

2021

STATUS REPORT ON
**DISTRIBUTED ENERGY RESOURCE AND
NET ENERGY METERING IMPLEMENTATION**



Status Report on Distributed Energy Resource and Net Energy Metering Implementation

Pursuant to Section 58-39-140, South Carolina Code of Laws

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This document is available upon request by contacting
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Introduction

On June 2, 2014, the Distributed Energy Resource (DER) Program Act (Act 236) was signed into law by then Governor Nikki Haley. Act 236 was the result of consensus among a diverse group of stakeholders which created a pathway for growth in the renewable energy industry in South Carolina. The goal of Act 236 as stated in S.C. Code Ann. § 58-39-110 is to “promote the establishment of a reliable, efficient, and diversified portfolio of distributed energy resources” for South Carolina.

S.C. Code Ann. § 58-39-140(E) requires the South Carolina Office of Regulatory Staff (ORS) to prepare and submit a report on the status of implementing the DER Programs (Chapter 39) and Net Energy Metering (NEM or Net Metering) (Chapter 40). The purpose of this report is to meet the following requirement:

No later than July 31, 2016, the Office of Regulatory Staff shall prepare and submit to the General Assembly with copies to all members of the State Regulation of Public Utilities Review Committee a report on the implementation of this chapter and Chapter 40 of this title. The Office of Regulatory Staff shall update this report no later than July 31, 2017, and each two years thereafter. Upon receipt and review of these reports, and in consultation with the General Assembly, the Public Utilities Review Committee shall make recommendations to the Office of Regulatory Staff as to any changes in implementation that may be needed.

This Report provides a status update of the following areas:

- Value of DER;
- NEM capacity;
- DER programs; and
- DER program costs.

This Report provides an update to the Status Report on Distributed Energy Resource and Net Energy Metering Implementation (DER Report) and summarizes the status of implementation of the DER Programs and NEM for South Carolina’s three (3) largest investor-owned utilities (Utilities or IOUs)—Dominion Energy South Carolina, Inc. (DESC), Duke Energy Carolinas, LLC (DEC), and Duke Energy Progress, LLC (DEP).

Please see Attachment A for a timeline of events.

Renewable Policy Progression

On May 16, 2019, Act 62 was signed into law by Governor Henry McMaster. Many aspects of Act 62 are a direct result of continued collaborative discussions that were part of the Act 236 2.0 process outlined in the 2019 Status Report on DER and NEM Implementation.

In Act 62, the South Carolina General Assembly expressed its intentions related to distributed energy policy. The following statutory statements are examples of policy goals to be implemented through Act 62:

S.C. Code Ann. § 58-27-845(A) The General Assembly finds that there is a critical need to:

- (1) protect customers from rising utility costs;
- (2) provide opportunities for customer measures to reduce or manage electrical consumption from electrical utilities in a manner that contributes to reductions in utility peak electrical demand and other drivers of electrical utility costs; and
- (3) equip customers with the information and ability to manage their electric bills.

S.C. Code Ann. § 58-40-20(A)(1) It is the intent of the General Assembly to build upon the successful deployment of solar generating capacity through Act 236 of 2014 to continue enabling market-driven, private investment in distributed energy resources across the State by reducing regulatory and administrative burdens to customer installation and utilization of onsite distributed energy resources.

S.C. Code Ann. § 58-41-40(A) It is the intent of the General Assembly to expand the opportunity to support solar energy and support access to solar energy options for all South Carolinians, including those who lack the income to afford the upfront investment in solar panels or those who do not own their homes or have suitable rooftops.

Act 62 also provides further renewable policy guidance on topics such as the availability of the current 1:1 Retail Rate NEM program, various renewable programs such as community solar and voluntary renewable energy programs, rights for electric utility customers and consumer protections for solar customers, avoided cost methodologies and related items, interconnection standards and integration studies, and the next generation of NEM in South Carolina titled “Solar Choice Metering”.¹

¹ S.C. Code Ann. § 58-40-20 F(1)

Value of Distributed Energy Resources

Pursuant to Act 236, the Commission established Docket No. 2014-246-E to conduct a generic proceeding for the purpose of establishing the methodology to set any necessary charges and credits to ensure that the electrical utility recovers its cost of providing electrical service to customer-generators and customers who are not customer-generators.² On March 20, 2015, the Commission approved the Settlement Agreement in Order No. 2015-194, which established the following methodology and related components to be used to compute the value of DER generation (Methodology):

