

Data Center 101

Data Center Attraction & Site Selection

Objectives



- Develop understanding of Data Center Industry
- What is required to attract Data Centers?
- What comes with a Data Center?

Market Overview & Trends



- VA is home to the # 1 Data Center Market in the World
- 2022 Peak Load: 2,767 MW (equivalent to 685,700 homes)
- 21% of Dominion Energy's electricity sales as of 2022
- Fastest growing customer segment in VA
 - Annual growth: 450+ MW
 - Continued growth opportunities for the foreseeable future
 - DE has connected 75 data centers in the last 3 years
- Increased interest in sites outside Loudoun and Prince William
- Typical data center customer is 30 MW, typical large industrial customer is 30 MW

5 Types of Data Centers



1: Cloud

- Cloud providers offer cloud based operating systems and applications
- Typically, large buildings and clusters on a campus or in a tight geographic area.
- Purpose built for the specifics of the cloud company
- Examples: Amazon, Microsoft, Google
- This is the largest data center segment of customers in VA
- Heavy concentration in Northern VA

5 Types of Data Centers



2: Colocation

- Datacenter operator builds the building and leases data halls to end users who install the servers
- Similar to a hotel for other companies' servers
- Operator provides the facility power, cooling and physical security
- Examples: Digital Realty, Equinix, QTS
- This is the second largest segment of data center customers in VA
- This segment currently targets Northern VA

5 Types of Data Centers



3: Enterprise

- The user of the datacenter owns and operates the building for its purposes
- Examples: Facebook, banks, US Government
- This segment tends to locate throughout VA, not just in Northern VA

4: Fiber Interconnection Facility

- Point where fiber cables and networks meet and connect
- These tend to be very small facilities
- This segment tends to locate throughout VA, not just in Northern VA

5 Types of Data Centers



5: Crypto Miners

- These customers operate dedicated facilities to mine cryptocurrencies
- This segment tends to locate outside of Northern VA
- This is a very volatile industry and does not tend to remain in business for long periods of time

What does a data center look like?



- 2 story buildings, approximately 125,000 sq. ft.
- 25 to 30 acres per building
- Onsite substation & transmission infrastructure
- Approximately 10 employees per building
- Complete onsite diesel generation & fuel storage
- Security fencing & guarded access points



Must-Haves to be Competitive



- Support for new transmission infrastructure
- Support from local government:
 - Advanced planning & zoning
 - Fast track program – Site planning & permitting
 - Favorable tax rates
- Access to transmission / fiber infrastructure
- Low cost of electricity
- Renewables generation

Transmission Infrastructure



- Data Centers require transmission & substation infrastructure
 - Evaluate local appetite for new infrastructure
 - Proximity to site is important
 - Standard 230,000 kV right of way is 100' to 150'



Site Selection



- Look for sites adjacent or close to existing transmission
 - Look for sites where fiber and electricity intersect
 - Less infrastructure equals faster time-to-market
 - Approximately 75 to 150 acres per site, but larger sites are becoming the norm
- Engage Dominion Energy to assess transmission adjacent to sites
- New transmission construction timeframe is 3 to 4 years in rural areas

Cost of Electricity

- Electricity is the most expensive operational cost for a data center facility
- Data Center customers want a variety of rate options
 - Market-based rate
 - Renewable rate options



Other Infrastructure



- Need fiber infrastructure
- Need access to water/ sewer capacity
 - Requirements vary significantly based on user
- Engage infrastructure owners to understand capacity and routes

Tax Rates



Tax rates on computing equipment MUST be competitive, especially in NEW areas

- Customer prefer published rates, not special tax deals or abatements

Existing Examples

- | | |
|------------------------------------|----------------------------|
| • Chesterfield County | \$0.24/ \$100 of equipment |
| • Henrico County | \$0.40/ \$100 of equipment |
| • Fredericksburg Regional Alliance | \$1.25/ \$100 of equipment |
| • Prince William County | \$1.35/ \$100 of equipment |
| • Loudoun County | \$4.20/ \$100 of equipment |

What does success look like?



Sites

- Multiple approved sites with plenty of power, fiber & water solutions
- Qualifying sites can support any industry

Jobs/ Investment/ Taxes

- Limited full-time, but high paying jobs
- Large number of temporary construction contract support jobs
- Large capital investment
- Incremental tax revenue

Data Center Economic Development Team Dominion Energy®



Stan Blackwell -
Director of Customer
Service & Strategic
Partnerships



Richard Imel -
Manager - Economic
Development



Dominic Minor -
Economic
Development Manager

Questions?