



Photo Credit: <https://www.youtube.com/watch?v=288UBJHt6Zo>

# Phoenix

# 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.

**Fiber**Locator



**STRUCTURE  
RESEARCH**

**LATHROP & GAGE**LLP

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



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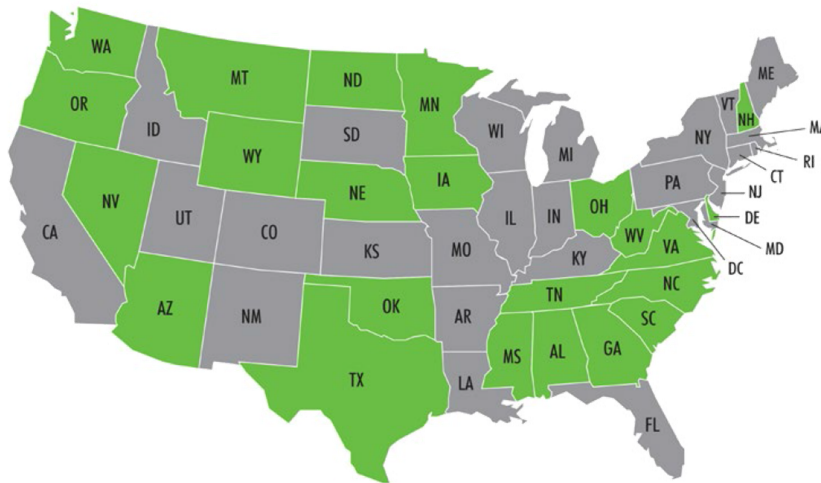
# Tax Incentives

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

Arizona currently offers sales tax incentives that affects data center owners, operators, or their clients installing hardware and related infrastructure.\*

Arizona allows for a 100% exemption of sales taxes on computer equipment, mechanical & electrical equipment, and construction materials. Eligibility is based on minimum thresholds including \$50 million of capital investment or \$25 million in smaller counties within the state.

\*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

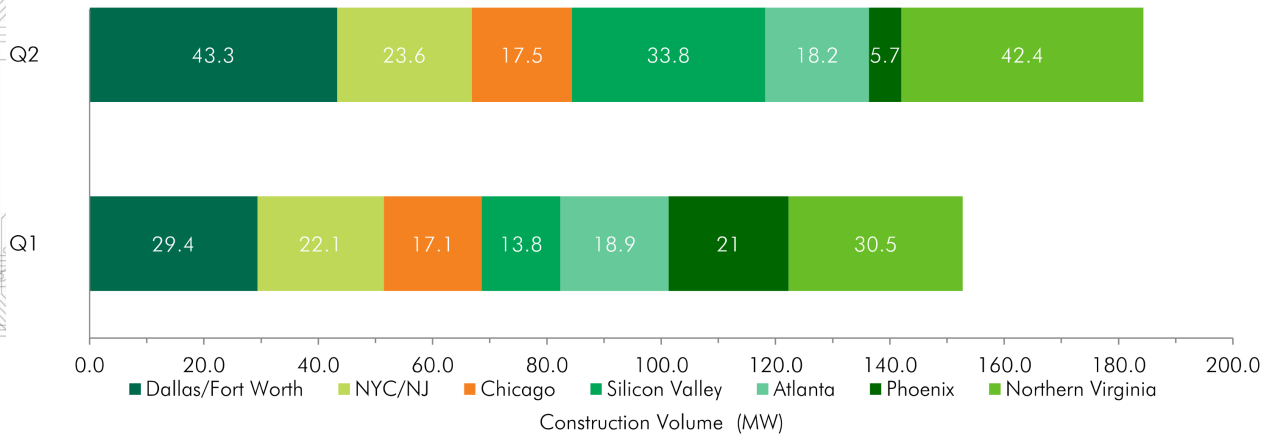
Market	Quarter	Inventory	Vacancy	Absorption	Rental Rates (kW/mo)*
Northern Virginia	Q1	417 MW (▲ 15.0 MW)	21.2 MW / 5.1% (▼ 24.1%)	20.8 MW (▲ 11.9 MW)	\$130-\$145
	Q2	421 MW (▲ 3.6 MW)	15.5 MW / 3.7% (▼ 27.7%)	9.4 MW (▼ 11.4 MW)	\$130-\$145
Phoenix	Q1	218 MW (▲ 5.0 MW)	4.1 MW / 1.87% (▼ 0.1%)	5.0 MW (▲ 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

## Arizona Governor Vetoes Data Center Consolidation and Cloud Bill

"Arizona Governor Doug Ducey has vetoed a bill that would require state agencies to consolidate data centers, migrate as many of their application workloads to cloud services as possible, and to review their IT infrastructure decisions every two years."\*

