Joint Planning Commission & City Council Meeting

Data Center Study Session

Item # 2, RTC 25-448

May 20, 2025

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Data Center Study Session

City of Santa Clara

Introductions

- Data Center Coalition: Dan Diorio, Senior Director, State Policy
- City Managers Office: Jovan Grogan, Elizabeth Klotz
- City Attorney's Office: Glen Googins, Alexander Abbe
- Community Development: Afshan Hamid, Lesley Xavier, Steve Le, Meha Patel
- SVP: Nico Procos, Kathleen Hughes
- Economic Development: Reena Brilliot
- Water & Sewer: Gary Welling, Ahmed Aly

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POST MEETING MATERIAL

Data Center Study Session

City of Santa Clara
The Center of What's Possible

Purpose

- Inform community, Planning Commission and City Council about data centers
- Define a data center
- Provide background of data centers in Santa Clara
- Broader data center issues, covered by White Paper
- Opportunity for questions from Planning Commission, Council and public

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Data Center Study Session

City of Santa Clara
The Center of What's Possible

Agenda

- Background
- What is a Data Center? Data Center Coalition
- Data Center Land Use Regulations
- SVP's Power Supply and Power Planning for Data Centers
- Data Centers and Water
- Economics of Data Centers
- Questions

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Data Center Study Session

City of Santa Clara
The Center of What's Possible

Overview: What is a Data Center?

- Data centers are relied on as an essential infrastructure
- Support the fast-paced growth of the high-tech industry and as necessary infrastructure to power cloud computing and now Artificial Intelligence (AI).
- Support significant growth in all AI in sectors: governments, businesses, medicine and households adopting digital transformation
- Since pandemic, significant rise in digital transformation leading to increased demand for data centers, as AI requires substantial computational resources and storage.
- Average household has 21 connected devices

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Dan Diorio, Senior Director, State Policy

Data Center Coalition

City of Santa Clara
The Center of What's Possible

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Data Centers:

Powering the Internet and Our Modern Economy

DATA CENTER COALITION

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What Do Data Center Providers Do?

Our members build, own, and operate data centers

For their own operations, one client, or many clients in a single building

Or for a single company or client on a campus

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Inside a Data Center

- Building Shell
- Interior Space
- Security
  - Exterior
  - Interior
  - Cyber
- Servers
- Fiber/Networking Connectivity
- Reliable Power 24/7
  - Grid & Backup Generation
- HVAC/Cooling





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City of Santa Clara
The Center of What's Possible

2 Main Types of Data Centers

Self-Perform/Enterprise
Business owns/controls servers and peripherals, may own facility

Multitenant and Build to Suit
Facility owner leases to one or more tenants

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Why Data Centers?

- Significant driver of economy
- Enable digital infrastructure that supports our daily lives and modern economy
- Represent huge capital investments

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Why Data Centers?

- Generation of substantial tax revenue
- Build and support larger ecosystems of suppliers, service providers, and other sectors of the economy
  - **Each direct job in the data center industry supports more than six additional jobs**

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U.S. Data Center Industry

Jobs

- **603,900 direct jobs** in 2023—51% increase from 2017
- **4.7 million in total employment** in 2023—60% increase from 2017
- **$404 billion in total labor income** in 2023—93% increase from 2017

GDP

- **$3.5 trillion in GDP impact** between 2017-2023

Taxes – Federal, State, and Local

- **$162.7 billion in total impact** in 2023 - 146% increase from 2017

Source: PwC, "Economic Contributions of Data Centers in the United States, 2017-2023," February 2025

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California Data Center Industry

Jobs

- 2023 **direct** employment: **99,040**
- 2023 **total** (direct, indirect, and induced) employment: **560,450**

Labor Income

- 2023 **total** (direct, indirect, and induced) labor income: **$65.8 billion**

GDP and Taxes Impact

- **$122.9 billion** (direct, indirect, and induced) to California GDP in 2023
  - **24% increase** since 2022
- **$13.1 billion** (direct, indirect, and induced) in state and local tax revenues in 2023

Source: PwC, "Economic Contributions of Data Centers in the United States, 2017-2023," February 2025

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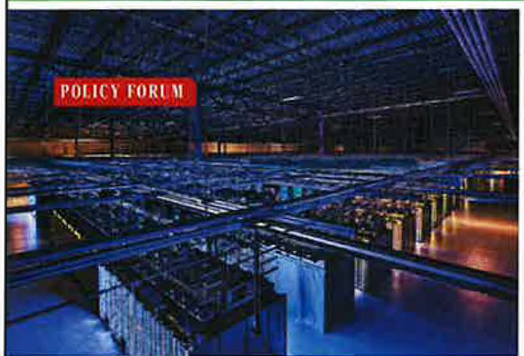
Data Centers Are Highly Efficient Consumers of Energy



ENERGY

Recalibrating global data center energy-use estimates

Growth in energy use has slowed owing to efficiency gains that smart policies can help maintain in the near term

- In 2010, 79 percent of data center computing was done in smaller traditional computer centers, largely owned and run by non-tech companies.
- By 2018, 89 percent of data center computing took place in larger, utility-style cloud data centers.
- While energy consumption by data centers rose 6 percent from 2010 to 2018, **computing output jumped 550 percent.**

Source: Science, Recalibrating global data center energy-use estimates, Feb 28, 2020 https://www.science.org/doi/10.1126/science.aba3758 *and* https://datacenters.lbl.gov/sites/default/files/Masanet_et_al_Science_2020.full_.pdf

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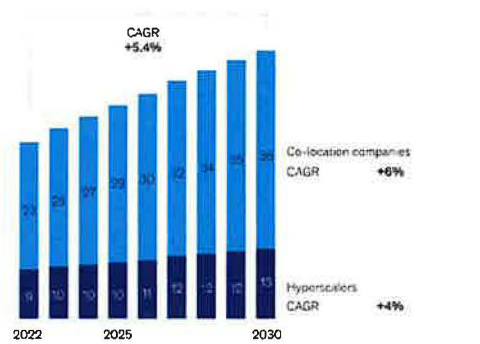
Increasing Data Center Demand

- In the US market alone, demand—measured by power consumption to reflect the number of servers a data center can house—is expected to reach **80 gigawatts (GW) by 2030**, up from 25 GW in 2024, according to McKinsey & Company.
- The United States accounts for roughly **40 percent** of the global market.

Global spending on the construction of data centers is forecast to reach $49 billion by 2030.

Data center construction spending,[1] $ billion



McKinsey & Company

Source: McKinsey & Company, "How data centers and the energy sector can sate AI's hunger for power", September 17, 2024, https://www.mckinsey.com/industries/private-capital/our-insights/how-data-centers-and-the-energy-sector-can-sate-ais-hunger-for-power

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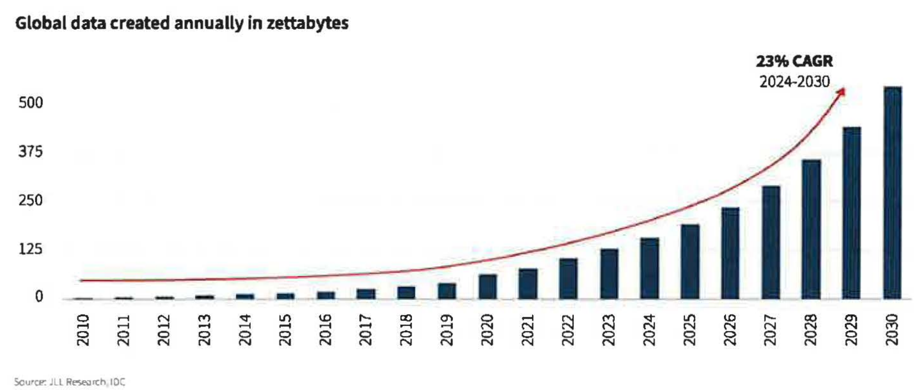
What Drives Data Center Demand?



Source: Urban Land, Nuclear Power Makes a Comeback as Data Centers Adapt to Rising Power Demands, October 14, 2024, https://urbanland.uli.org/resilience-and-sustainability/nuclear-power-makes-a-comeback-as-data-centers-adapt-to-rising-power-demands

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Number of People/Devices Drives Data Center Demand

"The data center industry has experienced explosive growth over the past decade, driven by ever-increasing demand for cloud services and the expanding use of web-enabled devices globally. [...] **In the next five years, consumers and businesses will generate twice as much data as all the data created over the past 10 years.**"

-JLL, *Data Centers 2024 Global Outlook*

More People Are Getting Online

- Approximately 5.4 billion people - or 67% of the global population -are online today. This represents an **increase of 45% since 2018**. 2.6 billion people are not yet connected to the internet.
- On average, U.S. households have a total of **21 connected devices**.

