

Data Centers

Attracting Data Centers to Your Market

A Presentation for:



Presented by: Wendy McArthur, CB Richard Ellis

- Introduction
- Qualify Requirement
- Site Selection
- Cost
- Marketing

INTRODUCTION

Profile

- **WENDY MCARTHUR**, Vice President CB Richard Ellis
 - Assists clients with the acquisition and disposition of data centers
 - A Practice Leader in CB Richard Ellis' Technology Practice Group & Member of AFCOM (Leading Association for Data Center Professionals)
- **CB RICHARD ELLIS (CBRE)**
 - Largest Commercial Real Estate Company in the World
 - Wide array of service lines touching nearly every industry type and support services such as Facilities Management and Project Management
- **TECHNOLOGY PRACTICE GROUP (TPG)**
 - Seasoned CBRE professionals around the world specialize in the data center industry uniting their expertise, relationships and market intelligence in one powerful group – TPG (150 members in 75 Global Markets)

What is a Data Center?

- A physical place that houses a computer network's most critical systems, including back-up power supplies, air conditioning, and security applications.
- Data Centers are about equipment – not people.
- “Bunker” type construction; Power, Fiber & Security are Critical



QUALIFY REQUIREMENT

Partial Checklist of Criteria

- Type of Data Center
 - Primary or Back-up / Disaster Recovery (DR)
 - Desired “Tier” Rating
- What’s Driving the Need for this Data Center – Relo, New, Consolidation, etc.
- Anticipated Power Requirement - Load
- Has a Program been Developed?
- Is a Team in Place?
- How will the Project be Funded?
- What’s the Timing – for Site Selection & for Occupancy?
- Any Preferred Fiber Provider(s)

Tier Ratings

- Created by the Uptime Institute, the Tier Rating System is widely accepted as the de facto industry standard, to provide a consistent means to compare typically unique, customized facilities to each other from the perspective of expected site infrastructure availability, or uptime. The Tier Classification System is a benchmarking system to effectively evaluate data center infrastructure in terms of business requirements for uptime.
- **Tier 1:** Basic Infrastructure – 99.67% Availability
- **Tier 2:** Basic Infrastructure w/ Redundancy – 99.75% Availability
- **Tier 3:** Concurrently Maintainable – 99.98% Availability
- **Tier 4:** Fault Tolerant – 99.999% Availability (The five 9's)

SITE SELECTION

REGION/ CITY

Partial Checklist of Criteria

- Cost & Availability of Electricity
- Risk Avoidance – Natural Disasters
- Access to Telecommunication / Fiber
- Real Estate – Availability & Affordability
- Access to City and to Facility
- Access to Technical Labor Pool
- Incentives

