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Nov 06 2020

ATTACHMENTS FILED AS SEPARATE DOCUMENTS:

TABLE 5-A

DEC BASE WITH CARBON POLICY TOTAL RENEWABLES

DEC BASE RENEWABLES - COMPLIANCE + NON-COMPLIANCE															
	MW NAMEPLATE					MW CONTRIBUTION TO SUMMER PEAK					MW CONTRIBUTION TO WINTER PEAK				
	SOLAR ONLY	SOLAR WITH STORAGE	BIOMASS / HYDRO	WIND	TOTAL	SOLAR ONLY	SOLAR WITH STORAGE	BIOMASS/ HYDRO	WIND	TOTAL	SOLAR ONLY	SOLAR WITH STORAGE	BIOMASS/ HYDRO	WIND	TOTAL
2021	966	0	132	0	1,099	387	0	132	0	519	10	0	132	0	142
2022	1,327	115	118	0	1,560	514	70	118	0	702	13	29	118	0	160
2023	1,673	134	81	0	1,888	636	81	81	0	797	17	34	81	0	131
2024	1,976	163	81	0	2,219	741	99	81	0	921	20	41	81	0	141
2025	2,268	192	59	0	2,519	844	116	59	0	1,019	23	48	59	0	129
2026	2,519	211	49	0	2,778	930	127	49	0	1,106	25	53	49	0	127
2027	2,708	335	49	0	3,091	977	202	49	0	1,228	27	84	49	0	160
2028	2,895	458	42	0	3,395	1,024	274	42	0	1,340	29	114	42	0	185
2029	3,082	656	42	0	3,779	1,071	390	42	0	1,502	31	164	42	0	236
2030	3,217	802	38	0	4,058	1,104	475	38	0	1,618	32	201	38	0	271
2031	3,352	948	30	0	4,330	1,138	559	30	0	1,727	34	237	30	0	301
2032	3,486	1,094	12	0	4,592	1,171	642	12	0	1,826	35	273	12	0	321
2033	3,620	1,238	3	0	4,861	1,205	724	3	0	1,932	36	310	3	0	349
2034	3,753	1,382	0	0	5,135	1,230	803	0	0	2,032	37	345	0	0	383
2035	3,885	1,525	0	150	5,560	1,242	875	0	11	2,127	38	381	0	50	469

LINE ITEM	LINE INCLUSION
9.	Cumulative Purchase Contracts from traditional resources and renewable energy resources not used for NCREPS and NC HB 589 compliance. This is the sum of the next two lines.
	Non-Compliance Renewable Purchases includes purchases from renewable energy resources for which DEC does not own the REC.
	Non-Renewables Purchases are those purchases made from traditional generating resources.
10.	New nuclear resources economically selected to meet load and minimum planning reserve margin. No nuclear resources were selected in the Base Case with Carbon Policy in this IRP.
11.	New combined cycle resources economically selected to meet load and minimum planning reserve margin. Addition of 1,224 MW of combined cycle capacity online December 2034.
12.	New combustion turbine resources economically selected to meet load and minimum planning reserve margin. The case presented has the addition of the following CTs: 457 MW CT in December 2029 457 MW CT in December 2030 913 MW CTs in December 2034
13.	New solar resources economically selected to meet load and minimum planning reserve margin. The value in the table represents the contribution to peak of the selected solar facilities. (1% for winter peak and 40% for total solar < 999 MW reducing to 10% for total solar >3,600 MW for summer peak; Solar + Storage is approximately 25% in both summer and winter). The case presented has the addition of the following solar resources: Solar Only: 0.75 MW (75 MW nameplate) in each year 2025 through 2031; 1.5 MW (150 MW nameplate) in each year 2032 through 2035. Solar + Storage: 19 MW (75 MW nameplate) in each year 2029 through 2031; 37.5 MW (150 MW nameplate) in each year 2032 through 2035.
14.	New wind resources economically selected to meet load and minimum planning reserve margin. The value in the table represents the contribution to peak of the selected wind facilities. (33% for winter peak 7% for summer peak). The case presented has the addition 150 MW of wind resources in December 2034.
15.	New battery storage resources economically selected to meet load and minimum planning reserve margin. No battery resources were selected for DEC in the Base Case with Carbon Policy in this IRP.
16.	Cumulative Renewable Energy Contracts and renewable energy resources used for NCREPS and NC HB589 compliance. This is the sum of the next three lines and the selected cumulative renewable resources in lines 13-15.
	Renewables w/o Storage includes projected purchases from solar energy resources not paired with storage.
	Solar w/ Storage (Solar Component) includes the solar component of projected solar energy resources paired with storage.
	Solar w/ Storage (Storage Component) includes the storage component of projected solar energy resources paired with storage.

A graphical presentation of the Winter Base Case with Carbon Policy resource plan as represented in the above LCR table is shown below in Figure 12-F. This figure provides annual incremental capacity additions to the DEC system by technology type. Additionally, a summary of the total resources by technology is provided below the figure.

