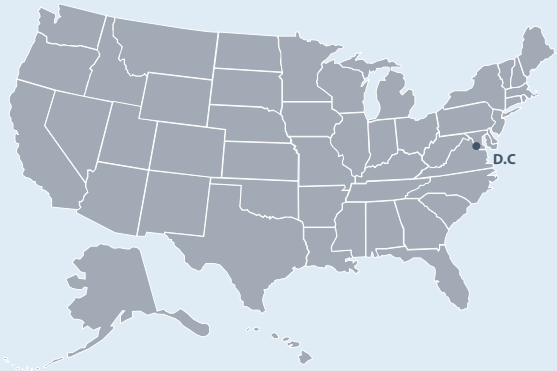
Washington, D. C.
ENERGY SECTOR RISK PROFILE

U.S. DEPARTMENT OF ENERGY
Cybersecurity, Energy Security, and Emergency Response



Washington, D.C. Facts

POPULATION
0.70 M

HOUSING UNITS
0.32 M

BUSINESS ESTABLISHMENTS
0.02 M

ENERGY EMPLOYMENT: 5,769 jobs
PUBLIC UTILITY COMMISSION: Public Service Commission of the District of Columbia
ENERGY OFFICE: District of Columbia Department of Energy and Environment
EMERGENCY MANAGEMENT AGENCY: District of Columbia Homeland Security and Emergency Management Agency
AVERAGE ELECTRICITY TARIFF: 12.03 cents/kWh
ENERGY EXPENDITURES: $2,832/capita
ENERGY CONSUMPTION PER CAPITA: 241 MMBtu
(38th highest out of 50 states and Washington, D.C.)
GDP: $140.7 billion

Data from 2020 or most recent year available.
For more information, see the Data Sources document.

ANNUAL ENERGY CONSUMPTION

ELECTRIC POWER: 19,560 GWh
COAL: 0 MSTN
NATURAL GAS: 29 Bcf
MOTOR GASOLINE: 1,700 Mbbl
DISTILLATE FUEL: 400 Mbbl

ANNUAL ENERGY PRODUCTION

ELECTRIC POWER GENERATION: 6 plants, 0.2 TWh, *0.0 GW total capacity*
- **Coal:** 0 plants
- **Hydro:** 0 plants
- **Natural Gas:** 3 plants, 0.1 TWh, *0.0 GW total capacity*
- **Nuclear:** 0 plants
- **Petroleum:** 0 plants
- **Wind & Solar:** 2 plants, 0.0 TWh, *0.0 GW total capacity*
- **Other sources:** 1 plant, 0.1 TWh, *0.0 GW total capacity*

COAL: 0 MSTN
NATURAL GAS: 0 Bcf
CRUDE OIL: 0 Mbbl
ETHANOL: 0 Mbbl

Data from EIA (2018, 2019).

This Energy Risk Profile examines the relative magnitude of the risks of Washington, D.C.'s energy infrastructure routinely encounters in comparison with the probable impacts. Natural and man-made hazards with the potential to cause disruption of the energy infrastructure are identified. Certain natural and adversarial threats, such as cybersecurity, electromagnetic pulse, geomagnetic disturbance, pandemics, or impacts caused by infrastructure interdependencies, are ill-suited to location-based probabilistic risk assessment as they may not adhere to geographic boundaries, have limited occurrence, or have limited historic data. Cybersecurity and other threats not included in these profiles are ever present and should be included in energy security planning. A complete list of data sources and national level comparisons can be found in the Data Sources document.

