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Seattle

Data Center Market Report



About Our Market Reports

The data center market reports are a labor of love for the Open Spectrum team. The information found within is designed to be service provider agnostic, accurate, highly relevant, and actionable for anyone working within the industry. In producing these reports, we pool information from our own dealings around the data center marketplace working directly with hundreds of buyers, sellers, and investors.

We also partner with different experts and aggregators of targeted data sets such as Structure Research, NE Fiber, and Lathrop & Gage, LLP.

FiberLocator



**STRUCTURE
RESEARCH**

LATHROP & GAGELLP

We hope these reports provide value to you in whatever you are trying to accomplish.

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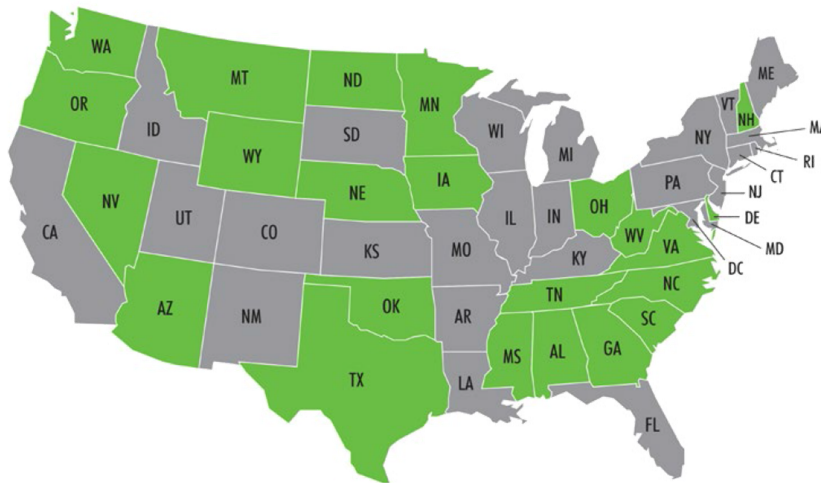
Tax Incentives

Sales and use taxes, property taxes, and real estate taxes all play a role in the total operating costs of data centers. Some states, however, offer incentives that lower the operating cost, or Total Cost of Occupancy (TCO) for both data center developers and clients installing infrastructure within these facilities. Site Selection is typically based on four primary drivers:

1. Power: Cost per kWh, carbon footprint, fuel mix, and infrastructure
2. Telecom: Fiber Providers, Latency
3. Geography: Proximity to headquarters, population size, labor force, water
4. Climate: Environmental risk (i.e. hurricanes, tornadoes, earthquakes, etc), free cooling

SALES TAX INCENTIVES FOR DATA CENTERS

■ States with incentives



Sales & Property Taxes

Washington currently does not offer sales tax incentives that Affects data center owners, operators, or their clients installing Hardware and related infrastructure.*

The tax breaks cover sales and use tax exemption for server equipment and power infrastructure.

*Source: Lenio, John and Lynch, Patrick, "Impact of Taxes & Incentives on Data Center Incentives," CBRE..

National Industry Trends

90% Amount as a % of the totality of data generated
*-Expected to **Increase** year after year*

2,500 Number of commercial colocation facilities within the USA
*-Expected to **Increase** year after year*

2,940,000 Number of corporate owned data centers in the USA*
*-Expected to **Decrease** year after year*

611,400,000 Total data center sq. ft. within the USA*
*-Expected to **Increase** year after year*

*Source: IDC trends

National Industry Trends

PRIMARY WHOLESALE COLOCATION MARKET SNAPSHOT

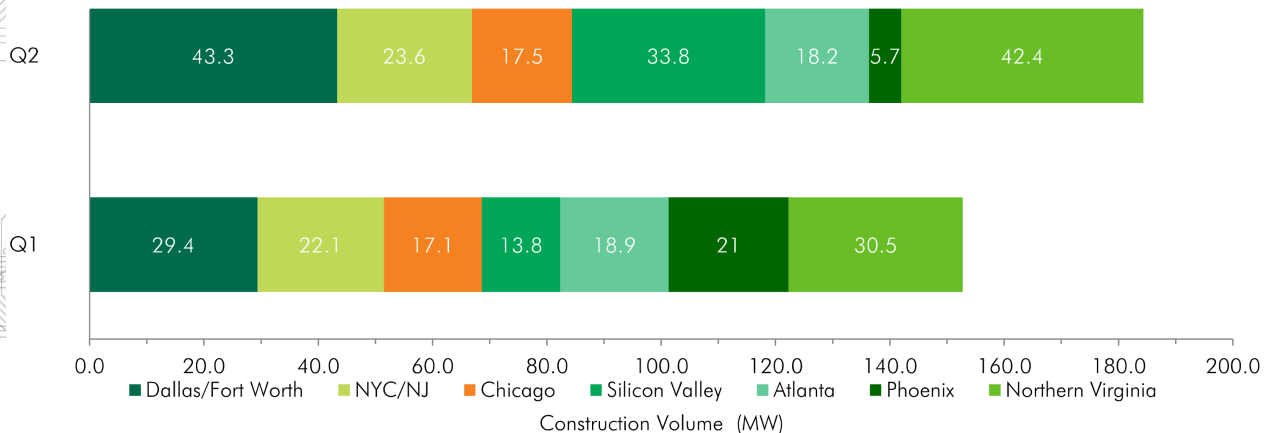
Market	Quarter	Inventory	Vacancy	Absorption	Rental Rates (kW/mo)*
Northern Virginia	Q1	417 MW (▲ 15.0 MW)	21.2 MW / 5.1% (▼ 24.1%)	20.8 MW (▲ 11.9 MW)	\$130-\$145
	Q2	421 MW (▲ 3.6 MW)	15.5 MW / 3.7% (▼ 27.7%)	9.4 MW (▼ 11.4 MW)	\$130-\$145
Phoenix	Q1	218 MW (▲ 5.0 MW)	4.1 MW / 1.87% (▼ 0.1%)	5.0 MW (▲ 2.8 MW)	\$140-\$160
	Q2	228 MW (▲ 10.0 MW)	4.1 MW / 1.87% (▲ 0.0%)	10.0 MW (▲ 5.0 MW)	\$140-\$160
Atlanta	Q1	127 MW (▲ 0.6 MW)	25.7 MW / 20.2% (▼ 2.4%)	0.7 MW (▼ 1.8 MW)	\$125-\$150
	Q2	127 MW (▲ 0.0 MW)	24.3 MW / 19.1% (▼ 5.2%)	1.4 MW (▲ 0.7 MW)	\$135-\$150
Silicon Valley	Q1	131 MW (▲ 14.9 MW)	16.1 MW / 12.3% (▼ 10.7%)	14.7 MW (▲ 11.7 MW)	\$140-\$150
	Q2	134 MW (▲ 3.6 MW)	15.8 MW / 11.7% (▼ 4.6%)	3.9 MW (▼ 10.8 MW)	\$130-\$150
NYC/NJ	Q1	134 MW (▲ 11.4 MW)	21.7 MW / 16.2% (▼ 0.5%)	10.1 MW (▲ 3.8 MW)	\$145-\$165**
	Q2	135 MW (▲ 1.5 MW)	22.2 MW / 16.5% (▲ 1.4%)	1.0 MW (▼ 9.2 MW)	\$150-\$170
Chicago	Q1	117 MW (▲ 2.4 MW)	3.4 MW / 2.9% (▼ 7.9%)	2.6 MW (▼ 1.6 MW)	\$145-\$165
	Q2	130 MW (▲ 13.0 MW)	10.9 MW / 8.40% (▲ 189.7%)	5.5 MW (▲ 2.8 MW)	\$145-\$165
Dallas/Fort Worth	Q1	131 MW (▲ 18.6 MW)	23.7 MW / 18.0% (▲ 68.1%)	7.0 MW (▼ 1.9 MW)	\$125-\$155
	Q2	132 MW (▲ 0.7 MW)	21.5 MW / 16.3% (▼ 9.6%)	2.8 MW (▼ 4.2 MW)	\$125-\$155

