOLH

5. Rating for new combustion turbine

6. \$ in 000s except as noted

DUKE ENERGY PROGRESS, LLC
Swine or Poultry Waste Generation
Annual Avoided Capacity Costs

Year		Distribution				Transmission			
		CT Cost Annual Capacity (CT) Cost (1) (2020 \$000s)	(Nominal \$000s)	FOM Annual Capacity (FOM) Cost(1) (2020 \$000s)	(Nominal \$000s)	CT Cost Annual Capacity (CT) Cost (1) (2020 \$000s)	(Nominal \$000s)	FOM Annual Capacity (FOM) Cost(1) (2020 \$000s)	(Nominal \$000s)
2021	1								
2022	2								
2023	3								
2024	4								
2025	5								
2026	6								
2027	7								
2028	8								
2029	9								
2030	10								

	Distribution			Transmission		
	Capacity (CT)	Capacity (FOM)	Capacity Cost	Capacity (CT)	Capacity (FOM)	Capacity Cost
2 Year Present Value (Note 2)	\$28,807	\$1,800	\$30,607	\$28,188	\$1,762	\$29,950
10 Year Present Value (Note 2)	\$116,892	\$7,745	\$124,636	\$114,381	\$7,578	\$121,959

Notes

- Annual Capacity Cost (Nominal \$) = Annual Capacity Cost ('20 \$) escalated at an annual rate of
 Annual CT cost portion of Capacity Cost from Page 6 escalated at an annual rate of 0.86%
 Annual FOM portion of Capacity Cost from Page 6 escalated at an annual rate of 2.50%
 Annual escalation starts in 2021
- Present values are derived using a discount rate of 6.59%
- Capacity value is included starting with the first year

DUKE ENERGY PROGRESS, LLC
Swine or Poultry Waste Generation
Capacity Credits
Variable Rate
Based on 2021-2022 Costs

	<u>Distribution</u> (Note 6)	<u>Transmission</u> (Note 6)
1. Avoided Capacity Cost Present Value of 2020-2021 (Note 1)	\$30,607	\$29,950
2. Monthly Avoided Capacity Cost L1 x (A/P) (Note 2)	\$1,362	\$1,333
3. Annual Avoided Capacity Cost L2 x 12 months	\$16,344	\$15,993

<u>SEASONAL CREDITS</u> (Note 3)	Summer	Winter	Winter	Summer	Winter	Winter
	Months PM	Months AM	Months PM	Months PM	Months AM	Months PM
4. Seasonal Allocation (Note 4)	0%	70%	30%	0%	70%	30%
5. Seasonal Allocation of annual capacity cost L3 x L4	\$0	\$11,441	\$4,903	\$0	\$11,195	\$4,798
6. Rating -MW (Note 5)	225	225	225	225	225	225
7. Seasonal Capacity Credit (\$/KW) L5/L6	\$0.00	\$50.85	\$21.79	\$0.00	\$49.76	\$21.32
8. Seasonal Peak Hours	248	363	363	248	363	363
9. Seasonal Capacity Credits (cents/KWH) L7/L8 * 100	<u>0.00</u>	<u>14.01</u>	<u>6.00</u>	<u>0.00</u>	<u>13.71</u>	<u>5.87</u>

Notes

1. From Page 7

2. Ordinary annuity factor where $i =$ (1.0659 $^{(1/12)-1} * 100 =$ 0.5332%
and $n =$ 24 months

3. Capacity Hour Definition:

(Period definitions are stated in terms of hour-ending)

Stipulated Capacity	DEC			DEP		
	Months	AM Period On Peak	PM Period On Peak	Months	AM Period On Peak	PM Period On Peak
Summer	Jul-Aug		17-20	Jul-Aug		17-20
Winter	Dec - Mar	7-9	19-21	Dec - Mar	7-9	19-21

4. Based on LOLH

5. Rating for new combustion turbine

6. \$ in 000s except as noted

DUKE ENERGY PROGRESS, LLC
Swine or Poultry Waste Generation
Capacity Credits
10 Year Fixed
Based on 2021-2030 Costs