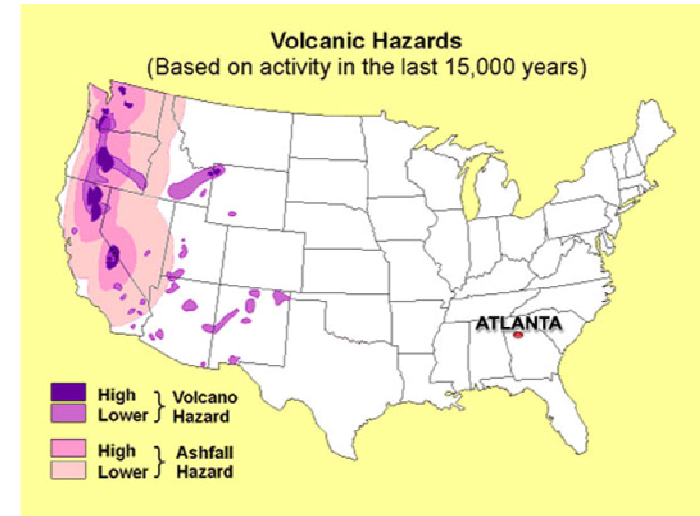
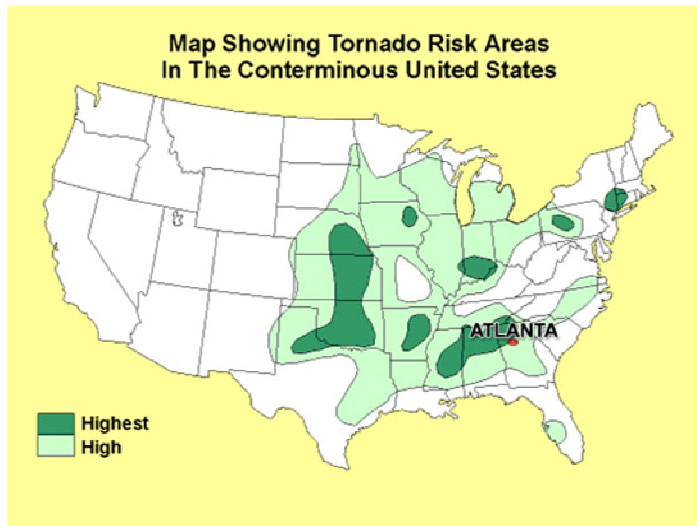
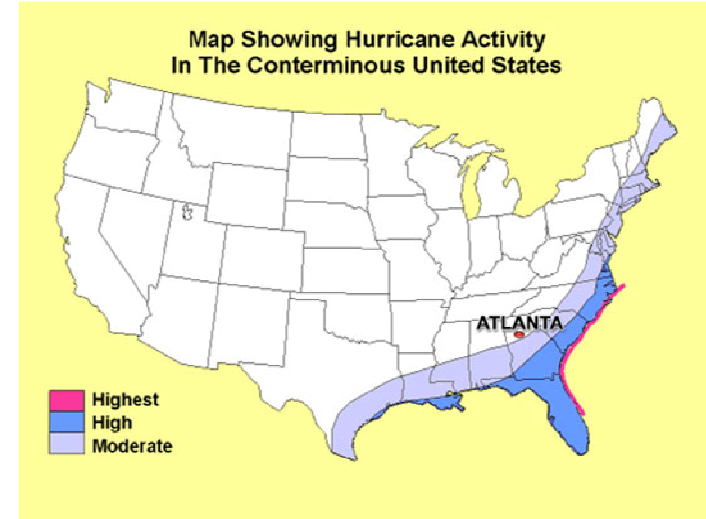
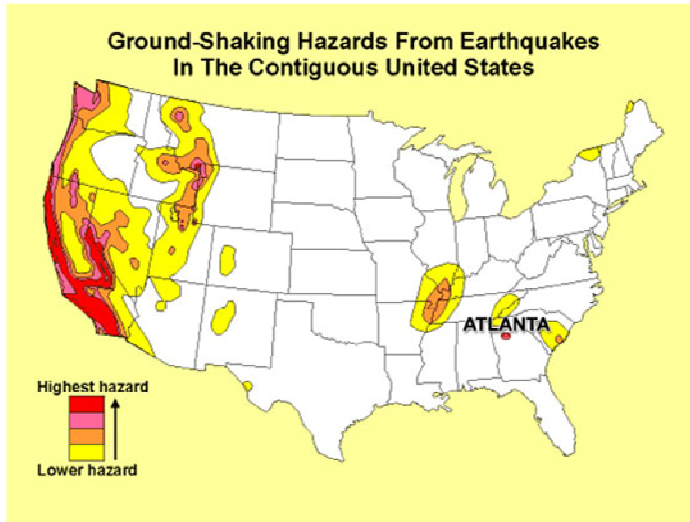
Electric Costs