*Rental rates are quoted asking rates from providers for 500 kW. CBRE experiences that actual contract rates fall below these numbers.

**Quoted rates are outside of NYC proper. NYC (Manhattan) wholesale rates average \$225-\$300/kW/mo.

Arrows reflect quarter-over-quarter changes.

Q1-Q2 DATA CENTER CONSTRUCTION PIPELINE



*Source: CBRE Data Center Solutions,

Regional Industry Trends

Transpacific Data Center Connectivity Hub Launches in Seattle

"Recently, a big new data center campus was launched in the Seattle area to take advantage of that demand. The company behind it is Centeris, a recently formed data center provider backed by the Benaroya Company, a real estate firm based in Bellevue, Washington, which is also just outside Seattle."*

Green House Data Buys Three Washington Data Centers

"Green House Data, a Cheyenne, Wyoming-based data center provider, has acquired Seattle-based FiberCloud for an undisclosed sum. The deal gives Green House three Washington data centers, the company's first presence in the state, including one in Seattle's Westin Building, which is one of the West Coast's primary carrier hotels." **

Sabey, Q9 Partner on Cross-Border US-Canada Data Center Offering

"Neither Seattle-based Sabey nor Q9, partially owned by Bell Canada, currently have data centers outside of their respective countries." **

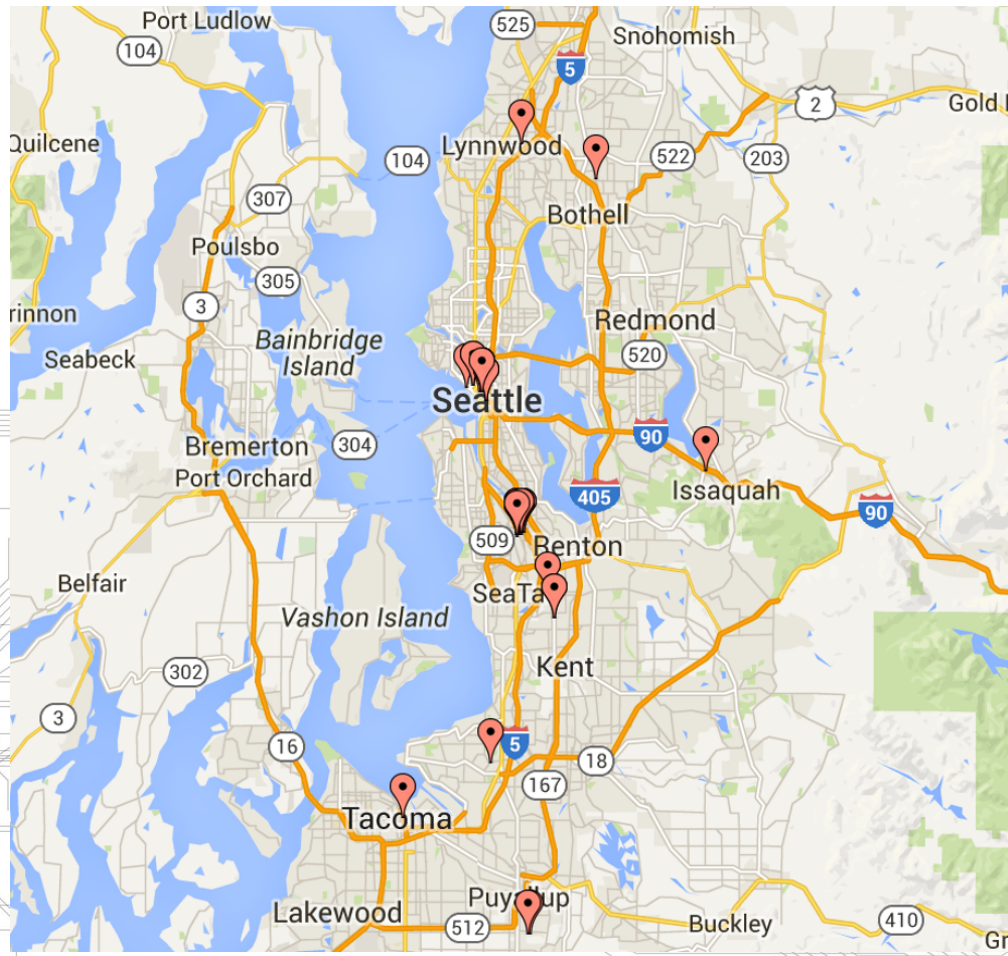
*Source: <http://www.datacenterknowledge.com/archives/2016/03/14/transpacific-data-center-connectivity-hub-launches-in-seattle/>

