

Exhibit 3

EQUIPMENT AND COST INFORMATION

3.1 Estimated Construction Costs

The estimated cost of the Woodfin Solar Facility is approximately [BEGIN CONFIDENTIAL] [REDACTED] [END CONFIDENTIAL]. The estimate includes [BEGIN CONFIDENTIAL] [REDACTED] [END CONFIDENTIAL] for Engineering Procurement & Construction (“EPC”), major equipment, labor, and associated permitting and development costs and approximately [BEGIN CONFIDENTIAL] [REDACTED] [END CONFIDENTIAL] for construction oversight, contingency, escalation and AFUDC. No new substation or transmission line or upgrade to substation or transmission line will be required.

3.2 Estimated Construction Costs Expressed as \$/MW

Approximately [BEGIN CONFIDENTIAL] [REDACTED] [REDACTED] [END CONFIDENTIAL]

3.3 Estimated Annual Operating Expenses by Category

Average annual operating expense is [BEGIN CONFIDENTIAL] [REDACTED] [END CONFIDENTIAL]

3.4 Estimated Annual Operating Expenses Expressed as \$/MWH

Approximately [BEGIN CONFIDENTIAL] [REDACTED] [END CONFIDENTIAL] averaged over 25 years

3.5 Projected Cost of Major Components and Schedule for Incurring Costs

[BEGIN CONFIDENTIAL] [REDACTED]
[REDACTED]
[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] [END CONFIDENTIAL]

3.6 Utility Revenue Requirement During Construction

The Construction Work in Progress for this project will not be included in rate base, but instead will accrue AFUDC of \$242,000. Therefore, there should be no impact on revenue requirements during the construction period.

3.7 Anticipated In-Service Expenses During the First Year

[BEGIN CONFIDENTIAL] [REDACTED] [END CONFIDENTIAL]

3.8 Anticipated Impact on Customers Rates. Estimated Construction Costs

0.020% rate impact in Year 1

Exhibit 4**CONSTRUCTION SCHEDULE AND OTHER FACILITY INFORMATION****4.1. Anticipated Construction Schedule**

Should the Commission approve the CPCN request, the Woodfin Solar Facility construction would be targeted to allow for commission of the project by July of 2021, assuming timely authorization to procure major equipment and obtain necessary permits and approvals. A more detailed schedule can be seen below.

Activity Name	Milestone Date
Notice to Proceed	Dec-20
Engineering/Procure Equipment	Dec-20
Site Mobilization	Feb-21
Placed in Service	Jun-21
Final Commission	Jul-21

4.2. Additional Generating Facility Information

The specific equipment suppliers have not been selected at this time for every component. However, the following is a description of the major components of the Woodfin Solar Facility.

Solar Array

The solar array is expected to consist of 829 strings of 420W modules for a total capacity of 6.267 MWdc.

Racking System

A ballasted racking system will be used to mount the modules. The racking will be set at a fixed tilt of 20°.

Solar Power Conversion Devices

Duke Energy plans to use a total of 80 SMA Sunny Tripower Core1 string inverters. Each sting inverter has a capacity of 62.5 kW. This provides a total solar system rating of 5.000 MW.

4.3. Qualifications and Selection Process for Principal Contractors

Duke Energy conducted a competitive bid process by issuing an RFP to bidders with the potential capability to fulfill functional and/or turnkey roles. The EPC bid evaluation considered safety, cost, experience and compliance with terms and conditions. A shortlist of highly qualified contractors has been determined and, pending Commission approval, the Company will move forward with EPC negotiation in October 2020. The EPC contract will include detailed design, procurement of the solar facility major equipment and balance-of-plant items, and construction.

4.4. Risk Factors Related to the Construction and Operation of the Generating Facility.

There would be no additional risk for the construction or operation of this solar facility compared to other facilities owned or operated by Duke Energy. The minimum daily low temperature recorded in January for the period between 1870 to 2018 happened on January 21, 1985. This minimum low temperature was -26.67 °C. The SMA Core1 inverter specified for the solar generation facility is rated to operate in the following ambient temperature range: -25 °C – 60 °C. Due to rare occurrence of the temperature going below -25 °C and due to the size of the asset, Duke Energy Progress has determined that it is not cost effective to add auxiliary heating at this point.

