WELCOME TO

impactED PLUS

A PROGRAM OF VEDA AND VEDP

Working with Virginia's Natural Gas Utilities on Economic Development Projects

VEDA
VIRGINIA ECONOMIC DEVELOPERS ASSOCIATION

VEDP
Virginia Economic Development Partnership

TODAY'S AGENDA

9:00 – 9:05 am
Welcome/Setting the Stage

9:05 – 9:25 am
Introduction of Natural Gas Utility Partners

9:25 – 9:40 am
Explaining Important Terminology

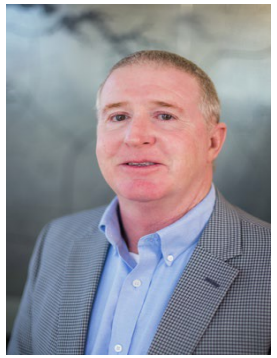
9:40 – 11:15 am
Discussion: Economic Development Demand for Gas and Site Development Planning

11:15 am
Final Questions from Audience/Announcements/Adjournment

TODAY'S FACILITATORS

Stephen Moret
President & CEO
Virginia Economic Development Partnership

Steve Harrison
Vice President, Business Intelligence & Communications
Hampton Roads Alliance



John Loftus
Manager, Sites & Buildings
Virginia Economic Development Partnership

Introduction of Natural Gas Utility Partners

John Loftus
Manager, Sites & Buildings
Virginia Economic Development Partnership

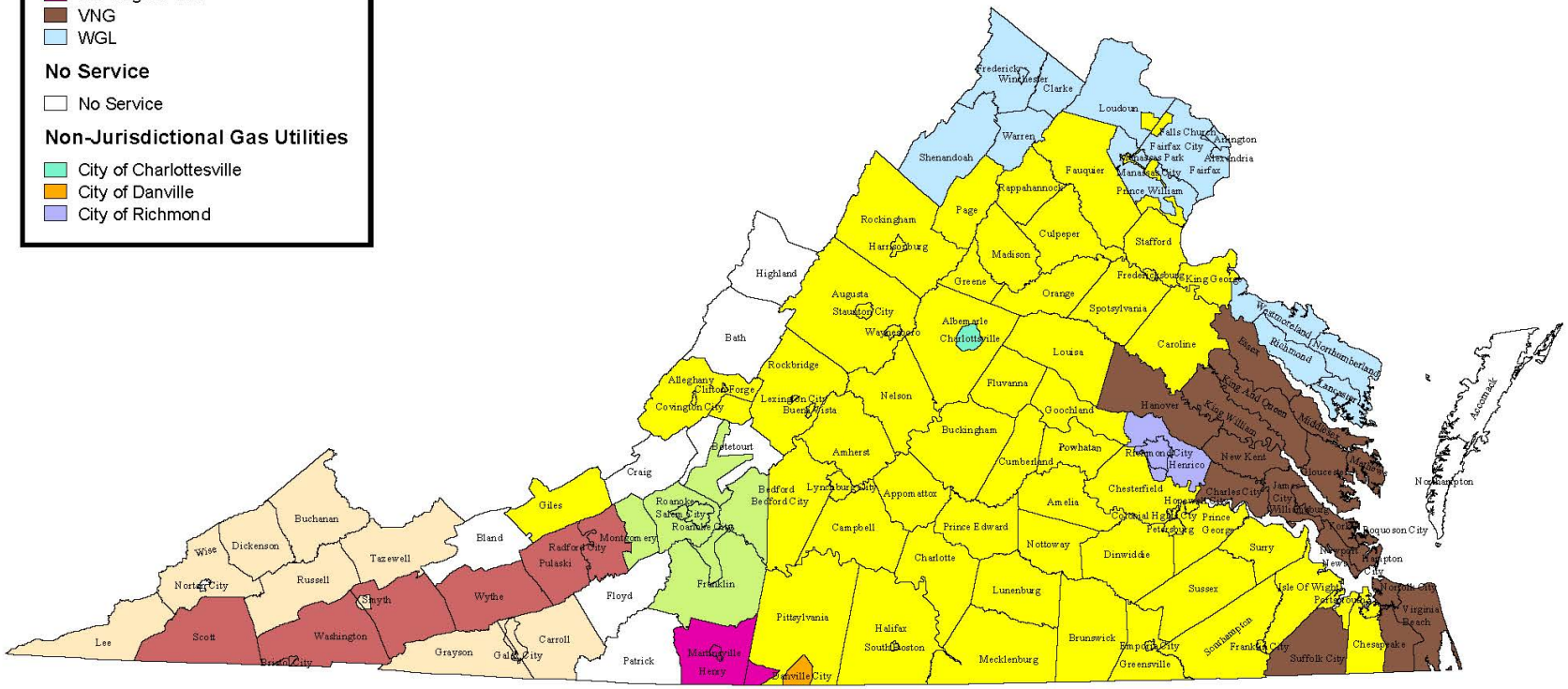
VEDA/VEDP impactED+
Thursday, September 9, 2021

Natural Gas Service Territories

Jurisdictional Gas Utilities
- ANG Dist
- Atmos
- CGS
- Roanoke
- SW Virginia Gas
- VNG
- WGL

No Service
- No Service

Non-Jurisdictional Gas Utilities
- City of Charlottesville
- City of Danville
- City of Richmond



N

0 15 30 60 90 120 Miles

Source: State Corporation Commission, 2020
Created by: Division of Public Utility Regulation, 2020

Disclaimer: This is an approximation, please contact the Division of Public Utility Regulation for official natural gas territory maps.