**Source: <http://www.datacenterknowledge.com/archives/2015/04/06/green-house-data-buys-three-washington-data-centers/>

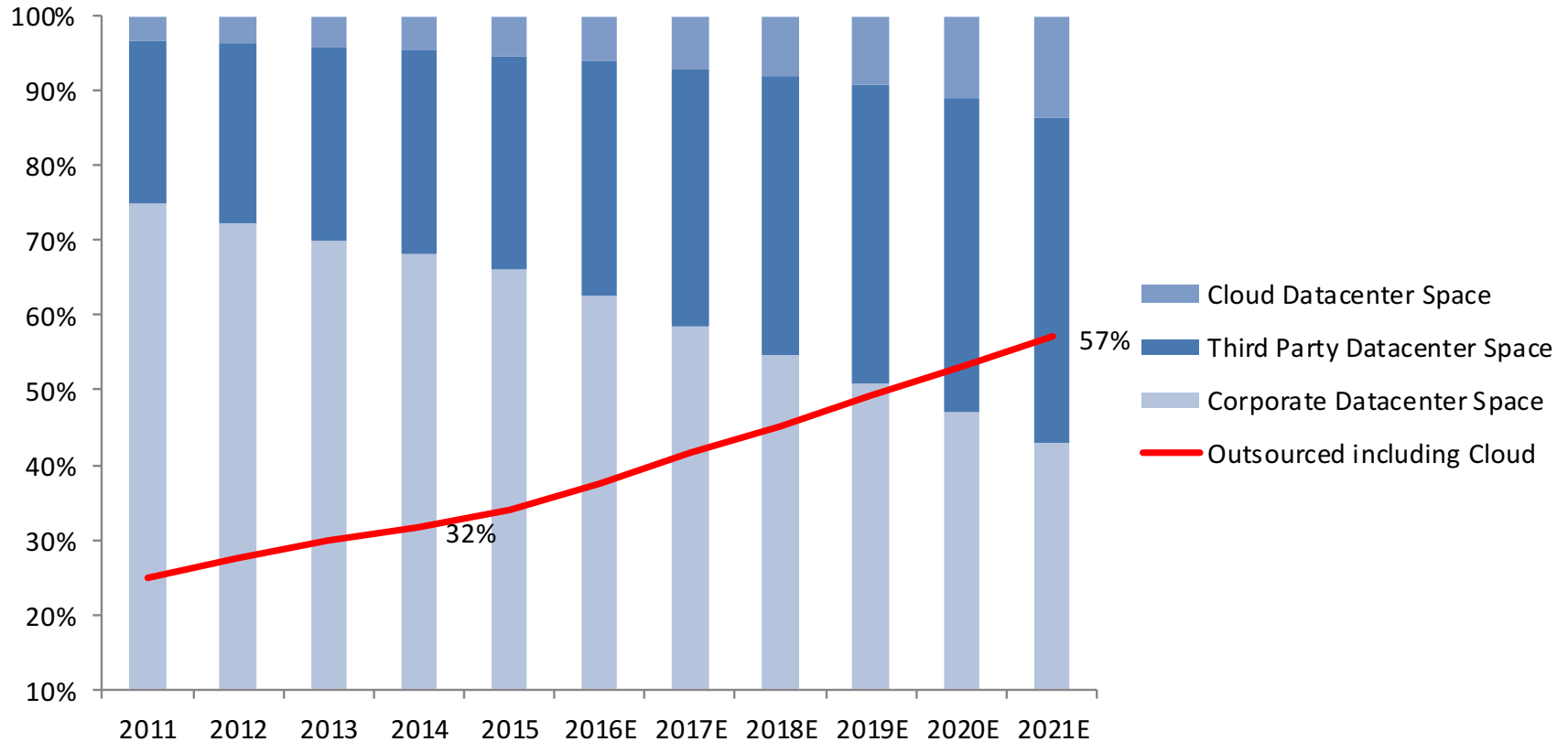
***Source: <http://www.datacenterknowledge.com/archives/2016/06/28/sabey-q9-partner-on-cross-border-us-canada-data-center-offering/>

Regional Industry Trends

23 Commercial Data Centers House 25 Different Providers Within the Seattle Region



Outsourcing Trends



Public Data Centers Comparison

Stock (Ticker)	Ticker	Stock Price	Stock Perf Since YE15	Market Cap. (Mil.)	Firm Value (Mil.)	2016E Revs (Mil.)
Cloud Infrastructure						
Cyrus One (CONE)	CONE	\$52.4	40%	3,437	4,524	521
CoreSite Realty (COR)	COR	\$82.6	46%	3,910	4,409	397
Digital Realty Trust	DLR	\$102.1	35%	14,158	20,017	2,081
DuPont Fabros (DFT)	DFT	\$45.9	55%	3,761	5,279	521
Equinix (EQIX)	EQIX	\$371.0	23%	26,104	32,111	3,615
InterXion Holding (INXN)	INXN	\$38.3	27%	2,703	3,243	478
Landmark Infrastructure (LMRK)	LMRK	\$15.5	6%	1,269	1,497	43
QTS Realty Trust (QTS)	QTS	\$54.7	21%	2,322	3,132	389
Zayo (ZAYO)	ZAYO	\$27.9	5%	6,782	10,663	2,065
S&P 500 (Cons. Ests.)	SP50	\$2,112.0	3%			

Public Data Centers Comparison

Stock (Ticker)	Ticker	Firm Value to '16E EBITDA (Consolidated)	Firm Value to '16E EBITDA (Multiplier)	16E FCF / AFFO Yield	16E Net Debt / EBITDA	Div. Yield %
Cloud Infrastructure						
Cyrus One (CONE)	CONE	272	16.6x	4.9%	4.0x	2.4%
CoreSite Realty (COR)	COR	206	21.4x	3.8%	1.9x	0.0%
Digital Realty Trust	DLR	1,185	16.9x	4.7%	4.9x	3.3%
DuPont Fabros (DFT)	DFT	323	16.3x	6.0%	3.6x	3.8%
Equinix (EQIX)	EQIX	1,653	19.4x	4.1%	3.6x	1.9%
InterXion Holding (INXN)	INXN	215	15.1x	-1.5%	2.5x	NA
Landmark Infrastructure (LMRK)	LMRK	38	39.7x	9.9%	6.1x	8.1%
QTS Realty Trust (QTS)	QTS	177	17.6x	4.6%	4.6x	2.3%
Zayo (ZAYO)	ZAYO	1,054	10.1x	8.3%	3.7x	0.0%
S&P 500 (Cons. Ests.)	SP50					2.1%

Data Center Directory

Name	Retail	Wholesale	Hosting	Location(s)	TYPE (TICKER: EXCHANGE)	Address	City
Adtaq Internet	x			Local	Private	1420 NW Gimán Blvd Suite 2316	Issaquah
Benaroya				Regional	Private	1023 39th Avenue	Puyallup
ByteGrid SEA1	x	x		National	Private	4200 194th St SW	Lynnwood
Centeris SH1	x			Regional	Privately owned by Benaroya	1023 39th Ave SE	Puyallup
Centeris SH2		x		Regional	Privately owned by Benaroya	1015 39th Ave SE	Puyallup
CenturyLink SE2	x		x	Global	Public (CTL: NYSE)	12301 Tukwila Intl Blvd	Tukwila
CenturyLink SE3	x		x	Global	Public (CTL: NYSE)	3355 S 120th Street	Seattle
CenturyLink SE4	x		x	Global	Public (CTL: NYSE)	6101 S 180th Street	Bellevue
Digital Fortress	x			Local	Private PE Backed	3101 Western Ave	Seattle
Digital Fortress	x			Local	Private PE Backed	12101 Tukwila Intl Blvd	Seattle
Digital Realty Trust	x	x		Global	Public REIT (DLR: NYSE)	2001 6th Ave	Seattle
Equinix SE2	x		x	Global	Public (EQIX: NASDAQ)	2001 6th Ave Suite 1202	Seattle
Equinix SE3	x		x	Global	Public (EQIX: NASDAQ)	2020 Fifth Ave 5/F, 6/F, 7/F, 8/F	Seattle
Greenhouse Data Bellingham	x		x	National	Private	851 Coho Way, Suite 206	Bellingham
Greenhouse Data Everett	x		x	National	Private	2707 Colby Ave	Everett
Greenhouse Data Seattle	x		x	National	Private	2001 6th Ave	Seattle
Internap SEF	x		x	Global	Public (INAP: NASDAQ)	140 4th Ave N Suite 200	Seattle
Internap SEFoo3	x		x	Global	Public (INAP: NASDAQ)	3355 S 120th Pl	Tukwila

*Source: peeringdb.com.