Sources: JLL, Data Centers 2024 Global Outlook, https://www.us.jll.com/content/dam/jll-com/documents/pdf/research/global/jll-data-center-outlook-global-2024.pdf
International Telecommunication Union, https://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx
Deloitte "Shiny new devices may be bringing joy, but who's protecting consumer data?", January 23, 2023 https://www2.deloitte.com/us/en/insights/industry/technology/consumer-data-privacy.html

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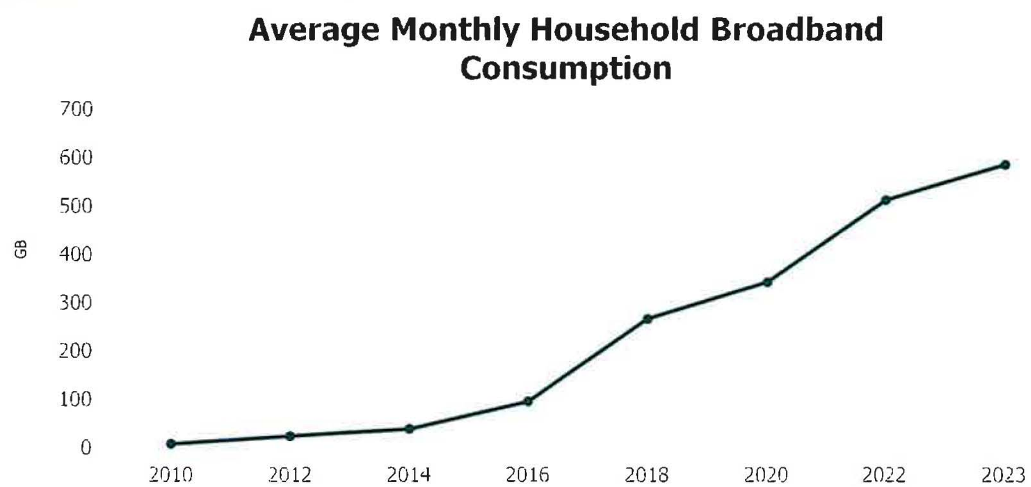
Home Internet Use Drives Data Center Demand



Source: OpenVault Broadband Insights Report, OVBI Q4 2022 Report, https://openvault.com/resources/ovbi/

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New Products/Experiences/Applications Drive Demand

- Cloud
- Generative AI
- Business Apps
- Healthcare
- Internet of Things/Connected Devices
- Streaming Video

- Virtual/Augmented Reality
- eCommerce
- Machine Learning
- Payment Processing
- Online Learning
- Autonomous Vehicles
- Innovation!

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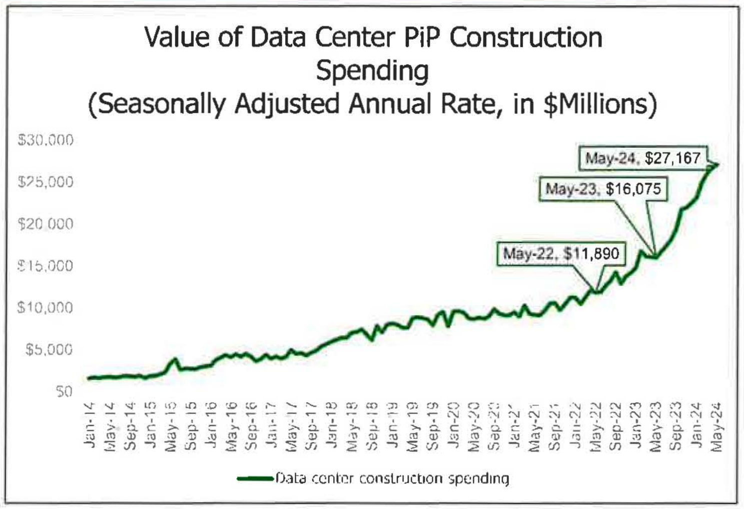
Growth in Data Center Construction Spending



Source: U.S. Census Bureau Construction Spending Data: Historical Value of Private Construction Put in Place (PIP), May 2024

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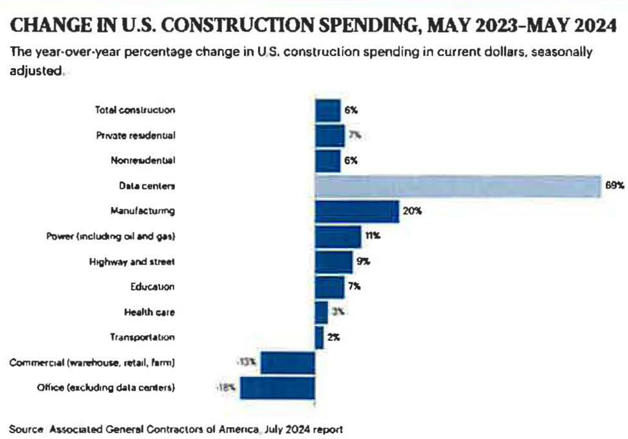
Data Center Trends



THE BUSINESS JOURNALS

Source: Atlanta Business Chronicle, $1B data centers adds to growing list of massive projects; offsets construction slowdown, Oct. 4, 2024, https://www.bizjournals.com/atlanta/news/2024/10/04/1b-data-center-pitched-for-coweta-county.html

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City of Santa Clara
The Center of What's Possible

Key Siting Considerations Include

- Access to Fiber/Interconnection
- Access to Water for Industrial Purposes
- Access to Clean, Reliable, Affordable Energy
- Climate and Risk of Natural Disaster
- Land Availability and Cost
- Tax and Regulatory Climate
- Ownership/Occupancy Costs
- Time to Market
- Access to Skilled Construction and Technology Workforce

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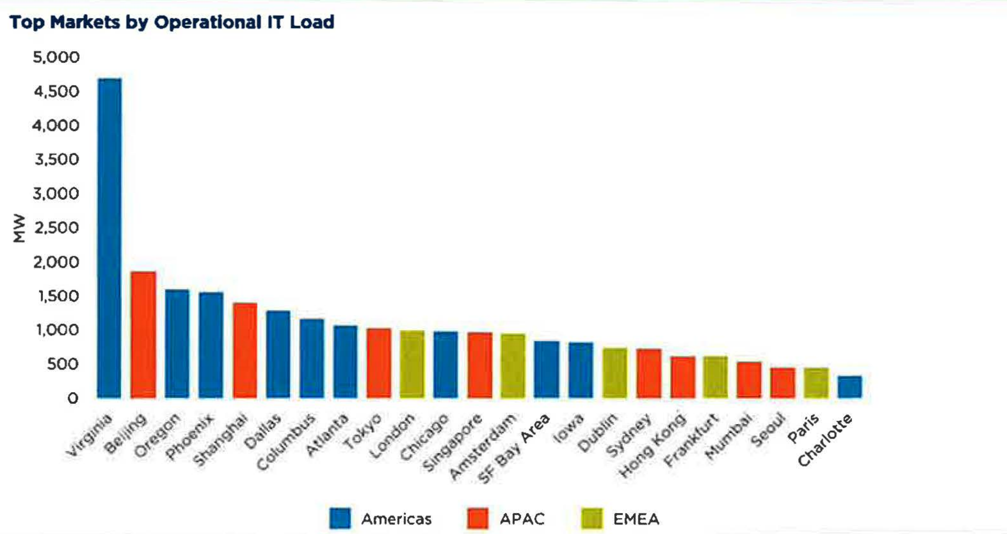
Global Data Center Markets (By Power Capacity)



Source of Graph: Cushman & Wakefield Research, Global Data Center Market Comparison, https://www.cushmanwakefield.com/en/insights/global-data-center-market-comparison

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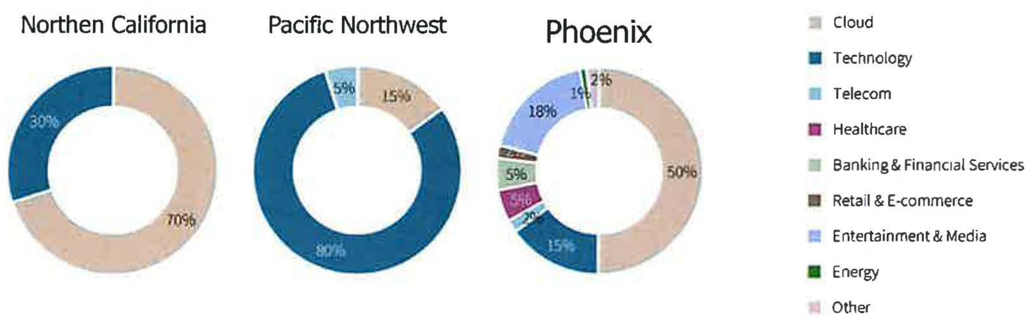
Data Center Trends

User Demand by Industry Varies Across Markets



Source: North America Data Center Report, https://www.us...com/content/dam/...-north-america-data-center-report-h2-2023.pdf

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Data Center Trends

Figure 6: Total Inventory vs. Under Construction by Primary Market, H2 2024

Source: CBRE Research, CBRE Data Center Solutions, H2 2024.