Washington, D.C. Risks and Hazards Overview

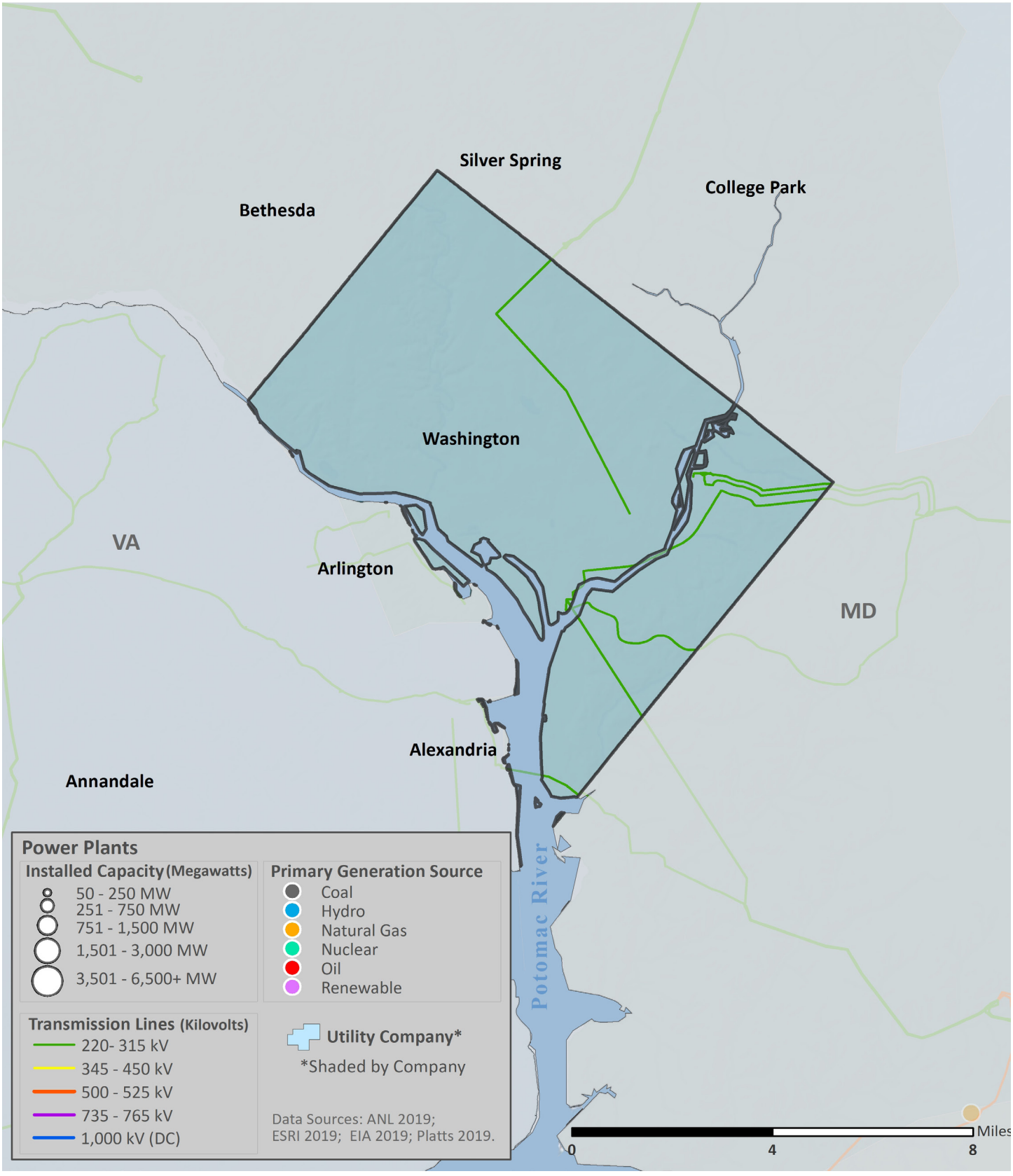
- The natural hazard that caused the greatest overall property loss between 2009 and 2019 was **Hurricanes** at $249,000 per year *(5th leading cause nationwide at $1.9 billion per year).*
- Washington, D.C. had 1 Major Disaster Declaration, 0 Emergency Declarations, and 0 Fire Management Assistance Declarations between 2013 and 2019.
- There is 1 Fusion Center located in Washington, D.C.

Annualized Frequency of and Property Damage Due to Natural Hazards, 2009–2019

	HAZARD FREQUENCY – Annualized	PROPERTY DAMAGE – Annualized ($100,000 per year)*
Drought	0	$0
Earthquake (≥ 3.5 M)	0	$0
Extreme Heat	3	$0
Flood	7	$45
Hurricane	<1	$249
Landslide	0	$0
Thunderstorm & Lightning	6	$21
Tornado	<1	$0
Wildfire	0	$0
Winter Storm & Extreme Cold	7	$0

Data Sources: NOAA and USGS
**Property Damage scale is in thousands. State profile scale is in millions.*