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. E-2 SUB 1257

In the Matter of)
Application of Duke Energy Progress, LLC)
for A Certificate of Public Convenience)
and Necessity to Construct a Solar)
Generating Facility in Buncombe County,)
North Carolina)

**DIRECT TESTIMONY OF
LAWRENCE WATSON**



1 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

2 A. My name is Lawrence Watson, and my business address is 400 South Tryon
3 Street, Charlotte, North Carolina 28202.

4 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

5 A. I am employed as Director of Distributed Asset Commercial Development by
6 Duke Energy Business Services LLC. Duke Energy Business Services LLC is
7 a service company affiliate of Duke Energy Progress, LLC (“DEP” or
8 “Company”). Duke Energy Progress is a wholly owned, indirect subsidiary of
9 Duke Energy Corporation (“Duke Energy”).

10 **Q. WHAT ARE YOUR RESPONSIBILITIES AS DIRECTOR OF**
11 **DISTRIBUTED ASSET COMMERCIAL DEVELOPMENT?**

12 A. I am responsible for developing and implementing specific strategies for Duke
13 Energy’s regulated utilities, including investment opportunities and product
14 offerings related to distributed energy technologies. Technologies include
15 solar, wind, energy storage, combined heat and power, microgrids, and electric
16 vehicles.

17 **Q. PLEASE DESCRIBE YOUR EDUCATIONAL AND PROFESSIONAL**
18 **BACKGROUND.**

19 A. I have a Bachelor of Arts degree from The George Washington University in
20 Washington, DC, a Master of Science in Planning from the University of
21 Tennessee in Knoxville, TN, and a Master of Business Administration from
22 Auburn University in Auburn, AL.

23

1 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE NORTH**
2 **CAROLINA UTILITIES COMMISSION (“NCUC”)?**

3 A. No.

4 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

5 A. The purpose of my testimony in this proceeding is to support DEP’s Application
6 for a Certificate of Public Convenience and Necessity (“CPCN”) to construct a
7 Solar Generating Facility in Buncombe County, North Carolina
8 (“Application”).

9 **Q. WERE YOU INVOLVED IN PREPARING DEP’S APPLICATION IN**
10 **THIS DOCKET?**

11 A. Yes.

12 **Q. PLEASE DESCRIBE THE WOODFIN SOLAR FACILITY.**

13 A. As detailed in the Application, the Company is seeking a CPCN to construct an
14 approximately 5 megawatt (“MW”) alternating current (“AC”) / 6.3 MW direct
15 current (“DC”) solar photovoltaic (“PV”) electric generator in Buncombe
16 County, North Carolina (“Woodfin Solar Facility”).

17

18 The Woodfin Solar Facility is part of a larger solar facility deployment plan and
19 grid modernization effort in the Western Carolinas. In response to the NCUC’s
20 urging of DEP to move forward in a timely manner on DEP’s commitment to
21 site solar and energy storage as part of the Western Carolinas Modernization
22 Project (“WCMP”), DEP identified opportunities to deploy 15 MW of solar PV
23 and over 5 MW of energy storage projects throughout the region.

1 **Q. PLEASE DESCRIBE THE UNIQUE BENEFITS OF THE WOODFIN**
2 **SOLAR FACILITY.**

3 A. The Woodfin Solar Facility will allow DEP to gain experience owning and
4 operating a solar facility on a customer's landfill site, and it will also be
5 supportive of the customer's renewable energy goals. While landfill PV
6 development has occurred across the United States, Duke Energy has not
7 deployed solar on a municipal-owned landfill in the Carolinas.

