

WBC Data Center Overview

Program Panelists

Kevin Dalton, *Vice President of Engineering*
Digital Realty Trust

Buddy Rizer, *Director for Economic Development*
Loudoun County, Virginia

Steve Schoenefeldt, *Vice President Technology Sector*
HITT Contracting Inc.

Allen Tucker, *Managing Director*
Jones Lang LaSalle

Moderator – Ross Rebraca, HITT Contracting Inc.

Presentation 5:30 to 7:00 p.m.

Reception 7:00 to 8:00 p.m.

March 3, 2015



Event Sponsors



Corporate Sponsor



Steel Sponsor



Steel Sponsor



Steel Sponsor

SIEMENS

Aluminum Sponsor



AN ENGINEERING COMPANY

Concrete Sponsor



Energy for a changing world.™

Concrete Sponsor

SIGAL

Concrete Sponsor



Boston Properties

BOWERS



CAPITOL POWER
Providing Critical Power Solutions



FROEHLING & ROBERTSON, INC.
SINCE 1881



HITT



PRO-AIR



PRIMARY INTEGRATION

RM THORNTON
MECHANICAL

Critical Systems
by
Schneider
Electric



SOUTHLAND
CONCRETE
"Setting the Pace"

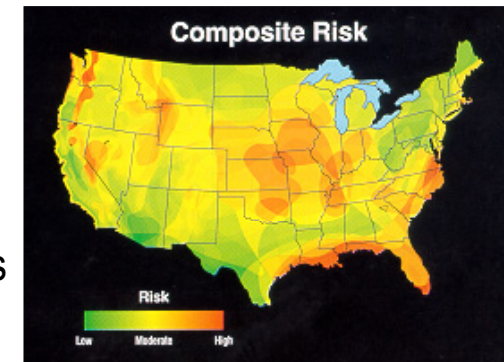
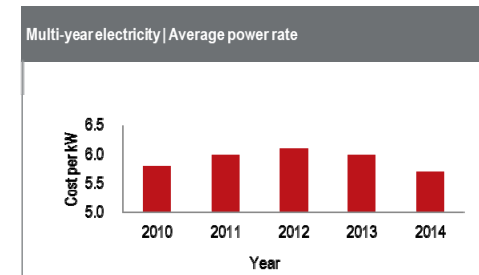
TRIAD
TRIAD ENGINEERING, INC.



WT
WHITING-TURNER

Where it all started | Northern Virginia

- Home of the Internet (developed by DARPAnet)
- Home of the first ISPs (AOL, PSINet, UUNET)
- Greatest presence of multiple fiber providers with extensive networks with global reach and low latency
- Best in class high-tech workforce (well educated and skilled)
- Highly reliable power at low costs (\$0.055 - \$0.065 / KWH)
- Low overall cost for business operations (Forbes.com and CNBC)
- Minimal business interruptions
 - Moderate weather and limited natural hazards
 - Dual Airports (Reagan National & Washington Dulles)
 - Suburbs offer limited to NO Crime
 - Pro-Business government with a focus on speed to market / incentives
- Exceptional data center demand (56 MW 2014)



Mid-Atlantic / Northern Virginia | Data Center Market Place

Supply

Total MTDC inventory: 5,260,000 s.f. / 498.3 MW
 Total commissioned vacant: 234,000 s.f. / 46. MW ▲
 Under construction: 115,000 s.f. / 22.0 MW ▲
 Planned Raised Floor: 550,000 s.f. / 113 MW ▲

Demand

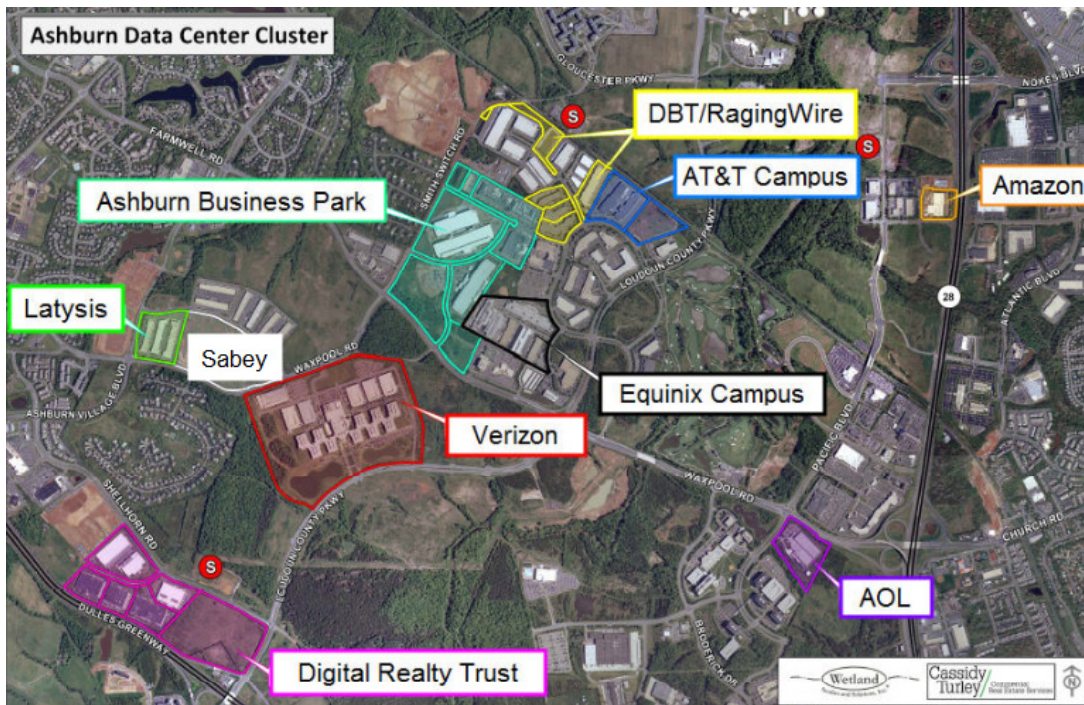
2014 Completed Transactions: 30
 2014 Critical Power Leased: 56.21 MW
 1Q15 Tenants in the Market: ~20 MW ▲
 1Q15 Leasing Activity: 11.65 MW

