Hello, I'm Nadia Ely and welcome
to Grid Resiliency and Beyond.

This series showcases the
leaders and subject matter

experts who highlight the
strides and innovations Dominion

Energy is making.

Today's discussion covers
Dominion Energy solar solutions.

Here to tell us more are Eric
Fritz, Manager of Business

Development and power Generation
and Mike Nester, manager in

Distributed Generation.

Thanks for being with me.

Eric, let's start with you
today.

How is Dominion Energy expanding
its solar energy portfolio and

are there long term goals for
solar power integration into the

overall energy grid?

Definitely not.

Ian, I'll start with saying that
solar is a key part of our

reliable, affordable and
increasingly clean energy mix

going forward.

And we've been working steadily

over the past many years to

bring more and more solar online
to serve our customers here in

Virginia.

Just last week, we filed our
latest proposal to the Virginia

State Corporation Commission of
new solar totalling more than

1000 megawatts, which would
bring our total solar

development to 5700 megawatts,
the second largest solar fleet

among utilities.

Also last week, because it was a
kind of a busy week for solar,

we filed our latest integrated
resource plan in Virginia, which

is our key planning document
that we submit to our regulators

outlining the potential pathways
to meet our growing needs of our

customers.

The integrated resource plan
calls for approximately 12,000

megawatts of incremental solar
over the next 15 years.

So, so quite a bit of solar
potential build out there.

The plan also incorporates the
requirements from the Virginia

Clean Economy Act, which for
those who are familiar with it,

was a a piece of legislation
that was passed in 2020 by the

General Assembly, which calls
for us to build 16,100 megawatts

of solar by 2035.

Not all of that 16,100 megawatts
of solar in the Virginia Clean

Economy Act is the same.

Some of the projects will be
owned and operated by the

company.

Some demanding energy Virginia
will procure the energy capacity

and renewable energy
certificates from third party

owned projects, their
arrangements called power

purchase agreements.

Additionally, of the 16,100
megawatts are in the VCA, 1100

of those megawatts are required
to be 3 megawatts or under, each

of which are called distributed
solar as they're generally

connected to the distribution
grid rather than the tremendous

mission system.

And we have a team that's actually dedicated to focusing

on those projects that are three megawatts and under for those

that are owned by the company.

We originate those in in two ways.

One, through a request for proposal that we have out

annually.

It's a process by which we acquire projects from third

party developers that are are busy in Virginia developing

projects.

And the others, we have an internal team which develops

projects from the ground up, essentially originating the real

estate, going through the diligence process, through the

permitting process to develop the projects that will help us

meet our solar goals going forward.

Thanks so much, Eric.

Lots going on for sure.

Mike, turning to you now, can you explain what solar

interconnects are and how they affect the resiliency of the

grid?

Certainly, Nadia, it's a very highly regulated process.

And it's not just for solar interconnections.

It's actually for any generation source that desires to operate

in parallel with the distribution grid.

We deal with three jurisdictions and each jurisdiction has their

own set of interconnection regulations that we're required

to consistently administer regardless of who the

interconnection customer is, even that of our own utility.

And the three jurisdictions are the Commonwealth of Virginia,

the state of North Carolina.

And actually even for jurisdictional interconnection

request, they desire to sell if the generator desires to sell

into the PJM market.

So the interconnection process is really geared to identify

what grid and protection

modifications are needed to

accommodate the proposed
interconnection, but yet ensure

the safety, reliability and
operability of the grid for all

customers.

Because originally the
distribution grid was really

just designed for one way flow,
you know providing power to

those of our retail customers.

But with the interconnection
process and with solar and other

generators attaching to our
distribution grid, our technical

teams through this
interconnection request process

is actually trying to redesign
our grid, our distribution grid

to accept bi directional flow.

So those modifications could
incorporate, you know, reconduct

ring to larger conductors to be
able to accept the flow that the

generators are providing.

It could be involving converting
to a higher operating voltage,

you know, where we might have to
convert some of our 12 five or

13.2 KV distribution to 34.5 KV.

And in some cases we actually have to do substation

transformer upgrades to increase the capacity in order to

accommodate, you know, the aggregate generation that's

being added to our distribution grid.

So all those upgrades, you know, shortly affect the resilience,

resiliency of the grid.

It provides additional capacity for you, not only the generators

that are connected, but you know, hopefully puts Dominion in

a better state in the future to accept future interconnection

request.

And one thing I'll note, Nadia, on the processes that might

describe whether it's for distribution interconnects or

even the transmission interconnects for the projects

that Dominion Generation business development team

develops, we have to essentially be functionally separate.

There's laws and regulations

that are in place and ensure

that the transmission and
distribution functions are

separate from the business
development functions such that

when we're interconnecting, we
have projects that are

interconnecting that we're
developing.

We're treated essentially just
like we would any other third

party in the market that's
developing a project.

