

March 5, 2021

VIA Electronic Filing

Ms. Kimberley A. Campbell, Chief Clerk
North Carolina Utilities Commission
Dobbs Building
430 North Salisbury Street
Raleigh, North Carolina 27603-5918

Re: Docket No. E-100, Sub 165

Dear Ms. Campbell:

Virginia Electric and Power Company, d/b/a Dominion Energy North Carolina (“DENC” or the “Company”), encloses for filing its DENC Integrated Distribution Planning Presentation, which the Company will present at the North Carolina Utilities Commission Technical Conference to be held in this docket on March 9, 2021.

Please do not hesitate to contact me if you have any questions. Thank you for your assistance in this matter.

Very truly yours,

/s/Andrea R. Kells

ARK:kjg

Enclosure

cc: Lucy Edmondson, Public Staff—North Carolina Utilities Commission
Layla Cummings, Public Staff—North Carolina Utilities Commission
Nadia L. Luhr, Public Staff—North Carolina Utilities Commission

Integrated Distribution Planning



**Dominion
Energy[®]**
North Carolina

NCUC Technical Conference

Docket No. E-100, Sub 165

Robert Wright

Director, Grid Planning &
Asset Management

March 9, 2021

Introduction to Integrated Distribution Planning (“IDP”)



Significant
growth in DER
in recent
years

Fundamental
changes to
how the grid
operates

New planning
processes,
tools and
skills

New
challenges
and new
opportunities



Legacy Distribution Planning

	Inputs	Modeling & Analysis	Alternatives Evaluation	Outputs
Capacity Planning	<ul style="list-style-type: none"> Historical seasonal peak loads Historical and projected growth Interval data at T to D transition point only Utility scale DER contribution removed No visibility of net metering DER Steady state load and voltage criteria 	<ul style="list-style-type: none"> Static analysis for peak loading Manual feeder-by-feeder analysis Only steady state system analysis performed DER not included in model Loading allocated based on modeling assumptions 	<ul style="list-style-type: none"> Traditional mitigation alternatives: equipment upgrades/additions Solutions optimized for cost / load growth and system impact 	Multi-year Work Plan
Reliability Planning	<ul style="list-style-type: none"> Historical performance data focused on blue sky days Multiple levels of analysis <ul style="list-style-type: none"> System metrics Feeder level Responsive to specific customers 	<ul style="list-style-type: none"> Root cause analysis Manual feeder-by-feeder analysis Specific asset health testing and assessment Manual mitigation modeling to predict improvement 	<ul style="list-style-type: none"> Traditional mitigation alternatives Solutions optimized for cost, reliability and risk 	Annual Work Plan
Interconnection Planning	<ul style="list-style-type: none"> Customer initiated requests Mandated queue procedures Location specific load and grid data Customer equipment specifications 	<ul style="list-style-type: none"> Static analysis for specific loading and DER output scenarios Manual analysis for interaction with other DER 	<ul style="list-style-type: none"> Traditional mitigation alternatives: equipment upgrades/additions 	Interconnection Agreement Execution

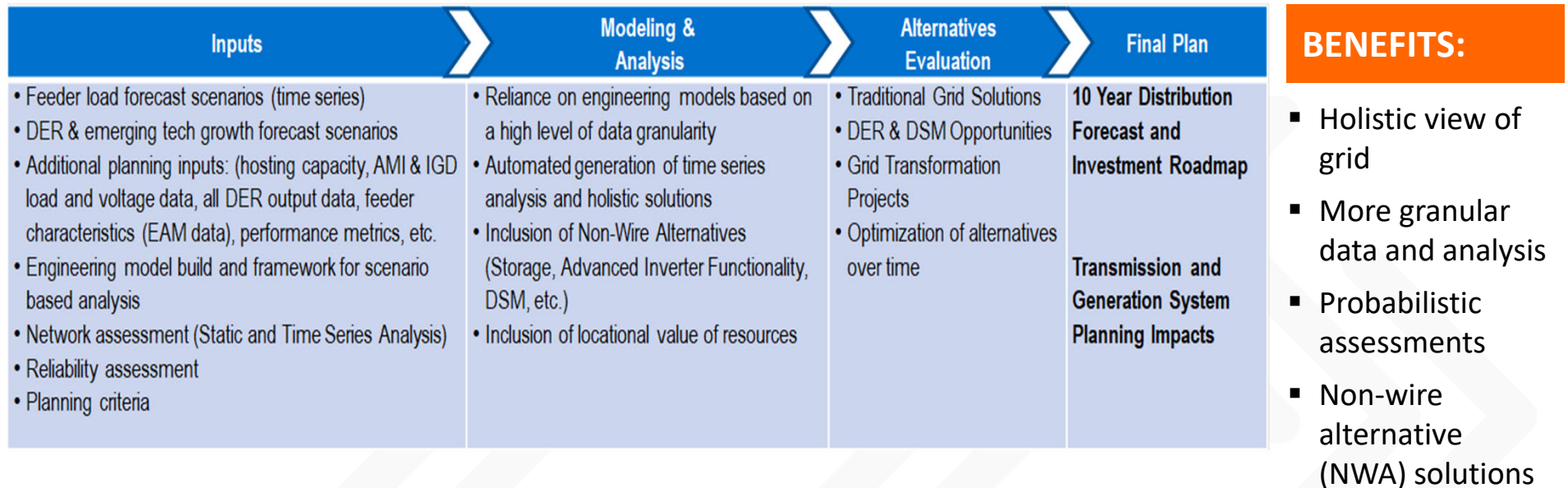
CHALLENGES:

- Separate processes and groups
- Limited data inputs for limited scenario analysis
- Focused on deterministic conclusions
- Does not consider new solution options

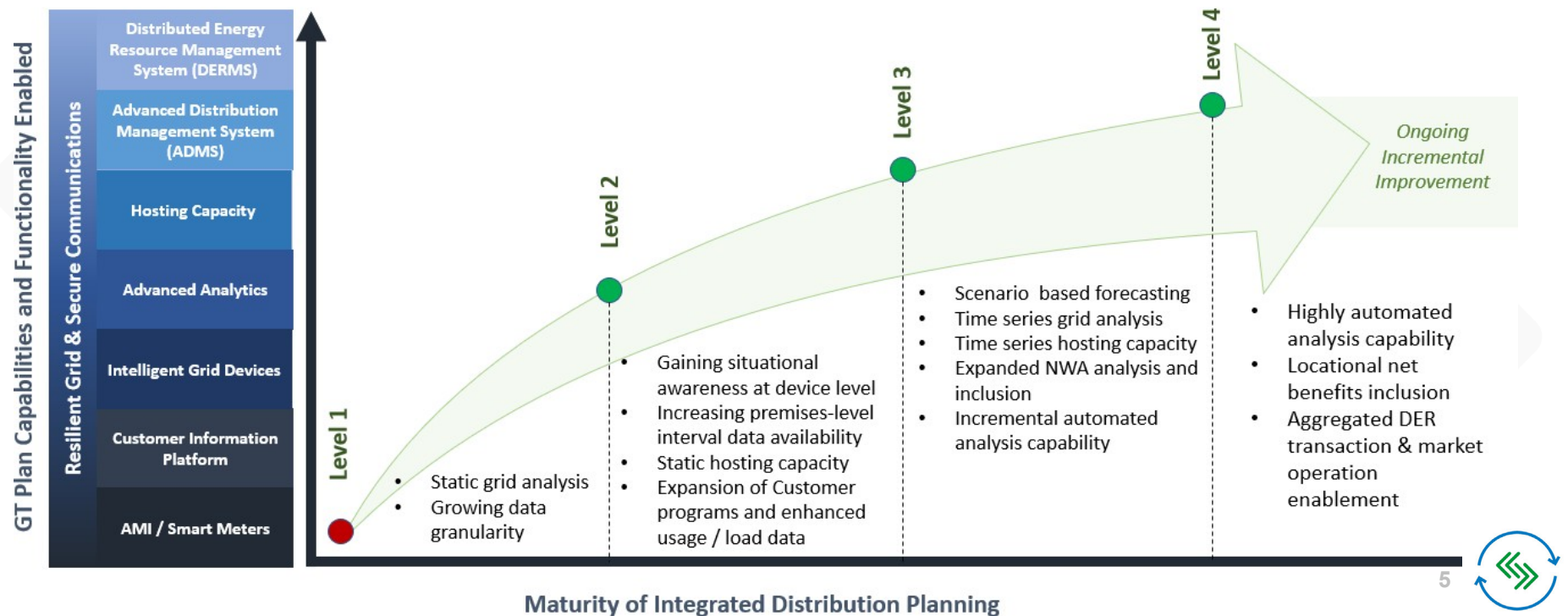


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Integrated Distribution Planning Process



Evolving to Integrated Distribution Planning



Making Progress: Organizational and Tool Changes



Planning group reorganization

- Shift to holistic planning
- Centralized modeling and data analysis team



Planning tool development

- Participating in EPRI's "ADAPT" project
 - Time series forecasting and analysis over 10-year window
 - NWA technical and economic evaluation
 - Optimal investment path identification