	<u>Distribution</u> (Note 6)	<u>Transmission</u> (Note 6)
1. Avoided Capacity Cost Present Value of 2021-2030 (Note 1)	\$124,636	\$121,959
2. Monthly Avoided Capacity Cost L1 x (A/P) (Note 2)	\$1,409	\$1,379
3. Annual Avoided Capacity Cost L2 x 12 months	\$16,905	\$16,542

<u>SEASONAL CREDITS</u> (Note 3)	Summer	Winter	Winter	Summer	Winter	Winter
	Months PM	Months AM	Months PM	Months PM	Months AM	Months PM
4. Seasonal Allocation (Note 4)	0%	70%	30% ##	0%	70%	30%
5. Seasonal Allocation of annual capacity cost L3 x L4	\$0	\$11,834	\$5,072	\$0	\$11,579	\$4,963
6. Rating -MW (Note 5)	225	225	225	225	225	225
7. Seasonal Capacity Credit (\$/KW) L5/L6	\$0.00	\$52.59	\$22.54	\$0.00	\$51.46	\$22.06
8. Seasonal Peak Hours	248	363	363	248	363	363
9. Seasonal Capacity Credits (cents/KWH) L7/L8 * 100	<u>0.00</u>	<u>14.49</u>	<u>6.21</u>	<u>0.00</u>	<u>14.18</u>	<u>6.08</u>

Notes

1. From Page 7

2. Ordinary annuity factor where $i =$ (1.0659 $^{(1/12)-1} * 100 =$ 0.5332%
and $n =$ 120 months

3. Capacity Hour Definition:

(Period definitions are stated in terms of hour-ending)

Stipulated Capacity	DEC			DEP		
	Months	AM Period On Peak	PM Period On Peak	Months	AM Period On Peak	PM Period On Peak
Summer	Jul-Aug		17-20	Jul-Aug		17-20
Winter	Dec - Mar	7-9	19-21	Dec - Mar	7-9	19-21

4. Based on LOLH

5. Rating for new combustion turbine

6. \$ in 000s except as noted

DUKE ENERGY PROGRESS, LLC
Hydroelectric Generation without Storage
Capacity Cost for Determination
of Capacity Credits

(2020 \$000s)

	Distribution		Transmission	
	CT Cost	FOM (6)	CT Cost	FOM (6)
1. Installed Combustion Turbine Cost (Note 1)	[REDACTED]			
2. Combustion Turbine Fixed Charge Rate (Note 2)	7.97%		7.97%	
3. Annual Combustion Turbine Carrying Cost (L1*L2)	[REDACTED]			
4. General Plant Factor (Note 4)	2.11%		2.11%	
5. Adjusted Annual Combustion Turbine Carrying Cost (L3 + (L3*L4))	[REDACTED]			
6. Combustion Turbine Fixed O&M Expenses	[REDACTED]			
7. Working Capital Factor (Note 4)		1.0516		1.0516
8. Subtotal (L5+(L6*L7))	[REDACTED]			
9. Performance Adjustment Factor (Note 5)	2.00	2.00	2.00	2.00
10. Marginal Loss Factor (Note 7)	1.0230	1.0230	1.0010	1.0010
11. Annual Capacity Cost (L8*L9*L10)	[REDACTED]			

Notes

1. Cost for new combustion turbine based on EIA data
2. Real levelized carrying charge rates applicable to new combustion turbine installed cost
3. From Page 20
4. From Page 21
5. Applicable to hydroelectric generation without storage
6. FOM split out to apply O&M escalation rate
7. Distribution:
 - Based on marginal % loss of:

On Peak	2.249%	Loss factor = (1/(1 - On Peak loss%))
Transmission:		
Step-Up Transformer Loss:	0.103%	Loss factor = (1/(1 - Step up loss%))

DUKE ENERGY PROGRESS, LLC
Certain Hydroelectric Generation without Storage
Annual Avoided Capacity Costs (Note 4)