Source: CBRE, North America Data Center Trends H2 2024, February 26, 2025, https://www.cbre.com/insights/reports/north-america-data-center-trends-h2-2024

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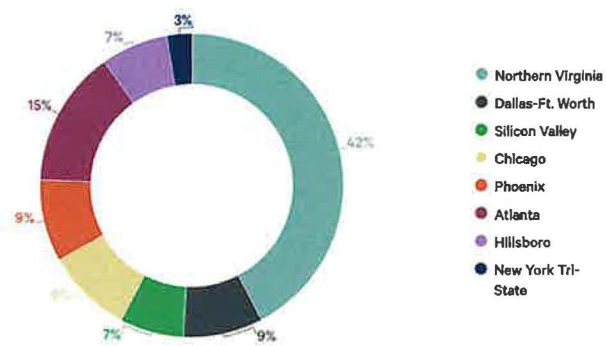
Data Center Trends

Figure 3: % of Total Primary Market Inventory



Source: CBRE Research, CBRE Data Center Solutions, H2 2024.

Source: CBRE, Phoenix, North America Data Center Trends H2 2024, February 26, 2025, https://www.cbre.com/insights/local-response/north-america-data-center-trends-h2-2024-market-profiles-phoenix

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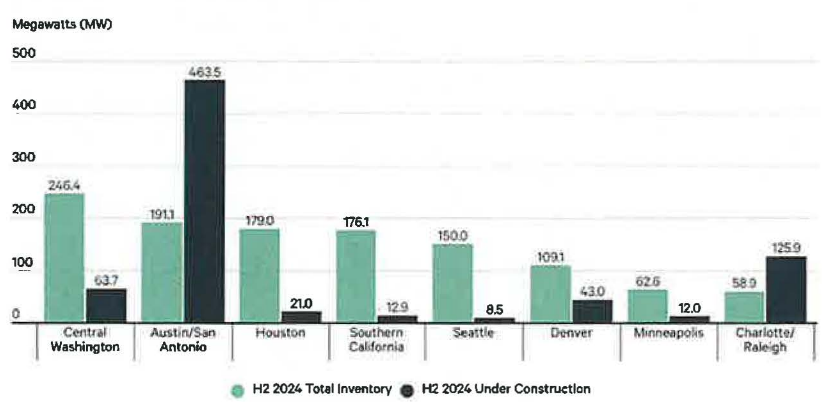
Data Center Trends

Figure 7: Total Inventory vs. Under Construction by Secondary Market, H2 2024



Source: CBRE Research, CBRE Data Center Solutions, H2 2024.

Source, CBRE, North America Data Center Trends H2 2024, February 26, 2025, https://www.cbre.com/insights/reports/north-america-data-center-trends-h2-2024

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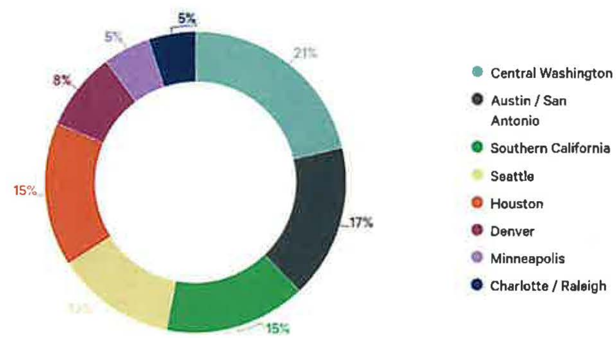
Data Center Trends

Figure 3: % of Total Secondary Market Inventory



Source: CBRE Research, CBRE Data Center Solutions, H2 2024.

Source: CBRE, Austin/San Antonio, North America Data Center Trends H2 2024, [illegible] 2025, https://www.cbre.com/insights/local-response/north-america-data-center-trends-h2-2024-market-profiles-austin-san-antonio

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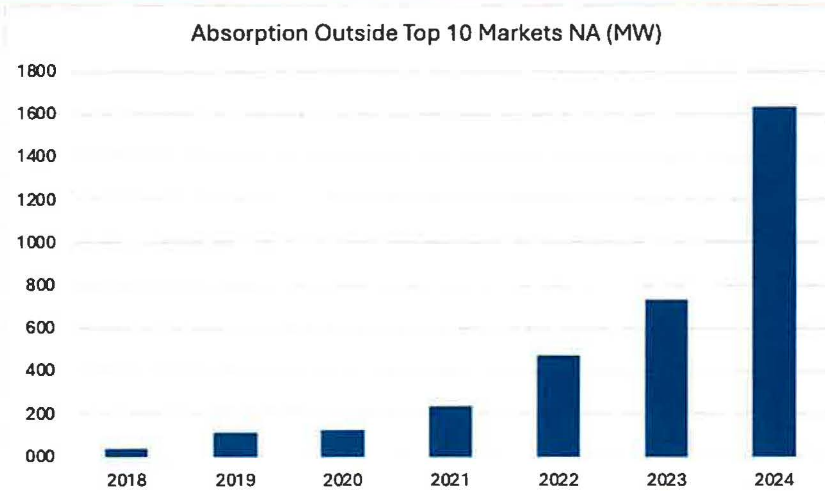
Data Center Trends



Source: datacenterHawk, https://datacenterhawk.com/

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Afshan Hamid, Community Development Director
Lesley Xavier, Planning Manager
Steve Le, Senior Planner
Meha Patel, Associate Planner

Community Development Department

City of Santa Clara
The Center of What's Possible

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City of Santa Clara
The Center of What's Possible

Background

- City of Santa Clara home to high-tech companies
- Power-house for high-tech companies
- Since 1996, data centers supported fast-paced growth of high-tech, cloud computing and AI

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Background - Why Santa Clara?

- Access to Fiber/Interconnection
- Proximity to Clients and High-tech Work Force
- Access to Silicon Valley Power
- Certainty of review, development friendly environment for Entitlements
- Access to Recycled Water for Industrial Purposes
- Availability of industrial sites

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City of Santa Clara
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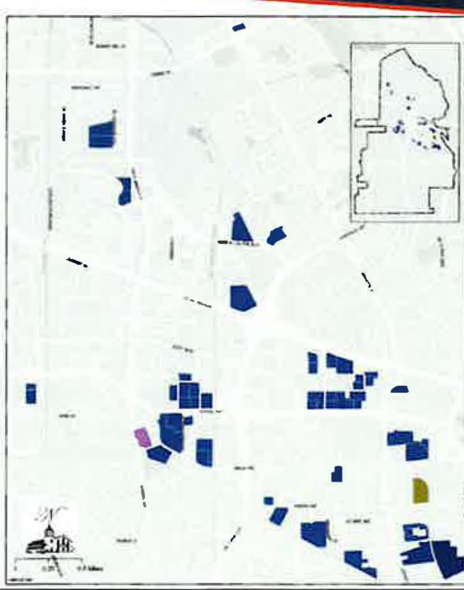
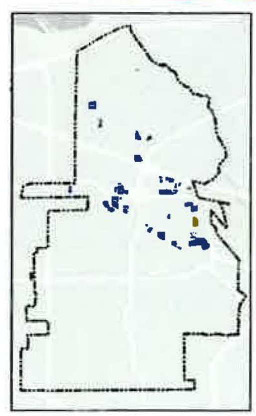
Background

Santa Clara is home to:

- 57 active or under construction stand-alone data centers,
- 1 entitled (not constructed) data center
- 1 active planning application





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Nico Procos, Interim SVP Director
Kathleen Hughes, Assistant Director

SVP Introduction

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City of Santa Clara
The Center of What's Possible

Santa Clara's Electric Department

1896
City of Santa Clara Electric Department is founded when a diesel generator starts powering 45 streetlights.

1903
Santa Clara invests $5,000 in alternating current and begins providing electricity to customers within Santa Clara.

1967
Hydro power is allocated from the Federal Central Valley Project, beginning the diversification of resources.

1980
Cogen 1 is launched, the City's first in-city power plant, a natural gas-powered facility.

1985
Energy generated by wind turbines on Altamont Pass, the City's first carbon-free resource aside from hydroelectric power.

1988
Geothermal power from the North Bay Area is added to the City's power mix in order to ensure reliability and competitive pricing.

1998
Silicon Valley Power
The City's Electric Department becomes Silicon Valley Power (SVP) to reflect its growing role.

2005
The Donald Von Raesfeld Power Plant, located in Santa Clara comes on line providing natural gas and 147 megawatts of electricity to SVP customers.