## CyrusOne Buys Lands for Huge Phoenix Expansion

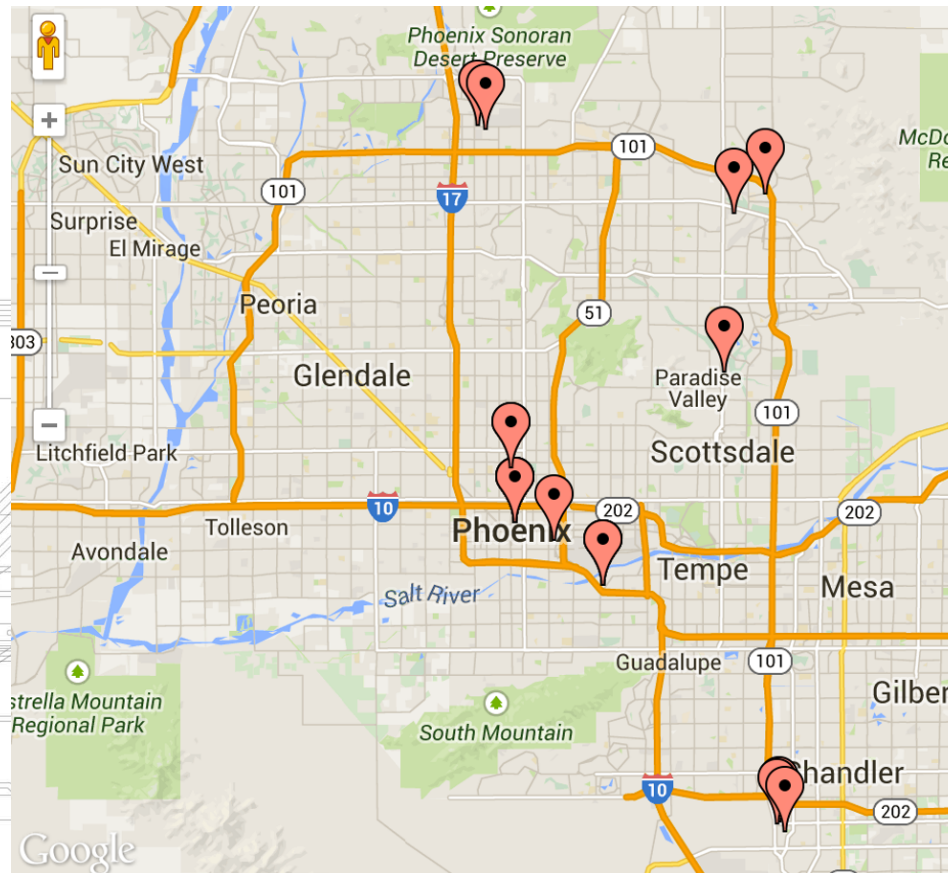
"CyrusOne, a Carrollton, Texas-based data center provider that grew up providing colocation services to the Texas oil and gas sector, has bought a 29-acre property next to its already enormous data center campus in Chandler, Arizona, just outside of Phoenix."\*\*

\*Source: <http://www.datacenterknowledge.com/archives/2016/05/20/arizona-governor-vetoes-data-center-consolidation-and-cloud-bill/>

\*\*Source: <http://www.datacenterknowledge.com/archives/2016/10/12/us-data-center-construction-update-week-october-12/>