8
9 The closed Buncombe County Landfill ("Site") is located within the town limits
10 of Woodfin, North Carolina and is bordered on the south-southwest by the
11 French Broad River. The Site is approximately 190 acres and is enclosed by
12 security fencing along its perimeter boundary. Subject to final design of the
13 facility, the Woodfin Solar Facility will occupy approximately 30 acres of the
14 Site.

15 **Q. PLEASE PROVIDE FURTHER BACKGROUND REGARDING THE**
16 **WOODFIN SOLAR FACILITY.**

17 A. The Woodfin Solar Facility is a key component of the Western Carolinas
18 Modernization Project, or "WCMP" and the Commission's WCMP CPCN
19 Order in Docket No. E-2, Sub 1089, which accepted DEP's commitment to
20 solar and storage projects and directed DEP to file as soon as practicable CPCN
21 applications to construct at least 15 MW of solar at the Asheville Plant or in the
22 Asheville region.

23

1 DEP still intends to construct a solar generation and battery storage facility at
2 the Asheville Plant site itself. While final plans are contingent upon completion
3 of the ash basin work and steam plant demolition activities, the Company
4 expects to install approximately 8 – 10 MW of solar generation, along with
5 additional battery storage at the Asheville Plant site. DEP will seek a CPCN
6 from the Commission for the Asheville Plant Site generation facilities prior to
7 the commencement of construction, which is expected to occur in the 2023-
8 2024 timeframe. The solar facility at Hot Springs, a component of the recently
9 approved Microgrid, accounts for approximately 2 MW of the 15 MW
10 commitment. Should all three projects receive approval and be constructed,
11 this will account for the 15 MW of solar commitment as part of the WCMP.

12 **Q. PLEASE PROVIDE FURTHER BACKGROUND ON THE SITE**
13 **SELECTED FOR THE WOODFIN SOLAR FACILITY.**

14 A. In order to identify sites suitable for solar in the Greater Asheville Region, DEP
15 conducted a GIS solar suitability survey. Many alternative sites were evaluated,
16 including Company-owned land.

17

18 During DEP's solar siting process, DEP was made aware that Buncombe
19 County was interested in making their site available for solar development to
20 support the County's renewable energy and climate change goals. DEP
21 presented Buncombe County with a proposal to allow DEP to lease the landfill
22 site to support the WCMP's goal to advance solar development in this area.

1 The site was determined to have the following beneficial characteristics: (1) the
2 site is on a municipal landfill and zoned for industrial land use and has
3 approximately 30 acres of relatively flat, buildable area on one parcel; (2) the
4 acreage is sufficient for siting multiple MW of solar generation, and the site is
5 primarily clear of trees and debris; (3) the point of interconnection is located
6 adjacent to the planned project and on the same property and does not require
7 additional land rights or permitting to access the interconnection facilities; (4)
8 the site is not adjacent to residential customers; (5) the site does not require tree
9 clearing to support the solar; and (6) the site is owned by a single landowner
10 willing to enter into a lease agreement in support of the project and
11 community's goals.

12
13 While developing solar on a landfill can have an impact on costs due to the
14 inability to penetrate the landfill cap, the size and other positive characteristics
15 described help to balance overall project costs and limit local environmental
16 impacts. In addition, finding available sites within the Asheville region that can
17 support a solar facility of this scale while limiting environmental impacts (such
18 as tree clearing and wetland disturbance) is challenging given topography and
19 high land cost in the Asheville region.

20
21 A Ground Lease Agreement was executed with Buncombe County in August
22 2018. The term of the Ground Lease Agreement is 25 years from the date of
23 operation and includes three optional five-year renewal terms.

1 **Q. PLEASE PROVIDE FURTHER DETAILS ON THE WOODFIN SOLAR**
2 **FACILITY.**

3 A. The Woodfin Solar Facility consists of PV modules affixed to a ballasted
4 foundation system, 20 degree fixed-tilt racking, solar inverters, electrical
5 protection and switching equipment, and step-up transformers. Additional
6 equipment to support the Woodfin Solar Facility will include circuit breakers,
7 combiners, surge arrestors, conductors, disconnect switches, and connection
8 cabling. Appendix 2 to Exhibit 2 shows the preliminary site layout of all major
9 equipment including the PV panels' location. The Woodfin Solar Facility is
10 expected to produce approximately 8,600 MWh per year. This corresponds to a
11 20% net capacity factor. The service life of the asset is 25 years.