Atlanta Offers Lower Electricity Costs

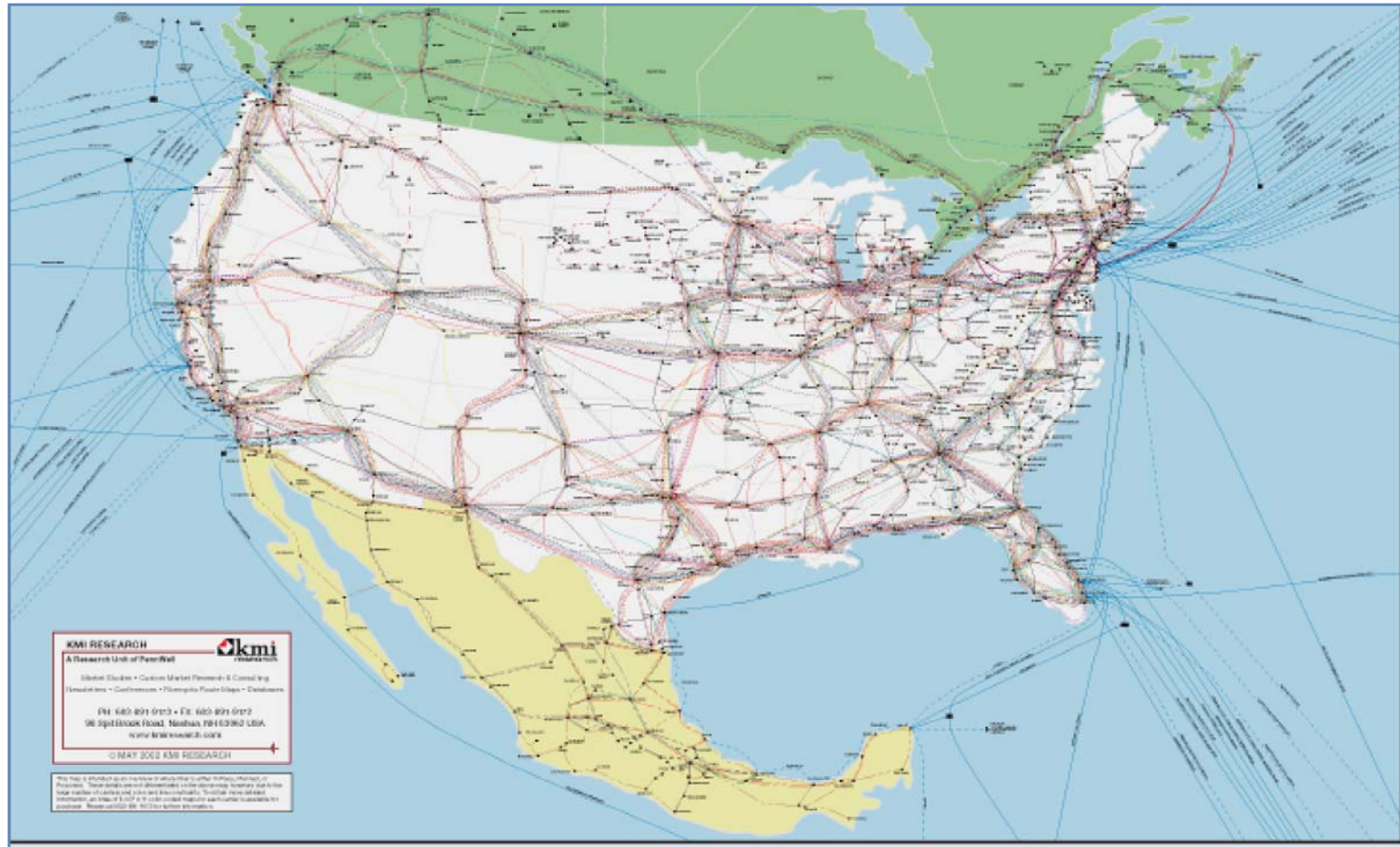
Average Utility Costs for Industrial Customers in Cents per kWh



Natural Disaster Maps



Fiber: North American & Regional Fiber Optic Long-Haul Routes



SITE SELECTON SITE SPECIFIC

Partial Checklist of Criteria

- Distance to power feed
- Diverse power feeds available
- Distance to fiber path / carriers
- Distance to dark fiber / owner
- Location of nearest Fiber
- Distance to nearest CO / CLEC
- Fiber path to CO / points of vulnerability
- Miles to Airports / flight path
- Distance from hazardous waste
- Any prohibitive environmental conditions (e.g. seismic activity, floods, etc.)?
- Catastrophic explosion risks
- Access to municipal sewer system
- Distance from rail line / type
- Distance to police / fire station
- Area flood plain
- Soil / rock stability
- Local demographics (neighborhood characteristics)
- Local traffic issues / concerns

COST

What Type of Requirement?