FIGURE 12-F

DEC BASE CASE WITH CARBON POLICY - ANNUAL ADDITIONS BY TECHNOLOGY

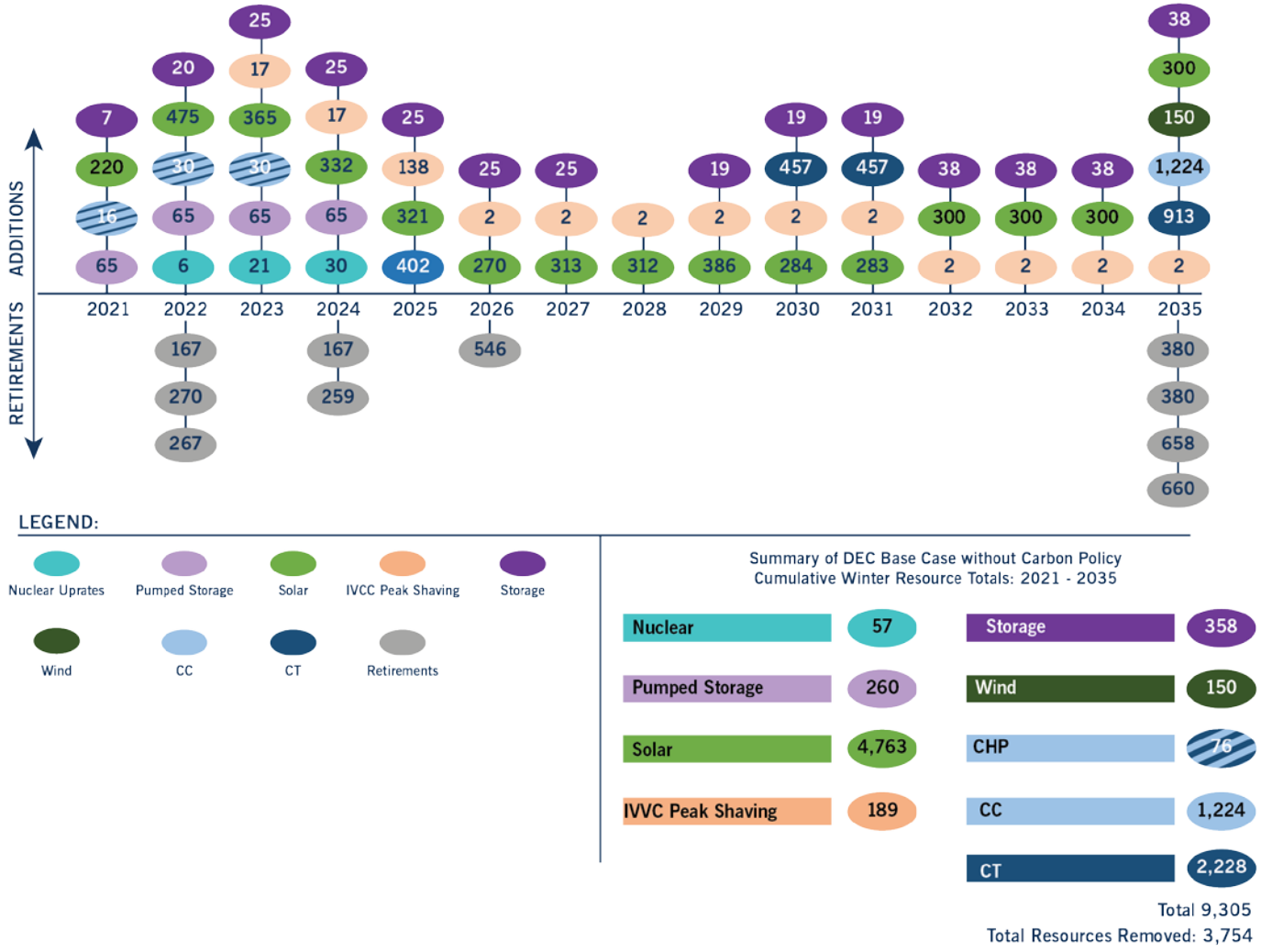

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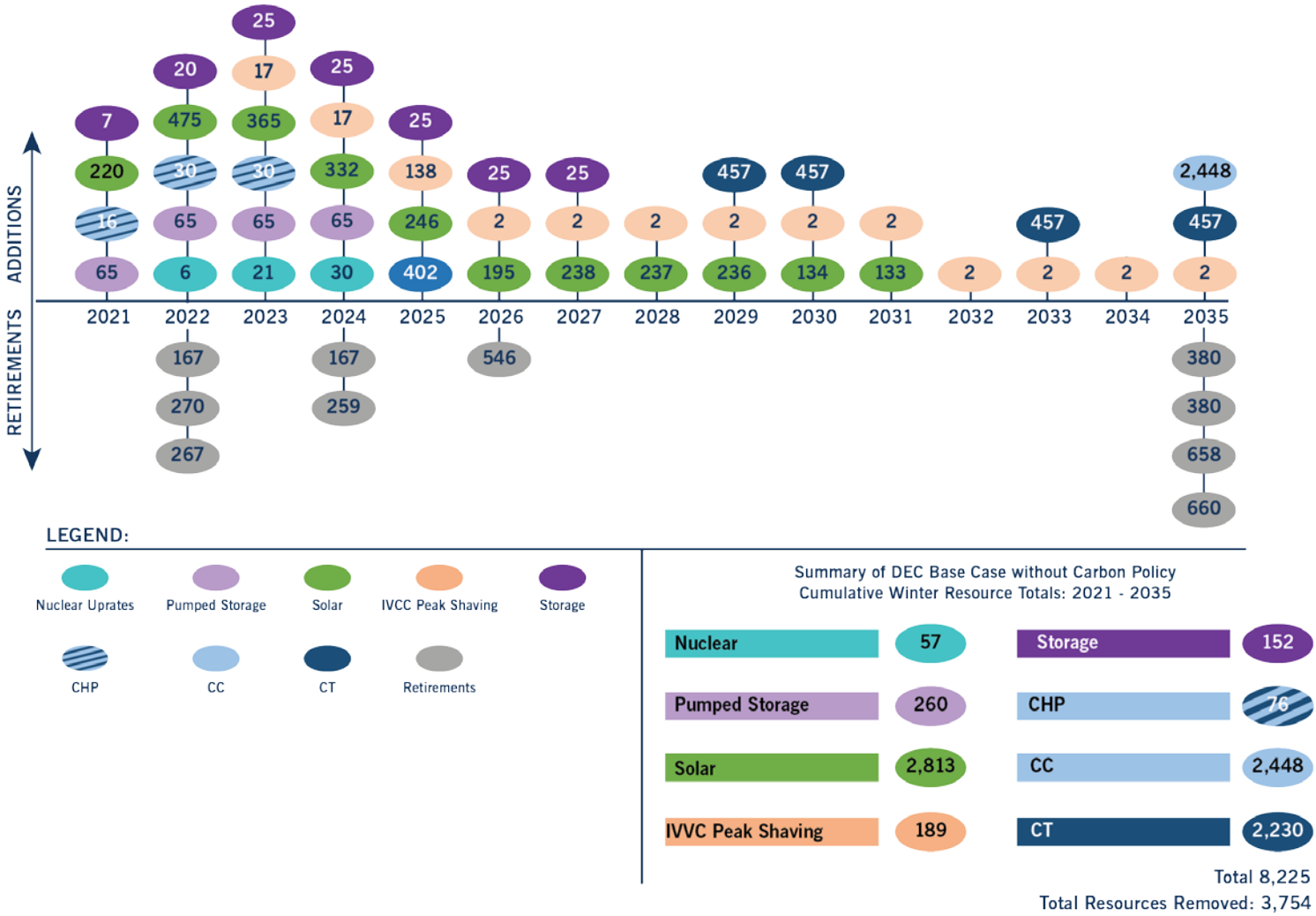
FIGURE 12-I

DEC BASE CASE WITHOUT CARBON POLICY
ANNUAL ADDITIONS BY TECHNOLOGY



JOINT PLANNING CASE

As mentioned previously, a Joint Planning Case that explores the potential for DEC and DEP to share firm capacity between the Companies was also developed. The focus of this case is to illustrate the potential for the Utilities to collectively defer generation investment by utilizing each other's capacity when available and by jointly owning or purchasing new capacity additions. This case does not address the specific implementation methods or issues required to implement shared capacity.

TABLE 14-B

DEC SHORT-TERM ACTION PLAN

			RENEWABLE RESOURCES (CUMULATIVE NAMEPLATE MW)					
								
YEAR	RETIREMENTS [6]	ADDITIONS [3]	SOLAR [4]	SOLAR WITH STORAGE [5]	BIOMASS / HYDRO	CUMULATIVE EE	DSM	IVVC [7]