Year		Distribution				Transmission			
		CT Cost Annual Capacity (CT) Cost (1)		FOM Annual Capacity (FOM) Cost(1)		CT Cost Annual Capacity (CT) Cost (1)		FOM Annual Capacity (FOM) Cost(1)	
		(2020 \$000s)	(Nominal \$000s)	(2020 \$000s)	(Nominal \$000s)	(2020 \$000s)	(Nominal \$000s)	(2020 \$000s)	(Nominal \$000s)
2021	1								
2022	2								
2023	3								
2024	4								
2025	5								
2026	6								
2027	7								
2028	8								
2029	9								
2030	10								

	Distribution			Transmission		
	Capacity (CT)	Capacity (FOM)	Capacity Cost	Capacity (CT)	Capacity (FOM)	Capacity Cost
2 Year Present Value (Note 2)	\$54,353	\$3,397	\$57,750	\$53,186	\$3,324	\$56,509
10 Year Present Value (Note 2)	\$220,551	\$14,613	\$235,163	\$215,813	\$14,299	\$230,111

Notes

- Annual Capacity Cost (Nominal \$) = Annual Capacity Cost ('20 \$) escalated at an annual rate of
 Annual CT cost portion of Capacity Cost from Page 13 escalated at an annual rate of 0.86%
 Annual FOM portion of Capacity Cost from Page 13 escalated at an annual rate of 2.50%
 Annual escalation starts in 2021
- Present values are derived using a discount rate of 6.59%
- Capacity value is included starting with the first year
- For certain hydroelectric generation without storage where the Qualifying Facility renews a PPA that was in effect as of July 27, 2017.

DUKE ENERGY PROGRESS, LLC
Certain Hydroelectric Generation without Storage (Note 7)
 Capacity Credits
 Variable Rate
 Based on 2021-2022 Costs

	<u>Distribution</u> (Note 6)	<u>Transmission</u> (Note 6)
1. Avoided Capacity Cost Present Value of 2020-2021 (Note 1)	\$57,750	\$56,509
2. Monthly Avoided Capacity Cost L1 x (A/P) (Note 2)	\$2,570	\$2,515
3. Annual Avoided Capacity Cost L2 x 12 months	\$30,839	\$30,176

<u>SEASONAL CREDITS</u> (Note 3)	Summer Months	Winter Months	Winter Months	Summer Months	Winter Months	Winter Months
	PM	AM	PM	PM	AM	PM
4. Seasonal Allocation (Note 4)	0%	70%	30%	0%	70%	30%
5. Seasonal Allocation of annual capacity cost L3 x L4	\$0	\$21,587	\$9,252	\$0	\$21,123	\$9,053
6. Rating -MW (Note 5)	225	225	225	225	225	225
7. Seasonal Capacity Credit (\$/KW) L5/L6	\$0.00	\$95.94	\$41.12	\$0.00	\$93.88	\$40.23
8. Seasonal Peak Hours	248	363	363	248	363	363
9. Seasonal Capacity Credits (cents/KWH) L7/L8 * 100	<u>0.00</u>	<u>26.43</u>	<u>11.33</u>	<u>0.00</u>	<u>25.86</u>	<u>11.08</u>

Notes

1. From Page 14

2. Ordinary annuity factor where $i =$ (1.0659 $^{(1/12)-1} * 100 =$ 0.5332%
and $n =$ 24 months

3. Capacity Hour Definition:

(Period definitions are stated in terms of hour-ending)

Stipulated Capacity	DEC			DEP		
	Months	AM Period On Peak	PM Period On Peak	Months	AM Period On Peak	PM Period On Peak
Summer	Jul-Aug		17-20	Jul-Aug		17-20
Winter	Dec - Mar	7-9	19-21	Dec - Mar	7-9	19-21

4. Based on LOLH

5. Rating for new combustion turbine

6. \$ in 000s except as noted

7. For certain hydroelectric generation without storage where the Qualifying Facility renews a PPA that was in effect as of July 27, 2017.