Washington Gas

Todd R. House
Manager, Economic Development Policy
Washington Gas

VEDA/VEDP impactED+
Thursday, September 9, 2021

Washington Gas
A WGL Company

Working with Economic Development Partners

VEDA/VEDP *impactED+*

• TODD HOUSE

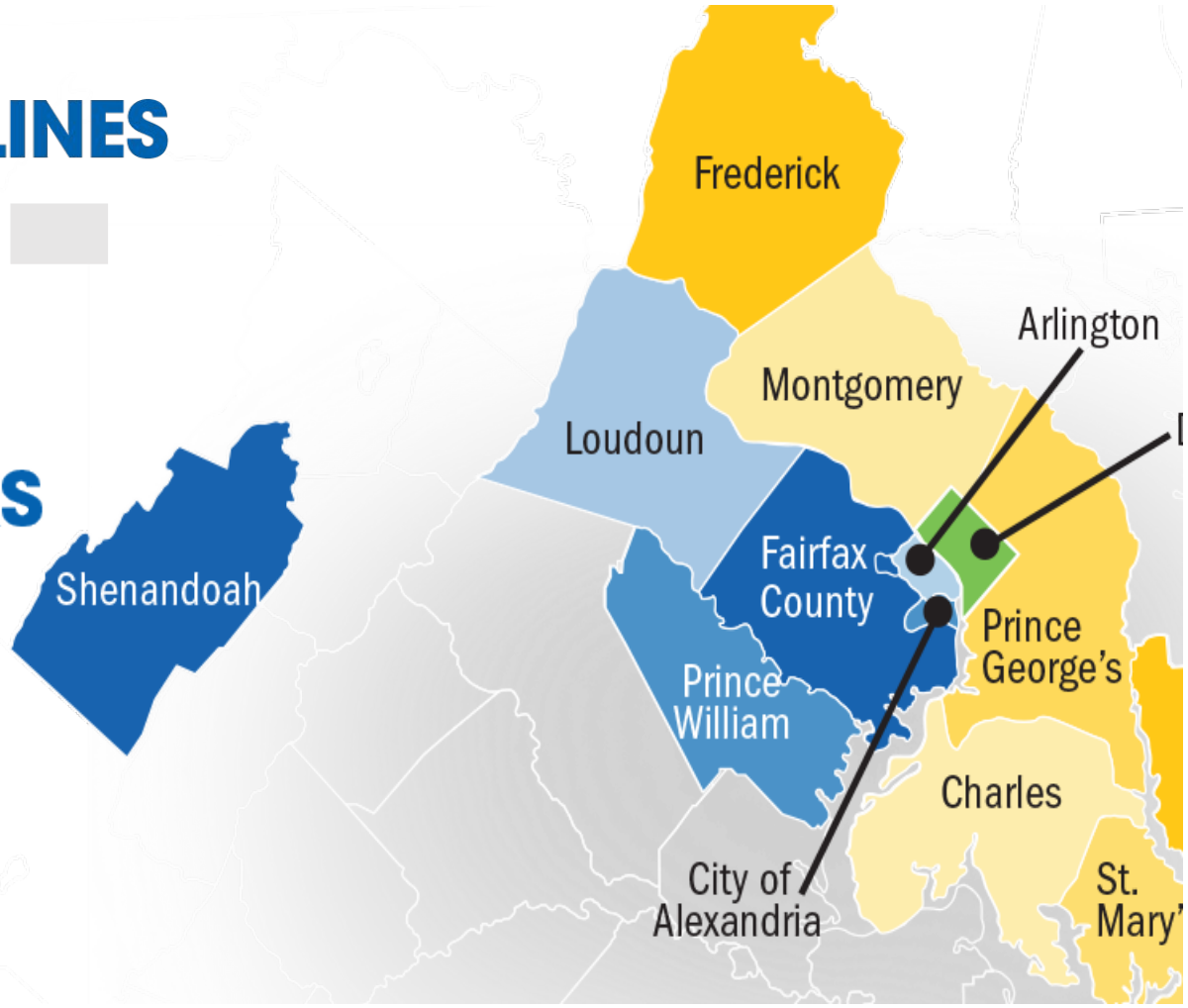
• SEPTEMBER 9, 2021

Washington Gas – DMV

>26,000 MILES OF PIPELINES
(Earth's circumference = ~25,000 miles)

SERVING MORE THAN 1,200,000 CUSTOMERS

Delivering 1,886,900,000 THERMS *of Natural Gas*

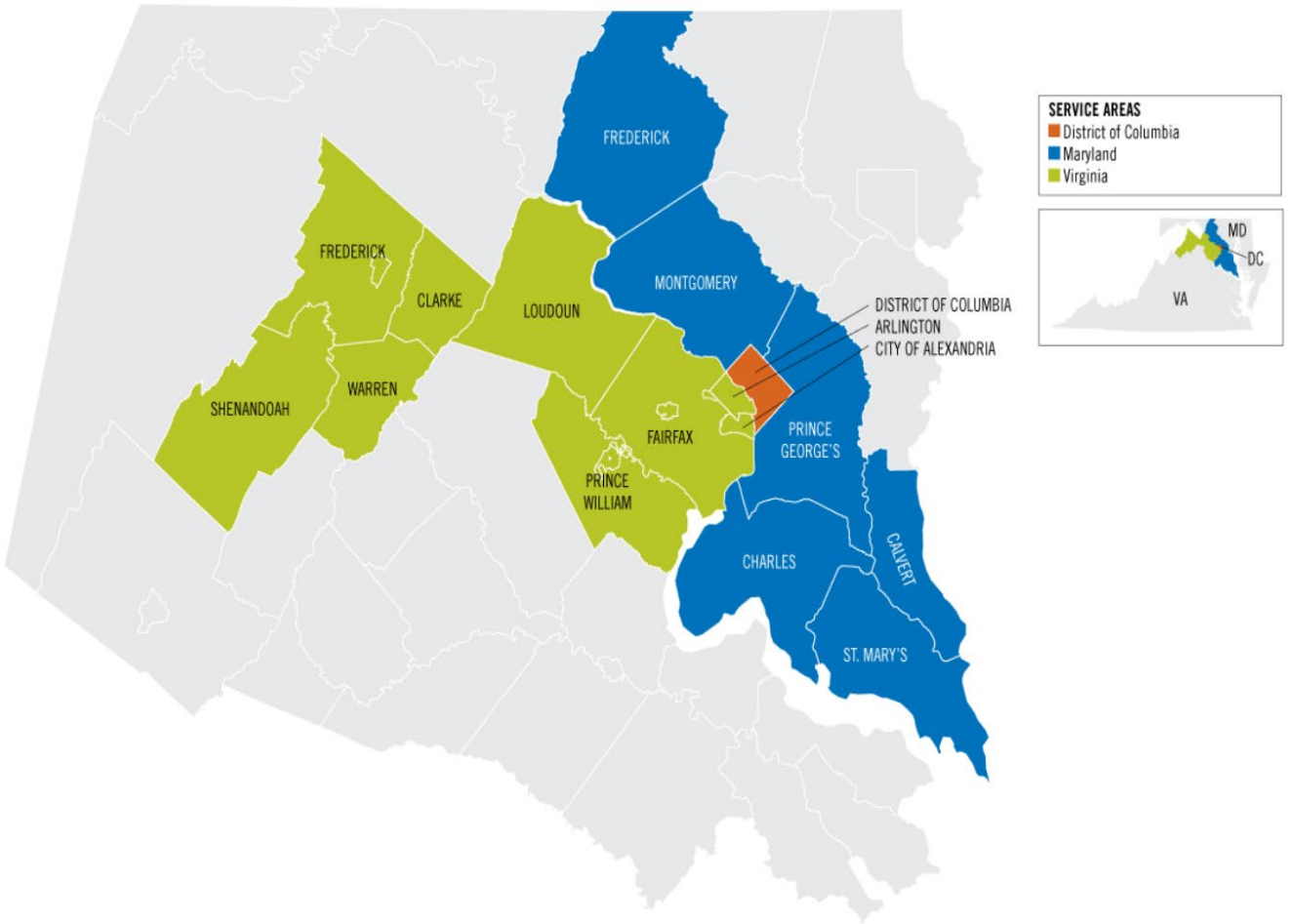


Washington Gas – Virginia

We have **535,000+ customers** in VA with **7 facilities** across the state

Delivering **673,800,000 therms** of natural gas to **535,000+ meters**

With **122 miles** of mains and **45,056 services** replaced we net GHG reductions of **162, 998 metric tons a year**