ELECTRIC


Silver Spring
College Park
Bethesda
Washington
VA
Arlington
MD
Alexandria
Annandale
Potomac River
Power Plants
Installed Capacity (Megawatts)
50 - 250 MW
251 - 750 MW
751 - 1,500 MW
1,501 - 3,000 MW
3,501 - 6,500+ MW
Primary Generation Source
Coal
Hydro
Natural Gas
Nuclear
Oil
Renewable
Transmission Lines (Kilovolts)
220- 315 kV
345 - 450 kV
500 - 525 kV
735 - 765 kV
1,000 kV (DC)
Utility Company*
*Shaded by Company
Data Sources: ANL 2019;
ESRI 2019; EIA 2019; Platts 2019.
0
4
8
Miles

Electric Infrastructure

- Washington, D.C. has 3 electric utilities:
  - *1 Investor owned*
  - *0 Cooperative*
  - *0 Municipal*
  - *2 Other utilities*
- Plant retirements scheduled by 2025: None.

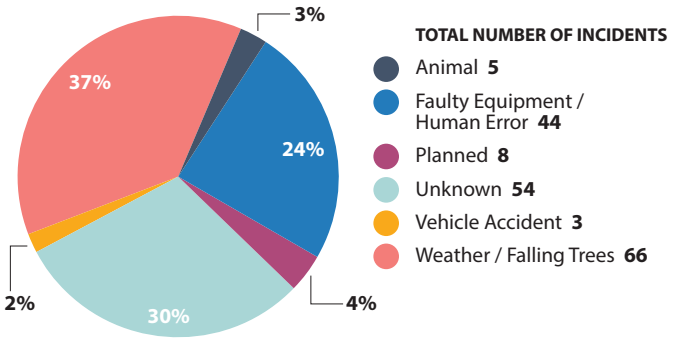
- In 2018, the average Washington, D.C. electric customer experienced 0.6 service interruptions that lasted an average of 1.8 hours.
- In Washington, D.C., between 2008 and 2017:
  - *The leading cause of electric outages was **Weather or Falling Trees** (leading cause nationwide)*

Electric Customers and Consumption by Sector, 2018

	CUSTOMERS	CONSUMPTION
Residential	91%	23%
Commercial	9%	72%
Industrial	<1%	2%
Transportation	<1%	3%