Net Energy Metering Methodology

- +/- Avoided Energy
 - +/- Energy Losses/Line Losses
 - +/- Avoided Capacity
 - +/- Ancillary Services
 - +/- Transmission and Distribution (T&D) Capacity
 - +/- Avoided Criteria Pollutants
 - +/- Avoided CO₂ Emission Cost
 - +/- Fuel Hedge
 - +/- Utility Integration & Interconnection Costs
 - +/- Utility Administration Costs
 - +/- Environmental Costs
-
- = Total Value of NEM Distributed Energy Resource Generation**

² S.C. Code Ann. § 58-40-20(F) ; Commission decision in Docket No.2019-182-E may change the future Value of DER.

Current Value of Distributed Energy Resource Generation

The Methodology values are updated annually during each Utility's annual fuel adjustment proceeding and are submitted for approval to the Commission.

See Figure 1 for the current Value of DER generation in cents per kilowatt hour (ϕ /kWh) calculated by the IOUs as of June 30, 2021. See Figure 2 for the historic values of DER generation.

FIGURE 1: VALUE OF DER GENERATION AS OF JUNE 30, 2021 (ϕ /KWh)

Components	DESC ³	DEC ⁴			DEP ⁵		
	All	Res PV	SGS PV	Large PV	Res PV	SGS PV	Large PV
Marginal/Avoided Energy Cost	0.02877	0.02911	0.02915	0.02914	0.024785	0.024795	0.024801
Marginal/Avoided Capacity Cost	0	0	0	0	0.001767	0.001738	0.001763
Ancillary Services	0	(0.0011)	(0.0011)	(0.0011)	(0.002390)	(0.002390)	(0.002390)
T&D Capacity	0	0	0	0	0	0	0
Avoided Criteria Pollutants	0.0000011	0.00005	0.00005	0.00004	0.000027	0.000028	0.00003
Avoided CO ₂ Emission Cost	0	0	0	0	0	0	0
Fuel Hedge	0	0	0	0	0	0	0
Utility Integration & Interconnection Costs	(0.00096)	0	0	0	0	0	0
Utility Administration Costs	0	0	0	0	0	0	0
Environmental Costs	0.00126	0	0	0	0	0	0
Line Losses	0.00237	0.00062	0.00062	0.00062	0.000272	0.000271	0.000271
Total Value of DG	0.03145	0.02868	0.02871	0.02871	0.024461	0.024442	0.24475

³ Docket No. 2021-2-E, Order No. 2021-296(A)

⁴ Docket No. 2020-3-E, Order No. 2020-634

⁵ Docket No. 2021-1-E, Order No. 2021-446

FIGURE 2: HISTORIC DER GENERATION VALUES (¢/KWh)

Total Values by Year	DESC ⁶	DEC ⁷			DEP ⁸		
	All	Small PV	Large PV		Small PV	Large PV	
2015	5.409	5.595	5.594		5.097	5.095	
2016	4.126	5.01	5.004		4.829	4.836	
2017	3.651	5.3	5.298		5.013	5.017	
2018	3.264	5.323	5.31		5.033	5.025	
		Res PV	SGS PV	Large PV	Res PV	SGS PV	Large PV
2019^{9,10}	0.02231	0.05312	0.05311	0.05299	5.033	5.032	5.024
2020	0.02550	0.02868	0.02871	0.02871	0.024449	0.024431	0.024459
2021	0.03145	0.02868	0.02871	0.02871	0.02446	0.024442	0.02448

Compared to the previous years, DER Generation Values have substantially decreased. This can be attributed to several factors including, but not limited to, the decrease in avoided energy and capacity costs.

⁶ Docket Nos. 2015-205-E, 2016-2-E, 2017-2-E, 2018-2-E, 2019-2-E, 2020-125-E, 2020-2-E, 2021-2-E

⁷ Docket Nos. 2015-203-E, 2016-3-E, 2017-3-E, 2018-3-E, 2019-3-E, 2020-3-E, 2021-3-E

⁸ Docket Nos. 2015-204-E, 2016-1-E, 2017-1-E, 2018-1-E, 2019-1-E, 2020-1-E, 2021-1-E

⁹ In Docket No. 2019-1-E, DEP separated the values for residential customers ("Residential PV") and small general service (SGS).