2021		9 MW Energy Storage 6 MW Nuclear Uprate 65 MW Bad Creek Upgrade 16 MW Clemson CHP	966	0	132	70	478	0
2022	704 MW Allen 2-4	20 MW Energy Storage 21 MW Nuclear Uprates 65 MW Bad Creek Upgrade 30 MW CHP	1,327	115 w/ 25 Storage	118	129	467	0
2023		25 MW Energy Storage 30 MW Nuclear Uprates 65 MW Bad Creek Upgrade 30 MW CHP	1,673	134 w/ 30 Storage	81	183	468	17
2024	426 MW Allen 1 and 5	25 MW Energy Storage 65 MW Bad Creek Upgrade	1,976	163 w/ 37 Storage	81	233	470	34
2025		402 MW Lincoln CT Project 25 MW Energy Storage	2,268	192 w/ 45 Storage	59	303	473	173

(1) Capacities shown in winter ratings unless otherwise noted.
(2) Dates represent when the project impacts the winter peak.
(3) Energy storage is grid-tied storage and represents total usable MW.
(4) Capacity is shown in nameplate ratings and does not include solar coupled with energy storage.
(5) Solar coupled with storage; storage only charged from solar.
(6) Retirement dates reflect 'most economical' dates from the Coal Retirement Analysis.
(7) Integrated Volt Var Control represents cumulative impacts.