2013
SVP provides free citywide outdoor Wi-Fi access

2017
SVP divests its ownership in the San Juan Coal Plant.

2018
SVP delivers 100% clean energy to residents.

2020
SVP launches Electric Vehicle public and fleet infrastructure investment.

2021
SVP celebrates its 125th year of service for Santa Clara residents.

125 YEARS
Silicon Valley Power

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City of Santa Clara
The Center of What's Possible

Why Santa Clara? A History

- In 2000 SVP had requests to double load ~ 450 MW to 900MW
- SVP added DVR power plant & 230 kV transmission line
- Downturns of the 2000s
- Economic Development - Promote what makes Santa Clara better
- City strike team that lead economic development

NOT YOUR TYPICAL BAY AREA CITY

LOWER OPERATING COSTS
- Lowest combined utility rates of any Bay Area city
- Savings of 30-40% on electricity from Santa Clara's Silicon Valley Power
- No utility taxes
- Rated one of country's most affordable cities for business (2004 Kosmont-Rose Survey)

FINANCIAL STABILITY
- City's annual operating budget continually displays fiscal responsibility while maintaining the highest levels of service
- Low business taxes, solid real estate value and low crime rates contribute to the City's economic efficiency and prosperity

DEPENDABLE AND AVAILABLE INFRASTRUCTURE
- Electric reliability consistently ranks in the top quartile of the nation
- Electric, Water and Sewer capacity in place and available
- City's Fiber Optic Network connects to every major Point of Presence (POP)
- Nitrogen pipeline offers unique access in Santa Clara

PUBLIC SAFETY AND SUPPORT
- Outstanding Public Safety record with a Class 2 Fire Response rating; also ranked one of the safest U.S. cities with a 75,000+ population
- Affordable housing and neighborhood improvement programs support our highly educated, trained and diverse employment pool

SPEED TO MARKET ATTITUDE
- Streamlined Business Permit Program offers Over-the-Counter reviews, a Single Point Contact System and Fast Track Permitting designed to quickly put your business on the map
- One-stop permitting center handles most business services under one roof where 90% of the permits are issued over-the-counter
- Economic development representatives and procedures minimize approvals and delays

From Economic Development Brochure - Marketing Material 2003

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General Fund Contributions

- In the City of Santa Clara, data centers contribute 5% of SVP utility fees paid toward the City's General Fund.
- Each Megawatt (MW) of growth of usage from SVP adds approximately $52,000 a year to the General Fund. As such a 50 MW data center could contribute up to $2.6 million and a 99 MW could contribute over $5.0 million annually to the City's General Fund.
- Significant future General Fund contributions based on forecasted growth:

Description	Actual FY 2024	Budget FY 2025	Forecast FY 2026	Forecast FY 2026	Forecast FY 2027	Forecast FY 2028
GF 5% Contribution	$ 33.1M	$ 38.9M	$ 41.4M	$ 44.3M	$ 48.1M	$ 51.7M

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Afshan Hamid, Community Development Director
Lesley Xavier, Planning Manager
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Meha Patel, Associate Planner

Community Development Department

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Data Center Study Session

Land Use Regulations

- Data centers **are** allowed in:
  - HI - Heavy Industrial
  - HO-RD - High Intensity Office
  - LI - Light Industrial
  - LO-RD - Low Intensity Office
- Data centers **are not** allowed in:
  - R1
  - R2
  - R3
  - R4
  - R5
  - TN
  - CC - Community Commercial
  - CN - Commercial Neighborhood
  - C-R - Community Regional
  - HD-Flex
  - MU-NC - Mixed Use Neighborhood Commercial
  - MU-RC - Mixed Use Regional Commercial
  - MU-VHD - Mixed Use Very High Density Res.
  - OS - Open Space
  - PQP - Public / Quasi Public
  - UC - Urban Center
  - UV - Urban Village
  - VR - Village Residential
  - Downtown Form Based
  - UC-ED

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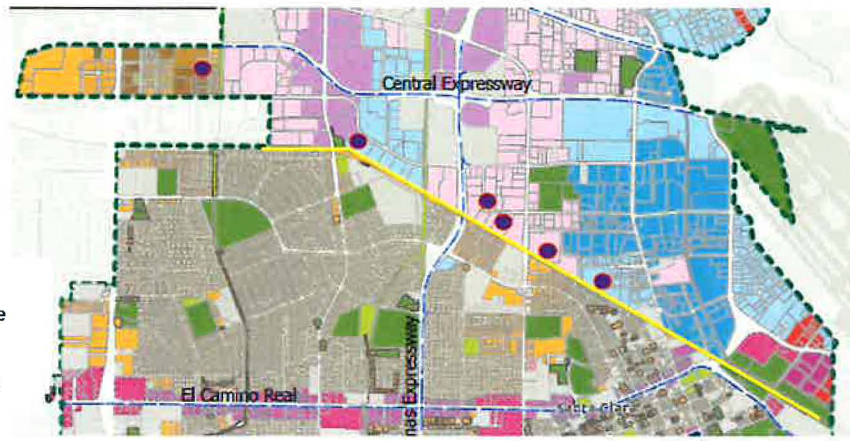
Land Use Regulations

Land use districts where data centers are allowed near those where data centers are not allowed.



- HI - Heavy Industrial
- HO-RD - High Intensity Office
- LI - Light Industrial
- LO-RD - Low Intensity Office
- Railroad Line
- Data Center Locations

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Development Standards

Updated Zoning Code (2024)

The Zoning Code provides for specific development standards for data centers in addition to the standards such as building setbacks and heights.

Developmental Standards. The following standards shall apply to all Data Centers:

1. **Primary Structure Facades.** Primary structure facades shall include all structure facades that face adjacent public roads. Primary structures may house a primary use, and secondary (freestanding) structures may house the data center, or the data center may be included in the primary structure. Primary structure facades associated with new construction shall meet all of the following standards:
   a. Primary structure façade design shall avoid the use of undifferentiated surfaces by including at least two of the following design elements: change in structure height, structure step-backs or recesses, fenestration, change in structure material, pattern, texture, color, or use of accent materials.
   b. When a primary structure has more than one facade, the facades shall be consistent in terms of design, materials, details, and treatment.
2. **Exterior Lighting.** All exterior lighting shall be designed and constructed with cutoff and fully shielded fixtures that direct light downward and into the interior of the property and away from adjacent roads and properties in compliance with Section 18.40.080 (Outdoor Lighting).
3. **Structural Noise Reduction Measures.** All data centers are required to provide structural noise reduction measures for any exterior cooling fans or equipment, such as baffles or acoustic louvers, to the satisfaction of the Director of Community Development.

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Development Standards

Updated Zoning Code (2024)

Off Scott Blvd

Off Scott Blvd

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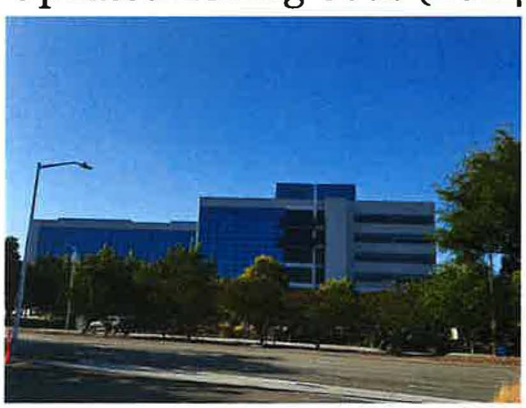
Development Standards

Updated Zoning Code (2024)



Major Tech Company on Mission College Blvd

Mission College Blvd

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Land Use Images
Other Industrial Uses vs Data Center



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Land Use Images
Other Industrial Uses vs Data Center


Data Center


New Office at Lawrence Station


New office with manufacturing building


Approved Industrial Building

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Land Use Regulations

- **Data centers** are permitted through the approval of a Conditional Use Permit (CUP) in the Office/R&D and Industrial zoning districts.
- **Ancillary data centers** are permitted by right in the Office/R&D and Light Industrial zoning districts.

Table 2-13
Office and Industrial Zones
Allowed Uses and Permit Requirements

	Office and Industrial Zones Permit Requirements			
	P Allowed by Right MUP Minor Use Permit (Chapter 18.114) CUP Conditional Use Permit (Chapter 18.124) TUP Temporary Use Permit (Chapter 18.122) - Not allowed			
Land Use (see Article 8 for land use definitions)	LO-RD	HO-RD	LI	HI
Retail, Service, and Office Uses				
Ambulance Services	P	P	-	-
Banks and Financial Establishments, General	P	P	-	-
Banks and Financial Establishments, Stand-alone ATM	P	P	-	-
Business Support Centers	P	P	P	P
Call Centers	P	P	CUP	-
Data Centers	CUP	CUP	CUP	CUP
Data Centers, Ancillary	P	P	P	

Entitlement Process

Updated Zoning Code (2024)

Conditional Use Permit (building use)

Application **Submittal** → Completeness **Review**/Project Clearance Committee → Schedule Planning Commission **Hearing** → Planning Commission **Decision** → Appeal? - City Council

Architectural Review Permit (building design)

Application **Submittal** → Completeness **Review**/Project Clearance Committee → Schedule Development Review **Hearing** → Director or Designee **Decision** → Appeal? - City Council

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Entitlement Process

Other Jurisdictions – South Bay

- San Jose: Conditional Use Permit in Commercial zones, Special Use Permit in Industrial zones, both involving public hearings
- Mountain View: by-right in most Industrial zones
- Milpitas: by-right in most Industrial zones
- Sunnyvale and Cupertino do not enumerate data centers as a use

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Entitlement Process

Other Jurisdictions – Virginia

Loudoun County

- Special Exception Permit in Commercial Center, Commercial Light Industry and all Office and Industrial Zoning Districts.
  - Discretionary review process with Planning Commission recommendation to the Board of Supervisors.

Prince William County

- To promote data center development a "Data Center Opportunity Zone Overlay District" was created where data centers are permitted by right and must meet established design standards.