Contact Us

Todd House
Manager, Economic Development Policy
thouse@washgas.com
(571) 327-6938

Chad Kaval
New Business Project Manager
rkaval@washgas.com
(540) 868-7913

Mike Goffus
Supervisor, New Business – Virginia
mgoffus@washgas.com
(703) 750-4881

Columbia Gas

Gina Slaunwhite
Manager of Large Customer Relations &
Economic Development
Columbia Gas of Virginia

VEDA/VEDP impactED+
Thursday, September 9, 2021

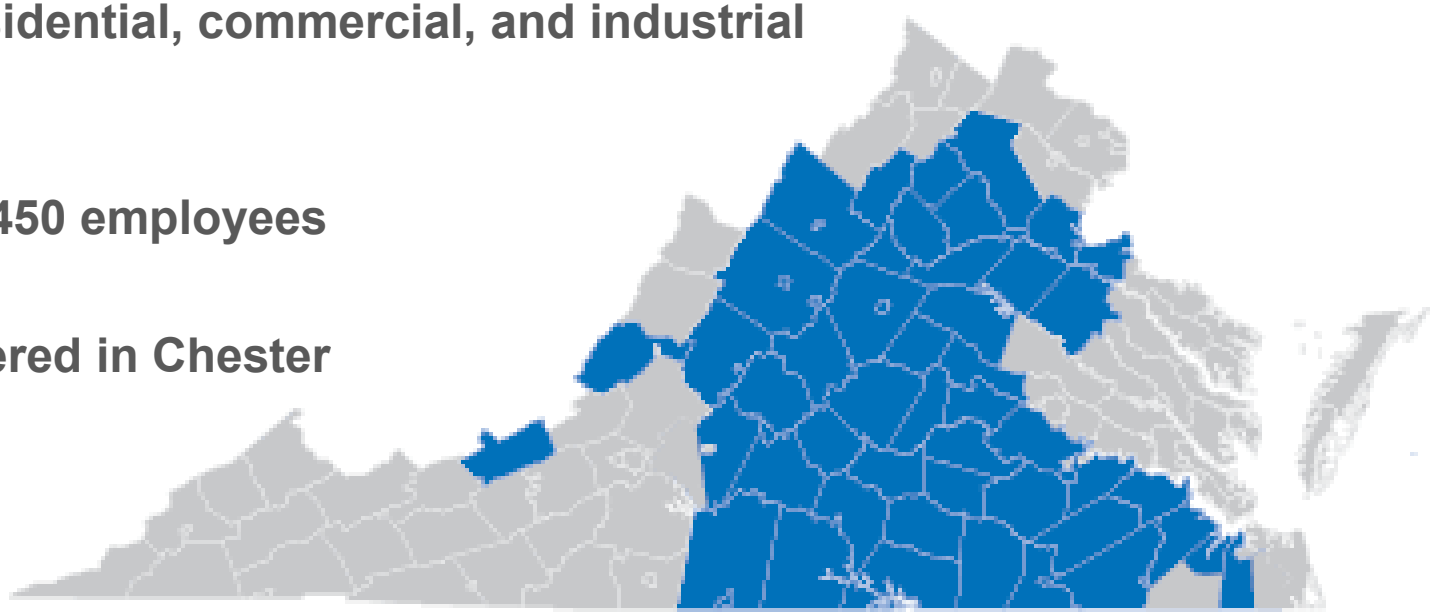
Columbia Gas® of Virginia

A NiSource Company

NiSource®

Columbia Gas of Virginia

- Providing safe, reliable, and efficient natural gas service
- One of Virginia's leading energy companies
- 280,000 residential, commercial, and industrial customers
- More than 450 employees
- Headquartered in Chester



- 91 communities - 65% of Virginia

Columbia Gas of Virginia
Service Territory

Columbia Gas of Virginia

- One of the six energy delivery companies of NiSource, providing essential natural gas and electric service to nearly 4 million customers
- Natural gas distribution company
- Delivers natural gas that warms homes, heats water, cooks food, and provides energy for businesses and industries
- Regulated by the Virginia State Corporation Commission (SCC)

Columbia Gas of Virginia

- Responsibility to maintain pipelines used to deliver natural gas
- Committed to investing in Virginia infrastructure

- Helps fuel job creation and continued economic growth
- Expanding natural gas service to new homes, businesses and industries
- Actively provides strong support for local public safety, human needs, environmental stewardship, energy efficiency, and education programs.

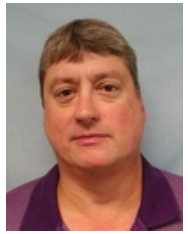
Economic Development, Large Customer Relations and New Business Teams

Gina Slaunwhite
Manager Large Customer Relations and Economic Development

Tim Vaughan
Manager of New Business

Duan Hobbs
Major Accounts Manager

Chad Zanow
Major Accounts Manager



Bob William
Sr. New Business Dev Mgr.

Ann Wren
Sr. New Business Dev Mgr.

Mark Morris
Sr. New Business Dev Mgr.

Hunter Kingery
Sr. New Business Dev Mgr.

Terrence Frasier
Sr. New Business Dev Mgr.

Casey Welch
New Business Dev Mgr.

Stephen Bingham
New Business Dev Mgr.