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RETIREMENTS (CONT.)				
Gaston Shoals 5 [f]	Blacksburg, S.C.	2	Hydro	08/16/2019
Gaston Shoals 6 [f]	Blacksburg, S.C.	2.5	Hydro	08/16/2019
Mission 1 [f]	Murphy, N.C.	.6	Hydro	08/16/2019
Mission 2 [f]	Murphy, N.C.	.6	Hydro	08/16/2019
Mission 3 [f]	Murphy, N.C.	.6	Hydro	08/16/2019
Tuxedo 1 [f]	Flat Rock, N.C.	3.2	Hydro	08/16/2019
Tuxedo 2 [f]	Flat Rock, N.C.	3.2	Hydro	08/16/2019
	Total	2,051.6 MW		

NOTE a: Retirement assumptions associated with the conditions in the NCUC Order in Docket No. E-7, Sub 790, granting a CPCN to build Cliffside Unit 6.

NOTE b: The old fleet combustion turbines retirement dates were accelerated in 2009 based on derates, availability of replacement parts and the general condition of the remaining units.

NOTE c: The decision was made to retire Buck 5 and 6 and Riverbend 6 and 7 early on April 1, 2013. The original expected retirement date was April 15, 2015.

NOTE d: Lee Steam Units 1 and 2 were retired November 6, 2014.

NOTE e: The conversion of the Lee 3 coal unit to a natural gas unit was effective March 12, 2015.

NOTE f: Sold to Northbrook Energy 8/16/2019.

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OPERATING LICENSE RENEWAL

Operating License Renewal - Nuclear				
Plant and Unit Name	Location	Original Operating License Expiration	Date of Approval	Extended Operating License Expiration
Catawba Unit 1	York, SC	12/6/2024	12/5/2003	12/5/2043
Catawba Unit 2	York, SC	2/24/2026	12/5/2003	12/5/2043
McGuire Unit 1	Huntersville, NC	6/12/2021	12/5/2003	6/12/2041
McGuire Unit 2	Huntersville, NC	3/3/2023	12/5/2003	3/3/2043
Oconee Unit 1	Seneca, SC	2/6/2013	5/23/2000	2/6/2033
Oconee Unit 2	Seneca, SC	10/6/2013	5/23/2000	10/6/2033
Oconee Unit 3	Seneca, SC	7/19/2014	5/23/2000	7/19/2034

Following are the EE and DSM programs available through DEC as of December 31, 2019:

RESIDENTIAL EE PROGRAMS	NON-RESIDENTIAL EE PROGRAMS	RESIDENTIAL DSM PROGRAMS	NON-RESIDENTIAL DSM PROGRAMS
Energy Efficient Appliances and Devices	Non-Residential Smart $aver® Energy Efficient Products and Assessment	Power Manager	PowerShare®
Energy Efficiency Education	Non-Residential Smart $aver® Performance Incentive		Interruptible Service (IS)
Multi-Family Energy Efficiency	Small Business Energy Saver		Standby Generator (SG)
My Home Energy Report			EnergyWise® Business
Income-Qualified Energy Efficiency and Weatherization Assistance			
Energy Assessments			
Smart $aver® Energy Efficiency			

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TABLE E-2

DEC BASE WITH CARBON POLICY TOTAL RENEWABLES

DEC BASE RENEWABLES - COMPLIANCE + NON-COMPLIANCE															
	MW NAMEPLATE					MW CONTRIBUTION TO SUMMER PEAK					MW CONTRIBUTION TO WINTER PEAK				
	SOLAR ONLY	SOLAR WITH STORAGE	BIOMASS / HYDRO	WIND	TOTAL	SOLAR ONLY	SOLAR WITH STORAGE	BIOMASS / HYDRO	WIND	TOTAL	SOLAR ONLY	SOLAR WITH STORAGE	BIOMASS / HYDRO	WIND	TOTAL
2021	966	0	132	0	1,099	387	0	132	0	519	10	0	132	0	142
2022	1,327	115	118	0	1,560	514	70	118	0	702	13	29	118	0	160
2023	1,673	134	81	0	1,888	636	81	81	0	797	17	34	81	0	131
2024	1,976	163	81	0	2,219	741	99	81	0	921	20	41	81	0	141
2025	2,268	192	59	0	2,519	844	116	59	0	1,019	23	48	59	0	129
2026	2,519	211	49	0	2,778	930	127	49	0	1,106	25	53	49	0	127
2027	2,708	335	49	0	3,091	977	202	49	0	1,228	27	84	49	0	160
2028	2,895	458	42	0	3,395	1,024	274	42	0	1,340	29	114	42	0	185
2029	3,082	656	42	0	3,779	1,071	390	42	0	1,502	31	164	42	0	236
2030	3,217	802	38	0	4,058	1,104	475	38	0	1,618	32	201	38	0	271
2031	3,352	948	30	0	4,330	1,138	559	30	0	1,727	34	237	30	0	301
2032	3,486	1,094	12	0	4,592	1,171	642	12	0	1,826	35	273	12	0	321
2033	3,620	1,238	3	0	4,861	1,205	724	3	0	1,932	36	310	3	0	349
2034	3,753	1,382	0	0	5,135	1,230	803	0	0	2,032	37	345	0	0	383
2035	3,885	1,525	0	150	5,560	1,242	875	0	11	2,127	38	381	0	50	469

Data presented on a year beginning basis.