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Nico Procos, Interim SVP Director
Kathleen Hughes, Assistant Director

SVP Growth & Expansion

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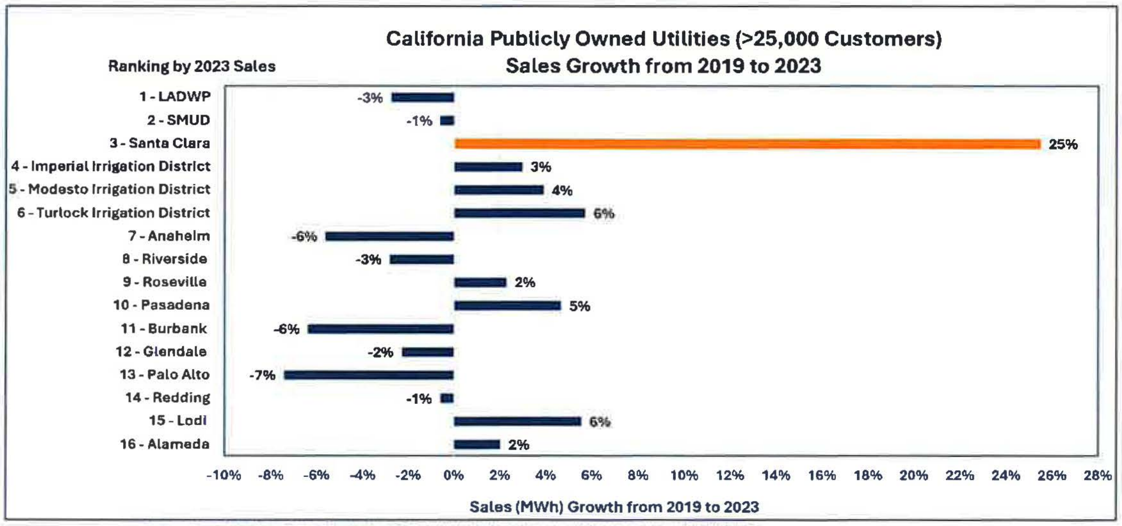
CA Publicly Owned Utilities Sales Growth



Based on Form EIA-861, Annual Electric Power Industry Report, collects data from distribution utilities and power marketers of electricity.

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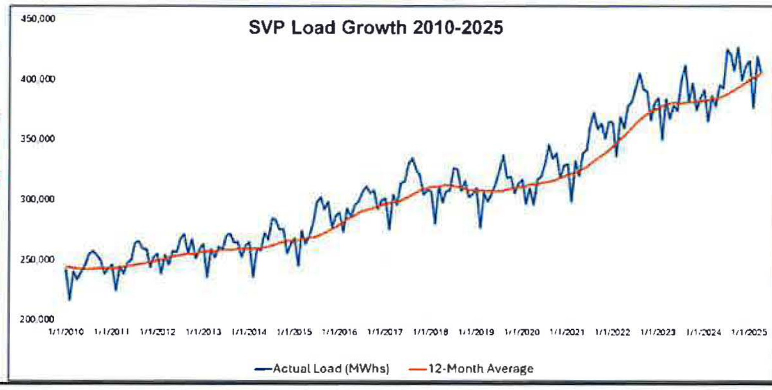
Data Center Growth

60% Power Use and Sales are from Data Centers

$ Data Center revenue increased 20% from FY2023

Data Centers usage increased 4% from FY2023

Customer Expansion – Data Centers, new buildings, or products



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Growth & Expansion

- Growth is driven by data centers – request to add 500+ MW load (growing from 700 MW)
- Staff determined there was a growth need in late 2019 - SVP Strategic Planning Session
- Prioritized Growth Plan as an SVP Strategic Priority
- Needs for both SVP Local System and State Transmission System
- What changed? – The Size
- Most new data centers are 50MW-99MW
- SVP had to tell customers "Limited Capacity"
  - 2021 No longer provide will serve letters
  - 2022 System Limitations Letter
  - 2023 System Impact Studies

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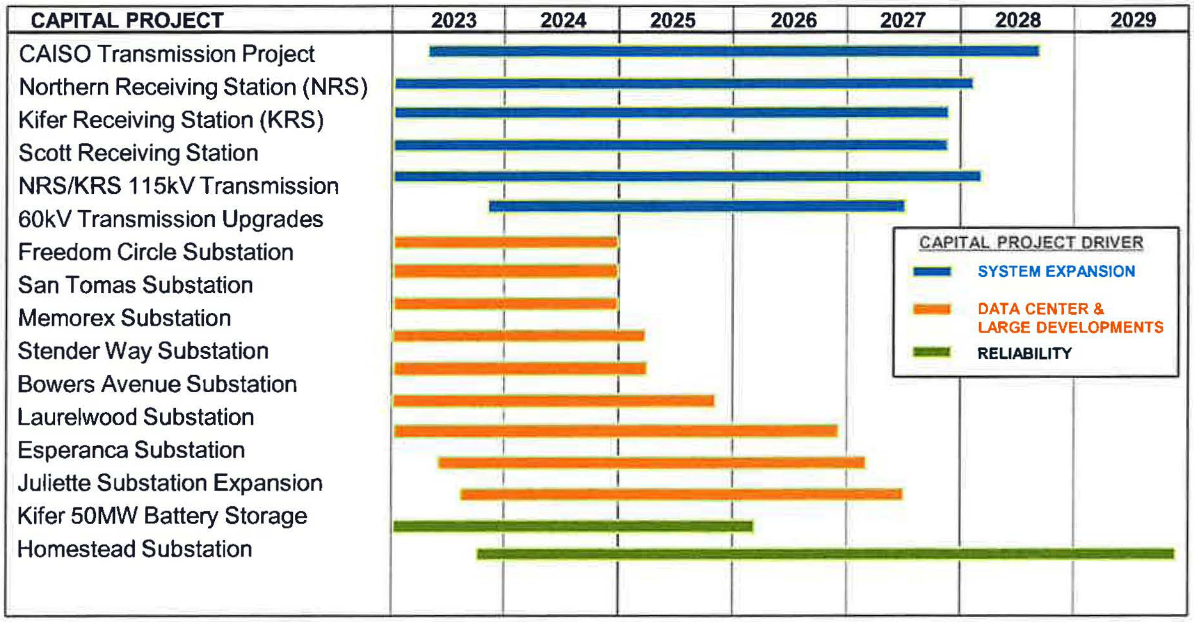
Electric Utility Capital Projects



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Major Expansion Projects

- Bond Financing
  - First Bond Issuance of $130 Million in 2024 and Second Bond Issuance of $240 Million in 2026
- Scott and Kifer Receiving Stations - $229 million
  - Full rebuild and expansion
  - Replaces end-of-life infrastructure and increases capacity
- Schedule
  - Bids received on May 1, 2025
    - Apparent low bidder is ~6% under engineer's estimate
  - Major Material Procurement (In Progress)
  - Construction Council Award anticipated in June 2025


Scott Receiving Station (SRS)


Kifer Receiving Station (KRS)

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Major Expansion Projects

- Northern Receiving Station - $147 million
  - Upgrades and Expansion
  - Schedule
    - Bids due May 15
    - Major Material Procurement (In-Progress)
    - Construction Council Award anticipated in June 2025
- 115 kV Transmission line- $48 million
  - Connects Northern Receiving Station and Kifer Receiving Station
  - Schedule
    - 60% Design Underway
    - Easement acquisition – thru May 2026
    - Anticipated construction start – late 2026

Northern Receiving Station

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Capital Project Funding

- Funded through Load Development Fees (new customers)
- Rate Payers (existing customers)
- Combination of both
- Funding split depends on whether the project is adding capacity or replacing infrastructure

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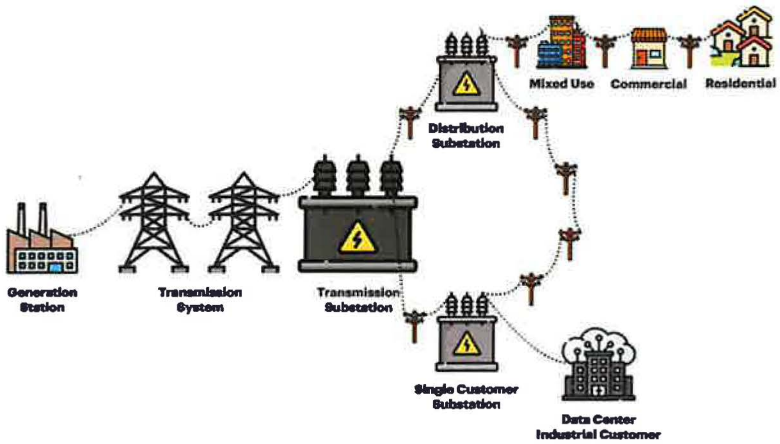
SVP Infrastructure



- How Power Moves
  - 28 Substations & 4 System Connection Stations
  - 33.17 miles of 60kV Power Lines
  - 574.9 miles of 12kV Distribution Lines (67% underground)
  - 160 Distribution Feeders
  - 11,344Power Poles
  - 5,000+ transformers

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Capital Project Funding – An Example