- **Lease or Purchase Existing Data Center**
 - Keep apprised of any existing Data Center Inventory
 - Understand the level of infrastructure
- **Convert a Building to a Data Center**
 - Know which buildings have the most potential for conversion – those with some level of Data Center “Centric” attributes (close to substation, access to fiber, bunker type construction, etc.)
 - Have an understanding of Cost to Convert
- **Construct a New Data Center**
 - Know which sites are best located for a Data Center (close to substation, access to fiber, affordably priced, away from freeways and rail lines, etc.)
 - Have an understanding of Cost to Build

Converting a Building to a Data Center

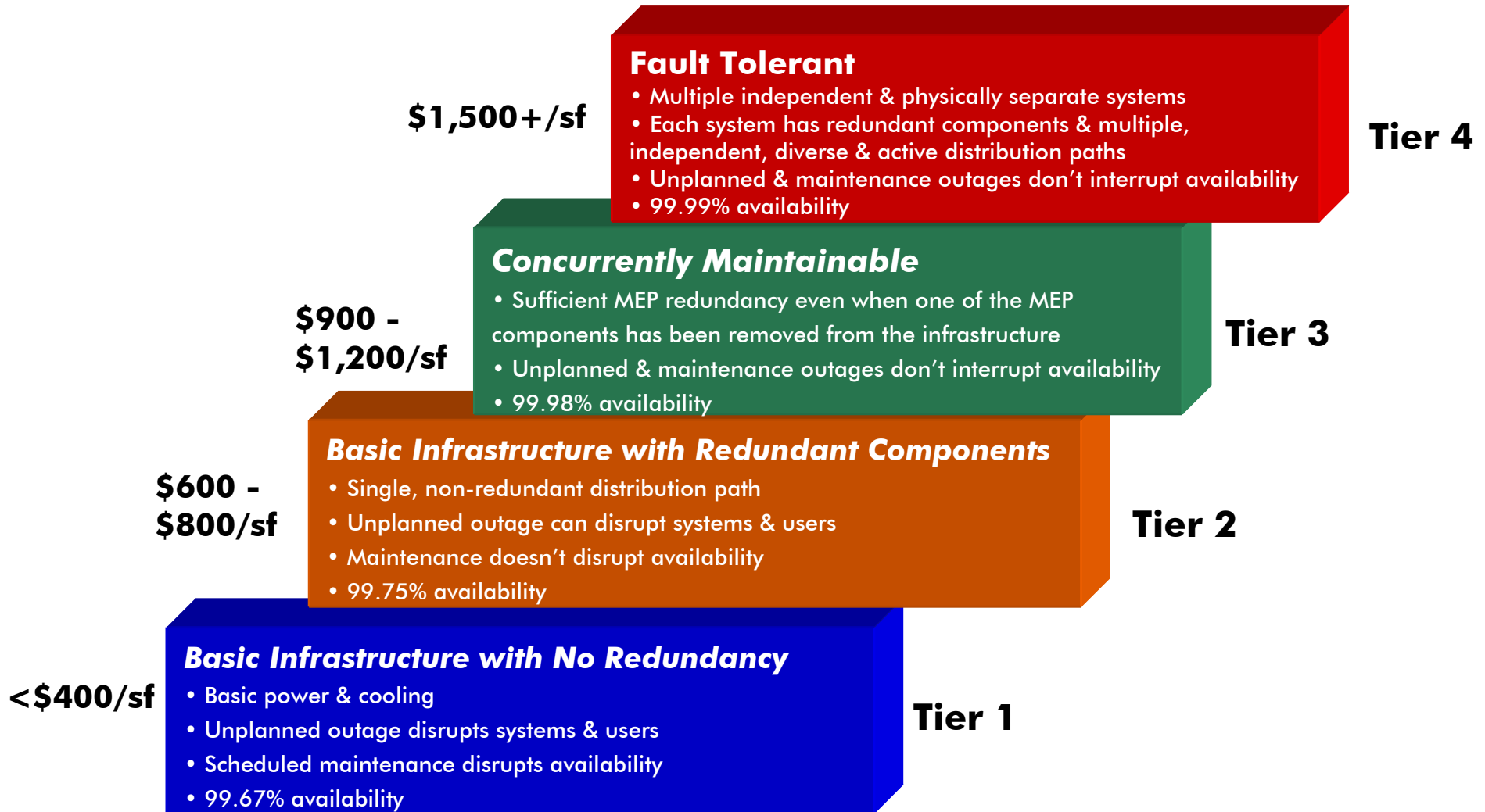


PROPOSED BUDGET ROM	
Electrical Costs: Option A: 100w/sf	<u>\$ 5,000,000</u>
Mechanical Costs: Option A: 100w/sf	<u>\$ 2,373,160</u>
Building Shell w/ Site Work	<u>\$ 4,537,918</u>
Design Fees	<u>\$ 2,100,000</u>
Construction Management Fees	<u>\$ 445,472</u>
Project Contingency	<u>\$ 618,000</u>
All Other Costs & Fees (including Commissioning)	<u>\$ 220,000</u>
ROM Budget	<u>\$ 15,294,550</u>

Cost of Land.....\$3,000,000

Approx Total.....\$19,000,000

Building a New Data Center – Cost Ranges



Some of the Data Center Cost Components



Structure



Raised Floor



Electrical



Security



Chilled Water



Fire Suppression



Cooling System



Water Storage



Fuel Storage



Dual Feeds



High Reliability



Generators



UPS System



Cooling Tower



Switch Gear

MARKETING

■ Be Realistic

- Do you have the attributes to compete with other markets to attract out-of-market data center users or should you focus locally?

■ Be Prepared

- Get Plugged into the data center community. (IT Contacts, Data Center Association, CIO's, Data Center Vendors, etc.)
- Know your market. (Sites and Owners, Power & Fiber Infrastructure, Vendors, etc.)