Virginia Natural Gas

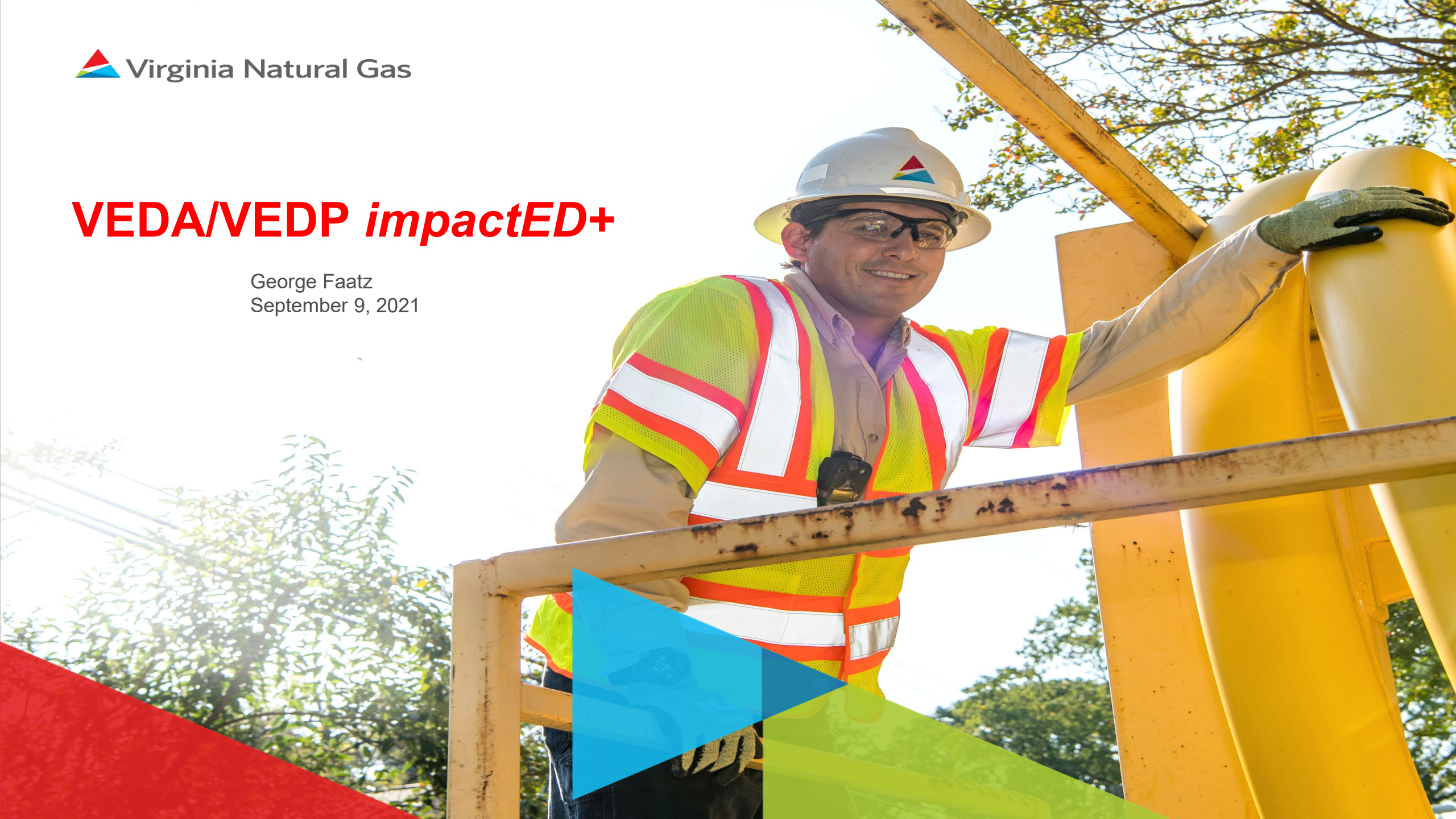
George Faatz
Director of Growth and Strategic Planning
Virginia Natural Gas

VEDA/VEDP impactED+
Thursday, September 9, 2021

Virginia Natural Gas

VEDA/VEDP *impactED+*

George Faatz
September 9, 2021



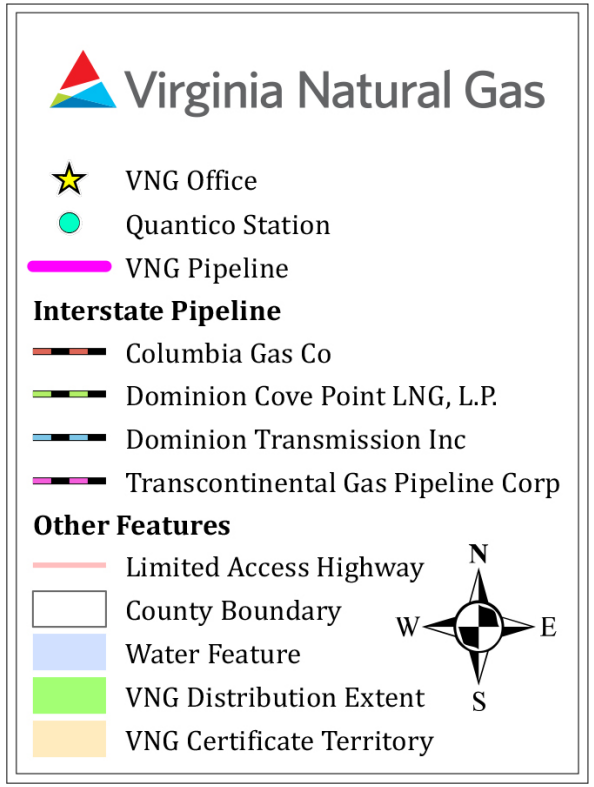
Welcome to Virginia Natural Gas

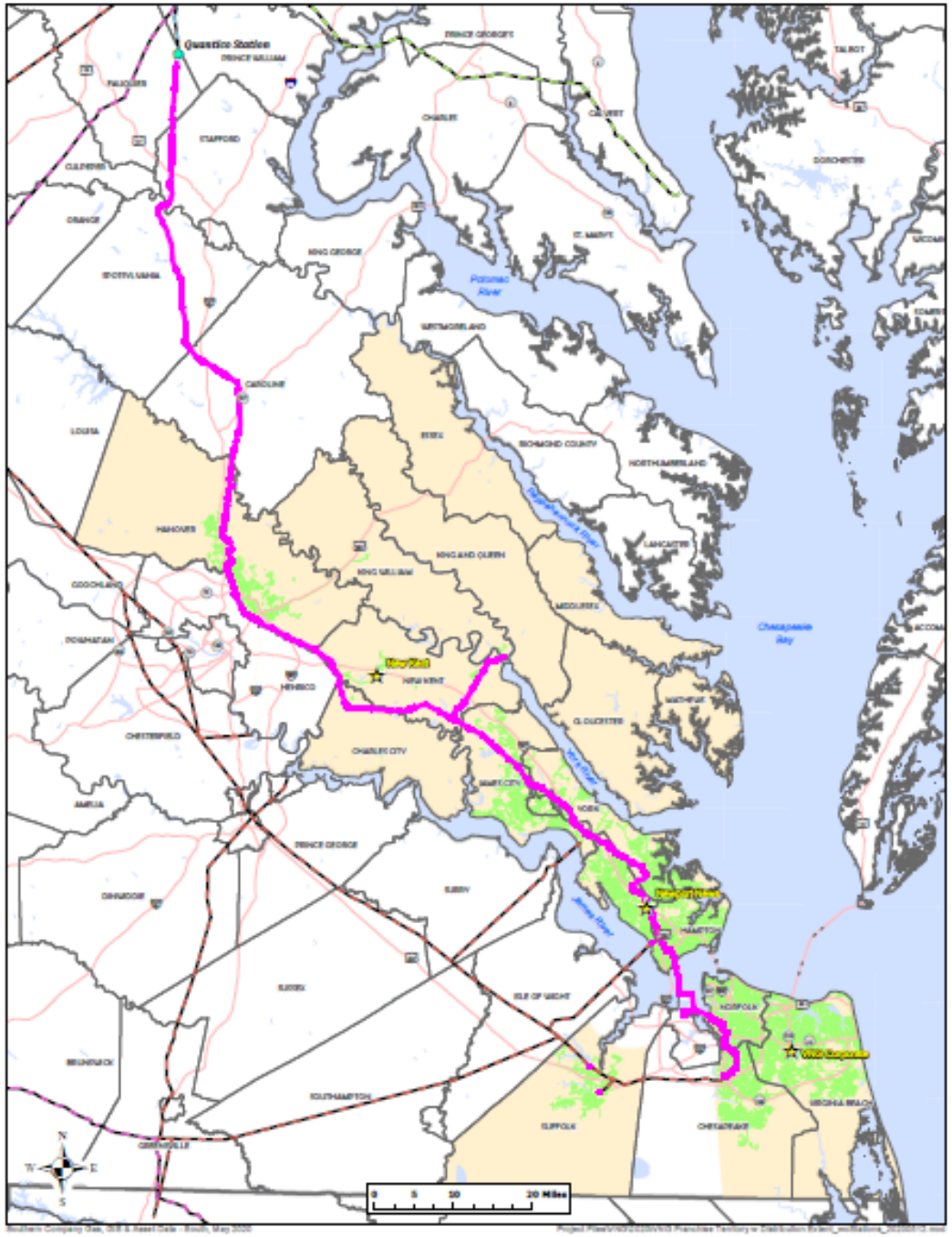
Year Founded: 1850
Headquarters: Virginia Beach, Virginia
Number of Customers: Approx. 300,000 residential, commercial and industrial customers
Number of Employees: 300

Service Centers: Virginia Beach, Newport News and New Kent.