12 **Q. HOW DOES THE WOODFIN SOLAR FACILITY FIT WITH THE**
13 **COMPANY'S COMMITMENT AND THE COMMISSION'S ORDER IN**
14 **THE WESTERN CAROLINAS MODERNIZATION CPCN DOCKET?**

15 A. Once again, the Woodfin Solar Facility is an integral piece of the Western
16 Carolinas Modernization Project. The WCMP is a collaborative energy
17 innovation project for the Asheville area in the western region of DEP's service
18 territory. As the Commission is aware from its approval in the WCMP CPCN
19 docket, the goal of the WCMP is to partner with the local community and
20 elected leaders to help transition Western North Carolina to a cleaner, smarter
21 and more reliable energy future. DEP is committed to this partnership to
22 promote the efficient use of energy in the region. The WCMP allows for the
23 retirement of DEP's existing Asheville coal units and replacement of the

1 capacity with new combined cycle natural gas units. Additionally, the project
2 calls for the deliberate investment in distributed energy resources, including
3 solar and storage, and increased promotion and access to new and existing
4 demand-side management and energy efficiency (“DSM/EE”) programs in
5 Western North Carolina. In the WCMP CPCN Order, the Commission
6 accepted DEP’s commitment to solar and storage projects and directed DEP file
7 as soon as practicable CPCN applications to construct at least 15 MW of solar
8 at the Asheville Plant or in the Asheville region. The Woodfin Solar Facility
9 will meet a portion of this commitment.

10

11 **Q. PLEASE DISCUSS THE NEED FOR THE WOODFIN SOLAR**
12 **FACILITY.**

13 A. The Project complies with DEP’s commitments and the Commission’s
14 requirements in the WCMP CPCN Order, and is consistent with and designed
15 to promote the public policies of North Carolina, specifically those enumerated
16 in Senate Bill 3. The Woodfin Solar Facility will diversify the resources used
17 to reliably meet the energy needs of consumers in the State while providing
18 greater energy security through the use of indigenous energy resources
19 available within the State.

20

21 While landfill PV development has occurred across the United States, Duke
22 Energy has not deployed solar on a municipal-owned landfill in the Carolinas.
23 The deployment of utility-owned and -operated solar at this location has several

1 advantages; it represents an adaptive reuse of a closed municipal landfill, it will
2 allow Duke Energy to gain experience owning and operating a ballasted solar
3 facility on a landfill site, and it will have less of an environmental impact in the
4 area due to the site being clear of vegetation and other sensitive environmental
5 features. In addition, developing on this site represents a unique public-private
6 partnership between DEP and a municipal customer that allows for DEP to
7 build, operate and maintain a grid-connected solar asset while also supporting
8 the customer's renewable energy goals. Successful deployment and execution
9 of this project may lead to further projects and partnership opportunities with
10 other municipal customers and potentially on company-owned landfills in the
11 future.

12 **Q. IS THE WOODFIN SOLAR FACILITY CONSISTENT WITH DEP'S**
13 **MOST-RECENT INTEGRATED RESOURCE PLAN?**

14 A. Yes. The Company's 2018 Integrated Resource Plan ("IRP") was filed
15 September 5, 2018 in Docket No. E-100, Sub 157 and includes the Woodfin
16 Solar Facility in the Western Carolinas Modernization Plan update sections.
17 From a total system perspective, the DEP 2018 IRP identifies the need for
18 approximately 6,300 MW of new resources to meet customers' energy needs
19 by 2033. Additionally, the 2018 IRP calls for approximately 1,000 MW of
20 incremental solar installations over the next five years. Accordingly, the
21 Woodfin Solar Facility is consistent with the DEP's 2018 IRP.