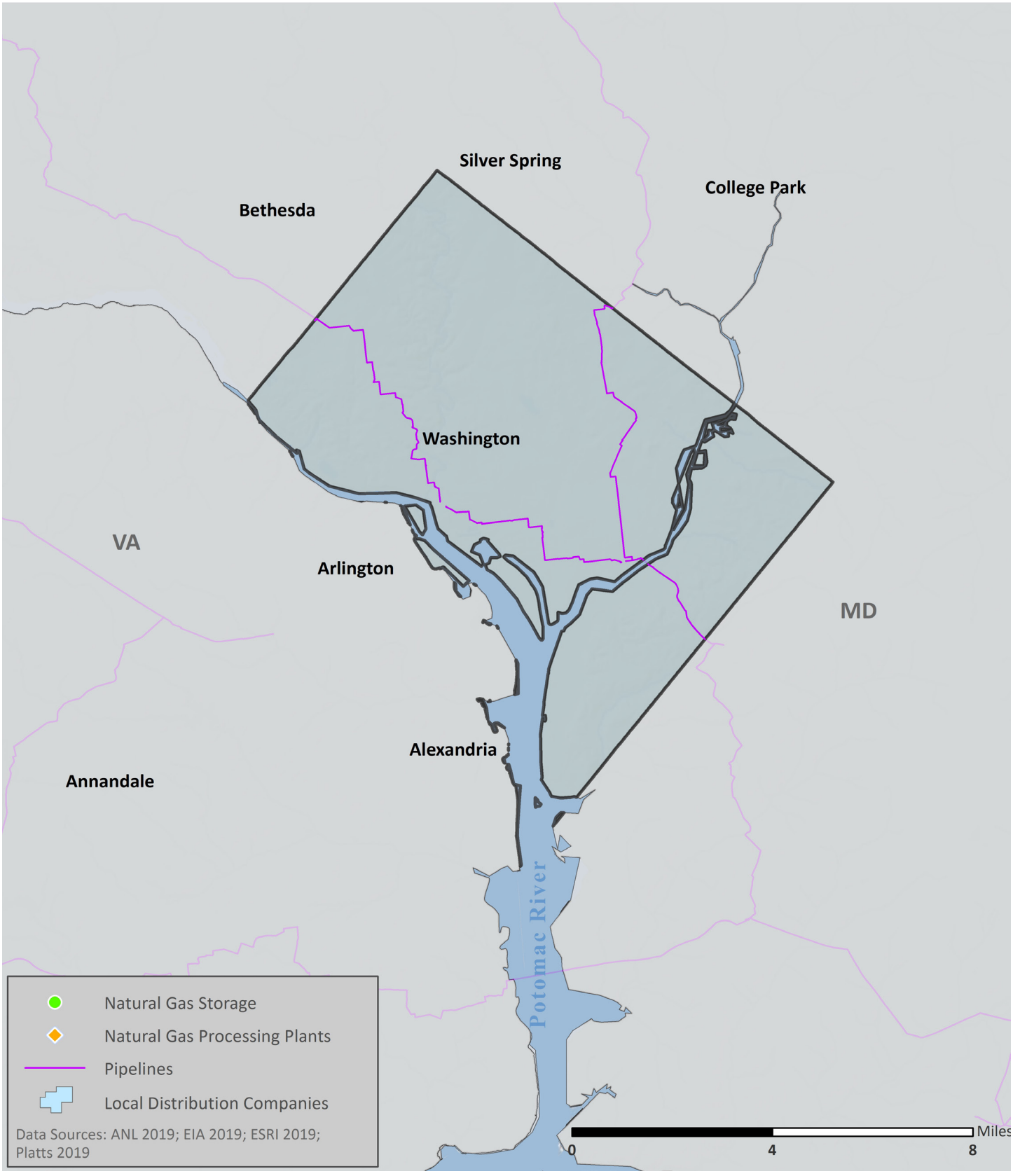
Data Source: EIA

Electric Utility-Reported Outages by Cause, 2008 – 2017



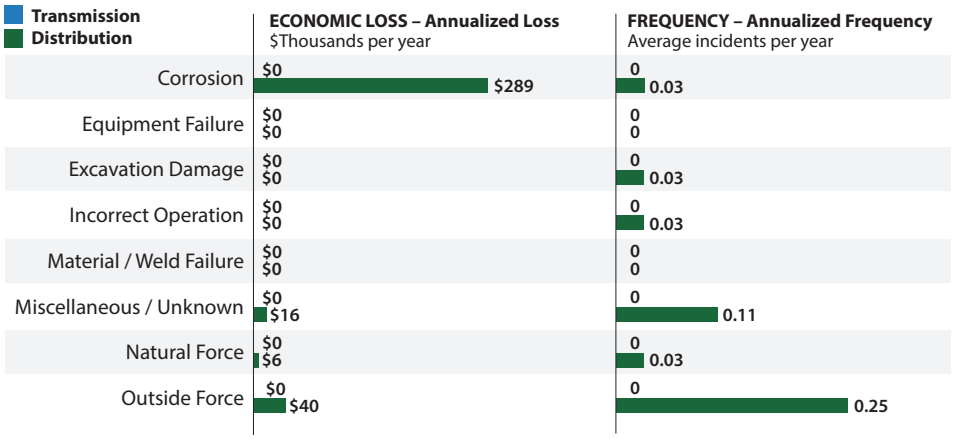
Data Source: Eaton

NATURAL GAS


Silver Spring
College Park
Bethesda
Washington
VA
Arlington
MD
Alexandria
Annandale
Potomac River
Natural Gas Storage
Natural Gas Processing Plants
Pipelines
Local Distribution Companies
Data Sources: ANL 2019; EIA 2019; ESRI 2019; Platts 2019
0
4
8
Miles

Natural Gas Transport

Top Events Affecting Natural Gas Transmission and Distribution, 1984–2019



Data Source: DOT PHMSA

- As of 2018, Washington, D.C. had:
  - *5 miles of natural gas transmission pipelines*
  - *1,216 miles of natural gas distribution pipelines*
- 0% of Washington, D.C.'s natural gas transmission system and 24% of the distribution system were constructed prior to 1970 or in an unknown year.
- Between 1984 and 2019, Washington, D.C.'s natural gas supply was most impacted by:
  - ***Corrosion*** *events when transported by distribution pipelines (6th leading cause nationwide at $6.52M per year)*