Solar includes 0.5% per year degradation.

Capacity listed excludes REC Only Contracts.

Solar contribution to peak based on 2018 Astrapé analysis; solar with storage contribution to peak based on 2020 Astrapé ELLC study.

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TABLE E-3

DEC HIGH RENEWABLES SENSITIVITY

DEC HIGH RENEWABLES - COMPLIANCE + NON-COMPLIANCE															
	MW NAMEPLATE					MW CONTRIBUTION TO SUMMER PEAK					MW CONTRIBUTION TO WINTER PEAK				
	SOLAR ONLY	SOLAR WITH STORAGE	BIOMASS / HYDRO	WIND	TOTAL	SOLAR ONLY	SOLAR WITH STORAGE	BIOMASS/ HYDRO	WIND	TOTAL	SOLAR ONLY	SOLAR WITH STORAGE	BIOMASS/ HYDRO	WIND	TOTAL
2021	966	0	132	0	1,099	387	0	132	0	519	10	0	132	0	142
2022	1,327	115	118	0	1,560	514	70	118	0	702	13	29	118	0	160
2023	1,673	134	81	0	1,888	636	81	81	0	797	17	34	81	0	131
2024	1,976	163	81	0	2,219	741	99	81	0	921	20	41	81	0	141
2025	2,193	192	59	0	2,444	818	116	59	0	993	22	48	59	0	129
2026	2,369	211	49	0	2,629	879	128	49	0	1,056	24	53	49	0	125
2027	2,737	342	49	0	3,127	984	206	49	0	1,239	27	85	49	0	162
2028	3,103	474	42	0	3,619	1,076	281	42	0	1,398	31	118	42	0	191
2029	3,479	613	42	0	4,134	1,170	358	42	0	1,569	35	153	42	0	230
2030	3,699	750	38	0	4,488	1,225	435	38	0	1,698	37	188	38	0	263
2031	3,925	893	30	90	4,938	1,245	506	30	28	1,810	38	223	30	54	346
2032	4,158	1,117	12	180	5,468	1,266	621	12	57	1,956	39	279	12	109	440
2033	4,406	1,352	3	270	6,031	1,289	736	3	85	2,112	41	338	3	163	545
2034	4,668	1,600	0	360	6,628	1,312	854	0	113	2,279	42	400	0	217	659
2035	4,940	1,856	0	625	7,421	1,337	972	0	160	2,469	43	464	0	336	844

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TABLE E-4

DEC LOW RENEWABLES SENSITIVITY

DEC LOW RENEWABLES - COMPLIANCE + NON-COMPLIANCE															
	MW NAMEPLATE					MW CONTRIBUTION TO SUMMER PEAK					MW CONTRIBUTION TO WINTER PEAK				
	SOLAR ONLY	SOLAR WITH STORAGE	BIOMASS / HYDRO	WIND	TOTAL	SOLAR ONLY	SOLAR WITH STORAGE	BIOMASS/ HYDRO	WIND	TOTAL	SOLAR ONLY	SOLAR WITH STORAGE	BIOMASS/ HYDRO	WIND	TOTAL
2021	966	0	132	0	1,099	387	0	132	0	519	10	0	132	0	142
2022	1,327	115	118	0	1,560	514	70	118	0	702	13	29	118	0	160
2023	1,673	134	81	0	1,888	636	81	81	0	797	17	34	81	0	131
2024	1,976	163	81	0	2,219	741	99	81	0	921	20	41	81	0	141
2025	2,193	192	59	0	2,444	818	116	59	0	993	22	48	59	0	129
2026	2,369	211	49	0	2,629	879	128	49	0	1,056	24	53	49	0	125
2027	2,584	210	49	0	2,842	946	126	49	0	1,121	26	52	49	0	127
2028	2,797	208	42	0	3,047	999	124	42	0	1,165	28	52	42	0	122
2029	3,009	207	42	0	3,258	1,052	122	42	0	1,216	30	52	42	0	124
2030	3,145	281	38	0	3,465	1,086	166	38	0	1,290	31	70	38	0	140
2031	3,280	355	30	0	3,665	1,120	208	30	0	1,358	33	89	30	0	151
2032	3,414	428	12	0	3,855	1,154	251	12	0	1,417	34	107	12	0	154
2033	3,548	501	3	0	4,052	1,187	292	3	0	1,483	35	125	3	0	164
2034	3,682	574	0	0	4,255	1,220	334	0	0	1,554	37	143	0	0	180
2035	3,815	646	0	0	4,460	1,235	371	0	0	1,607	38	161	0	0	199

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these reasons, the Company relied on the ELCC results modeled under Economic Arbitrage conditions.