DUKE ENERGY PROGRESS, LLC
Certain Hydroelectric Generation without Storage (Note 7)
 Capacity Credits
 10 Year Fixed
 Based on 2021-2030 Costs

	<u>Distribution</u> (Note 6)	<u>Transmission</u> (Note 6)
1. Avoided Capacity Cost Present Value of 2021-2030 (Note 1)	\$235,163	\$230,111
2. Monthly Avoided Capacity Cost L1 x (A/P) (Note 2)	\$2,658	\$2,601
3. Annual Avoided Capacity Cost L2 x 12 months	\$31,897	\$31,211

<u>SEASONAL CREDITS</u> (Note 3)	Summer Months	Winter Months	Winter Months	Summer Months	Winter Months	Winter Months
	PM	AM	PM	PM	AM	PM
4. Seasonal Allocation (Note 4)	0%	70%	30%	0%	70%	30%
5. Seasonal Allocation of annual capacity cost L3 x L4	\$0	\$22,328	\$9,569	\$0	\$21,848	\$9,363
6. Rating -MW (Note 5)	225	225	225	225	225	225
7. Seasonal Capacity Credit (\$/KW) L5/L6	\$0.00	\$99.23	\$42.53	\$0.00	\$97.10	\$41.62
8. Seasonal Peak Hours	248	363	363	248	363	363
9. Seasonal Capacity Credits (cents/KWH) L7/L8 * 100	<u>0.00</u>	<u>27.34</u>	<u>11.72</u>	<u>0.00</u>	<u>26.75</u>	<u>11.46</u>

Notes

1. From Page 14

2. Ordinary annuity factor where $i =$ (1.0659 $^{(1/12)-1} * 100 =$ 0.5332%
and $n =$ 120 months

3. Capacity Hour Definition:

(Period definitions are stated in terms of hour-ending)

Stipulated Capacity	DEC			DEP		
	Months	AM Period On Peak	PM Period On Peak	Months	AM Period On Peak	PM Period On Peak
Summer	Jul-Aug	7-9	17-20	Jul-Aug	7-9	17-20
Winter	Dec - Mar	7-9	19-21	Dec - Mar	7-9	19-21

4. Based on LOLH

5. Rating for new combustion turbine

6. \$ in 000s except as noted

7. For certain hydroelectric generation without storage where the Qualifying Facility renews a PPA that was in effect as of July 27, 2017.

DUKE ENERGY PROGRESS, LLC
All Other Hydroelectric Generation without Storage
Annual Avoided Capacity Costs

Year		Distribution				Transmission			
		CT Cost Annual Capacity (CT) Cost (1)		FOM Annual Capacity (FOM) Cost(1)		CT Cost Annual Capacity (CT) Cost (1)		FOM Annual Capacity (FOM) Cost(1)	
		(2020 \$000s)	(Nominal \$000s)	(2020 \$000s)	(Nominal \$000s)	(2020 \$000s)	(Nominal \$000s)	(2020 \$000s)	(Nominal \$000s)
2021	1								
2022	2								
2023	3								
2024	4								
2025	5								
2026	6								
2027	7								
2028	8								
2029	9								
2030	10								

	Distribution			Transmission		
	Capacity (CT)	Capacity (FOM)	Capacity Cost	Capacity (CT)	Capacity (FOM)	Capacity Cost
2 Year Present Value (Note 2)	\$0	\$0	\$0	\$0	\$0	\$0
10 Year Present Value (Note 2)	\$141,192	\$9,615	\$150,806	\$138,159	\$9,408	\$147,567

Notes

- Annual Capacity Cost (Nominal \$) = Annual Capacity Cost ('20 \$) escalated at an annual rate of
 Annual CT cost portion of Capacity Cost from Page 13 escalated at an annual rate of 0.86%
 Annual FOM portion of Capacity Cost from Page 13 escalated at an annual rate of 2.50%
 Annual escalation starts in 2021
- Present values are derived using a discount rate of 6.59%
- Capacity value is included starting with the first year of capacity need

DUKE ENERGY PROGRESS, LLC
All Other Hydroelectric Generation without Storage
 Capacity Credits
 Variable Rate
 Based on 2021-2022 Costs