Data Center Directory

Name	Retail	Wholesale	Hosting	Location(s)	TYPE (TICKER: EXCHANGE)	Address	City
Kanobe Seattle	x		x	Local	Private	12201 Tukwilla Intl Blvd	Seattle
Optic Fusion DC2	x			Local	Private	2001 6th Ave Suite 2505	Seattle
Optic FusionDC1	x			Local	Private	1101 A St Suite 400	Tacoma
PEER 1 Hosting	x		x	International	Private	2001 6th Ave	Seattle
Sabey Intergate East Building 1	x	x		Regional	Private	3355 S 120th St	Seattle
SunGard	x		x	Global	Private	12201 Tukwilla Intl Blvd	Federal Way
Superb Internet	x		x	National	Private	501 S 336th St Suite200	Seattle
Telx SEA1	x		x	National	PE Backed	3311 S 120th Pl	Tukwila
TierPoint	x		x	National	PE Backed	2001 6th Ave	Seattle
Ubiquity Hosting	x		x	National	Private	40 Fourth Ave N Suite 360	Bothell
US COLO	x			Regional	Private	22722 29th Dr SE	Tukwila
Verizon	x			Global	Public (VZ: NYSE)	12101 Tukwila Intl Blvd Suite 100	Seattle
WORLDLINK DC1	x		x	Local	Private	12101 Tukwila Intl Blvd	Kent
WORLDLINK DC2	x		x	Local	Private	6906 S 204th St	Kent
Wowrack Technologies	x		x	Local	Private	6906 S 204th St	Seattle

*Source: peeringdb.com.

Data Center Directory

Name	Retail	Wholesale	Hosting	Location(s)	TYPE (TICKER: EXCHANGE)	Address	City
XO Communications	x			National	Private	12201 Tukwila Intl Blvd Suite 110	Seattle
XO Communications	x			National	Private	1100 2nd Ave 1st Fl	Seattle
Zayo Group	x	x	x	National	Public (ZAYO:NYSE)	1000 Denny Way 3rd Fl	Seattle
Zayo Group	x	x	x	National	Public (ZAYO:NYSE)	12201 Tukwila Intl Blvd	Seattle
Zayo Group	x	x	x	National	Public (ZAYO:NYSE)	2001 6th St	Seattle

*Source: peeringdb.com.

Regional Peering Exchanges

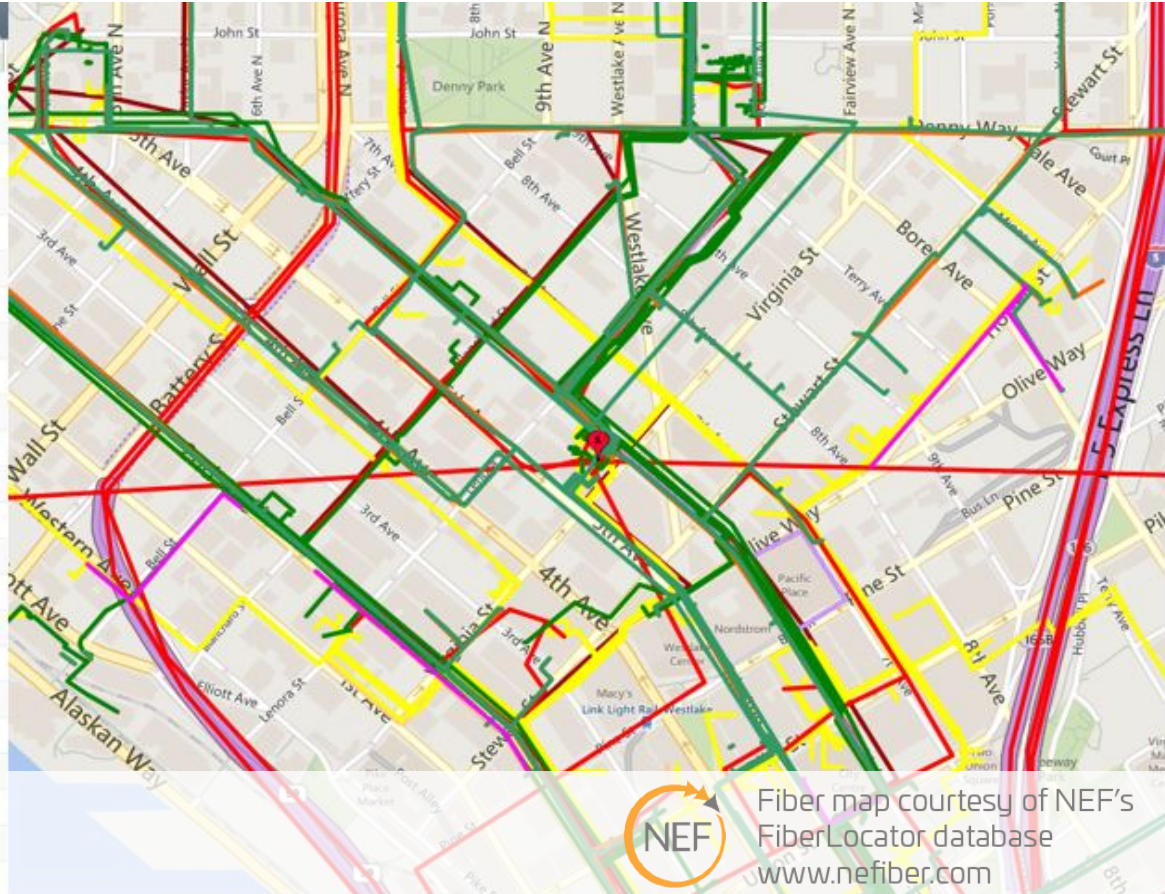
List of Major Peering Exchanges In and Around Seattle

Exchange Name	Long Name	City/Region
SIX	Seattle Internet Exchange	Seattle
Equinix Seattle	Equinix Internet Exchange Seattle	Seattle