¹⁰ DEC separated the values for residential customers and small in Docket No. 2020-3-E.

Status of Net Energy Metering Capacity

Act 236 required each IOU to make NEM available to customer-generators on a first-come first-served basis until the total nameplate generating capacity of NEM systems equals 2% of the previous five-year average of the electrical utility’s South Carolina retail peak demand.¹¹

Figure 3 below shows the NEM requirements and current capacity in megawatts (MW) by IOU as of May 31, 2021. Please note that Act 62 removed the 2% capacity cap established by Act 236.

FIGURE 3: NEM REQUIREMENTS AND CURRENT CAPACITY IN MW BY IOU AS OF MAY 31, 2021

	DESC		DEC ¹²		DEP ¹³	
Total Requirement	84.5		80		26	
Total Remaining	0		0		0	
	Residential	Non-Residential	Residential	Non-Residential	Residential	Non-Residential
Approved for Install	0	0	N/A	N/A	N/A	N/A
Installed	69.7	8.3	94.06	39.62	20.95	15
Reserved	0	0	0	0	0	0

Commission Order No. 2015-194 requires the IOUs to file reports with the Commission as NEM participation levels are reached to identify and illustrate the costs unrecovered, if any, arising from customer adoption of net metered DER generation through December 31, 2020. The reports are to be filed when NEM capacity reaches the following thresholds of the Utility’s previous five-year average South Carolina retail peak demand: (1) 0.5%; (2) 1.0%; (3) 1.5%; and (4) 2.0%. Under Act 62, there is no longer an NEM capacity cap.

¹¹ S.C. Code Ann. § 58-40-20(B)

¹²⁻¹³ DEC and DEP did not provide total NEM capacity cap upon the assertion that there is no longer an NEM Capacity cap under Act 62.

Figure 4 summarizes the NEM Threshold Reports filed by IOUs as of May 31, 2021, including the date the report was filed, the percentage of peak demand reached, and total generating capacity in megawatts (MW).

FIGURE 4: NEM THRESHOLD REPORTS BY IOU IN MW AS OF MAY 31, 2021

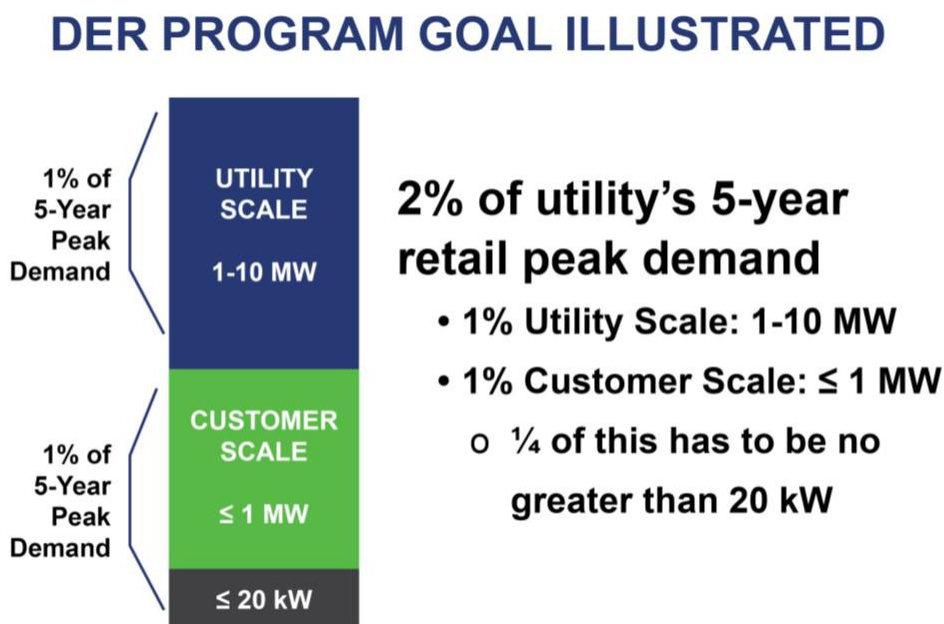
	DESC	DEC	DEP
0.5%	12/31/2016 0.57% 24.181 MW	4/30/2017 0.71% 28.444 MW	12/31/2017 0.50% 6.650 MW
1.0%	9/30/2017 1.01% 42.593 MW	10/31/2017 1.00% 40.096 MW	12/31/2018 1.00% 13.467 MW
1.5%	10/31/2018 1.55% 65.349 MW	No Report Filed	No Report Filed
2.0%	5/6/2019 2.05% 86.851 MW	5/31/2018 2.00% 60.267 MW	No Report Filed