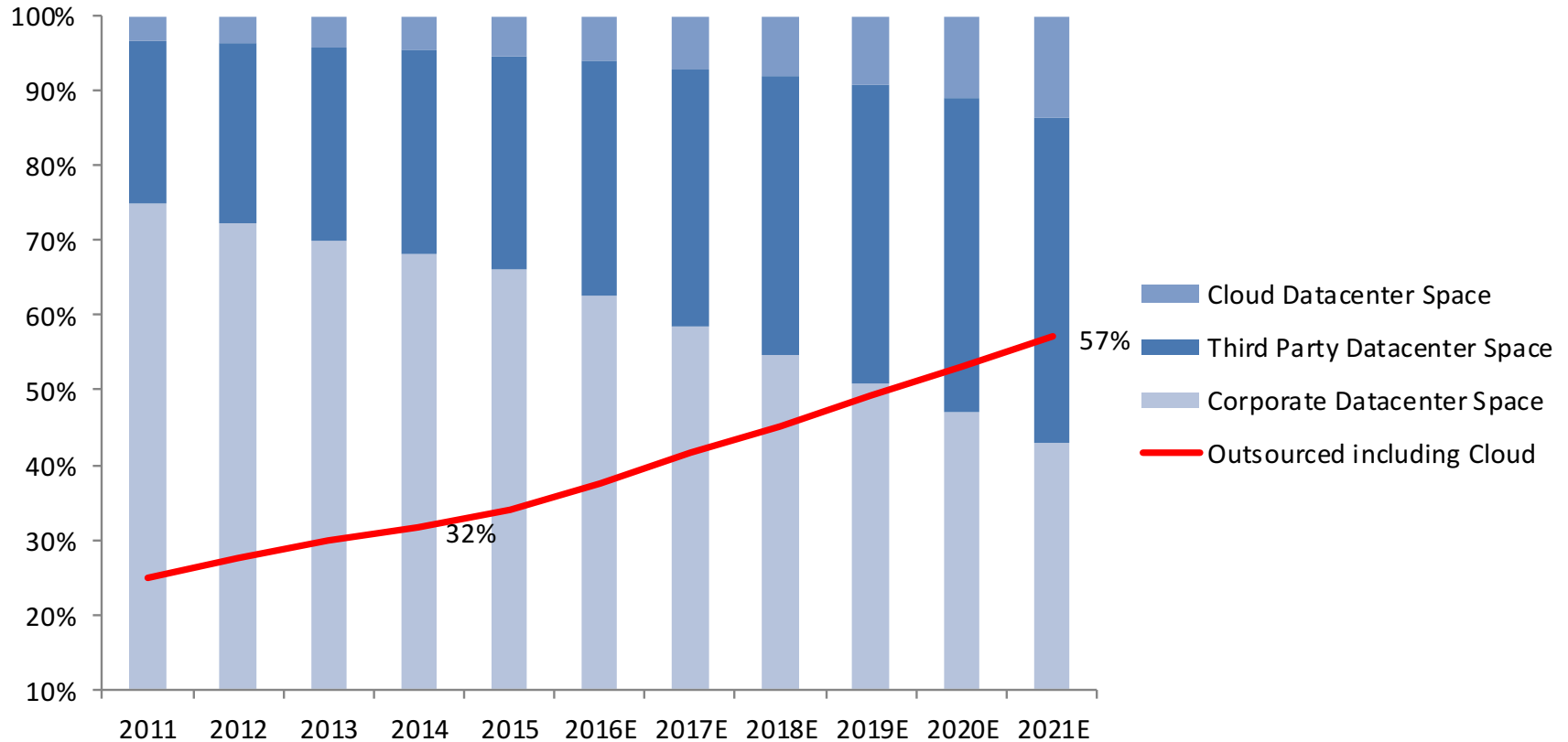
# Regional Industry Trends

19 Commercial Data Centers House 14 Different Providers Within the Phoenix 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
365 Data Centers	x			National	PE Backed	3110 N. Central Ave, Suite 115	Phoenix
American Internet Services	x		x	Regional	Private	120 E. Van Buren St	Phoenix
Atjeu Hosting	x		x	Local	Private	1515 W. Deer Valley Road, C-103	Phoenix
CenturyLink Phoenix	x		x	Global	Public (CTL: NYSE)	3402 E. University Dr	Phoenix
Colo@ Phoenix	x			National	Private	3402 E. University Dr	Phoenix
CyrusOne Chandler I & II	x	x		National	Public REIT (CONE: NASDAQ)	2335 S. Ellis St	Chandler
Digital Realty Trust Chandler	x	x		Global	Public REIT (DLR: NYSE)	2121 S Price Rd	Chandler
Digital Realty Trust	x	x		Global	Public REIT (DLR: NYSE)	120 E. Van Buren St	Phoenix
IO	x			Global	Private PE Backed	8521 E. Princess Dr	Scottsdale
Liquid Web	x		x	National	Private	7025 N. Scottsdale Rd #230	Scottsdale
NextFort	x		x	Local	Private	2600 W. Germann Rd	Chandler
Omni Data Centers	x	x	x	Local	Private	TBD	TBD
Windstream Communications	x		x	National	Public (WIN: NASDAQ)	1710 E. Grant St	Phoenix
Phoenix NAP	x		x	Global	Private	3402 E. University Dr	Phoenix
SunGard	x		x	Global	Private	120 E. Van Buren St Suite 202	Phoenix
SunGard	x		x	Global	Private	7499 East Paradise Ln Suite 108	Scottsdale
Telx	x			National	PE Backed	120 E. Van Buren St	Phoenix
ViaWest	x		x	National	Private	1850 W. Deer Valley Rd.	Phoenix
Zayo Group	x			Global	Public (ZAYO: NYSE)	3110 N. Central Ave Suite B75	Phoenix

\*Source: peeringdb.com.

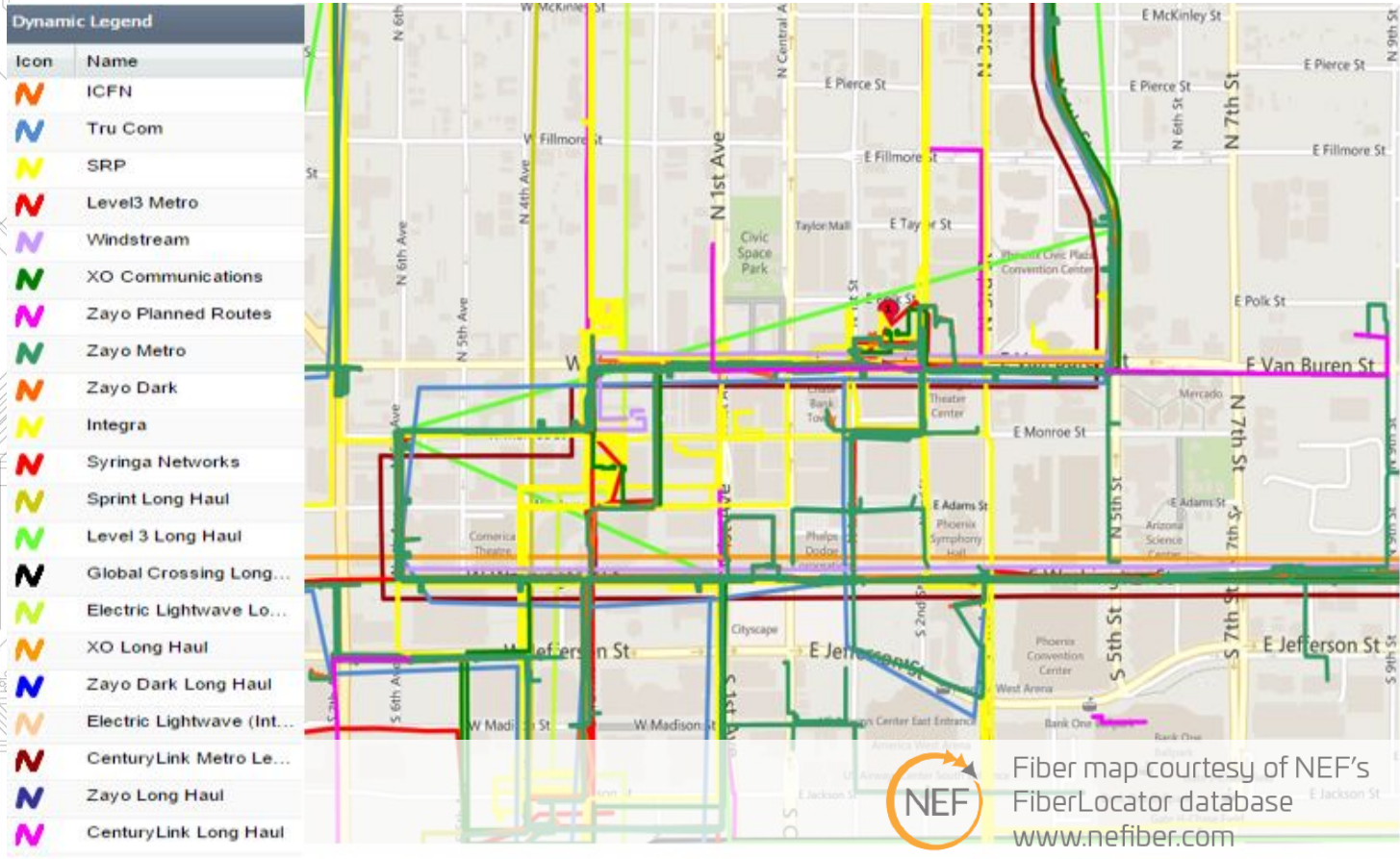
# Regional Peering Exchanges

List of Major Peering Exchanges In and Around Phoenix

Exchange Name	Long Name	City/Region
Phoenix IX	Phoenix IX	Phoenix
PHX-IX	Phoenix Internet Exchange, LLC	Phoenix
Telx Phoenix	TIE:Phoenix, Telx Internet Exchange Phoenix	Phoenix
AZIX	Arizona Internet Exchange	Phoenix
CyrusOne IX Phoenix	CyrusOne Internet Exchange	Phoenix