So as we think about our our
planning processes, you know, we

are functionally separate from
Mike's team or the transmission

team and we have to plan just
like any other third party would

as we think about
interconnecting our solar

projects to the grid.

Excellent points from both of
you.

Thanks Mike and Eric.

Eric, I'm going to stay with
you.

You talked a little bit about
the regulatory process earlier

in the podcast.

How does Dominion Energy collaborate with external

stakeholders to facilitate successful implementation of

solar projects?

That's a great question.

And a lot of it really is, is I think in the local process, the

community it's in critically important for our projects that

we're developing that we engage with the within the communities

in which our projects are located.

So as we, as projects start to take shape and we have a large,

you know, pipeline of projects that we're developing, we'll

generally engage early with local officials on new solar

projects in the area to ensure that as we're shaping projects

from kind of those early stage contracts to more detailed,

we're getting an understanding of, of how receptive the

community is to, to where our projects are potentially going

to be located, What things we need to be considering because

we want to be good community
partners to the areas where

we're going to be locating
projects and, and engage

stakeholders in a meaningful
way.

Once projects have have kind of
generally taken shape, we'll,

and we have more details to
share with the public.

We'll hold things like open
houses, We'll have mailers out

to, to let folks know what we're
planning on doing and, and what

the project's going to look
like.

We'll engage through those open
houses to get feedback from the

community.

And, and if necessary, and to
the extent practical, we'll

follow up on, on those concerns
and, and potentially even take

actions which, you know, may
alter the direction of, of how

we develop a project.

We want to be a, a good
community steward as we develop

these projects.

And most of these projects need,

you know, local use permits from

the county.

So we'll have to go through a
process by where there's public

hearings for projects in order
to obtain approval from the

localities in order to develop
projects.

And then as we go, you know,
through the life cycle process

and near in construction.

And we'll continue to hold
things like open houses to keep

the, the public updated on the
progress of projects and, and to

inform them of, of any changes
or, or what may be coming in the

near future as we, you know,
develop, prepare and construct

our projects.

Thank you.

Eric, this next question is
directed to both of you.

What are some of the biggest
challenges Dominion Energy faces

when developing and
interconnecting solar project

and how are these challenges
being addressed?

Mike, I'll start with you.

Eric, please feel free to add
your thoughts as well.

From an interconnection
perspective, some of the biggest

challenges, you know like I
mentioned earlier, the

interconnection request process
is highly regulated and there

are prescriptive process by
which we administer in order to

identify you know the grid and
protection modifications that

are needed.

Each interconnection request
gets a site specific customized

study that can take anywhere
from 10 to 16 months to

complete, depending upon the
complexity of the

interconnection, the
modifications that are

identified during the study
process and and the questions

that you know the
interconnection customer may

have as a result of the study
process.

You know, that time frame can be
a challenge for a customer to

have to go through who's developing a project and

certainly defer to Eric for, you know, more insight on the

customer side of their connection.

But on the utility side, that study process is, you know,

highly critical in order to ensure the safety of the

interconnection for all customers.

You know, along with the time frame that's involved and, you

know, implementing the studies that are identified in the

regulations, the grid and protection modifications have a

significant cost.

It's not unusual for and interconnection to require

several miles of circuit to be reconducted.

We have several that require the upgrade of Transformers and

substations and you know the estimated cost associated with

those are assigned to the interconnection customer who

triggers the need for the modification.

And that can run into
potentially millions of dollars

again, depending upon the
magnitude of upgrades that are

required and identified, you
know, through the study process.

So I would say that those are a
couple of the largest challenges

that we have in administering
and trying to help

interconnection customers manage
expectations as they go through

the interconnection study
process.

But Eric, your your thoughts
from the, the customer side of

the interconnection.

The interconnection I think is,
is one piece of kind of the

multi like stool that make up a
good solar project as we look

and screen for those who
develop, you know, Virginia as a

whole is more challenging to to
construct solar than you would

see like go out West where you
have large tracts of big, flat,

dry land.

And you know Virginia as we know
is, is beautiful rolling hills

and and beautiful landscape and
that presents challenges from

topography, the geotechnical
conditions, environmental

constraints and interconnection
being kind of another leg of

that stool as Mike talked about.

So those were all kind of
factors we have to take into

consideration.

So one of our biggest challenges
that we have is kind of

balancing all those factors as
we kind of screen projects to

ensure that we're finding
projects that meet the

requirements from from a
buildability and a

constructability, but also are
the optimum from a, a cost and

schedule perspective for
interconnection.

So as we kind of go along the
project life cycle, we're having

to continue the kind of balance
and evaluate and, and look at

how schedules line up for things
like the interconnection

process, the development
process, the permitting process,

as well as kind of looking at
those factors, which we know

we're going to to bring us the
best projects at the lowest cost

for our customers.

So you know, we're continuing to
refine processes to screen and

evaluate projects as we go along
and as we build more and more

projects, we're of taking the
best projects and then we're

finding and sorting through the
projects which you know may not

have as many of the of the great
characteristics.