Status of DER Programs

The Act requires that any DER Program shall, at a minimum, result in the development by January 1, 2021, of renewable energy facilities located in South Carolina with a cumulative installed nameplate capacity equal to at least 2% of the previous five-year average of the utility’s South Carolina retail peak demand.¹⁴ One half of the 2% shall be met by facilities sized between 1 and 10 MW (Utility Scale). The remaining half of the 2% shall be met by facilities sized less than 1 MW (Customer Scale) with a quarter of this 1% nameplate capacity being from facilities sized no greater than 20 kW (Small Scale).

See Figure 5 for an illustration of DER Program goals as outlined in Act 236.

FIGURE 5: ILLUSTRATION OF DER PROGRAM GOALS



Act 236 also provided an option to the utility, after the 2% goal was met, to allow utility investment in facilities greater than 1 MW and less than or equal to 10 MW with a cumulative installed nameplate capacity equal to at least 1% of the previous five-year average of the electrical utility’s South Carolina peak demand.

The DER application of each IOU included detailed plans to develop renewable energy facilities, incent participation in the purchase or lease of renewable energy facilities, and allow the IOUs to recover DER Program costs. All three (3) DER Program applications recommended solar generation as the best method to reach Act 236 DER goals.

Upon the adoption of Act 62 and the sunset of Act 236, there is no longer an NEM capacity cap.

¹⁴ S.C. Code Ann. § 58-39-130

Dominion Energy South Carolina, Inc.

DESC received Commission approval on July 15, 2015, in Order No. 2015-512, to implement its DER Programs. The programs offered by DESC to meet its DER goals include the following: (1) contracts with solar developers for Utility-scale solar farms on company property under power purchase agreements (PPAs) (2) contracts with solar developers for the installation of at least 30 MW of solar farms on property not owned by the utility under 15- or 20-year PPAs and where the solar power can be integrated into DESC's electrical grid (3) a Performance-Based Incentive (PBI) bill credit for residential customers fixed for a 10-year term (4) Bill Credit Agreements (BCA) for non-residential customers fixed for 10-year terms (5) a Community Solar program and (6) the formation of a DER Program Advisory Group.

Duke Energy Carolinas, LLC and Duke Energy Progress, LLC

DEC and DEP also received Commission approval on July 15, 2015, in Order Nos. 2015-515 and 2015-514 respectively, to structure the DER Programs for both IOUs in a similar fashion. Both DEC and DEP DER Programs include the following: (1) the use of requests for proposals for large-scale renewable generation facilities (2) up-front solar rebates (Solar Rebate Program) for residential and non-residential customers (3) the formation of a DER Program Collaborative Group and (4) the offering of a Shared Solar Program. DEC and DEP will solicit offers for 15-year PPAs and turnkey proposals with engineering, procurement, and construction agreements to meet Utility Scale goals.

DER Program Results by IOU

Figure 6 displays each IOU's capacity goals and actual results achieved for Utility Scale and Customer Scale DER Programs.

FIGURE 6: STATUS OF DER PROGRAM GOALS IN MW BY IOU AS OF MAY 31, 2021

	DESC ¹⁵		DEC ¹⁶		DEP ¹⁷	
Total Goal	84.5		80		26	
Total Remaining	0		0		0	
	Utility Scale	Customer Scale	Utility Scale	Customer Scale	Utility Scale	Customer Scale
Goal	42.25	42.25	40	40	13	13
Remaining	0	0	0	0	0	0
Actual Installed	48.2	97.2	39.62	94.06	15	20.95
Reserved Capacity	0	0	0	0	0	0

Figure 7 through Figure 10 provide updates on each of the IOU's DER Programs.