Communities Served: Norfolk, Virginia Beach, Chesapeake, Suffolk, Hampton, Newport News, Williamsburg, York County, James City County, Charles City County, Hanover County, Prince William County, New Kent County and King and Queen County.

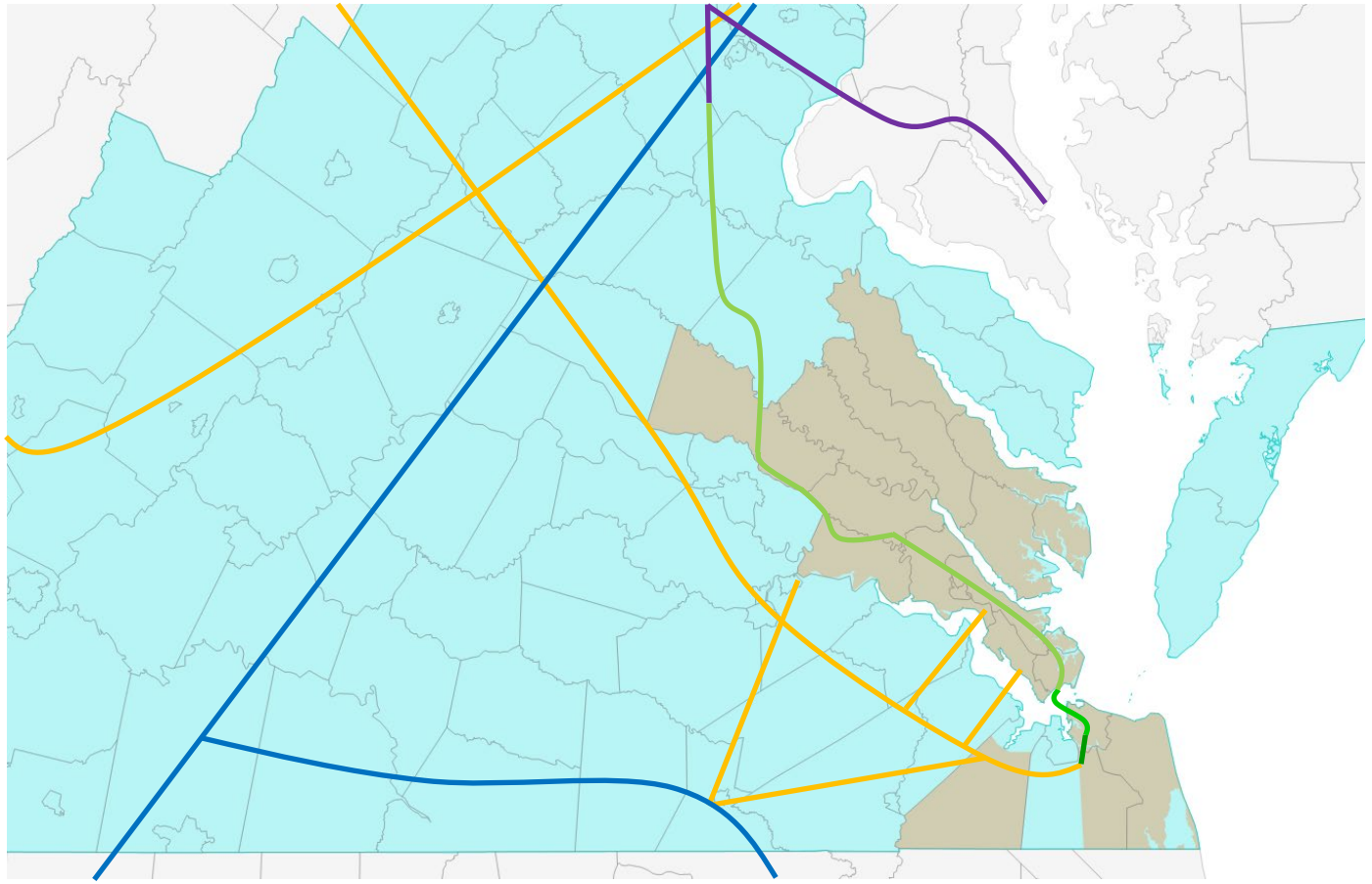
Service Territory





Our **Business**

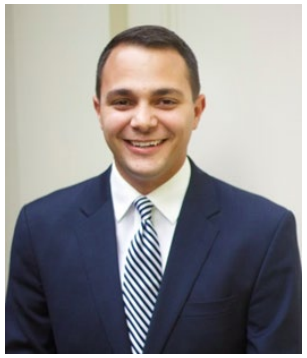
Interstate Pipeline Sources in Southeast Virginia



- Virginia Natural Gas
- Columbia Gas Transmission (1940s)
- Transco Gas Pipeline (1960s)
- Dominion Energy Transmission (1970s)
- VNG Joint Use Pipeline VNG Lateral (1990)
- VNG Hampton Roads Crossing (2010)
- VNG Southside Connector (2019)

Note: Pipelines are not shown in their entirety or precise geographic location.

Virginia Natural Gas Team



George Faatz
Director, External Affairs
gfaatz@southernco.com
757-846-5119 - cell