- Develop marketing materials. (Flyer / Brochure, Website, Site Information, etc.)

■ Be Proactive

- Reach out to corporations, brokers and vendors. (don't wait on them to find you)
- Push informative information to prospective data center users. (Industry Trends, Cost Information, etc)

Sample Site Spec Sheet

Criteria	Description / Comment
LOCATION	
Address / Description	Edison Drive / near interstecation of GA 400 & Windward Pkwy
County	Fulton County
Accessibility	Accessible via Georgia 400 (state highway)
Natural gas	Yes, Atlanta Gas Light
Water	Yes, Fulton County
Distance from expressway	> than 5 miles from Interstate Highway
Distance from railroad	Greater than 5 miles
Distance from substation	Windward substation - 1.2 miles
General description of area	Corp office / data center environment with mix of retail
Other data centers in the vicinity	Yes
Any bio chemical facilities in the area	greater than 5 miles
Neighbors & uses	McKesson
SITE	
Size / acreage	75 acres
Zoning	
Notable topography characteristics	Significant topographical characteristics
Ingress / Egress	
Soil	Soil Report
POWER	
Power Company	
Distance from substation	
Served by two substations?	Potential for dual substation feeds
Type of feed (network, loop, etc)	
Underground or overhead service	Underground
Cost of power / rate structure	
Service capacity available	
FIBER	
Fiber Providers	
Dark Fiber	AGL



Sample Brochures

Windward Edison
North Metro Atlanta / Alpharetta, GA

Build-to-Suit Site

65± acres suitable for development of corporate data center office. Centrally located in Windward, just north of Atlanta. Intersection of GA 400 and Windward Parkway.

data center centric location
reliable power
multiple carriers
buffered corporate site

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DATA SITE ORLANDO AVAILABLE IMMEDIATELY

FIBER **POWER** **SECURITY**
Location Location Location

When it comes to Data Centers, the rules in real estate are different.