Natural Gas Processing and Liquefied Natural Gas

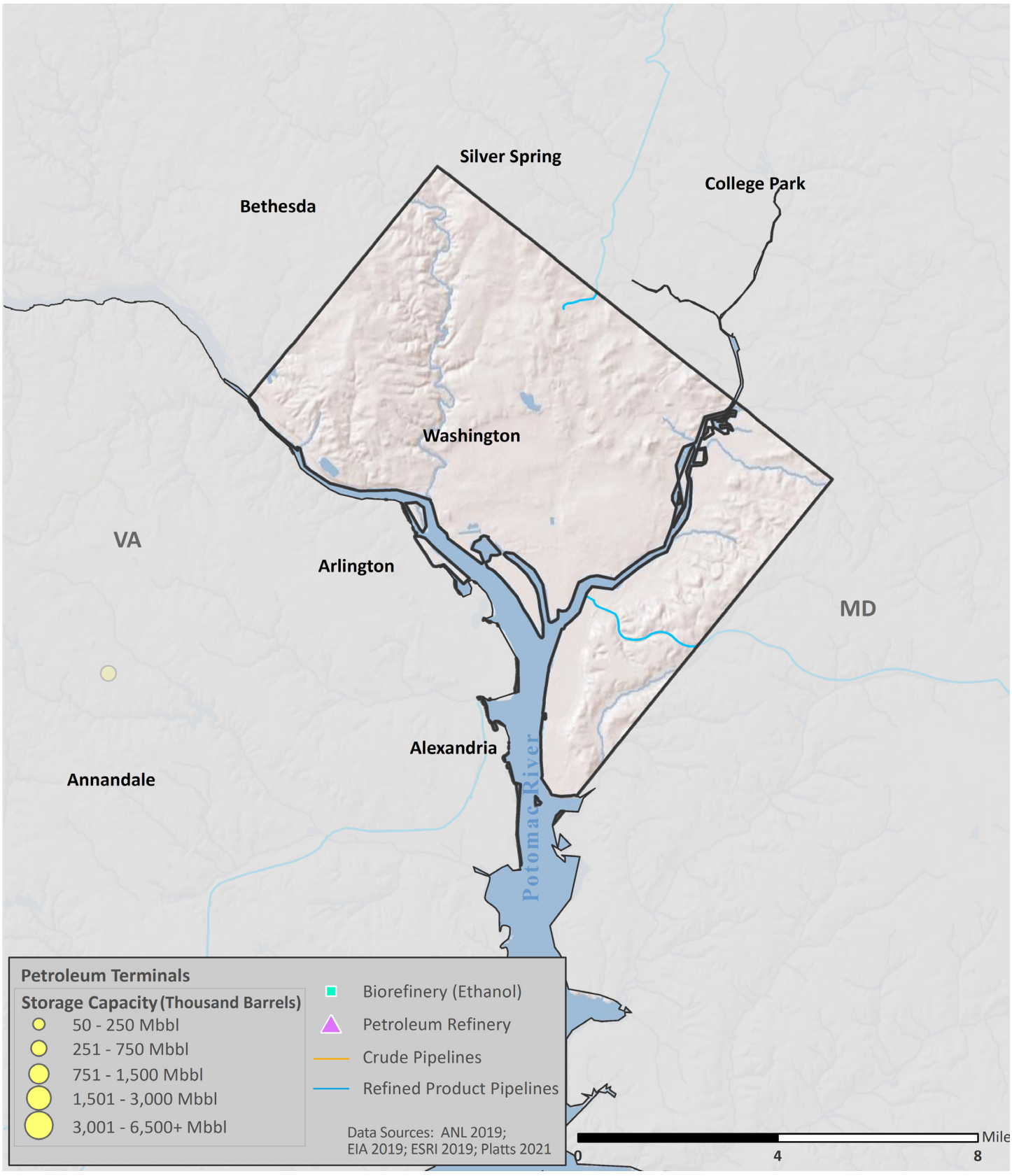
Natural Gas Customers and Consumption by Sector, 2018

	CUSTOMERS	CONSUMPTION
Residential	94%	43%
Commercial	6%	55%
Industrial	<1%	<1%
Transportation	<1%	1%
Electric Power	<1%	<1%
Other	<1%	<1%