- **Only 4-hour and 6-hour storage considered for standalone storage** – Under all dispatch options, the value of 2-hour storage quickly diminishes as their penetration increases on the system. As shown in Appendix B of the Resource Adequacy report (Attachment III of the IRP), even though most of the LOLH occurs in the hour beginning 7AM, DEC has LOLH over a range of hours in the morning and evening which limits the value that 2-hour storage can provide to the system. Additionally, two-hour storage generally performs the same function as DSM programs that, not only reduce winter peak demand, but also tend to flatten demand by shifting energy from the peak hour to hours just beyond the peak. This flattening of peak demand is one of the main drivers for rapid degradation in capacity value of 2-hours storage. As the Company seeks to expand winter DSM programs, the value of two-hour storage will likely diminish.

While the above results show the average capacity value attributed to varying levels of storage on the DEC system, the incremental value of adding 400 MW blocks of storage can be calculated from the results. The incremental values are useful when determining the capacity value of the next block of energy storage, particularly when evaluating replacing a CT with a 4-hour battery as discussed in Appendix A and the economic coal retirement discussion Chapter 11. The incremental capacity value of storage assumed in the IRP is shown in the following table.

SOLAR PLUS STORAGE ELCC

The following matrix depicts the range of scenarios evaluated in the ELCC study assuming a 2-hour or 4-hour battery were coupled with solar.

TABLE H-5
SOLAR PLUS STORAGE RUN MATRIX FOR ELCC STUDY

PROJECT MAX CAPACITY (MW)	SOLAR CAPACITY (MW)	TOTAL BATTERY (MW/% OF SOLAR)	REGION EXISTING SOLAR BEFORE ADDING COMBINED PLUS STORAGE PROJECT (MW)
500	500	50 (10%)	2,200
500	500	150 (30%)	2,200
500	500	250 (50%)	2,200
1,000	1,000	100 (10%)	3,200
1,000	1,000	300 (30%)	3,200
1,000	1,000	500 (50%)	3,200

Solar plus storage capacity value was analyzed with 2- and 4-hour battery storage representing 10%, 30%, and 50% of the nameplate solar MW. This evaluation was conducted with 500 and 1,000 MW of solar paired with storage out of 2,700 MW to 4,200 MW of total solar on the DEC system.

The ELCC of standalone storage was determined separately under the following two conditions:

- Economic Arbitrage – Assumes DEC maintains full control of the battery and dispatches the battery based on a daily schedule to maximize economics. This mode of operation allows for the schedule to deviate during emergency events as they occur. Uncertainty in the model is driven by generator outages, day ahead load and solar uncertainty.

- Fixed Dispatch – Assumes DEC has no control of the battery, and the battery charges and discharges against a fixed set of prices. To model this condition, hourly avoided cost values from NC Docket E-100 Sub 158 were used to set the dispatch schedule of the battery. This scenario was developed to demonstrate the impact to storage capacity value if DEC did not have dispatch rights to the storage asset.

APPENDIX K: DEC QF INTERCONNECTION QUEUE

Qualified Facilities contribute to the current and future resource mix of the Company. QFs that are under contract are captured as designated resources in the base resource plan. QFs that are not yet under contract but in the interconnection queue may contribute to the undesignated additions identified in the resource plans. It is not possible to precisely estimate how much of the interconnection queue will come to fruition however the current queue clearly supports solar generation's central role in DEC's NC REPS compliance plan and HB 589.

Below is a summary of the interconnection queue as of July 31, 2020:

TABLE K-1
DEC QF INTERCONNECTION QUEUE

UTILITY	FACILITY STATE	ENERGY SOURCE TYPE	NUMBER OF PENDING PROJECTS	PENDING CAPACITY (MW AC)
DEC	NC	Battery	2	7
		Solar	95	2,365
	NC Total		97	2,372
	SC	Battery	2	14
		Hydroelectric	1	320
		Solar	138	2,676
	SC Total		141	3,010
	DEC Total		238	5,383

NOTE: (1) Above table includes all QF projects that are in various phases of the interconnection queue and not yet generating energy.

(2) Table does not include net metering interconnection requests.

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GLOSSARY OF TERMS

10 CFR	Title 10 of the Code of Federal Regulations
AC or A/C	Alternating Current
ACE	Affordable Clean Energy
ACP	Atlantic Coast Pipeline
ACT 62	South Carolina Act 62
ADP	Advanced Distribution Planning
AEO	Annual Energy Outlook
AGC	Automatic Generator Control
AMI	Advanced Metering Infrastructure
APS	Arizona Public Service Electric
ARP	Acid Rain Program
ARPA-E	Advanced Resource Projects Agency-Energy
ASOS	National Weather Service Automated Surface Observing System
BHPCC	Blue Horizons Project Community Council (DEP)
BCFD	Billion Cubic Feet Per Day
BFB	Bubbling Fluidized Bed
BOEM	Bureau of Ocean Energy Management
BYOT	Bring Your Own Thermostat
CAES	Compressed Air Energy Storage
CAIR	Clean Air Interstate Rule
CAMA	North Carolina Coal Ash Management Act of 2014
CAMR	Clean Air Mercury Rule
CAPP	Central Appalachian Coal
CC	Combined Cycle
CCR	Coal Combustion Residuals Rule
CCS	Carbon Capture and Sequestration (Carbon Capture and Storage)
CCUS	Carbon Capture, Utilization and Storage
CECPCN	Certificate of Environmental Compatibility and Public Convenience and Necessity (SC)
CEP	Comprehensive Energy Planning
CES	Clean Electricity Standard
CFL	Compact Fluorescent Light bulbs
CHP	Combined Heat and Power

GLOSSARY OF TERMS (CONT.)