Charlie Gunter
Manager, New Business
cgunter@southernco.com
757-438-9976 - cell

Marcie Bevins
Ind/Comm Account Exec
mjbevins@southernco.com
757-438-0359 - c

Adrian Melendez
Ind/Comm Account Exec
akmelend@southernco.com
757-335-0321 - c

Stay **Connected**

Follow Us On These Social Sites

virginianaturalgasco

@vanaturalgas

@virginianaturalgas

virginianaturalgas

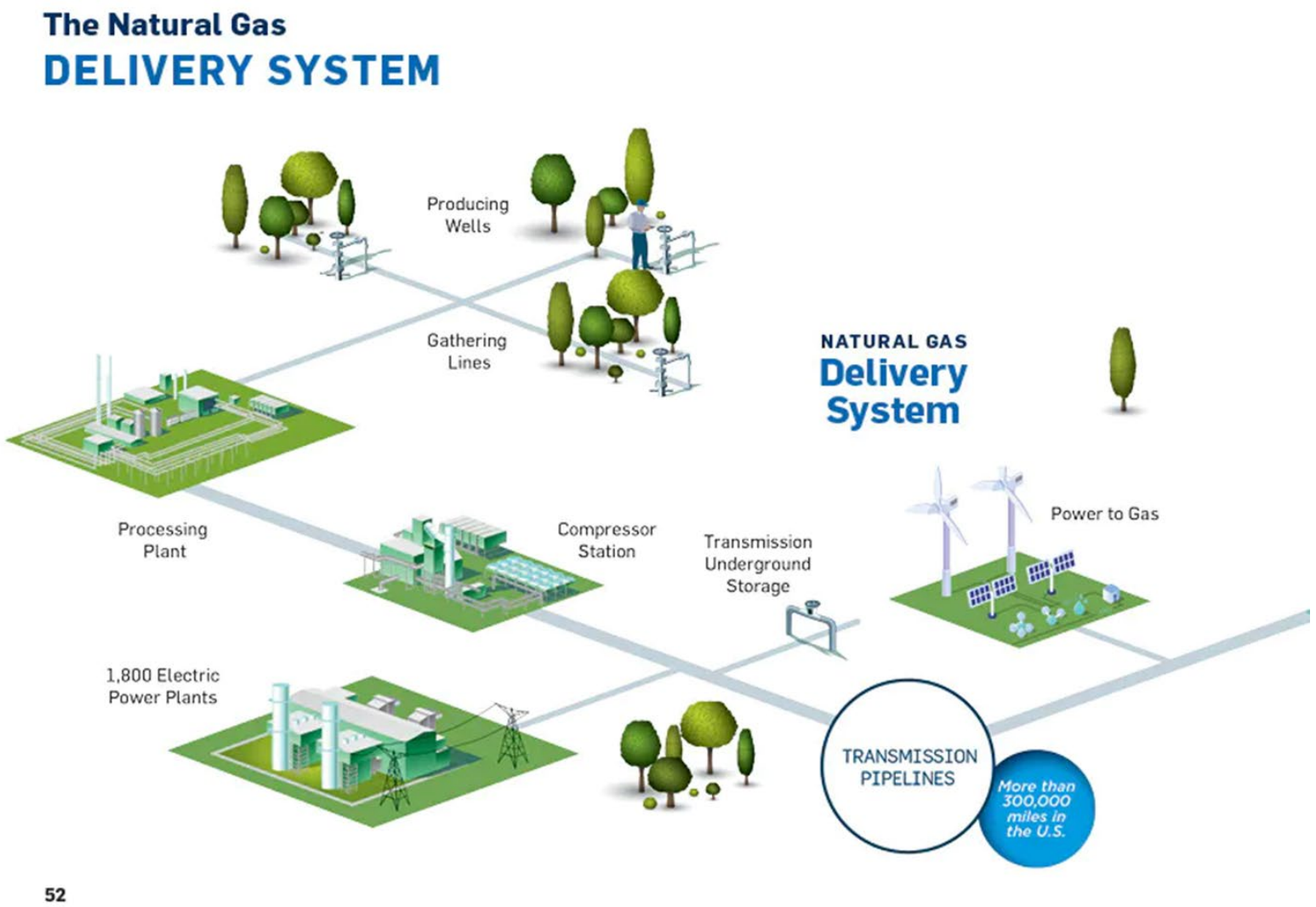
Virginia Natural Gas

Explaining Delivery System & Terminology

George Faatz
Director of Growth and Strategic Planning
Virginia Natural Gas

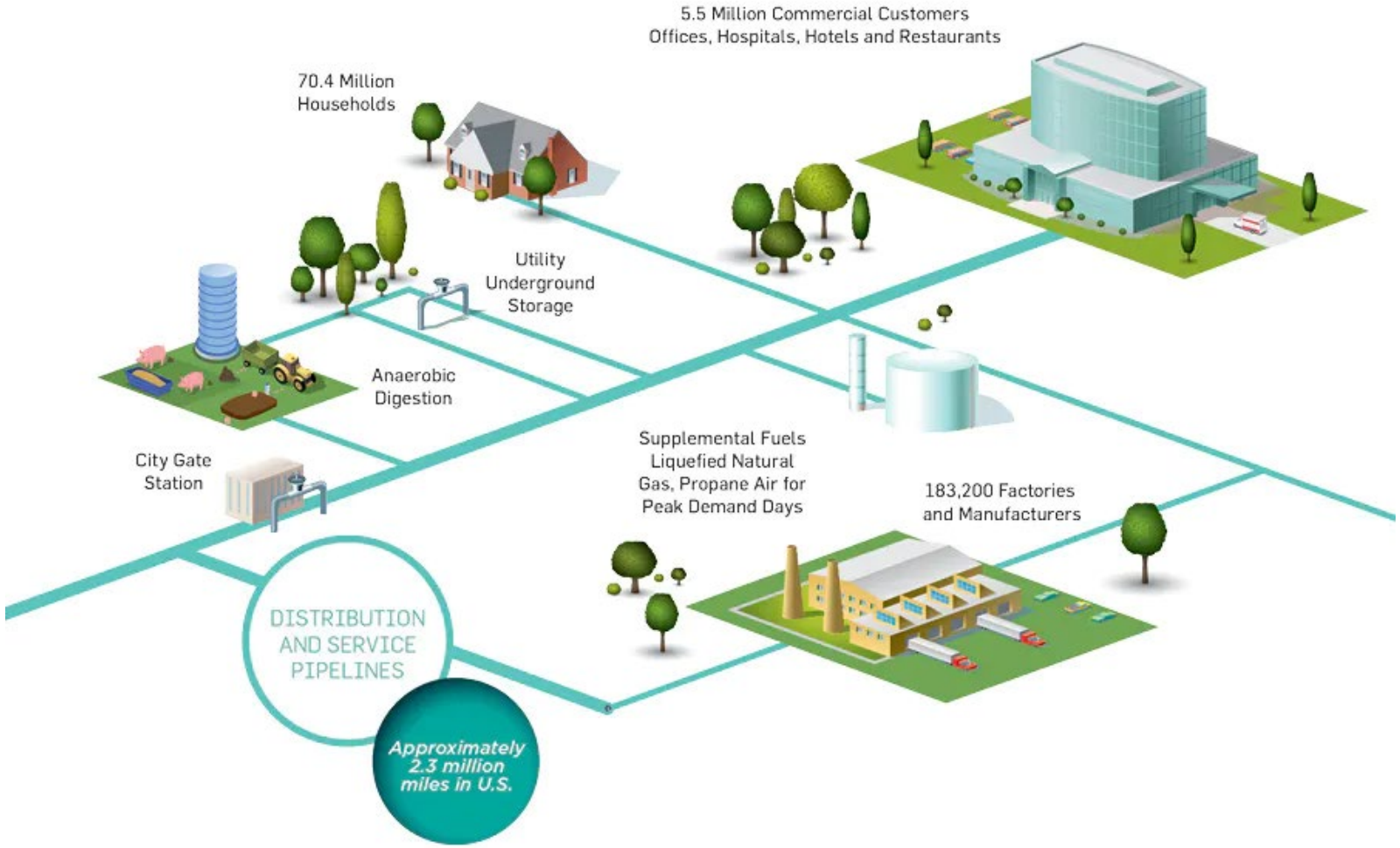
VEDA/VEDP impactED+
Thursday, September 9, 2021

Natural Gas Delivery System



Source: 2021 AGA Playbook

Natural Gas Delivery System



Source: 2021 AGA Playbook

Natural Gas Terminology

MEASURING NATURAL GAS

The amount of natural gas consumed by an entire country or a single home appliance can be measured in several different ways.