Cost

< 250 kW: \$235-\$320 kW (all in)
 >250 kW: \$120-\$140 kW (+E)
 PBB: \$18 - \$32 NNN

Tier 1 Data Center Markets	2014 MW	Market Share	Rank	Wholesale Rents (+E)		
				Min.	Max.	Rank
Atlanta	11	4.45%	7	125	150	3
Chicago	10	4.05%	9	125	150	3
Dallas / Fort Worth	34	13.77%	3	125	150	3
Houston	8	3.24%	10	140	160	10
Los Angeles	11	4.45%	7	135	145	9
Minneapolis / St. Paul	2	0.81%	11	145	190	11
Northern NJ / NY	15	6.07%	6	105	175	1
Northern VA	56	22.67%	1	120	140	2
Phoenix	36	14.57%	2	130	150	8
Seattle / Portland	30	12.15%	5	125	145	3
Silicon Valley	34	13.77%	3	125	140	3
TOTAL:	247					

EXPONENTIAL DATA CENTER GROWTH



- Loudoun – more than 5.9 million SF with another 3 million approved and/or under construction.
- Demand continues to outpace supply through 2016, growth steady through 2021

1-(800)-LOUDOUN



biz.loudoun.gov

WHAT'S DRIVING DEMAND?

- Virtual Storage
- Digital Medical Records
- Cloud Computing
- Government Consolidation
- Video on Demand
- Electronic Trading and Commerce
- Wireless Applications

LOUDOUN COUNTY DATA CENTERS



Enterprise:

- Single user building
- Facebook, Visa, Amazon, etc.

Collocation:

- Multiple user building
- Leased space
- Independent or shared staff
- Equinix, Latysis, Digital, etc.



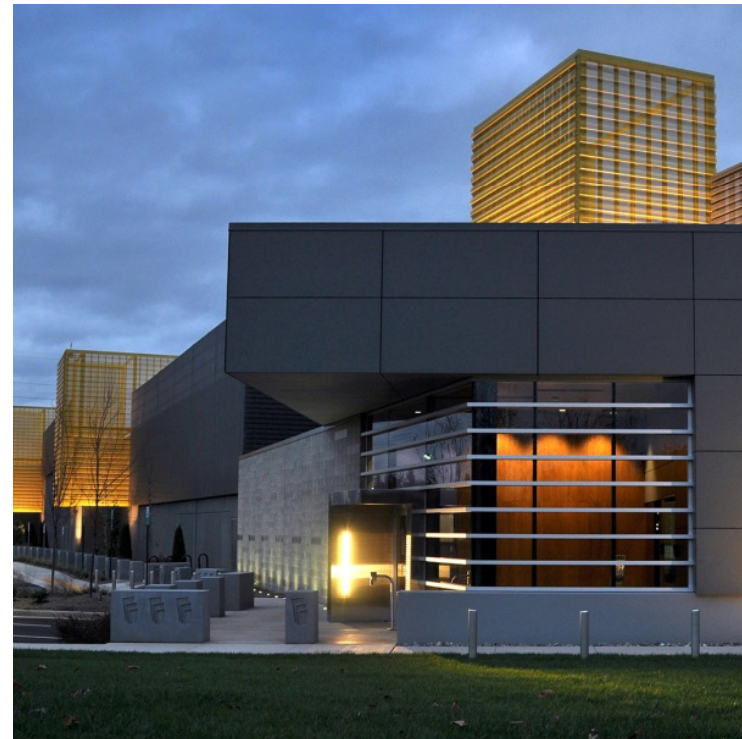
1-(800)-LOUDOUN



biz.loudoun.gov

KEY INGREDIENTS FOR LOUDOUN'S SUCCESSFUL DATA CENTER MARKET

- Access to multiple lit and dark fiber networks
- Reliable and affordable power
- Abundant water
- Available green field and re-use options
- Available workforce
- Fast-track process