# Regional Carrier Hotels

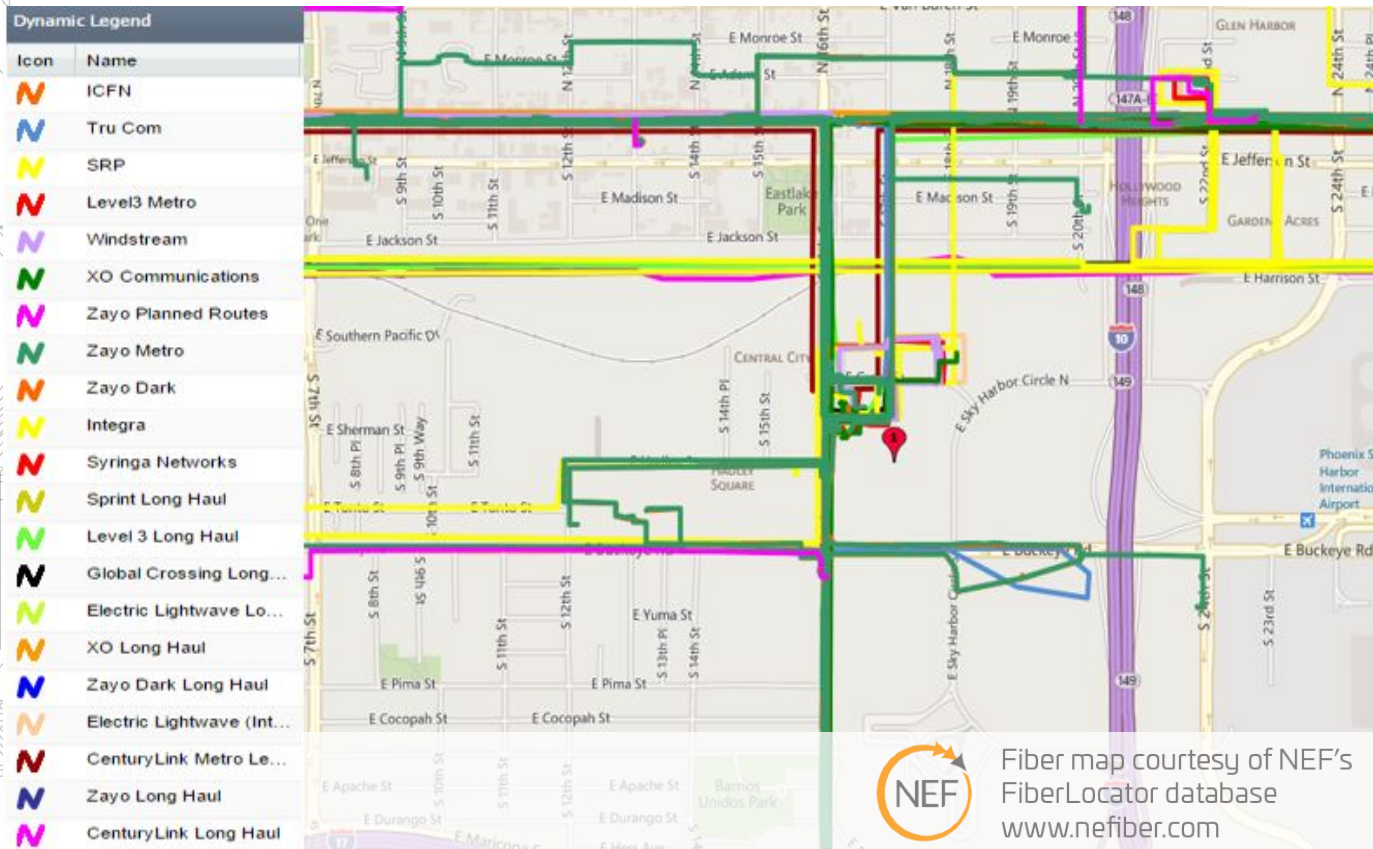
120 E. Van Buren Facility  
1 Mile View





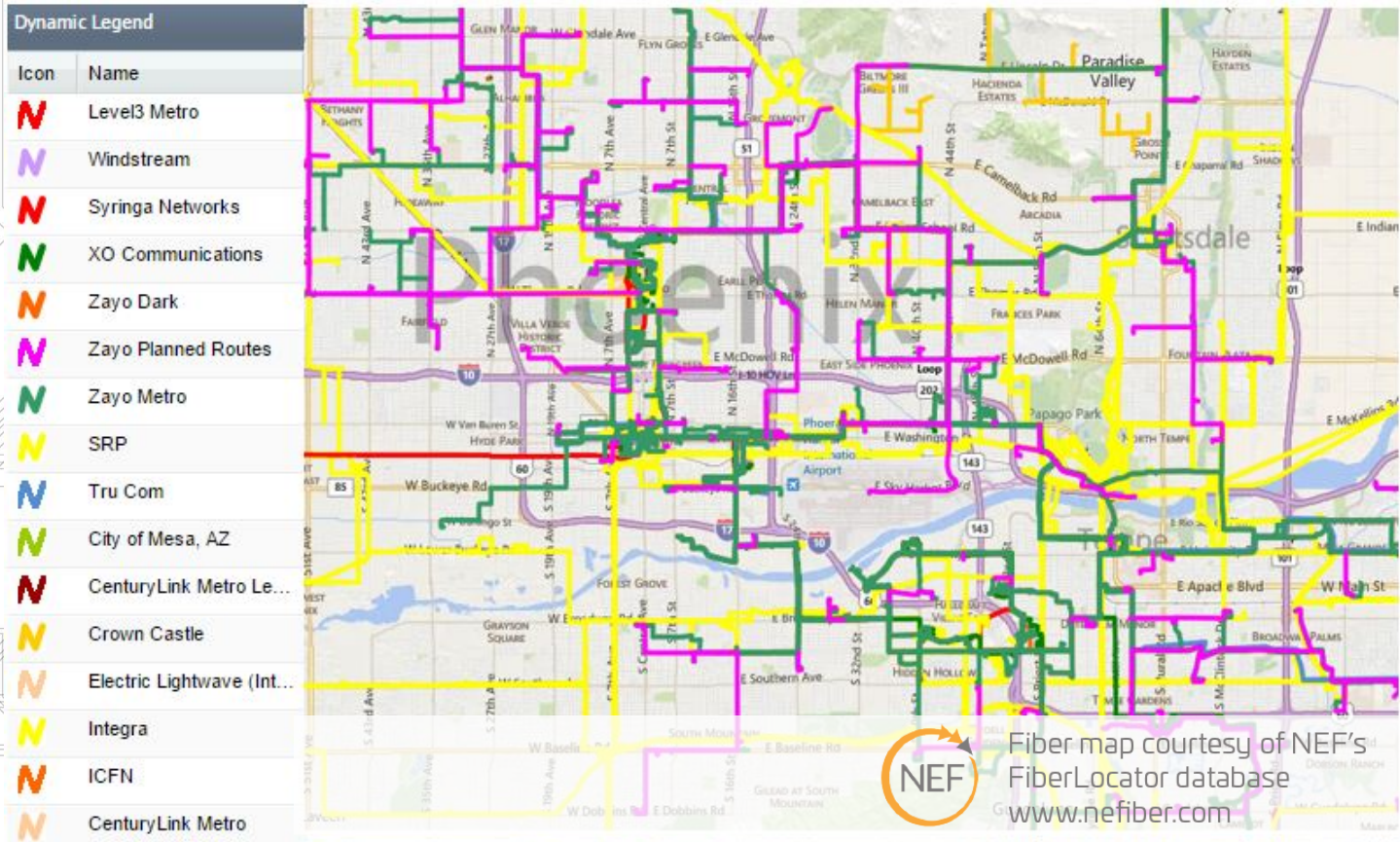
# Regional Carrier Hotels

801 S. 16th St. Facility  
1 Mile View



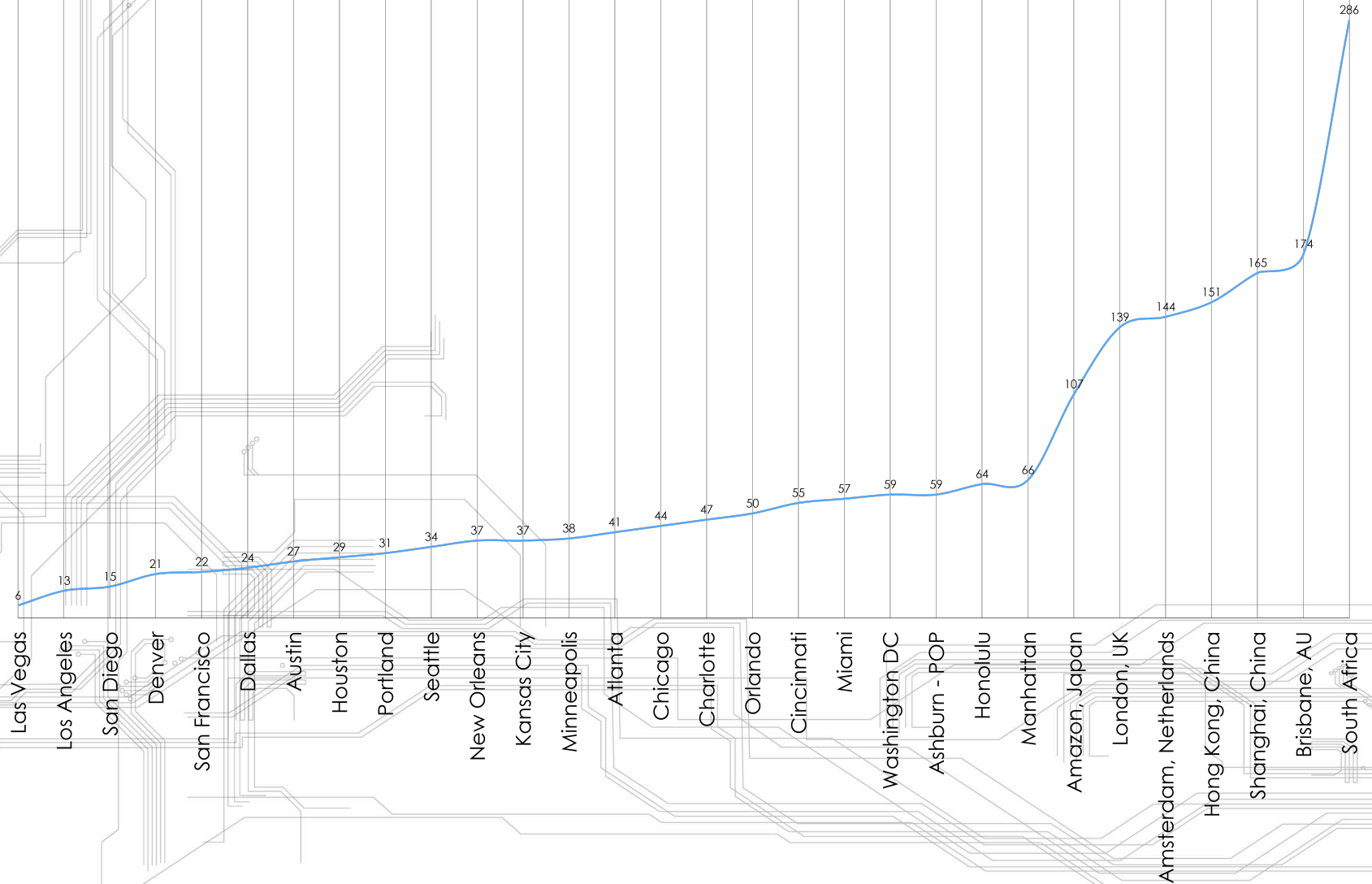
# Regional Metro Networks

20 Mile Metro Networks



# Network Latency

- Latency in milliseconds, from Phoenix



# Environment & Industry

While IO and Digital Realty remain the incumbent owners/operators in the Phoenix market, there