- For Discussion Only - Scott Receiving Station
  - Replacement of end-of-life equipment and expansion to accommodate growth
  - Project Construction estimated at $110 million
  - 35% Load Development Fee and 65% Rate Payers
    - $38.5 million from LDF
    - $71.5 million from rate payers (existing customers)
      - $65.8 million from Industrial (1,288 accounts)
      - $4.3 million from Residential (52,529 accounts)

Scott Receiving Station (SRS)

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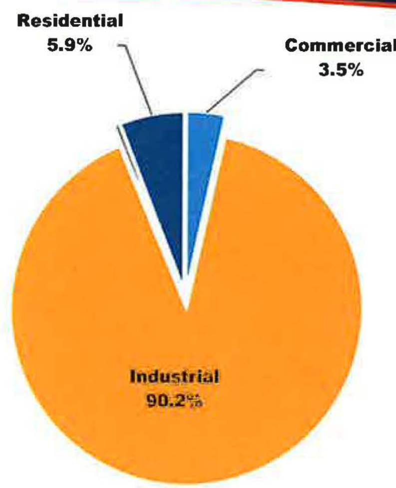
Summary of Sales for FY2024

Category	MWh	% of MWh	Revenue (millions)	% of Revenue
Residential	254,000	5.6%	$40	5.9%
Commercial	108,000	2.4%	$24	3.5%
Industrial	4,181,000	91.6%	$608	90.2%
Other	17,000	0.4%	$2	0.4%
Total	4,560,000	100.0%	$674	100.0%



Customer Mix - Revenue

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Residential/Industrial Utility Regional Rate Comparison

Data Year	Utility Name	Residential	Industrial	Residential higher than Industrial
2023	LADWP	$0.2299	$0.2016	14%
2023	PG&E	$0.3404	$0.2764	23%
2023	City of Palo Alto	$0.2021	$0.1543	31%
2023	City of Roseville	$0.1781	$0.1190	50%
2023	SMUD	$0.1689	$0.1260	34%
2023	SVP	$0.1475	$0.1343	10%

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SVP Residential – Small Commercial - Industrial Rate Comparison

Class of Service	SVP Average Rates effective 01/01/25 ($/kWh)*
Residential	D-1 $0.175
Small Commercial	C-1 $0.259
Large Industrial	CB-3 $0.172
Very Large Industrial	CB-6 $0.153

*For general reference, average rates based on estimated forecasts, including surcharges. Individual customer's average rate will depend on it's applicable kw and kwh

- Proposition 26 specifies that a "charge imposed for a specific government service or product provided directly to a payor that is not provided to those not charges, and which does not exceed the reasonable costs to the local government of providing the service or product" Article XIIIC of the California Constitution
- The courts have interpreted this to mean that no one rate class may subsidize another rate class.

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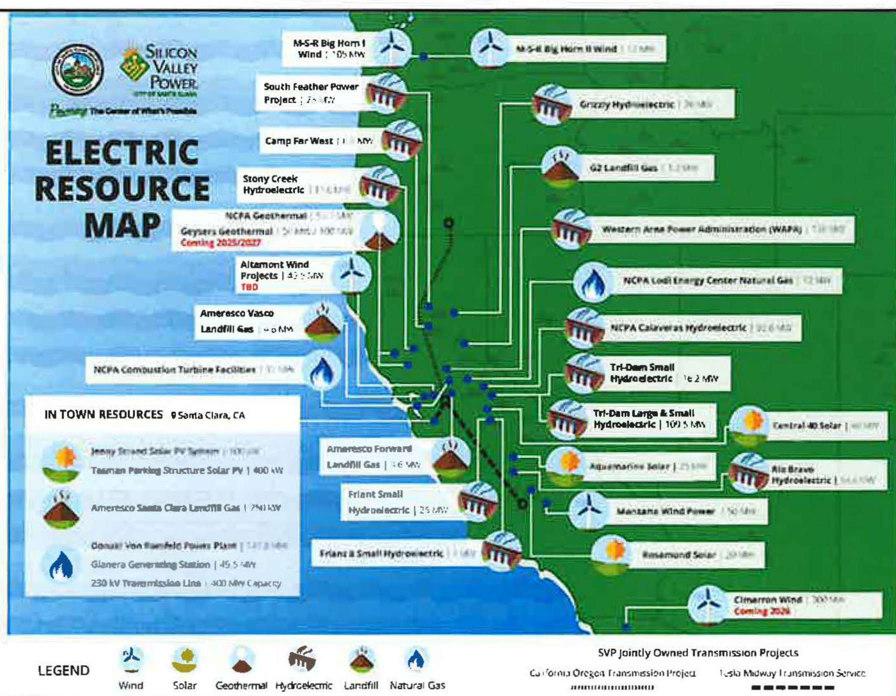

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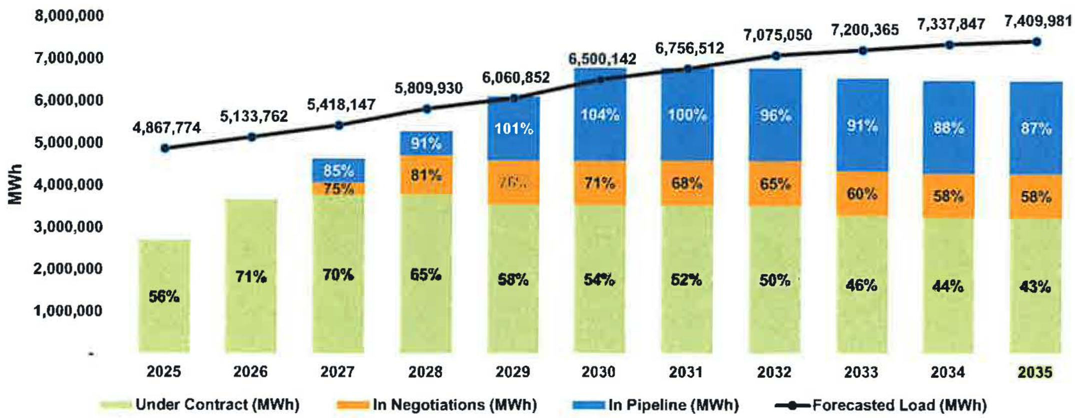
Renewable Energy Procurement as a % of Forecasted



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Gary Welling, Director
Ahmed Aly, Principal Engineer

Water & Sewer

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Data Centers & Water

- Data Centers: high water use historically; however, two major trends influence change:
  - Increased adherence to recycled water use requirement
  - Adoption of low water use cooling systems

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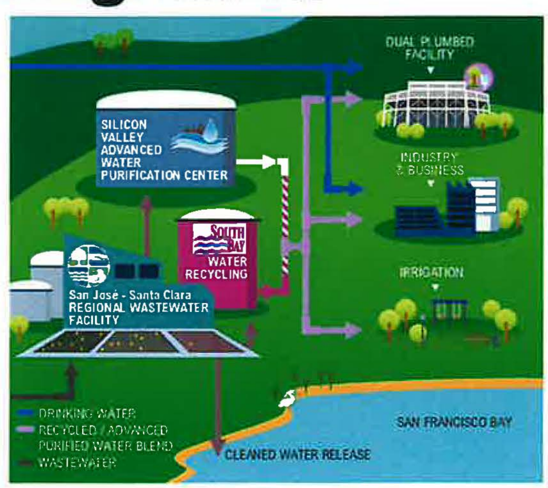
Recycled Water Background

- Regional Wastewater Facility (RWF)
- South Bay Water Recycling (SBWR)
- Valley Water Silicon Valley Advanced Water Purification Center, opened 2014
  - Current production: blend of treated effluent yielding improved water quality
  - Offset 20% of total water use



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Recycled Water Mandate

- **Municipal Code 13.15:** Mandates maximizing Recycled Water
- **Rules & Regulations** Mandates for Development: Recycled Water
  - Maximize use
  - Convert existing when allowed by regulations
  - Extend connections to recycled water system
  - Recycled Water Ready if not currently connected
  - Construction use

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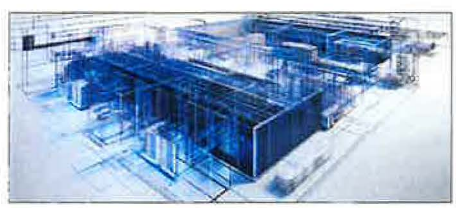
Implementation of Mandate

- **New Data Center Development**
  - Condition use of recycled water on entitlements and permits
  - Condition conversion of existing uses to recycled water
  - Condition extension & connection to recycled water system
  - Condition Recycled Water Ready if not currently connected



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Current Water Use

Data Centers Using Recycled Water	
Existing	31
Proposed	*6

* All new data centers will maximize recycled water use

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Current Water Use

Data Centers with Recycled Water	
Potable (MG)	Recycled (MG)
187	349
35%	65%

- Efficient water demand for future growth
  - Increased recycled water use
  - Efficient cooling design & technology

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Reena Brilliot, Director of Economic Development & Sustainability

Economic Development

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Regional Asset to Innovation Ecosystem

- Market advantage for companies to site data centers in Silicon Valley:
  - Data Centers provide essential service for the Bay Area and State
  - Region has a high density of technology, social media, and communications companies that are hyper users of cloud services, and thus customers of data storage services.
  - Region has strong fiber infrastructure, which is critical for data center operations.
  - Need for Data Centers/AI Factories is growing, technology is being developed in Silicon Valley

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General Plan's Fiscal Health Goal

- Data Centers align with City's General Plan Goal 4.6 *Maintain the City's Fiscal Health and Quality Services.*
- This strategy acknowledges the need for the City to ensure that new growth strengthens and diversifies the City's tax base.
- Data centers contribute funds for services that exceed services the City provides and create a net positive contribution to the City's fiscal health.