Data Source: EIA

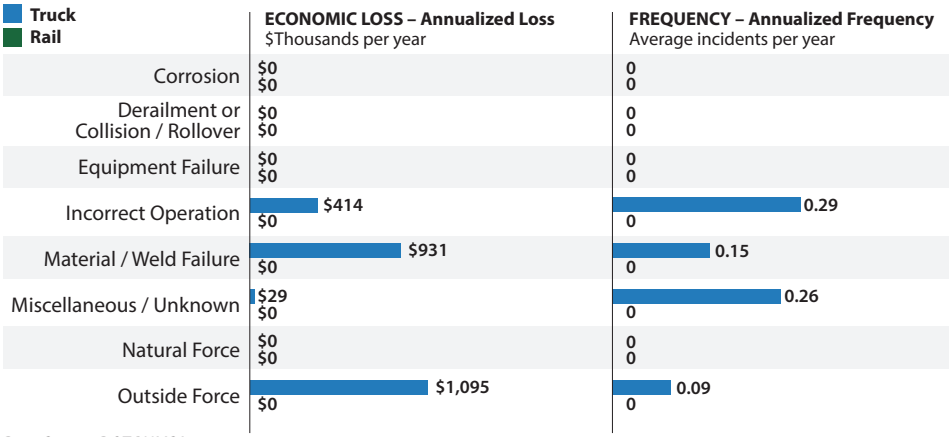
- Washington, D.C. has 0 natural gas processing facilities.
- Washington, D.C. has 0 liquefied natural gas (LNG) facilities with a total storage capacity of 0 barrels.

PETROLEUM


Silver Spring
College Park
Bethesda
Washington
VA
Arlington
MD
Alexandria
Annandale
Potomac River
Petroleum Terminals
Storage Capacity (Thousand Barrels)
50 - 250 Mbbl
251 - 750 Mbbl
751 - 1,500 Mbbl
1,501 - 3,000 Mbbl
3,001 - 6,500+ Mbbl
Biorefinery (Ethanol)
Petroleum Refinery
Crude Pipelines
Refined Product Pipelines
Data Sources: ANL 2019;
EIA 2019; ESRI 2019; Platts 2021
0
4
8
Mile

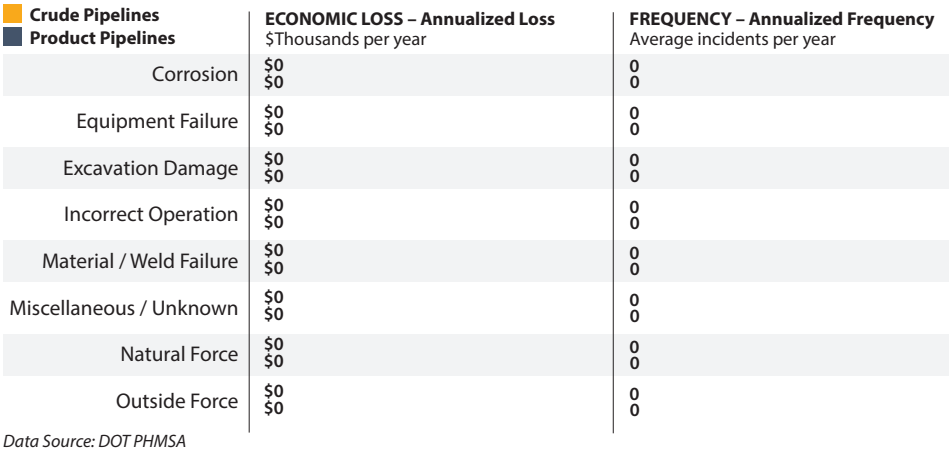
Petroleum Transport

Top Events Affecting Petroleum Transport by Truck and Rail, 1986 – 2019



Data Source: DOT PHMSA

Top Events Affecting Crude Oil and Refined Product Pipelines, 1986 – 2019



Data Source: DOT PHMSA

- As of 2018, Washington, D.C. had:
  - *0 miles of crude oil pipelines*
  - *4 miles of refined product pipelines*
  - *0 miles of biofuels pipelines*
- 100% of Washington, D.C.'s petroleum pipeline systems were constructed prior to 1970 or in an unknown year.
- Between 1986 and 2019, Washington, D.C.'s petroleum supply was most impacted by:
  - ***Outside Forces** when transported by truck (2nd leading cause nationwide at $60.45M per year)*
- Disruptions in other states may impact supply.

Petroleum Refineries

- There are no operating petroleum refineries in Washington, D.C.