have been a number of viable local and national contenders investing in Phoenix over the last few years, as well.

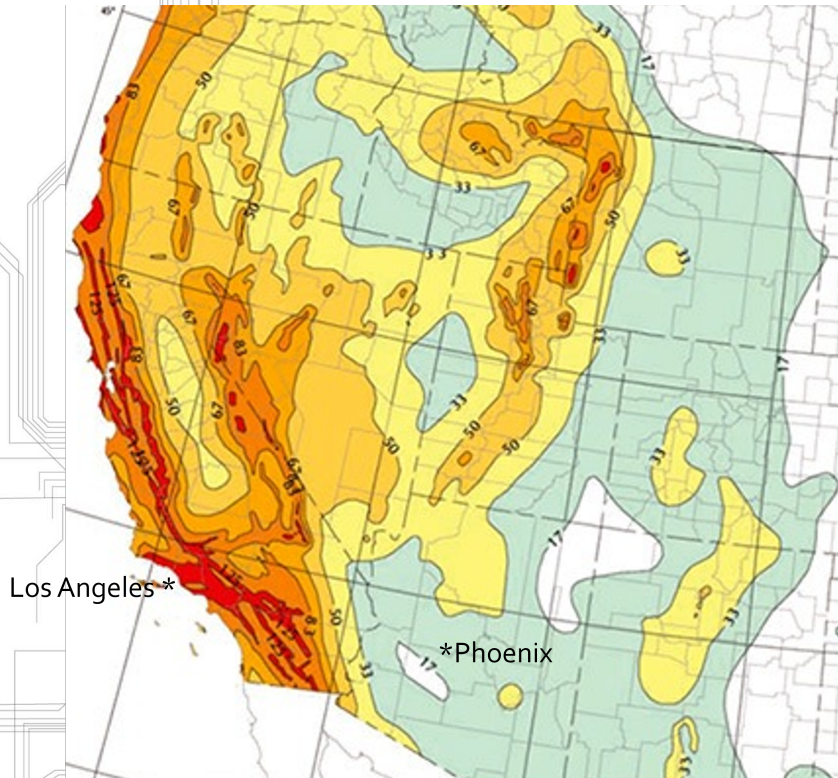
PhoenixNAP, CyrusOne and ViaWest are but three of the 12 viable commercial retail and wholesale providers now competing for local demand to this extent.

Due to the relatively low cost of power and real estate and low geographic risk profile, Phoenix also serves as a popular home for disaster recovery deployments for companies across the country.