Regional Carrier Hotels

2001 Sixth Avenue, Seattle, WA
1 Mile View

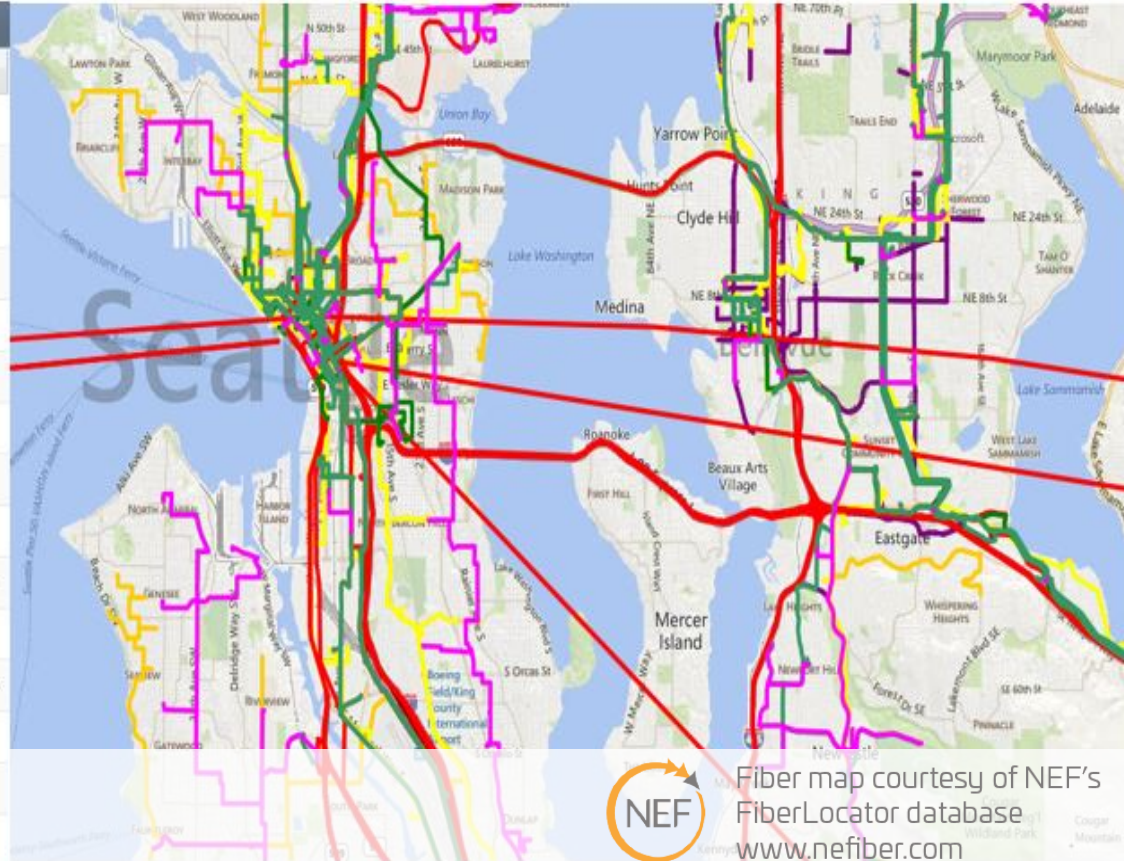
Dynamic Legend	
Icon	Name
	CenturyLink Metro Le...
	Spectrum Business
	Level3 Metro
	Integra
	Syringa Networks
	Windstream
	Zayo Planned Routes
	Zayo Metro
	Zayo Dark
	XO Communications
	Electric Lightwave (Int...
	Noel Communications
	Noel Communications...
	Level 3 Long Haul
	Global Crossing Long...
	Electric Lightwave Lo...
	Sprint Long Haul
	Verizon Long Haul
	CenturyLink Metro
	Zayo Long Haul
	Zayo Dark Long Haul
	XO Long Haul
	CenturyLink Long Haul



Regional Metro Networks

20 Mile Metro Networks

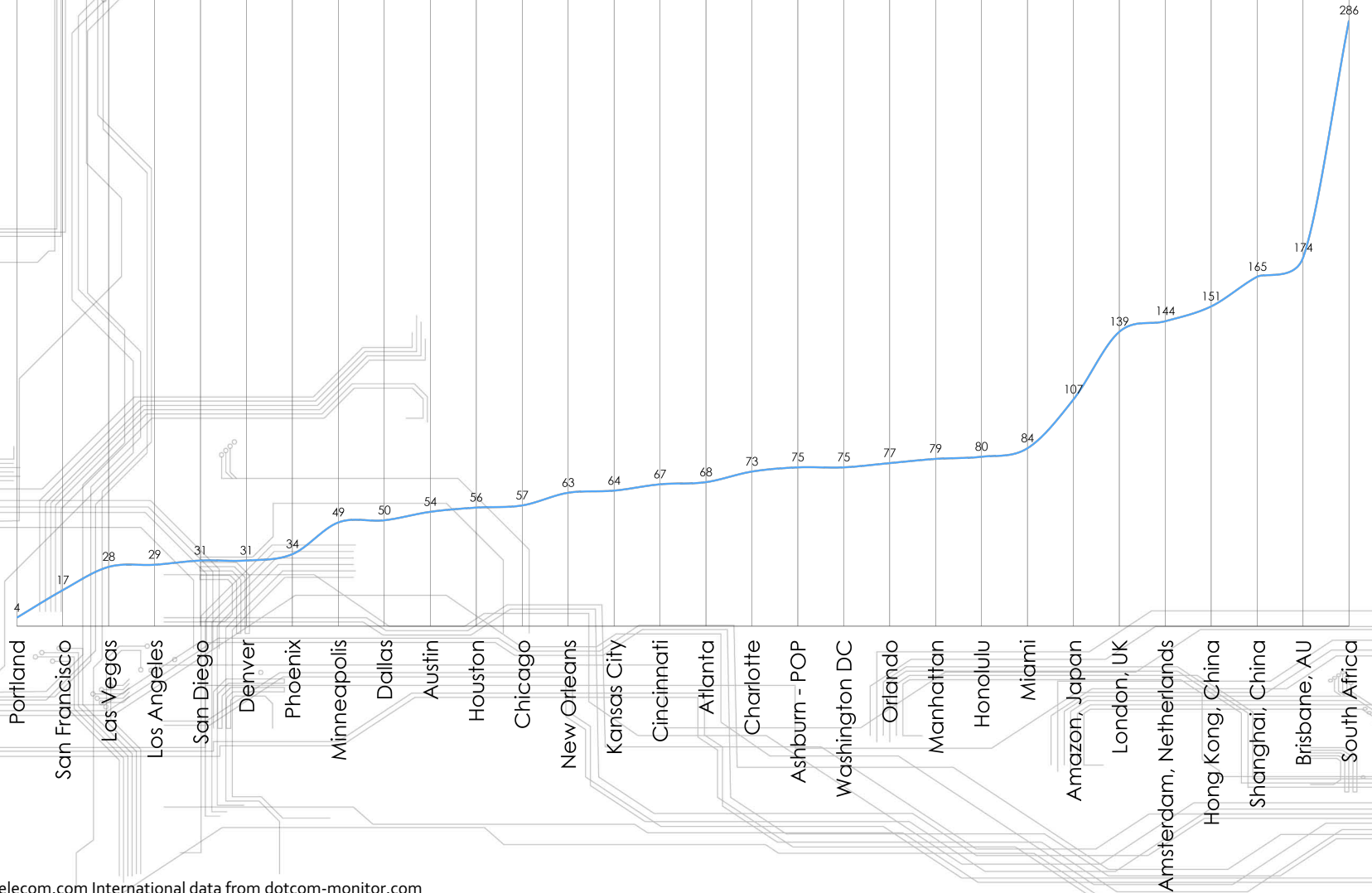
Dynamic Legend	
Icon	Name
	Noel Communications
	Windstream
	XO Communications
	Zayo Dark
	Zayo Planned Routes
	Zayo Metro
	Spectrum Business
	Syringa Networks
	City of Bellevue, WA
	CenturyLink Metro Le...
	Crown Castle
	Electric Lightwave (Int...
	Level3 Metro
	Integra
	CenturyLink Metro