FIGURE 7: UPDATE ON UTILITY SCALE DER PROGRAMS AS OF MAY 31, 2021

	DESC	DEC	DEP
Status of RFP	81 responses	62 responses	81 responses
Contracts	9 PPAs Executed; 48.16 MW	2 PPAs Executed; 15 MW	13 PPAs Executed; 39.6 MW
Capacity Installed	48.16 MW	15 MW	36.3 MW

¹⁵ Docket No. 2015-54-E, Order No. 2015-512

¹⁶ Docket No. 2015-55-E, Order No. 2015-515

¹⁷ Docket No. 2015-53-E, Order No. 2015-514

FIGURE 8: UPDATE ON SMALL SCALE CUSTOMER DER PROGRAMS AS OF MAY 31, 2021

	DESC	DEC	DEP
Small Scale Programs (< 20 kW)	PBI	Solar Rebate	Solar Rebate
Systems Installed	1,023	1,861	667
Capacity	7.75 MW	15.6 MW	4.37 MW
Incentives Paid¹⁸	\$1,439,373	\$17,745,733	\$5,297,654
Reservations	None Remaining	None Remaining	87.45 kW

FIGURE 9: UPDATE ON LARGE SCALE CUSTOMER DER PROGRAMS AS OF MAY 31, 2021

	DESC	DEC	DEP
Large Scale Programs (> 20 kW, < 1MW)	BCA	Solar Rebate	Solar Rebate
Systems Installed	109	96	26
Capacity	19.23 MW	24.4 MW	8.19 MW
Incentives Paid	\$13,618,635	\$32,004,441	\$10,589,530
Reservations	No systems reserved	No systems reserved	83 kW

¹⁸ The amount reported is cumulative paid from inception. DESC remits incentives on a monthly basis (based on actual generation). DEC and DEP remit a lump sum at the time a system is energized.

FIGURE 10: UPDATE ON COMMUNITY/SHARED SOLAR DER PROGRAMS AS OF MAY 31, 2021

	DESC	DEC	DEP
Community/Shared Solar Programs	Purchase and Subscription Models Low Income Subscription Model	Subscription Model Low Income Subscription Model	Subscription Model Low Income Subscription Model
Development	3 Sites, 16 MW Total	2 Sites, 3 MW Total	1 Site, 1 MW
Launch Date	Purchase and Subscription Models launched in May 2017 Residential Purchase and Subscription launched in June 2017 Low Income Subscription launched August 2017	March 2019	July 2018
# of Subscriptions	1,092	474	282
# of Customers	1,038	474	282
Capacity Subscribed	15.97 MW	99.6 MW	22.11 MW
Total Generation	85,023 MWh	14,283.9 MWh	5,798.7 MWh
Generation credits to Subscribers¹⁹	84,828 MWh	14,283.9 MWh	5,774.7 MWh
Reservations	No reservations	No reservations	No reservations

¹⁹ The difference between Total Generation and Generation credits to Subscribers is due to several factors including the lag in time between customer enrollment and actual billing of credits.

Update on DER Program Costs

Act 236 allows IOUs to recover costs related to DER Programs to the extent that costs are reasonably and prudently incurred to implement approved programs. DER Program costs are recovered during each Utility's annual fuel proceeding. Each of the costs, including NEM incentives, are separately identified by the IOU, reviewed by the ORS, and submitted for approval to the Commission. The value of each cost component can vary due to several factors: fuel costs, capacity costs, generation mix, location of DER generation, billing procedures, and current retail rates.

DER Program Cost Categories

The DER Program costs are categorized as either incremental or avoided costs and are allocated and recovered from customers under separate distributed energy components of the overall fuel factor, based on the same method used for variable environmental costs.²⁰ Avoided costs, which are payments for purchases of electricity, are calculated using the lesser of rates negotiated pursuant to the Public Utility Regulatory Policies Act of 1978 (PURPA) or an electrical utility's most recently approved or established avoided costs rates in South Carolina.²¹ Avoided costs include amounts paid for purchases of power from participants in solar rebate programs, shared/community solar programs, net metering, and bill credit agreements at the utility's avoided cost rates. Utilities may also incur avoided costs stemming from their own generation constructed to implement a DER Program and/or from new programs introduced in the future to implement a DER Program.

Incremental costs are costs incurred by the electrical utility to implement a DER Program. Incremental costs include, but are not limited to, costs in excess of the avoided costs or negotiated rates pursuant to PURPA, the full cost of a utility's investment in non-generating DER, the utility's weighted average cost of capital as applied to the electrical utility's investment in DER, generally accepted expenses associated with a project, and incremental labor associated with implementing a DER program.²²

Figure 11 shows the total avoided and incremental DER Program costs by IOU as of May 31, 2021.