# Local Weather Factors

## Low 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	
D2	
E	Near major active faults capable of producing the most intense shaking.

# Local Weather Factors

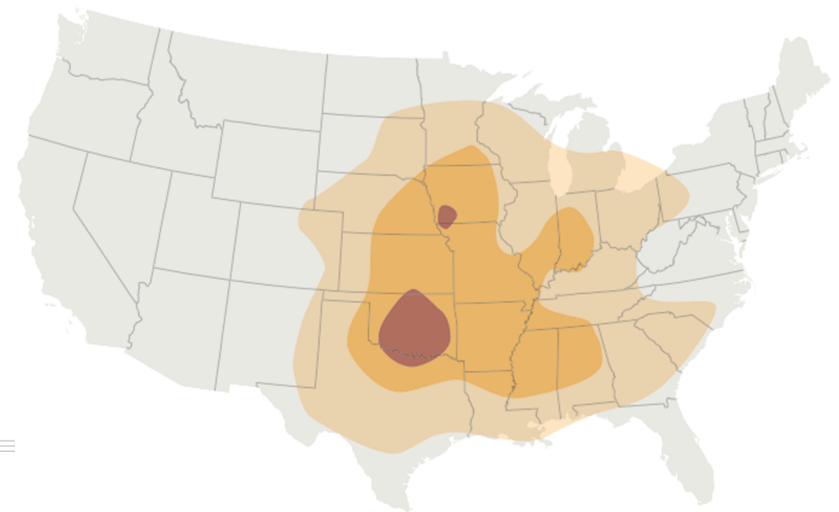
No Hurricane Risk

Lower  Higher



Low Tornado Risk

Lower  Higher

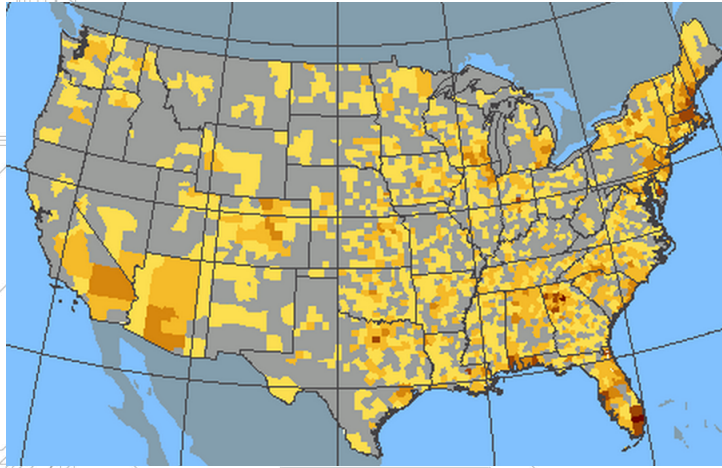


\*Source: Matthew Erickson, Joe Burgess, and Bill Marsh of The New York Times. Accessed online, [nationalatlas.gov](http://nationalatlas.gov)