Fiber map courtesy of NEF's
FiberLocator database
www.nefiber.com

Network Latency

-Latency in milliseconds, from Seattle



*Source: twtelecom.com International data from dotcom-monitor.com

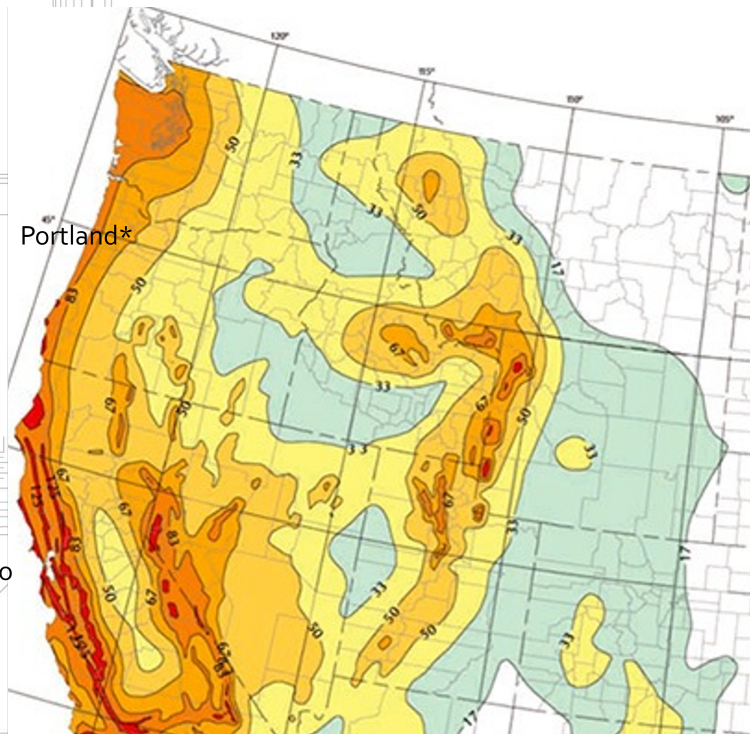
Environment & Industry

Like most other major markets across the USA, Seattle has a tremendous amount of available space and power in the area.

It has subterranean fiber landing from the East, great power rates and is home to some of the largest technology companies in the world.

Washington has data center industry related tax incentives as well and is positioned to grow into a truly Tier 1 market.

Local Weather Factors



High Earthquake Risk

SDC	EARTHQUAKE HAZARD
A	Very small probability of experiencing damaging earthquake effects.
B	Could experience shaking of moderate intensity.
C	Could experience strong shaking.
D0	
D1	Could experience very strong shaking (the darker the color, the stronger the shaking).
D2	
E	Near major active faults capable of producing the most intense shaking.

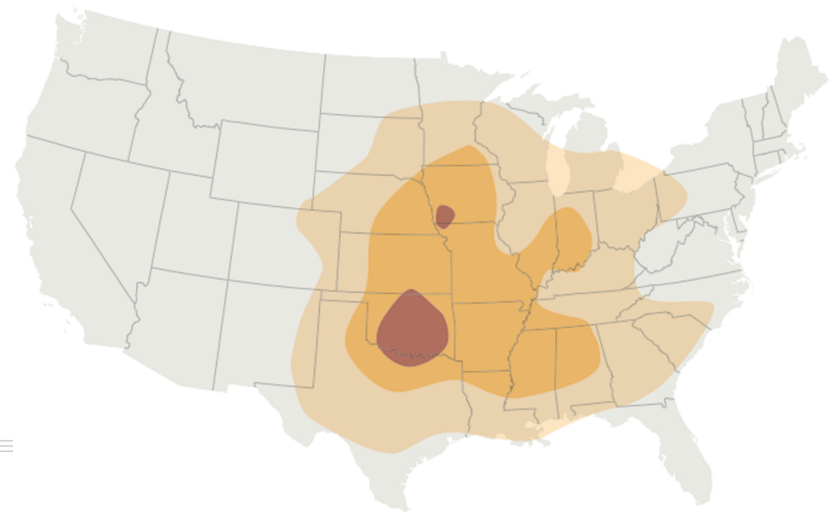
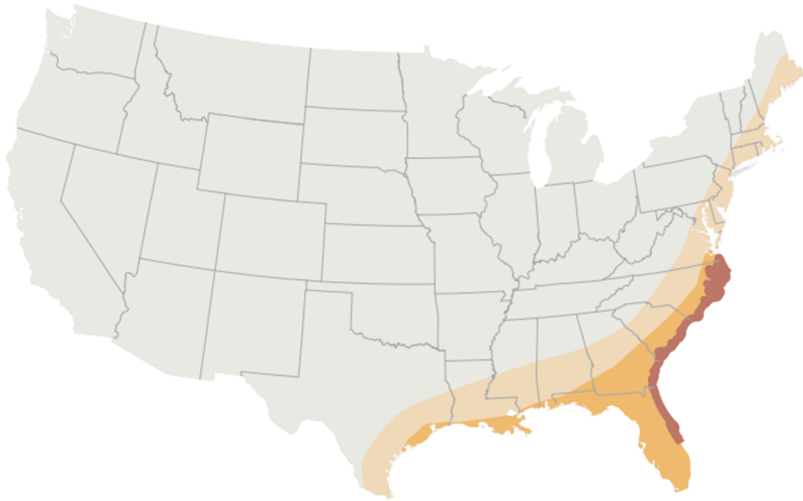
Local Weather Factors