22

1 **Q. PLEASE DISCUSS THE ENVIRONMENTAL ATTRIBUTES OF THE**
2 **WOODFIN SOLAR FACILITY.**

3 A. Operation of the Woodfin Solar Facility will have no emissions or pollutants,
4 and the generation source of the solar power will be 100% renewable. In
5 addition, the Woodfin Solar Facility will be designed in accordance with State
6 of North Carolina environmental requirements with regard to materials.

7 **Q. TO YOUR KNOWLEDGE, HAS DEP FILED AND PROVIDED ALL**
8 **INFORMATION AND OBTAINED OR IDENTIFIED ALL FEDERAL**
9 **AND STATE LICENSES, PERMITS, AND EXEMPTIONS REQUIRED**
10 **FOR CONSTRUCTION AND OPERATION OF THIS PROPOSED**
11 **GENERATION FACILITY?**

12 A. Yes. I believe that the CPCN Application provides all information required
13 under the Commission's rules. Further, the Woodfin Solar Facility is expected
14 to be fully permitted prior to construction. A complete list of all required
15 federal, state and local approvals and their status is included in Exhibit 2 to the
16 Application.

17 **Q. WHAT IS THE PROJECTED COST OF THE WOODFIN SOLAR**
18 **FACILITY?**

19 A. The cost estimate for the Woodfin Solar Facility is approximately [BEGIN
20 CONFIDENTIAL] [REDACTED] [END CONFIDENTIAL]. The estimate
21 includes Engineering Procurement & Construction ("EPC"), major equipment,
22 labor, and associated permitting and development costs. Any tax credits and

1 accelerated depreciation benefits will offset project costs for the benefit of
2 customers.

3 **Q. WHAT IS THE ESTIMATED CONSTRUCTION SCHEDULE FOR THE**
4 **WOODFIN SOLAR FACILITY?**

5 A. If Commission approval were to be obtained, the limited notice to proceed is
6 expected to be issued in December 2020, with site mobilization to begin in
7 February 2021, with final commissioning in July 2021.

8 **Q. DID DEP EVALUATE THE WHOLESALE MARKET FOR**
9 **ALTERNATIVES TO SERVE THE NEEDS THE PROJECT WILL**
10 **MEET?**

11 A. No. Because of the unique circumstances of the Woodfin Solar Facility, and
12 the Commission's WCMP CPCN order requirements, DEP did not evaluate the
13 existing wholesale market for alternatives to the capacity and energy to be
14 provided by the Woodfin Solar Facility. DEP has conducted a competitive bid
15 process that included soliciting cost proposals for all of the major components
16 and construction of the project to ensure the lowest reasonable cost for our
17 customers. The results from the bid process serve as the basis of the cost
18 estimate to support this Application. Upon a favorable ruling on this
19 Application, DEP will execute an agreement with the successful bidder to
20 engineer, procure equipment and construct the facility. In addition, DEP intends
21 to seek to obtain components and services from North Carolina providers where
22 possible and effective.

1 **Q. IN CONCLUSION, WHY IS DEP REQUESTING APPROVAL TO**
2 **CONSTRUCT THE WOODFIN SOLAR FACILITY?**

3 A. The Woodfin Solar Facility is one of many deployments and initiatives
4 designed to meet the goals of the WCMP Order and DEP's commitment to
5 invest in smart, clean energy projects in Western North Carolina. The Woodfin
6 Solar Facility presents a unique opportunity for DEP to collaborate with our
7 customers and community stakeholders on an innovative solution and reflects
8 Duke Energy's commitment to proactively support our customers and their
9 energy-related goals and objectives. We are pleased with the strong local
10 support for the Woodfin Solar Facility and look forward to bringing it online
11 for our customers' benefit.

12 **Q. DOES THIS CONCLUDE YOUR PRE-FILED DIRECT TESTIMONY?**

13 A. Yes.