	<u>Distribution</u> (Note 6)	<u>Transmission</u> (Note 6)
1. Avoided Capacity Cost Present Value of 2020-2021 (Note 1)	\$0	\$0
2. Monthly Avoided Capacity Cost L1 x (A/P) (Note 2)	\$0	\$0
3. Annual Avoided Capacity Cost L2 x 12 months	\$0	\$0

<u>SEASONAL CREDITS</u> (Note 3)	Summer Months			Winter Months		
	PM	AM	PM	PM	AM	PM
4. Seasonal Allocation (Note 4)	0%	70%	30%	0%	70%	30%
5. Seasonal Allocation of annual capacity cost L3 x L4	\$0	\$0	\$0	\$0	\$0	\$0
6. Rating -MW (Note 5)	225	225	225	225	225	225
7. Seasonal Capacity Credit (\$/KW) L5/L6	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
8. Seasonal Peak Hours	248	363	363	248	363	363
9. Seasonal Capacity Credits (cents/KWH) L7/L8 * 100	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>

Notes

1. From Page 17

2. Ordinary annuity factor where $i =$ (1.0659 $^{(1/12)-1} * 100 =$ 0.5332%
and $n =$ 24 months

3. Capacity Hour Definition:

(Period definitions are stated in terms of hour-ending)

Stipulated Capacity	DEC			DEP		
	Months	AM Period On Peak	PM Period On Peak	Months	AM Period On Peak	PM Period On Peak
Summer	Jul-Aug		17-20	Jul-Aug		17-20
Winter	Dec - Mar	7-9	19-21	Dec - Mar	7-9	19-21

4. Based on LOLH

5. Rating for new combustion turbine

6. \$ in 000s except as noted

DUKE ENERGY PROGRESS, LLC
All Other Hydroelectric Generation without Storage
 Capacity Credits
 10 Year Fixed
 Based on 2021-2030 Costs

	<u>Distribution</u> (Note 6)			<u>Transmission</u> (Note 6)		
1. Avoided Capacity Cost Present Value of 2021-2030 (Note 1)	\$150,806			\$147,567		
2. Monthly Avoided Capacity Cost L1 x (A/P) (Note 2)	\$1,705			\$1,668		
3. Annual Avoided Capacity Cost L2 x 12 months	\$20,455			\$20,015		
SEASONAL CREDITS (Note 3)	Summer Months PM	Winter Months AM	Winter Months PM	Summer Months PM	Winter Months AM	Winter Months PM
4. Seasonal Allocation (Note 4)	0%	70%	30%	0%	70%	30%
5. Seasonal Allocation of annual capacity cost L3 x L4	\$0	\$14,318	\$6,136	\$0	\$14,011	\$6,005
6. Rating -MW (Note 5)	225	225	225	225	225	225
7. Seasonal Capacity Credit (\$/KW) L5/L6	\$0.00	\$63.64	\$27.27	\$0.00	\$62.27	\$26.69
8. Seasonal Peak Hours	248	363	363	248	363	363
9. Seasonal Capacity Credits (cents/KWH) L7/L8 * 100	<u>0.00</u>	<u>17.53</u>	<u>7.51</u>	<u>0.00</u>	<u>17.15</u>	<u>7.35</u>

Notes

1. From Page 17

2. Ordinary annuity factor where $i =$ (1.0659 $^{(1/12)-1} * 100 =$ 0.5332%
and $n =$ 120 months

3. Capacity Hour Definition:

(Period definitions are stated in terms of hour-ending)

Stipulated Capacity	DEC			DEP		
	Months	AM Period On Peak	PM Period On Peak	Months	AM Period On Peak	PM Period On Peak
Summer	Jul-Aug		17-20	Jul-Aug		17-20
Winter	Dec - Mar	7-9	19-21	Dec - Mar	7-9	19-21

4. Based on LOLH

5. Rating for new combustion turbine

6. \$ in 000s except as noted

DUKE ENERGY PROGRESS, LLC

Allowance For Working Capital
(\$ 000)