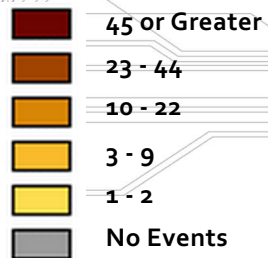


# Local Weather Factors

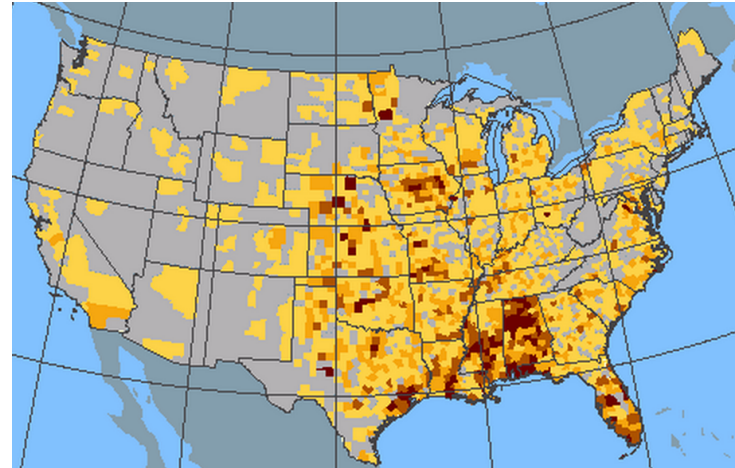
## High Lightning Risk



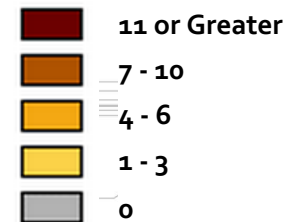
Lightning: Number of events that resulted in damage



## Low Thunderstorm Risk



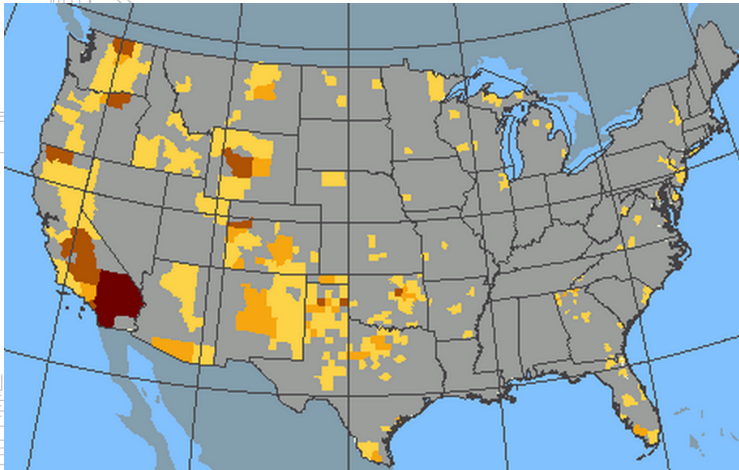
Thunderstorm: Number of damage-causing events



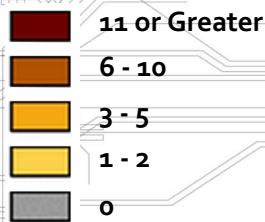
\*Source: [nationalatlas.gov](http://nationalatlas.gov)

# Local Weather Factors

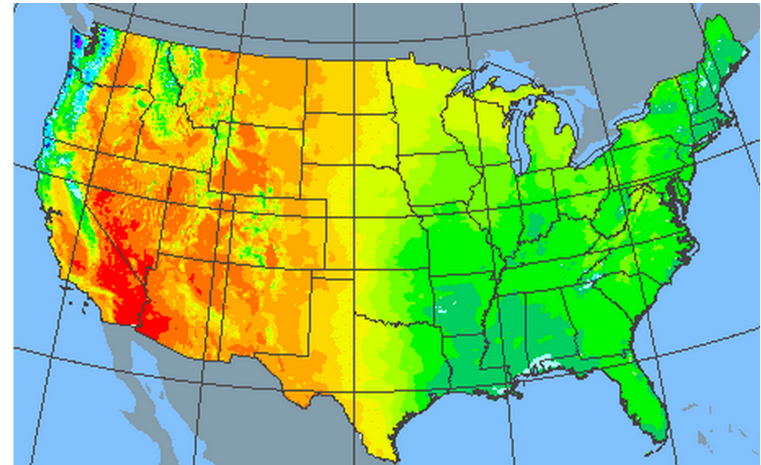
## Moderate Wildfire Risk



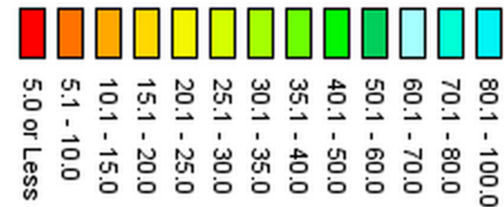
Wildfires: Number of events that resulted in damage