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Economic Contributions to City

- Data centers contribute annually to City's General Fund through:
  - Silicon Valley Power's Transfer
  - Property Tax
  - Sales Tax
  - Business License Tax

- Data centers contribute to Affordable Housing per City's Affordable Housing Ordinance

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SVP's Transfer

- 5% of SVP revenues are provided to the City's General Fund.
- This transfer has been in place since 1951.
- The revenues from this transfer are unrestricted and are used to support City services such as police, fire, street repairs, sidewalks, parks, libraries and senior services.
- November 2022, Voters approved Measure G and authorized the continued transfer of 5% of utility tax revenues to the City's General Fund.
- It is estimated that approximately **$23.3M** in revenue will be provided to the General Fund in FY24/25 from data centers.

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Property Tax

- Property taxes consist of secured and unsecured assets.
  - Secured assets are walls, ceilings, floors, etc. of a building.
  - Unsecured assets are improvements and/or equipment installed within a building.
- Data centers as a property class are unique as they have high value unsecured assets with the number of expensive servers and infrastructure installed.

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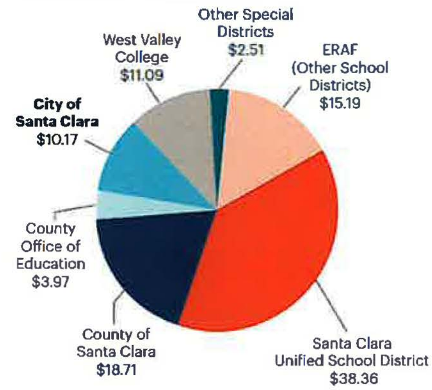
Property Tax (continued)

- Property taxes contributed by data centers fund County and City services and support School Districts.
- Upon construction and operation, recently developed individual data centers can contribute typically up to $200,000-$400,000 in property taxes to the City annually.
- Data centers are contributing **$6.5M** combined in property tax.

Who shares property tax

Per $100 Collected



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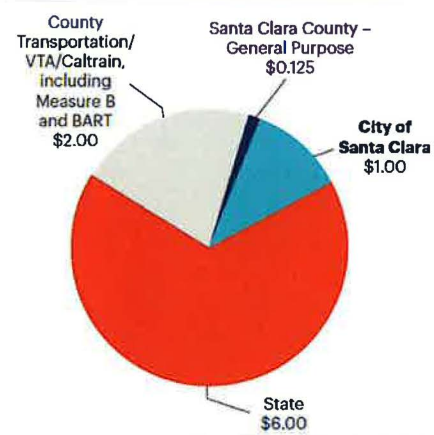
Sales and Use Tax

- Sales and use tax contributed by data centers fund State, City, County and County Transportation/VTA .
- Data centers are contributing annually **$4.96 M** to the City in combined in sales and use tax.

Who shares sales & use tax

Per $9.125 Collected on a $100 Purchase



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Affordable Housing Contributions

- Since the Affordable Housing Ordinance's effective date in 2019, data centers have paid **$3.9 million** toward affordable housing.
- Three data centers in the pipeline, are anticipated to provide **$1.75 million** for affordable housing.

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Estimated Total 24/25 FY General Fund Contributions

- **$29.5M –** Estimated SVP's Power Payment In-Lieu of Tax
- **$6.5M** - Property Tax
- **$4.96M** - Sales and Use Tax
- **$ 40.96M** Estimated Total Contribution to General Fund (combined SVP Transfer + Property Tax + Sales and Use Tax)
- Total Contribution is Estimated to be **13%** of General Fund

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White Paper

- Overview of Industry
- Data Center Markets & Types
- Building Security & System Security
- Energy Sources & Impacts
- Economic Impacts
- Challenges
- Summary

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Summary

- Background
- Industry Insights
- Data Center Land Use Regulations & Aesthetics
- SVP's Power Supply and Power Planning for Data Centers
- Data Centers and Water
- Economics of Data Centers
- Questions

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From: Masheika Allgood
To: Clerk
Subject: Public Comment - May 20, 2025 Hybrid Meeting - Agenda Item 25-448
Date: Tuesday, May 20, 2025 5:01:39 PM
Attachments: There isn"t enough water for all of us.pdf
Who needs air anyway.pdf

You don't often get email from founder@allai-us.com. Learn why this is important

My name is Masheika Allgood and I am an AI ethicist. My work is largely focused on the environmental impacts of AI data centers. I'd like to include the two attached articles in the meeting minutes as reference materials on the water requirements for AI data centers and the air pollution from co-locating gas generators.

Masheika Allgood
Founder
AllAI Consulting, LLC | allai-us.com
Environmental Platform: Taps Run Dry
founder@allai-us.com

POST MEETING MATERIAL

There isn't enough water for all of us

On the importance of fairly negotiating data center contracts

MASHEIKA ALLGOOD
APR 02, 2025

I've been writing about AI data center-driven water scarcity for some time. The mo common response to my work is - "water is never lost to the earth." Which is True. we don't live on the earth. We live in communities. So while the earth may have enough water to support all of humanity, your community may not have enough wa to support the people living in it. Just as we grow enough food on the planet but wh societies are suffering famine, the existence of water on the earth does not protect your community from water scarcity. Water scarcity is driving migration into cities further exacerbating the pressure on municipal water infrastructure.

So, how do we protect our water? Or at least, slow down AI companies' gluttony un they build technologies that can sustainably address their water needs at scale? To start, we need to put municipal leaders in a position to fully negotiate data center contracts.

All contracts are negotiable

I had a conversation with a friend recently about a horribly onerous contract she signed for a speaker agent. The contract either required up front payment of all fee: it charged a higher fee plus interest for monthly payments. This wasn't a lease agreement, credit card, or mortgage, it was for someone to help get her talks. And, course, after my friend paid in full, they got shoddy service (ignored, talked over, ge generated speaking applications, etc.). One of the first things I learned in running n own real estate/civil litigation firm was - never sign the other party's contract. **It always sucks.**

Intentionally so. We're taught in law school to create contracts that are completely one-sided towards our client, with the understanding that opposing counsel will do the same. The idea is that you both start at opposite ends and negotiate your way to some sort of middle ground. Which is why you will always lose if you sign someone else's contract. You have to bring a counterbalance to the table so you can start negotiating your way to a middle ground.

So what does all of this have to do with data center water consumption? Well, everything. Water is a municipal concern. It's managed at the local level by cities, counties, and special water districts. But I have yet to meet a local official who had understanding of how much water the data center they approved would require to operate, or how much it would ultimately consume.

> *We've been signing tech company contracts, with no counterbalance. And they suck.*

So how did we get into this situation, and how do we remedy it? Math. In order to negotiate, our municipal leaders need to have some understanding of how much wa the data center will require *before* approving the build - during the permitting and zoning process. Which is hard. Well, it *was* hard.

State of water loss calculations

If you search for how to calculate cooling tower water loss, you'll get a host of articl which all reference the Makeup Water calculation:

```
Makeup water = Drift loss + Evaporation loss + Blowdown loss
```

Makeup water is the water added back to the system to compensate for losses. Thin of it like tire pressure. As you ride your bike, or drive your car, air leaves the tire for variety of reasons (heat, pressure, holes, etc.). If the tire loses enough air it can suffe catastrophic failure, so you want to refill the tire to its optimum level regularly. Tha the principal behind makeup water. The cooling tower, and all of the systems that r on it, risk suffering catastrophic failure if the water level gets too low. So you want refill the water to its optimum level regularly.

The makeup water calculation considers all the ways cooling towers lose water. Wh you add all of those losses up, you know how much water you have to put back into system to keep it at the optimum level. While the base calculation doesn't look too daunting, the complexity is in the loss calculations.

Drift loss is the water that the wind blows away. It's heavily impacted by the shape the cooling tower (some let in more wind than others). But wind is too variable and unpredictable for a granular calculation. So drift loss is usually calculated as a percentage of the water that's being circulated through the cooling tower.

The complexity ramps up when calculating evaporation and blowdown loss.

Evaporation loss

Evaporation loss is the water that is evaporated during the heat transfer process (*se [The Fallacy of Closed Loop Cooling Systems] for more details*). Here's the evaporation los calculation:

$$E = \frac{C \times (Ti - To) \times Cp}{\lambda}$$

Image pulled from How Do You Calculate Water Loss in a Cooling Tower

This calculation requires you to know:

- The rate of water circulation (C)
- The difference in water temperature from the bottom of the tower to the top of the tower (Ti-To)
- And how much heat was added to the water during the heat transfer process (C

None of which is available when a data center is being planned.