FIGURE 11: TOTAL DER PROGRAM COSTS AS OF MAY 31, 2021

Utility	Incremental Costs	Avoided Costs
DESC	\$65,418,403	\$23,255,446
DEC	\$37,242,967 ²³	\$484,859
DEP	\$12,976,574 ²⁴	\$277,651

²⁰ S.C. Code Ann. § 58-27-865 (A)(1)

²¹ S.C. Code Ann. § 58-39-120 (B)

²² S.C. Code Ann. § 58-39-140

²³ June 2020-May 2021 data for DEC is preliminary prior to formal decision in Docket No. 2021-3-E.

²⁴ March-May 2021 data for DEP is preliminary prior to formal remittance in Docket No. 2021-1-E.

Cost Recovery Mechanisms

Avoided costs are recovered by customer class in the same manner as fuel, variable environmental, and avoided capacity costs. A per kWh charge is calculated using the over/under recovered avoided costs for a utility’s actual review period, estimated period, and forecasted period divided by the projected kWh sales for the next twelve-month billing period.

Incremental costs are recovered by customer class in a different manner than avoided costs. Incremental costs are collected as a separate fixed dollar amount per account whereas avoided costs are billed per kWh in the customer’s usage charge. S.C. Code Ann. § 58-39-150 requires the incremental costs to be capped to protect consumers and to ensure that the cost of DER Programs do not exceed a reasonable threshold. Based on previous calculations, these DER charges will be collected until approximately **2040**. The following incremental cost caps apply to an IOU’s DER Program:

- Residential customers \$12 per year
- Commercial customers \$120 per year
- Industrial customers \$1,200 per year

See Figure 12 for the current annual DER Program incremental per-account charges by IOU as of June 30, 2021.

FIGURE 12: ANNUAL DER PROGRAM INCREMENTAL CHARGES BY IOU AS OF JUNE 30, 2021

Utility	Residential	Commercial	Industrial
DESC	\$12.00	\$73.85	\$1,200.00
DEC	\$7.62	\$34.81	\$1,200.00
DEP	\$12.00	\$42.16	\$1,200.00

Conclusion

Since Act 236 was signed into law, DER Program goals have been met to achieve NEM capacity requirements and DER has been promoted in South Carolina. As of this report, the IOUs have collectively interconnected 315.03 MW of distributed generation, which continues to exceed the 190.5 MW goal established by Act 236. There is currently no capacity reserved for development.

When passed in 2014, Act 236 paved the way for a new era of solar leasing for customers in South Carolina. It removed barriers and provided incentives for customers wishing to install solar on their homes or business and addressed the need for utilities to recover DER program costs.

Upon the sunset of Act 236 on December 31, 2020 and with the passage of Act 62 in May of 2019, a new era of additional opportunities to expand South Carolina's clean energy future began. Act 62 alters existing policies and programs landmarked in the framework of Act 236 to create even broader pathways to renewable energy and resilience in South Carolina for years to come.

The next Status Report on Act 236 Distributed Energy Resource and Net Energy Metering Implementation is due on July 31, 2023.

Attachment A

2014

6/2/14: Governor Haley signed Act 236 into law

6/20/14: First "Solar" Legislation Working Group meeting with ECSC

10/14/14: Net Metering stakeholder meetings begin

2/9/15: Each IOU filed an application to establish a DER Program (Docket Nos. 2015-53-E, 2015-54-E, and 2015-55-E)

3/20/15: PSC Order No. 2015-194 approving Net Metering and (current) Methodology to Value DER (Docket No. 2014-246-E)

7/15/15: PSC Order Nos. 2015-512, 2015-514, and 2015-515 approving IOUs' DER Program applications

8/13/15: PSC Order No. 2015-582 approving IOUs' new renewable net metering tariffs (Docket No. 2014-246-E0 2016)

12/31/15: ORS Cost Shift and Cost of Service Analysis submitted to PSC

7/31/16: ORS Initial DER/NEM Report submitted to General Assembly and PURC

7/31/17: ORS DER/NEM Update Report submitted to General Assembly and PURC

12/20/18: Act 236: Version 2.0 Report submitted to PURC

5/16/19: Governor McMaster signs the SC Energy Freedom Act (Act 62) into law

7/31/2019: ORS DER/NEM Update Report submitted to General Assembly

12/31/20: Sunset of Act 236

1/1/21: Settlement Agreement expired and Authorization to propose and approve new components of DER programs expired

7/31/21: ORS DER/NEM Update Report due

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