CO_2	Carbon Dioxide
COD	Commercial Operation Date
COL	Combined Construction and Operating License
COVID-19	Coronavirus 2019
COWICS	Carolinas Offshore Wind Integration Case Study
CPCN	Certificate of Public Convenience and Necessity (NC)
CPP	Clean Power Plan
CPRE	Competitive Procurement of Renewable Energy
CSAPR	Cross State Air Pollution Rule
CT	Combustion Turbine
CVR	Conservation Voltage Reduction
CWA	Clean Water Act
DC	Direct Current
DCA	Design Certification Application
DEC	Duke Energy Carolinas
DEF	Duke Energy Florida
DEI	Duke Energy Indiana
DEK	Duke Energy Kentucky
DEP	Duke Energy Progress
DER	Distributed Energy Resource
DER	Duke Energy Renewables
DESC	Dominion Energy South Carolina, Inc. (formerly SCE&G)
DIY	Do It Yourself
DMS	Distribution Management System
DoD	Depth of Discharge
DOE	Department of Energy
DOJ	Department of Justice
DOM	Dominion Zone within PJM RTO
DR	Demand Response
DSCADA	Distribution Supervisory Control and Data Acquisition
DSDR	Distribution System Demand Response Program
DSM	Demand-Side Management

GLOSSARY OF TERMS (CONT.)

EC or Rider EC	Receiving Credits under Economic Development Rates and/or Self-Generation deferral rate
EE	Energy Efficiency
EGU	Electric Generating Unit
EIA	Energy Information Administration
EITF	Energy Innovation Task Force
ELCC	Effective Load Carrying Capability
ELG Rule	Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category
EPA	Environmental Protection Agency
EPC	Engineering, Procurement, and Construction Contractors
EPRI	Electric Power Research Institute
ER or Rider ER	Receiving Credits under Economic Re-Development Rates
ESG	Environmental, Social and Corporate Governance
ET	Electric Transportation
EVs	Electric Vehicles
FERC	Federal Energy Regulatory Commission
FGD	Flue Gas Desulfurization
FIP	Federal Implementation Plan
FLG	Federal Loan Guarantee
FPS	Feet Per Second
FRCC	Florida Reliability Coordinating Council, Inc.
FSO	Fuels and System Optimization
FT Solar	Fixed-tilt Solar
GALL-SLR	Generic Aging Lessons Learned for Subsequent License Renewal
GA-AL-SC	Georgia-Alabama-South Carolina
GHG	Greenhouse Gas
GIP	Grid Improvement Plan
GTI	Gas Technology Institute
GW	Gigawatt
GWh	Gigawatt-hour
HAP	Hazardous Air Pollutants
HB 589	North Carolina House Bill 589
HRSG	Heat Recovery Steam Generator

GLOSSARY OF TERMS (CONT.)

HVAC	Heating, Ventilation and Air Conditioning
IA	Interconnection Agreement
IESO	Independent Electricity System Operator
IGCC	Integrated Gasification Combined Cycle
ILB	Illinois Basin
ILR	Inverter Load Ratios
IPI	Industrial Production Index
IRP	Integrated Resource Plan
IS	Interruptible Service
ISO-NE	ISO New England, Inc.
ISOP	Integrated Systems and Operations Planning
IT	Information Technologies
ITC	Federal Investment Tax Credit
IVVC	Integrated Volt-Var Control
JDA	Joint Dispatch Agreement
kW	Kilowatt
kWh	Kilowatt-hour
LCOE	Levelized Cost of Energy
LCR Table	Load, Capacity, and Reserves Table
LED	Light Emitting Diodes
LEED	Leadership in Energy and Environmental Design
LEO	Legally Enforceable Obligation
LFE	Load Forecast Error
Li-ION	Lithium Ion
LNG	Liquified Natural Gas
LOLE	Loss of Load Expectation
LOLH	Loss of Load Hours
M&V	Measurement and Verification
MACT	Maximum Achievable Control Technology
MATS	Mercury and Air Toxics Standard
MGD	Million Gallons Per Day
MISO	Midcontinent Independent Operator

GLOSSARY OF TERMS (CONT.)