Never break the rules.
Locate your critical data facility in Orlando's premier technology business district.

DATA SITE ORLANDO

Fiber Diversity **Reliable, Low Cost Power** **Secure Environment**

9701 S JOHN YOUNG PARKWAY
ORLANDO, FL 32819

CBRE
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ENTERPRISE TECHNOLOGY CENTER

ULTRA-RELIABLE DATA CENTER

POWER
30' RAISED FLOOR

REUNDANCY

SECURITY

FIBER

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Sample Informative Piece

Critical Facility - Real Estate Evaluation Issues

<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Site Evaluation / Selection</p> <ul style="list-style-type: none"> -Distance to power feed / power capacity / power providers -Distance to nearest sub-station -Diverse power feeds available -Distance to fiber path / carriers -Distance to dark fiber / owner -Location of nearest Telco manhole (if below grade) -Distance to nearest CO / CLEC -Telecom routing in street (above or below grade) -Telco path to CO / points of vulnerability -Distance to next nearest CO / CLEC -Miles to Airports / flight path -Miles to Nuclear Facilities -Miles to closest hazardous waste sites -Toxic contamination analysis -Hazardous materials in the area -Are there any prohibitive environmental conditions (e.g. seismic activity, floods, etc.)? -Catastrophic explosion risks -Access to well water -Access to municipal sewer system -Distance to nearest rail line / type -Distance from police / fire station -Area flood plain -Soil / rock stability -Local demographics (neighborhood characteristics) -Local traffic issues / concerns <p style="text-align: center; background-color: #006666; color: white; padding: 5px;">Site</p>	<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Base Building Characteristics</p> <ul style="list-style-type: none"> -Number of floors -Total SF / SF per floor -Column spacing -Floor live load rating -Slab to slab height / clear height -Roof type / age -Roof load rating -Leak evidence -Parking per square foot -Perimeter wall materials / curtain wall -Single or multi-tenanted building -Age of the building / build-out -HVAC system type / age / capacity -Condenser type / location / capacity -Chiller type / location / age -Size / weight rating of freight elevator -Size / internal height of freight elevator -Number / configuration -Loading dock access / turn radius -Path / distance from dock to freight -Hardened building rating -Lightening protection -Liquid or gas piping path -Water service provider Sewage pumps / number -Sewage pump redundancy -Building automation system / brand <p style="text-align: center; background-color: #006666; color: white; padding: 5px;">Core / Shell</p>	<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Telecom</p> <ul style="list-style-type: none"> -Number and capacity of copper circuits / providers -Number and capacity of fiber circuits / providers -Dark fiber providers / termination points -Nearest CO capacity / current utilization -SONET capacity -Voice telecom service providers / capacity and format -Fiber services in the area / distance from site -Available fiber splice locations -Diverse telco path to site / path / conduit -Telecom routing from street to site -Telecom conduit type / size -Location / protection of telecom access point -Location / configuration of meet me room configuration -Network distribution head end configuration -Vertical cable distribution / conduit -Cable management -Fiber distribution -Wireless WAN / IP providers -Projected bandwidth growth -Cellular coverage at building core / carriers 	<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Power / Power Distribution</p> <ul style="list-style-type: none"> -Diverse power paths into building -Capacity of each feeder (MVA / KW) -Total electrical capacity to site -Sub-station / switch yard configuration -Power routing and POE configuration -Provisions for expansion -Current load vs. capacity -Facility grounding type / internal / external -Power monitoring systems -Electrical distribution path -Number of power busses -Capacity of each buss -Redundancy of busses / structure -Internal power path -Distribution panel circuit protection -Surge protection -Harmonic controls -PDU type manufacturer / quantity / rating -PDU monitoring capabilities -Static transfer switch configuration -Static switch manufacturer / quantity / rating -Power distribution path 	<p style="writing-mode: vertical-rl; transform: rotate(180deg);">UPS / Power Generation</p> <ul style="list-style-type: none"> -UPS Capacity (KVA/KW) -UPS configuration / number of busses -System life with full load -Location of battery facility -Age of battery plant / last cell analysis -Cell type / rating -Provisions for UPS cell expansion -Number and type of generators (diesel, natural gas, etc) -Local gen-set operation ordinances / runtime limits -Gen-set noise attenuation -Gen-set emissions limitations -Gen-set redundancy -Gen-set location / internal / external -Radiator / exhaust configuration -Gen pads / portable gen-set capability -Provisions for temporary or permanent gen-set expansion -On site fuel storage capacity -Fuel tank type / location -Local fuel storage ordinances -Full load / full tank gen-set run time -Fuel supply lines path / day tank -Fuel storage replenishment access -Power transfer switch type / capacity -Load bank capacity / installed or portable 	<p style="writing-mode: vertical-rl; transform: rotate(180deg);">HVAC</p> <ul style="list-style-type: none"> -Overall cooling capacity -Summer / winter design temp -Humidification -Design humidity level -Environmental control system -Size / number of chillers / redundancy -Location of chiller plant -Coolant pump capacity -Number of pumps -Pump station location / containment pool -Chilled water piping path / redundancy -Chilled water pump redundancy -Chilled water containment / drip pans -Provision for chilled water expansion -Data center air handlers -Air handler redundancy -AC unit leak detection / containment -Air flow / air distribution method -Adjustable air direction / air flow provision -Amount of water storage available -Redundant water source -Condenser type / redundancy -Condenser water piping redundancy -Provision for condenser expansion 	<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Fire Detection / Suppression / Security</p> <ul style="list-style-type: none"> -Fire detection system -VESDA / number of sample points -Detectors above floor / below floor -Fire command panel location -Fire suppression type -Fire panic stations -Life safety equipment in DC -Air filtration -Perimeter protection / type -Number of points of entry -Man-traps at facility entrance -Badge access security -Biometric access controls / type -CCTV systems / recorded / coverage -Window type in critical area -Window sheathing / type / bullet proof / caliber rating -Sheetrock meshing / metal mesh -Parking lot access control -Loading dock access control -Roof access control -Basement access control -Meet-me room access control -Generator area access control -Power / telecom entry point access control -Security staff
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Facility Design / Construction / Evaluation