## Low Precipitation



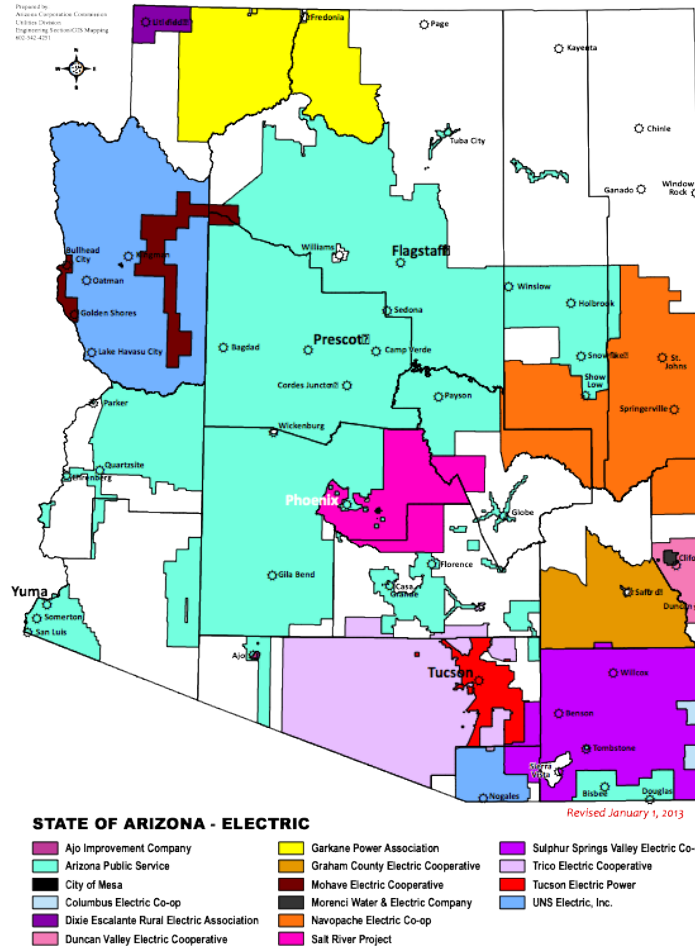
Average Annual Precipitation (in inches)



\*Source: [nationalatlas.gov](http://nationalatlas.gov)

# Utility Service Territories

## Arizona Energy Service Area Map



\*Source: <http://www.azcc.gov/divisions/utilities/electric/map-elect.pdf>

# National Power Connections

## EXISTING LINES

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

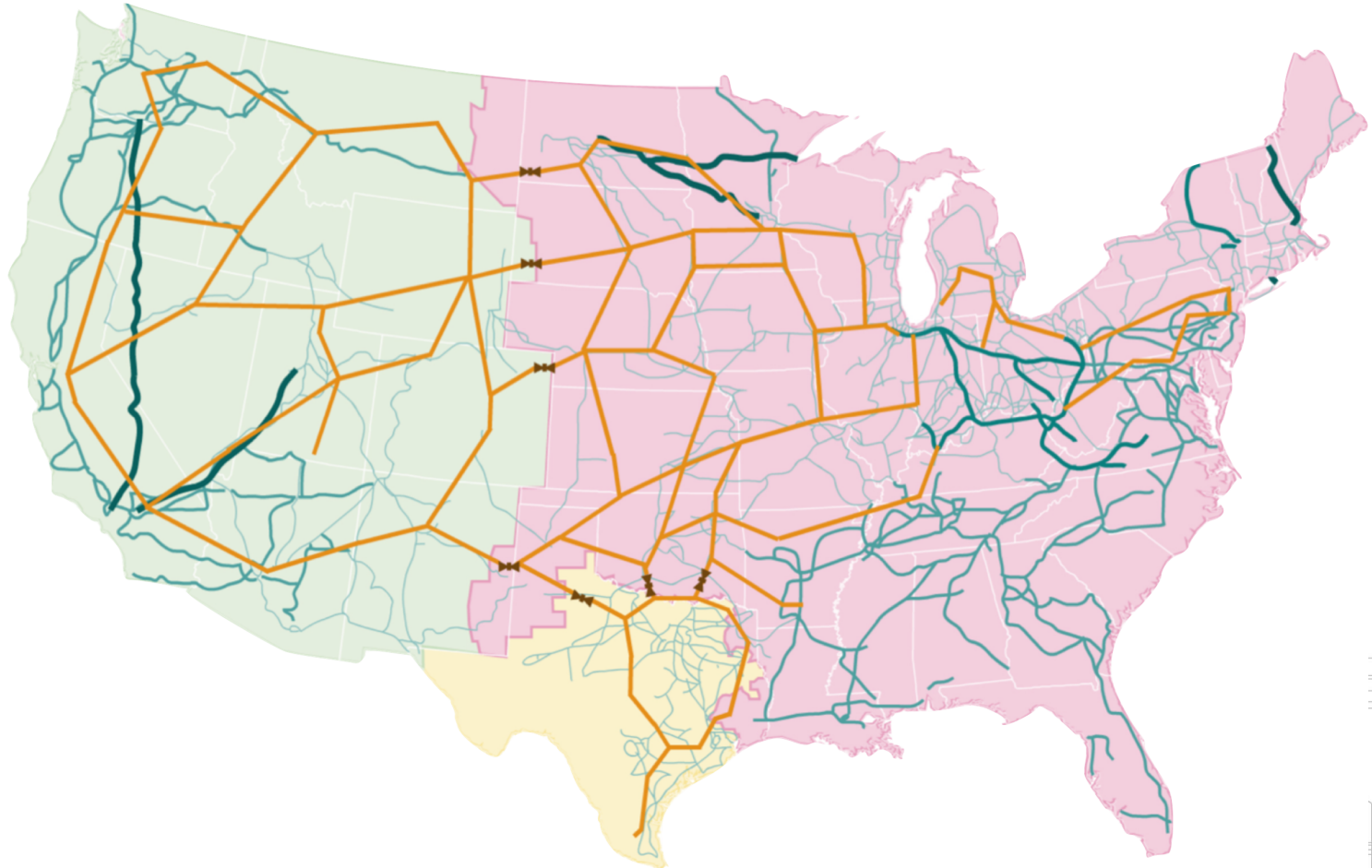
## PROPOSED LINES

- 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 Arizona

Avnet

Freeport-McMoRan Copper & Gold

Insight Enterprises

PetSmart

Republic Services

U.S. Airways Group



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