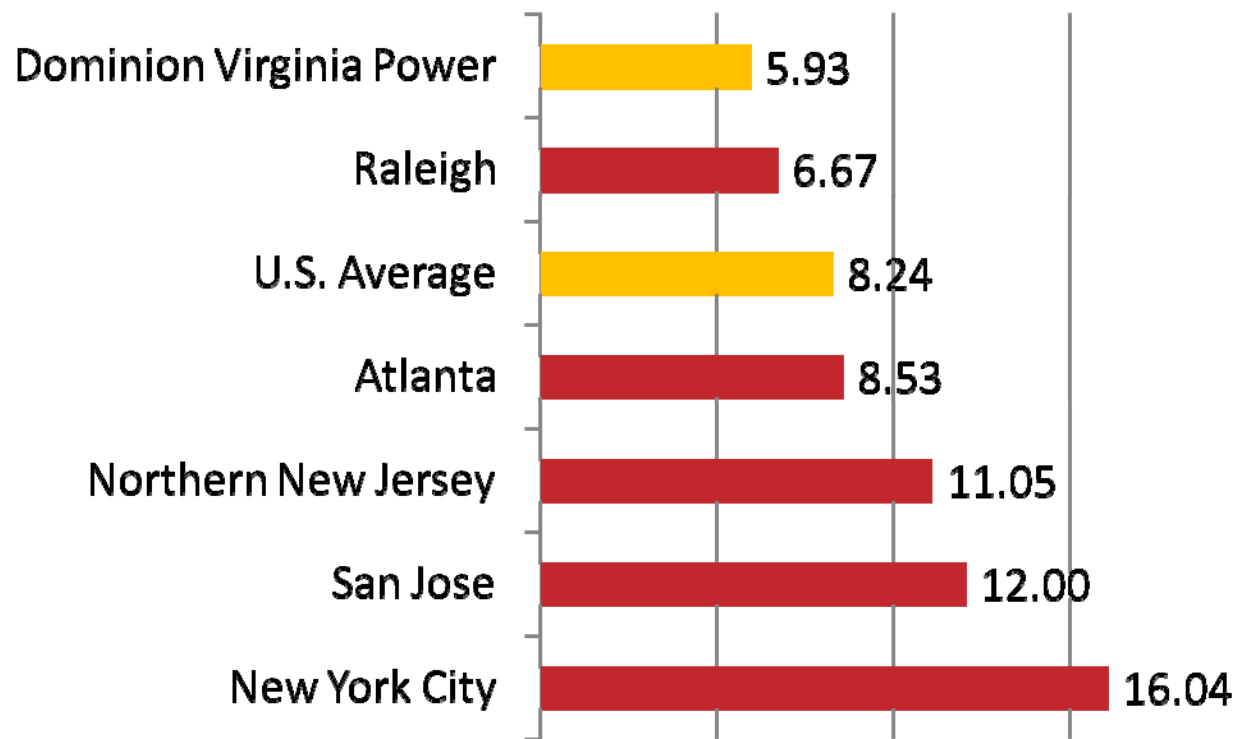
1-(800)-LOUDOUN



biz.loudoun.gov

DATA CENTER RATE COMPARISON

1,000 kW DATA CENTER



Dominion Virginia's typical data center rate is 28% below the U.S. average

1-(800)-LOUDOUN



biz.loudoun.gov

Digital Ashburn



HITT

Fast-Track Construction

Complete design

- Minimal design / construction changes
- Lessons Learned incorporated into design

Major equipment (generators, UPS, switchgear, CRAHs, mechanical systems)

- Typically Owner-procured
- Equipment manufacturer(s) performance specs – established between Owner and manufacturer
- Established lead times

Owner-vendors – Commonly sole-sourced to maintain symmetry across multiple sites

- Controls
- Security



Building Construction



Traditional flex – core and shell ready

- Existing steel frame structure
- Minimal brick and mortar construction
- Limited on square footage customizable

Precast concrete

- Lead time (needs to be early released to avoid schedule impact)
- Façade aesthetics can be incorporated
- Shipping costs
- Flexible on square footage / footprint

Tilt-up concrete

- Typically lowest cost
- Minimal under slab utilities to prevent impact on critical path
- Minimal façade aesthetics can be incorporated
- Significant laydown area required



Washington Building Congress

The Washington Building Congress is a professional trade association made up of over 1,000 companies and individuals from a variety of disciplines, all with an active interest or involvement in the Washington metropolitan area real estate, design and construction community.

The WBC was established in 1937 as an “*umbrella organization*” to represent the collective interests of the industry, provide education and networking opportunities, and promote the professional advancement of our members.