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Data Center Incentives



March 2010

Data Center Incentives



- **State Incentives**
 - Sales Tax Exemption
 - Job Tax Credits
 - Quality Jobs Tax Credits
 - Retraining Tax Credits
- **Local Incentives**
 - Property Tax Abatements
 - Accelerated Depreciation

Sales Tax Exemption Qualified NAICS



- 334413
- 334611
- 51121
- 51331
- 51333
- 51334
- 51421
- 52232
- 54133
- 54171
- 54172
- 513321
- 513322
- 514191
- 541511
- 541512
- 511513
- 511519

Job Tax Credit



- **Processing - Establishments that are both primarily engaged in providing data processing services and included in NAICS 518210**
- **Job Tax Credit \$750 - \$3,500 depending on tier level plus joint development authority and/or existing industry bonus if community is eligible**
- **Credits may be used to offset 50% - 100% state corporate income tax liability**

Quality Job Tax Credit



- **Qualifying criteria:**
 - At least 50 net new jobs
 - Each job paying at least 110% of county average wage
 - 50 jobs must be created within 12 months of first qualified job
- **Based on percent paid above average county wage**
- **Tax credit first used to offset 100% state corporate income tax. Remaining credits may be **applied against payroll withholding.****

Retraining Tax Credit



- **Data centers are an eligible business for the credit**
- **Up to \$1,250 annually**
- **\$500 maximum for a single training program**
- **Significant training**

Local Incentives



- **Real and Personal Property Tax Abatements**
 - Typically done through a bond issue
 - How to incorporate future computer expenses
- **Accelerated Depreciation**
 - Equipment becomes obsolete quickly
 - Used 24 - 7 - 365

Data Center Incentives



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