We're balancing those risks as
we go forward.

So that's you know, I think
that's our biggest challenge is

just balancing all those
different factors which go into

developing, constructing and
operating a great and the lowest

cost solar projects for our
customers.

Interconnection being one of
those those key factors in that

such great perspectives from
both of you.

Thank you, Mike and Eric.

Now the last question is also directed to both of you.

What innovations or technologies are being explored to improve

the efficiency and reliability of solar project portfolios and

how will these advancements benefit our customers?

Eric, I'll continue with you.

And Mike, please add your thoughts.

Absolutely.

We're always continuously exploring ways to improve the

way we develop, construction, operate our solar fleet, whether

it's, you know, looking at different methodologies for how

we develop, looking at different technologies, focusing on kind

of operational performance and how we go back and improve that

kind of cyclically through designs to bring the lessons

learned we have from our operations team all the way back

to how we start and develop projects.

And then we're also kind of looking at kind of innovative

ways.

One, I one I love to touch on
because, you know, it's, it's a

great story, but it also is kind
of bringing in a really kind of

in brought an innovative mindset
towards the operation of our

solar projects is touching how
we do vegetation management in a

pilot that we recently had on
bringing in sheep to graze to

manage the vegetation on our
projects.

So vegetation management, which
sometimes is kind of a fancy

word for saying, you know,
cutting the grass, but you know,

typically on a solar project
you're managing the vegetation

through mechanical means, going
out with lawn mowers and mowing

the grass.

That's critical to our
operations to ensure that we

have the vegetation on our sites
managed in effective way.

It is to not interfere with the
operations or projects.

But we have been running a pilot
at a collection of our sites

where we're bringing in herds of sheep to essentially, you know,

graze on on the vegetation and keep the vegetation down.

And it's a great way one, to reduce emissions because you

don't have as many of mechanical equipment out there that's your

typical vegetation management equipment.

But it's also a great way to partner with the local

communities.

A lot of the potential opportunities for local

sheepherds or local shepherds to come on site and utilize the

vastness of our solar land to graze their sheep.

So it's really a great opportunity for us to pilot and

explore.

I don't I'll call an innovative and alternative way to manage

vegetation in our sites and Nadia from the interconnection

perspective, you know, our process is highly regulated.

So, you know, our primary focus is to try to provide information

to the interconnection customers as they go through the study

process so that they can make of educated business decisions, you

know, regarding their generator projects.

But you know some of the concepts and methodologies that

we have tried to modify in order to give customers additional

options.

Last year in for our Virginia queue, we developed a online

application submittal process.

Historically the customer would be submitting a hard copy

packet, their interconnection request form, their generator

information, inverter specification, site plan, site

layout, all that would be sent through the mail to our

corporate office in Richmond.

But last year we developed a process where interconnection

customers can submit that information online along with

making their application payments as long as they have

their bank round and information

and their bank account number

available when they submit the
the online submittal.

But you know, that was intended
for a couple reasons.

One is to, you know, primarily
give customers another option by

which they can submit the
interconnection request packet.

You know, we have gotten
requests over the years if

there's an electronic means of
making the application payments.

And historically, we've, you
know, had to say, regrettably,

no, you know, only a hard copy
check.

But this online submittal
process gives you another option

to customers, you know, who are
desiring to go through this,

this interconnection request
process.

And as we gain more experience
with it, you know, for our

Virginia queue, you know, our
intent is to roll it out for,

you know, our North Carolina
interconnection customers as

well.

In addition, we are seeking ways that we can review our

infrastructure and protection guidelines to look at new

technologies, for example, for net majoring customers that are

between 250 kW and one MW via a motion for interim authority

that we submitted to the State Corporation Commission in

Virginia and got approved toward the end of last year.

We are pursuing the development of a dual carrier cellular

direct transfer trip communications methodology.

If direct transfer trip is required, which is a high speed

protection systems that's designed to get the generation

off the system as fast as possible.

If there is you know a problem with the system or a fault, you

know such as a vehicle hit in a pole, you know we try to remove

all power sources in order to protect personnel, the public

and equipment.

But our general communication requirement that the customer is

to provide is a fiber based communication medium that they

would provide which can be very expensive to install.

So this dual carrier cellular is something that we are field

testing for the mid size net metering category of customer.

And while we don't expect it to have, you know, exactly actually

the reliability of fiber because fiber is you know, extremely

reliable.

We are optimistic about, you know, performance expectations.

And one of the advantages, you know, that we anticipate is the

equipment that the customer is required for to pay for, for

dual carrier cellular would be less expensive than if they had

to install a fiber based communication medium.

So constantly looking for technology improvements that

could, you know, still ensure the safety reliability of the

grid, but yet give interconnection customers

hopefully another option in order to help their projects

move forward.

I'd like to thank Mike Nester
and Eric Fritz for their

expertise, time and
participation.

Thanks for listening and be on
the lookout for future episodes.

I'm Nadia Ely.