No Hurricane Risk

Low Tornado Risk

Lower  Higher

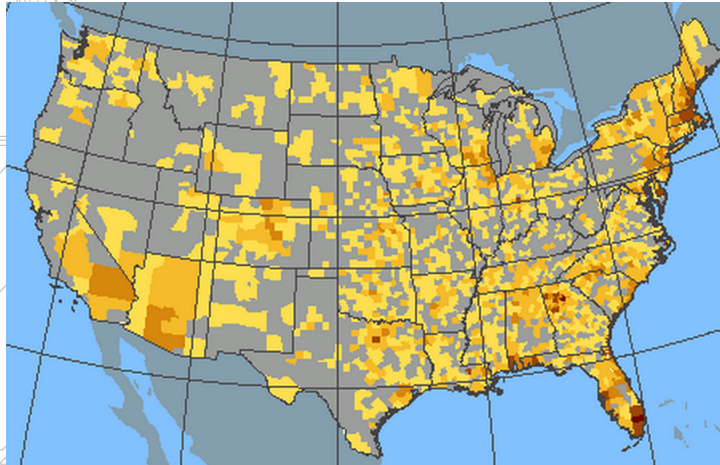
Lower  Higher



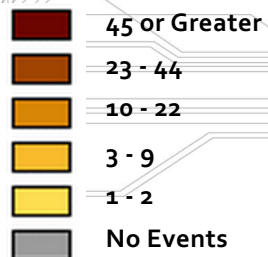
*Source: Matthew Erickson, Joe Burgess, and Bill Marsh of The New York Times. Accessed online, nationalatlas.gov

Local Weather Factors

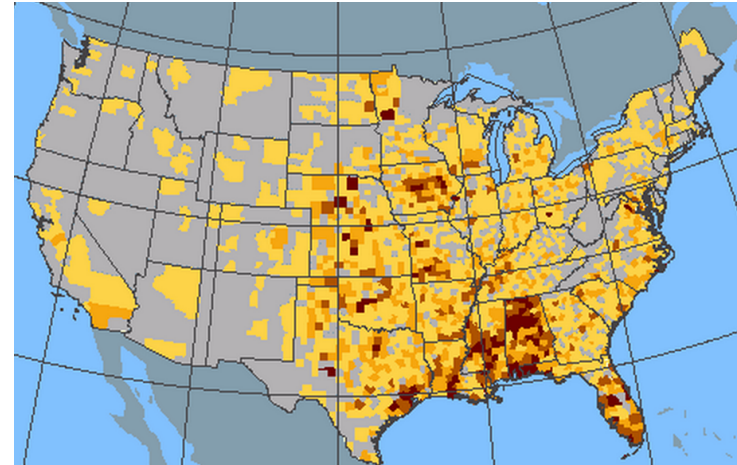
Moderate Lightning Risk



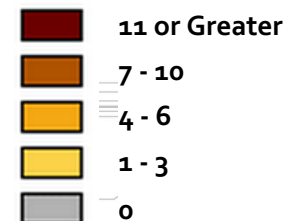
Lightning: Number of events that resulted in damage



Moderate Thunderstorm Risk



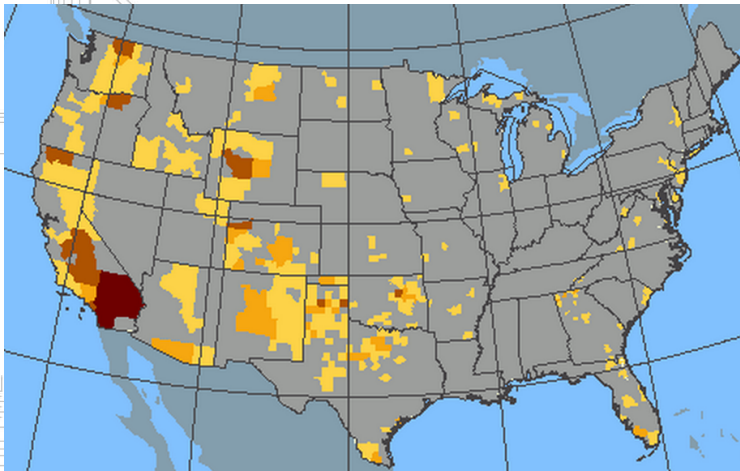
Thunderstorm: Number of damage-causing events



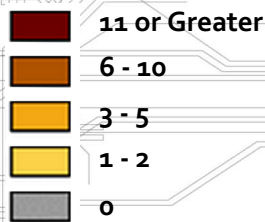
*Source: nationalatlas.gov

Local Weather Factors

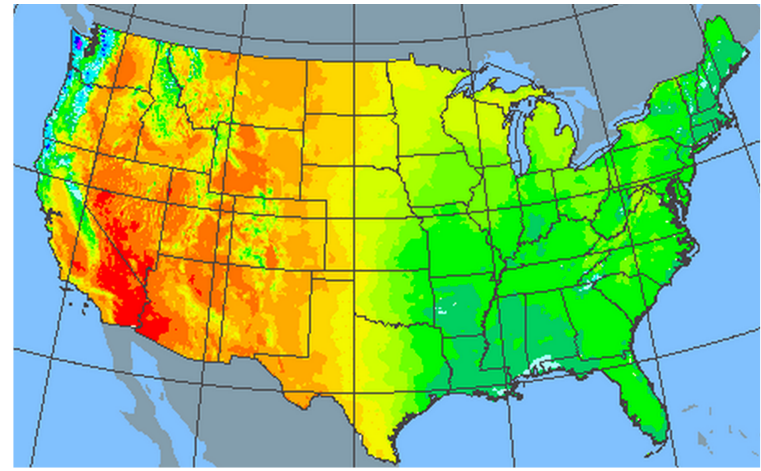
Low Wildfire Risk



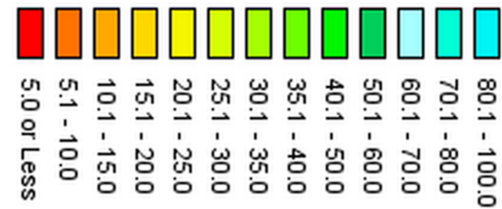
Wildfires: Number of events that resulted in damage



High Precipitation



Average Annual Precipitation (in inches)



*Source: nationalatlas.gov

Utility Service Territories

Seattle Energy Service Area Map

Legend

Investor-Owned Utilities

- Avista Energy
- Idaho Power Company
- Northwestern Energy
- PacifiCorp
- Portland General Electric
- Puget Sound Energy
- Sierra Pacific Power