Advanced forecasting capabilities and data analytics

- Ongoing modernization of legacy tools
- RFI development underway to assess advanced forecasting tool options



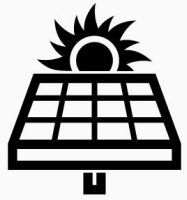
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Making Progress: NWA and Microgrid Pilots



Battery Storage Pilot Projects

- BESS-1 to study the prevention of solar back-feed onto the transmission grid
- BESS-2 to study transformer peak load reduction



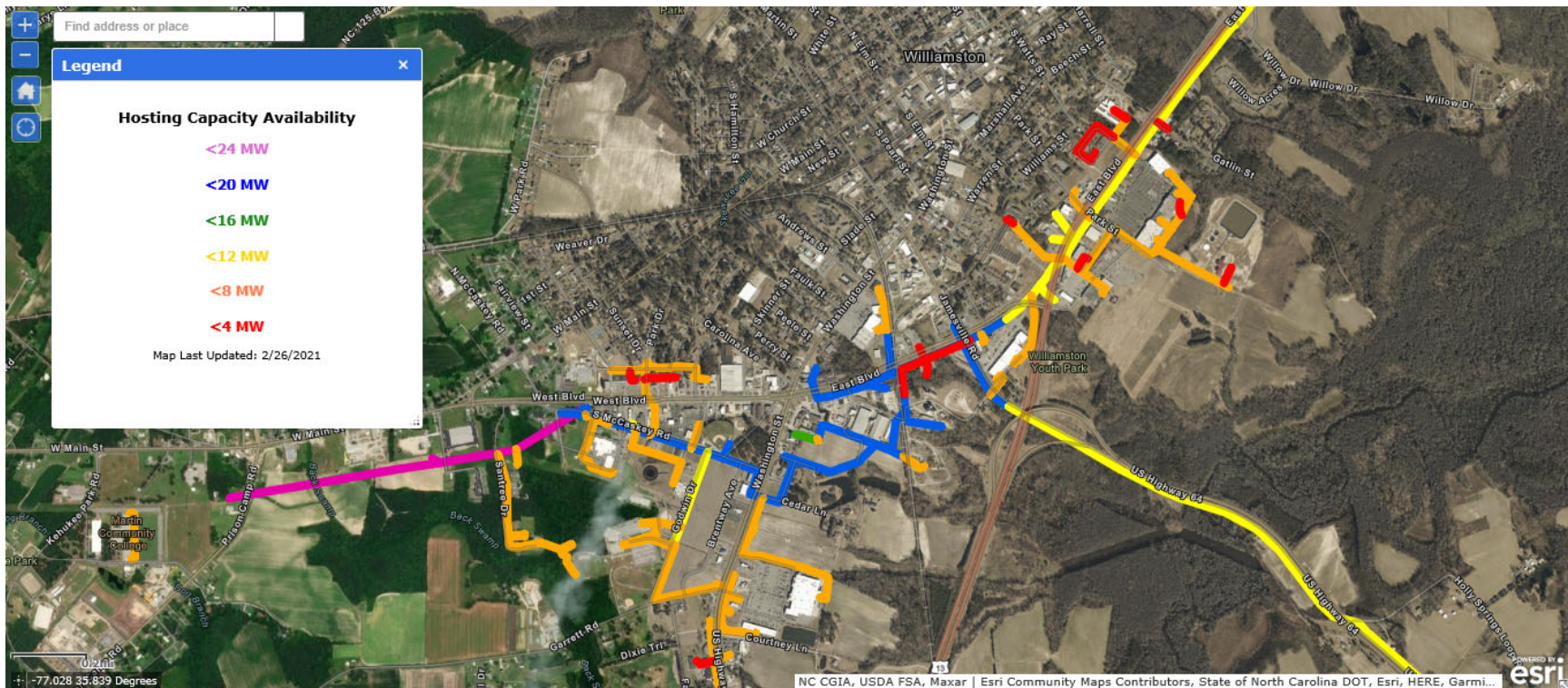
Locks Campus Microgrid

- Located at the Company's new Locks Campus in Petersburg, Virginia
- Interconnected loads and various DER types able to operate when connected to the utility grid and able to operate as an "island" during outages



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Making Progress: Hosting Capacity Tool



www.DominionEnergy.com/HostingCapacity

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Integrated Distribution Planning



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Thank You

CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing DENC Integrated Distribution Planning Presentation filed in Docket No. E-100, Sub 165 was served electronically or via U.S. mail, first class postage prepaid, upon all parties of record.

This 5th day of March, 2021.

/s/Andrea R. Kells

Andrea R. Kells

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