Energy Content

The energy content or the heating value (i.e., the potential heat that can be generated) from natural gas and other energy sources is measured in **British thermal unit, called "Btu,"** or in **"therm."** Typically, the monthly bills of natural gas customers show the number of therms consumed.

Quantity

Quantities of natural gas are usually described in **standard cubic feet (scf or in short, cf).** Typical natural gas contracts are based on a price of 1 million Btus (1 MMBtus) or 10 therms, which is the heating value of approximately 1,000 cubic feet (1 Mcf) of natural gas. Typical natural gas contracts are made for a minimum of 10,000 MMBtus, which is approximately 10 million cubic feet (10 MMcf) of natural gas.

Here are some frequently used units for measuring natural gas:

1 cubic foot (cf) *= 1,037 Btu*

100 cubic feet (1 Ccf) *= 1 therm (approximate)*

1,000 cubic feet (1 Mcf) *= 1,037,000 Btu (1 MMBtu)*

1,000 cubic feet (1 Mcf) *= 1 dekatherm (10 therms)*

1 million (1,000,000) cubic feet (1 MMcf) *= 1,037,000,000 Btu*

MMBtu *= 1 million Btu*

** This is an average heating value of natural gas in the U.S. for 2018, published by U.S. Energy Information Administration. Actual heating value may differ depending on gas composition.*

54

Source: 2021 AGA Playbook

Natural Gas Terminology

Minimum Delivery Pressure – the minimum pressure the end user needs at the outlet of the LDC owned faculties
Pipeline Capacity -is the volume of gas which is needed to maintain a full pipeline.
Point of Delivery "POD" or Tap – The interconnection between the upstream transmission company and the location distribution company

Firm Customer – 24/7/365 service – homes, small businesses, etc.
Interruptible Customer – customers may have their service interrupted or curtailed periodically during periods of high demand or other utility needs.

Liquified Natural Gas – natural gas that has been cooled to a liquid state (-260 degrees).

Discussion: Economic Development Demand for Natural Gas and Site Development Planning

Steve Harrison
Vice President, Business Intelligence & Communications
Hampton Roads Alliance

VEDA/VEDP impactED+
Thursday, September 9, 2021

Information LDCs Needed to Respond to RFI

Design Process

- Site Name
- Locality
- Site Address
- Project Name
- Response Need Date
- Natural Gas Requirements
- Required Delivery Pressure
- Maximum Hourly Flow (MMBTU)
- Projected Annual Usage (MMBTU
- Is it process load or heat load only?
- Advance manufacturing may not always mean a large gas user

Rate Quote

- Project Annual Usage
- Project Monthly Usage
- Firm or interruptible delivery

What LDCs Need To Do To Respond

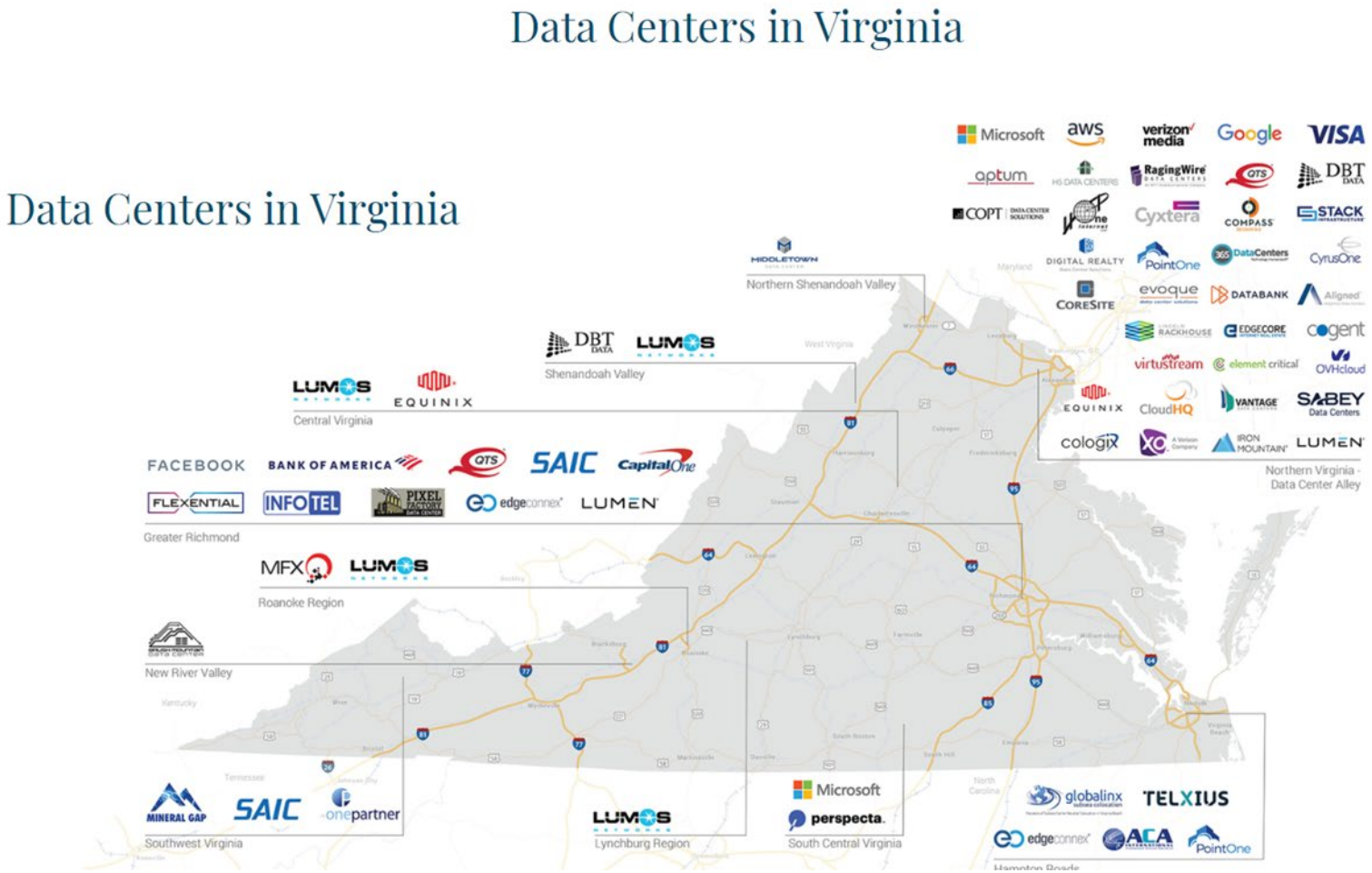
Facilities

- Identify the nearest natural gas facilities to the site
  - What size is existing pipe?
  - Is it a high pressure or medium pressure system?
  - What is the distance of main extension to the site?
- Determine the available capacity on those facilities
  - Can it meet the delivery pressure requirements?
  - Can it meet the required max hourly flow?