MPS	Market Potential Study
MMBtu	Million British Thermal Units
MW	Megawatt
MW AC	Megawatt-Alternating Current
MW DC	Megawatt-Direct Current
MWh	Megawatt-hour
MWh AC	Megawatt-hour-Alternating Current
MWh DC	Megawatt-hour-Direct Current
MyHER	My Home Energy Report
NAAQS	National Ambient Air Quality Standards
NAPP	Northern Appalachian Coal
NC	North Carolina
NC HB 589	North Carolina House Bill 589
NC REPS or REPS	North Carolina Renewable Energy and Energy Efficiency Portfolio Standard
NCCSA	North Carolina Clean Smokestacks Act
NCDAQ	North Carolina Division of Air Quality
NCDEQ	North Carolina Division of Environmental Quality
NCEMC	North Carolina Electric Membership Corporation
NCMPA1	North Carolina Municipal Power Agency #1
NC REPS	North Carolina Renewable Energy and Energy Efficiency Portfolio Standard
NCTPC	NC Transmission Planning Collaborative
NCUC	North Carolina Utilities Commission
NEM	Net Energy Metering
NEMS	National Energy Modeling Systems
NERC	North American Electric Reliability Corporation
NERC RAPA	Reliability and Performance Analysis
NES	Neighborhood Energy Saver
NESHAP	National Emission Standards for Hazardous Air Pollutants
NET CONE	Net Cost of New Entry
NGCC	Natural Gas Combined Cycle
NOx	Nitrogen Oxide
NPDES	National Pollutant Discharge Elimination System

GLOSSARY OF TERMS (CONT.)

NRC	Nuclear Regulatory Commission
NREL	National Renewable Energy Laboratory
NSPS	New Source Performance Standard
NUG	Non-Utility Generator
NUREG	Nuclear Regulatory Commission Regulation
NYISO	New York Independent System Operator
NYMEX	New York Mercantile Exchange
O&M	Operating and Maintenance
OATT	Open Access Transmission Tariff
PC	Participant Cost Test
PD	Power Delivery
PERFORM	Performance-based Energy Resource Feedback, Optimization and Risk Management
PEV	Plug-In Electric Vehicles
PHS	Pumped Hydro Storage
PJM	PJM Interconnection, LLC
PMPA	Piedmont Municipal Power Agency
PPA	Purchase Power Agreement
PPB	Parts Per Billion
PRB	Powder River Basin
PROSYM	Production Cost Model
PSCSC	Public Service Commission of South Carolina
PSD	Prevention of Significant Deterioration
PSH	Pumped Storage Hydro
PURPA	Public Utility Regulatory Policies Act
PV	Photovoltaic
PVDG	Solar Photovoltaic Distributed Generation Program
PVRR	Present Value Revenue Requirement
QF	Qualifying Facility
RCRA	Resource Conservation Recovery Act
REC	Renewable Energy Certificate
REPS or NC REPS	Renewable Energy and Energy Efficiency Portfolio Standard

GLOSSARY OF TERMS (CONT.)

RFP	Request for Proposal
RICE	Reciprocating Internal Combustion Engines
RIM	Rate Impact Measure
RPS	Renewable Portfolio Standard
RRP	Refrigerator Replacement Program
RTO	Regional Transmission Organization
RTR	Residential Risk and Technology Review
SAE	Statistical Adjusted End-Use Model
SAT Solar	Single-Axis Tracking Solar
SB 3 or NC SB 3	North Carolina Senate Bill 3
SC	South Carolina
SC Act 62	South Carolina Energy Freedom Act of 2018
SC DER or SC ACT 236	South Carolina Distributed Energy Resource Program
SC DER	South Carolina Distributed Energy Resources
SCR	Selective Catalytic Reduction
SEER	Seasonal Energy Efficiency Ratio
SEIA	Solar Energy Industries Association
SEPA (Ch. 15)	Smart Electric Power Alliance
SEPA (Ch. 2)	Southeastern Power Administration
SERC	SERC Reliability Corporation
SERVM	Strategic Energy Risk Valuation Model
SG	Standby Generation or Standby Generator Control
SIP	State Implementation Plan
SISC	Solar Integration Services Charge
SLR	Subsequent License Renewal
SMR	Small Modular Reactor
SO	System Optimizer
SO_2	Sulfur Dioxide
SOC	State of Charge
SOG	Self-Optimizing Grid
SPM	Sequential Peaker Method

GLOSSARY OF TERMS (CONT.)

SRP – SLR	Standard Review Plan for the Review of Subsequent License Renewal
STAP	Short-Term Action Plan
STEO	Short-Term Energy Outlook
SVC	Static Var Compressors
T&D	Transmission & Distribution
TAG	Technology Assessment Guide
TCFD	Trillion Cubic Feet per Day
Transco	Transcontinental Pipeline
The Company	Duke Energy Progress
The Plan	Duke Energy Progress Annual Plan
TRC	Total Resource Cost
TVA	Tennessee Valley Authority
UCT	Utility Cost Test
UEE	Utility Energy Efficiency
UNC	University of North Carolina
USCPC	Ultra-Supercritical Pulverized Coal
VACAR	Virginia/Carolinas
VAR	Volt Ampere Reactive
VCEA	Virginia Clean Economy Act
VVO	Volt-Var Optimization
WCMP	Western Carolinas Modernization Project (DEP)
WERP	Weatherization and Equipment Replacement Program
WIIN	Water Infrastructure Improvement for the Nation Act
ZELFR	Zero – Emitting Load Following Resource

Corrected 11.06.2020