	2015	2016	2017	2018	2019	Source (Note 4)
1. Materials & Supplies (Production)	\$639,908	\$677,587	\$628,022	\$233,460	\$170,991	P 227, L7
2. Fuel Stock	\$312,175	\$262,287	\$242,761	\$220,024	\$247,793	P 227, L1
3. Production O&M	\$2,960,771	\$2,691,453	\$2,400,718	\$2,676,688	\$2,755,291	P 320-323, L80
4. Burned Fuel Cost And PP (Note 1)	1,950,809	1,774,979	1,787,420	2,122,220	1,848,268	pg 320-323, L5,25,45, 63, 76
5. Nonfuel Production O&M (L3-L4)	\$1,009,962	\$916,474	\$613,298	\$554,468	\$907,023	
6. Nonfuel Related Allowance For Working Capital L1 x 8.57% (Note 2)	\$54,840	\$58,069	\$53,821	\$20,008	\$14,654	
7. Allowance For Working Capital As a % Of Nonfuel Production O&M L6/L5	5.43%	6.34%	8.78%	3.61%	1.62%	
8. 5 Year Average For Working Capital as a % of Nonfuel Production O&M						5.16%
9. Fuel Related Allowance for Working Capital L2x 8.57% (Note 2)	\$26,753	\$22,478	\$20,805	\$18,856	\$21,236	
10. Allowance For Working Capital As a % Of Burned Fuel L9/L4	1.37%	1.27%	1.16%	0.89%	1.15%	
11. 5 Year Average For Working Capital as a % of Burned Fuel						1.17%
12. Weighted Average For Working Capital For Fuel and O&M (Note 3)						1.45%

Notes:

1. Steam Fuel + Nuclear Fuel + Other Fuel + Purchased Power
2. Pre-Tax Rate of Return on Capital
3. Weights Based on Average Breakdown of Avoided Cost Between Fuel and Variable O&M

Fuel:	93%
Variable O&M:	7%

 Weighted Average = (Average Line 8 * Variable O&M Weight) + (Average Line 11 * Fuel Weight)
4. Data From FERC Form 1, Annual Issues

DUKE ENERGY PROGRESS, LLC

General / Intangible Plant Loading Factor
(\$ 000)

Description	2015	2016	2017	2018	2019	Source (Note 2)
1. Electric Plant in Service (Note 1)	\$23,443,409	\$26,123,596	\$27,243,900	\$28,901,006	\$32,725,008	P 206-7, L 104-ARO
2. General Plant	\$658,514	\$626,322	\$668,008	\$641,694	\$695,951	P 206-7, L 99
3. Intangible Plant	\$386,719	\$408,346	\$498,613	\$527,370	\$628,365	P 204-5, L 5
4. Plant in Service Adj for Gen/ Int Plant	\$22,398,176	\$25,088,928	\$26,077,279	\$27,731,942	\$31,400,692	

Functionalized Plant Balances

5. Production Demand (Note 1)	\$14,484,302	\$16,719,992	\$17,221,495	\$18,022,454	\$20,912,899	P 206-7, L 46
6. Transmission	\$2,352,701	\$2,482,661	\$2,619,582	\$2,764,724	\$2,990,450	P 206-7, L 58
7. Distribution	\$5,561,173	\$5,886,275	\$6,236,202	\$6,944,764	\$7,497,343	P 206-7, L 75

2019 Unit Cost Functionaliz: General Intangible
Production Demand 18% 51% Unit Cost Analysis for 2019 COS

Gen / Int Plant Adder (Note 3)	2015	2016	2017	2018	2019	Average
Production Demand	2.19%	1.93%	2.18%	2.14%	2.14%	2.11%

Notes

1. Values are net of ARO-related balances FF1 pg 206-7 (Lines 15,24,34,44,57,74,98)

2. Data From FERC Form 1, Annual Issues

3. Formula:

(General Plant x General Plant Unit Cost Functionalization %) + $\frac{(\text{Intangible Plant} \times \text{Intangible Plant Unit Cost Functionalization \%})}{\text{(Functionalized Plant Balance)}}$
Functionalized Plant Balance