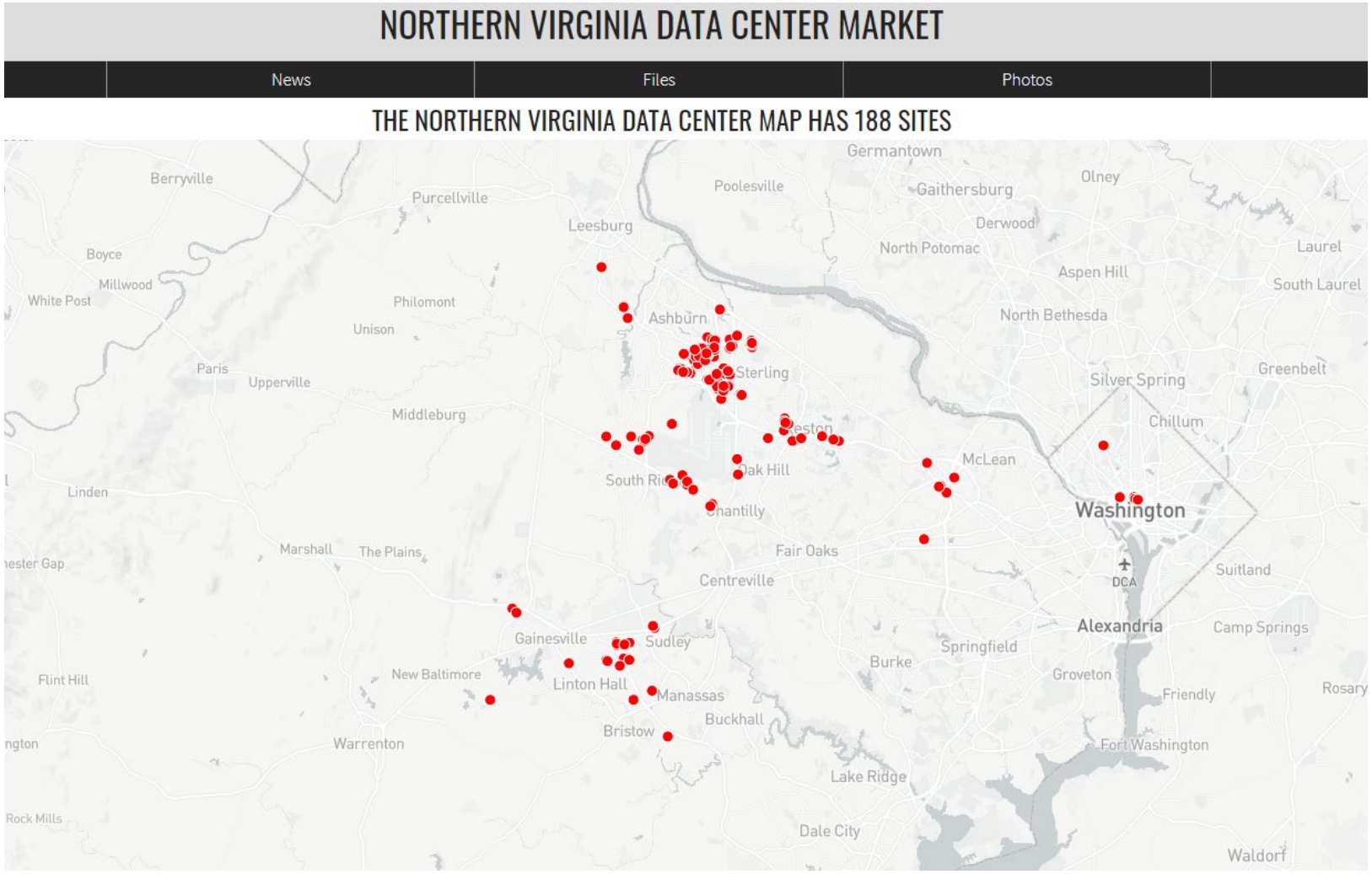
Determine Needed Facilities

- Can existing system accommodate the required pressure and flows?
  - What is the distance of main needed?
  - What type and size of pipe is needed?
- Existing system can not accommodate the required pressure and flows
  - Is betterment or looping needed?
  - What length of pipe is needed?
  - Should the pipe be steel or plastic and what size?
  - If a new or upgrade to a Point of Delivery (Tap) is required?

Virginia is the Data Center Capital of the World



Northern Virginia (Loudoun and Prince William County) Dominate Data Center Market



Data Centers – Innovation in Back Up Generation

DATA CENTER Frontier

Beyond Generators: Data Centers Pursue New Approaches to Backup Energy

BY RICH MILLER - JULY 26, 2021 — 2 COMMENTS

Climate Risk Sharpens Focus on Energy Security, On-Site Power Generation

BY RICH MILLER - SEPTEMBER 11, 2020

'This is Going to Be an Issue for a Decade'

As [illegible] rotating blackouts across California leave energize its transmission lines in fire-prone areas. On the conference stage, executives from Equinix and Bloom Energy outlined the implications for the data center industry, saying on-site power generation will become more important.

"Having control over power generation locally is something we all have to think about," said Craig Pennington, the vice President of Global Design for Equinix. "Looking out at the news today, you can see why we should all be considering this. This is going to be an issue for a decade, and cost billions of dollars to fix."

executives from Equinix and Bloom Energy outlined the implications for the data center industry, saying on-site power generation will become more important.

Equinix has deployed 43 megawatts of Bloom Energy fuel cells powered by natural gas in high-cost energy markets like California, New York and Massachusetts. The company projects that its footprint of fuel cells powered by natural gas will save the company $150 million over the next 15 years, with much of the savings being realized in California.

The data center industry is rethinking its approach to backup power, prompted by pledges from hyperscale operators to end the use of diesel fuel in their emergency generators. This trend is prompting new approaches to one of the most critical points in the digital infrastructure power chain, and will be carefully considered as mission-critical operators seek to strike the right balance between reliability and sustainability.

Industrials Focused on Sustainability

2025 goals – reduce energy use 25%; reduce GHG emissions 30%; ensure 90% of transporters are certified by the EPA's SmartWay® Transport Partnership

Hood®

Has a dedicated "Hood Green Team"

Rubbermaid®

THE HOME DEPOT®

GHG emissions reduction goals of 40% by 2030 and 50% by 2035

Trex®

Renewed focus on energy savings; from 2017-2019 achieved energy savings across gas and electricity of approximately 8% per year

Kraft

GHG emissions reduction goals of 15% by 2025

Final Questions from Audience
Announcements
Adjournment

VEDA/VEDP impactED+
Thursday, September 9, 2021