Federal Utility

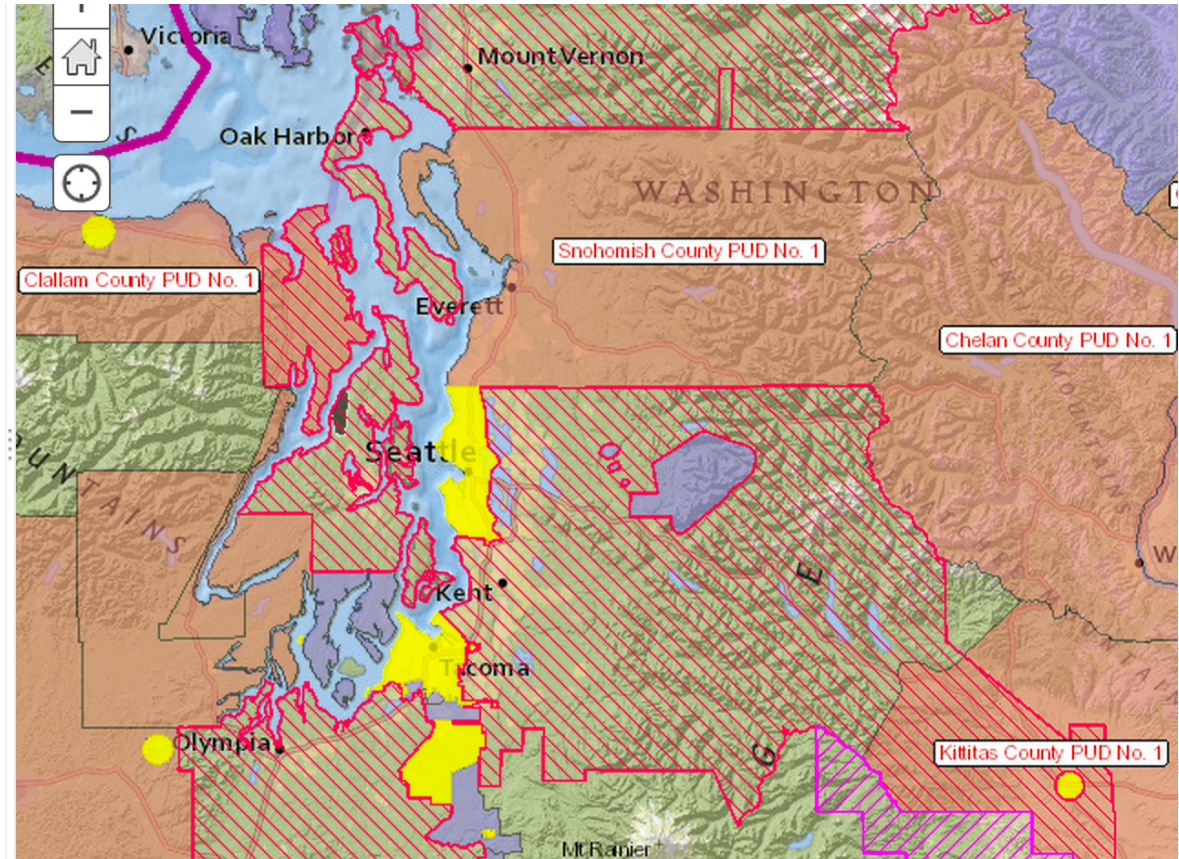


Municipality



Public Utilities

- Cooperative
- Public Utility District



National Power Connections

EXISTING LINES

- 345-499 kV
- 500-699 kV
- 700-799 kV
- 1,000 kV (DC)

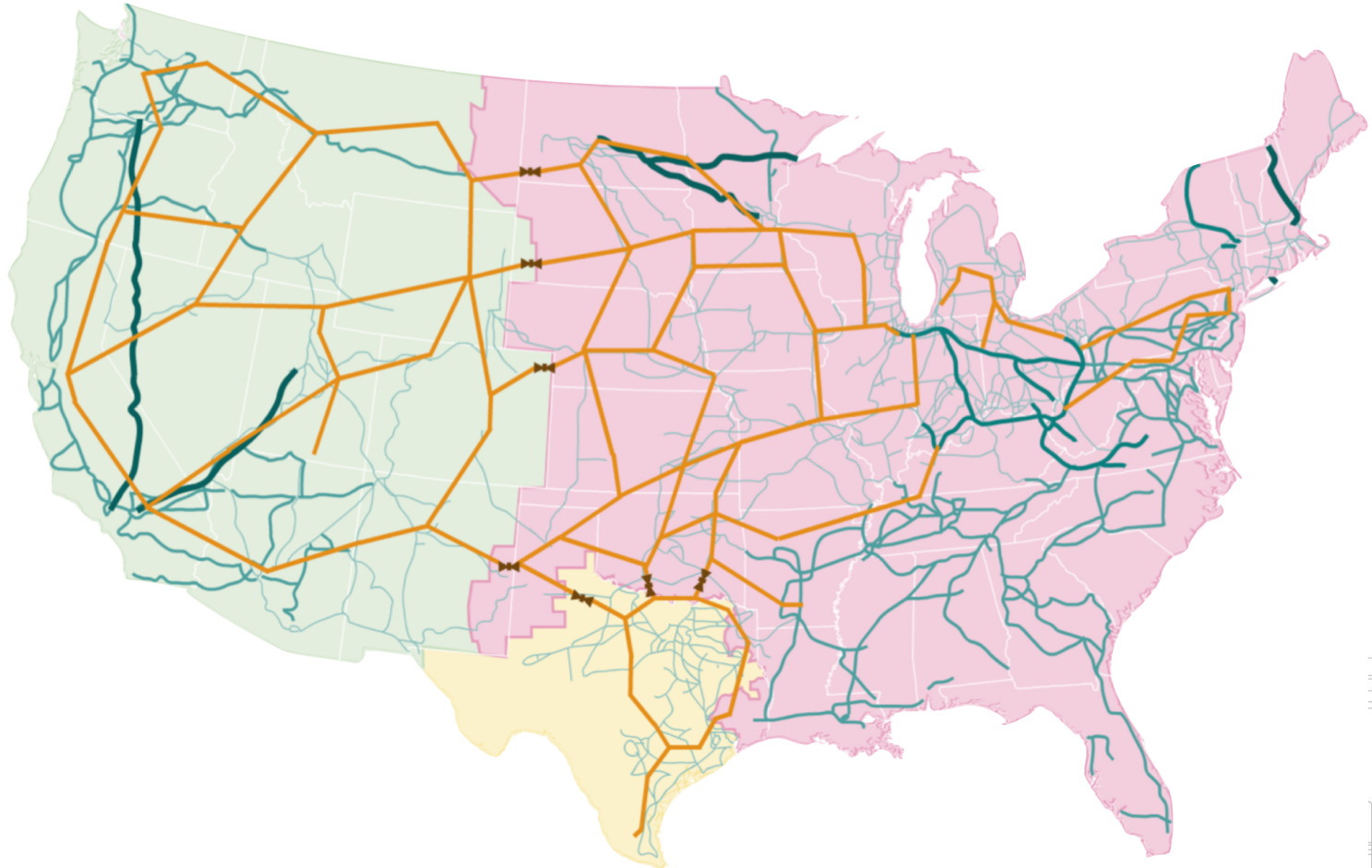
PROPOSED LINES

- New 765 kV
- AC-DC-AC Links

INTERCONNECTIONS

Major sectors of the U.S. electrical grid

- Eastern
- Western
- Texas (ERCOT)



Leading Businesses

Fortune 500 Companies in Washington

Amazon.com

Costco Wholesale

Expeditors International of Washington

Microsoft

Nordstrom

Paccar

Starbucks

Weyerhaeuser

Regardless of How You Learn, We've Got You Covered.

Whether you want to attend a live conference, or study online at your own pace, we're here to help.
Want a more personalized touch? We do that too.



For access to additional reports, to find out about upcoming events, or speak with one of our consultants, visit our website, follow us on LinkedIn, or contact us directly.