Blowdown loss

The blowdown loss calculation isn't particularly complicated, but it also relies on specific systems operation data. Blowdown loss is the water that is removed from tl system because it's become to concentrated with sediments. Think of it as the dreg: what's left at the bottom of a coffee pot or a bottle of (unswirled) red wine. The sediments are super concentrated in that last glass. The same happens in engines. I why regular oil changes are a key part of car maintenance. As the oil cycles through the engine some evaporates due to heat, and it picks up contaminates from the engi Over time, the oil gets thicker and starts to concentrate into a sludge. Sludge doesn lubricate the engine well, so your car starts to perform poorly.

Blowdown is water that is heavily concentrated with solids that were picked up as i cycled through the cooling system. Data center cooling systems are more sensitive than car engines so, instead of waiting for the water to form a sludge and changing all at once, data center operators expel some amount of blowdown regularly so the system is never impacted.

Your company comes with a guide for when you should get oil changes based on th amount of miles you drive. Those miles are a proxy for the amount of times the oil l cycled through the engine. The blowdown calculation is based on the same princip] The core calculation is the cycles of concentration (CoC):

```
Blowdown = [Evaporative loss - (COC - 1) x Drift loss] /(COC - 1)
```

To calculate blowdown, in addition to evaporative loss and drift loss, you need to kı the cycle of concentration for the cooling tower. Which is where things get trick. There is no proxy for how many times the water cycles through the system. Instead the cycle of concentration is calculated one of two ways

1. By the ratio of chloride content in the circulation water v makeup water
2. By the ratio of conductivity of the system water v makeup water

Neither ratio is derivable when a data center is being planned.

While the makeup calculation looks straightforward, it is technical and confusing i practice. It relies on specific systems operation data. Data that isn't available durin the data center planning process and is closely held as proprietary information onc the data center is in operation. Data center operators are the only people who have access to the data required for these calculations and they currently have no legal obligation to report any of this information at any time.

So what do we do when we're outside looking in? How do we obtain the informatio necessary to level the playing field in negotiations? As I mentioned in this IEEE/OECD session during the France AI Summit - we move forward by recognizi the audience and the purpose of the calculations. Municipal leaders don't need scientifically accurate conclusions, they need directional forecasts. Thankfully, ther math for that!

The hidden costs of AI: Unpacking its energy and water footprint

Energy-based calculation

The one piece of data we always have about a data center at the earliest planning phases is the electricity it will require. Which is precisely what Uptime Institute utilizes as the key input when for its cooling tower makeup calculation. Uptime Institute created the Topology Tier Standard as "a performance benchmarking syst to help data center owners and operators identify the performance capability of the data center infrastructure." Data centers are ranked in tiers based on their performance on the Standard's benchmarks. Data centers can be certified at the des level, or while in operation. The makeup calculation for design-level certification utilizes the following assumptions:

- Each 1,000 kilowatts of cooling load requires 1,027 US gallons per minute of condenser water flow through the evaporative cooling towers
    - Cooling system utilizes 3 imperial gallons per minute of condenser water p ton of cooling

- Evaporation consumes about 1% of condenser water flow
- Drift and blowdown consume about .5% of condenser water flow

By tying water flow to cooling load, Uptime Institute made it possible to calculate makeup water based solely on the amount of energy used for cooling:

Assumptions:

a. Each 1,000 kilowatts (kW) of cooling load (approximately 285 tons refrigeration [TR]) requires about 855 Imperial gallons per minute* (gpm) of condenser water flow (1,027 U.S. gpm or 3,887 liters per minute) throug the evaporative cooling towers, at 3 gpm of condenser water per ton of cooling.

b. For the purposes of estimating water requirements, evaporation consumes about 1% of condenser water flc drift and blow-down consume another 0.5%. Thus, a source of water is required to replenish—or "makeup"—a 1.5% of condenser water flow to sustain evaporative cooling processes.

Using the above assumptions, the amount of makeup water necessary to sustain evaporative cooling for a 1,000-kW load for 24 hours is:

(855 gpm) x (60 minutes/hour) x (24 hours/day) x (1.5%) =

≈ 18,500 gallons (22,218 U.S. gallons or 84,103 liters).

Image pulled from Accredited Tier Designer Technical Paper Series: Makeup Water

The only variable in this calculation is cooling load. The current assessment of the amount of a data center's energy that is used for cooling is 40%. With all of the assumptions accounted for, we can do the math!

Let's use the Stargate AI data center campus in Abilene, Texas as an example. The c center is intended to run on 360 megawatts of power. How much water would a dat: center that runs on that amount of power use and consume?

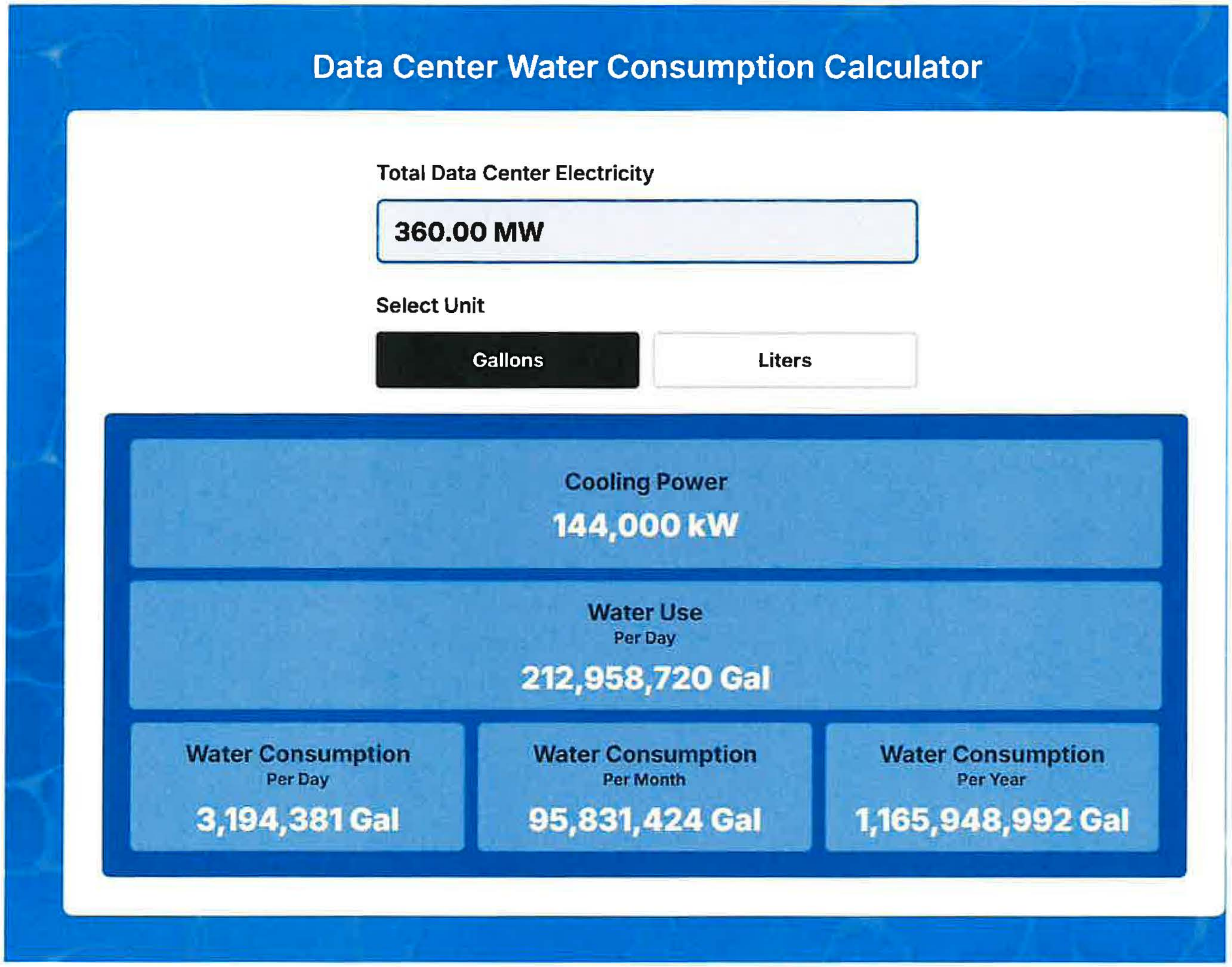
```
360MW x 40% = 144MW cooling power
divide by 1000 KW = 144KW

144KW x 1027gpm = 147K gallons used per minute

147k gallons x 60 = 8.8M gallons used per hour
```

```
8.8M gallons x 24 = 212M gallons used per day

212M gallons x 1.5% = 3.2M gallons makeup water per day

3.2M gallons x 30 = 95M gallons makeup water per month

95M x 12 = 1.1B gallons makeup water per year
```

Based on these calculations we can estimate that the Abilene, Texas Stargate AI dat center campus will require 212 million US gallons per day to cool. Of that 212 milli US gallons, 3.2 million gallons will be consumed. Consumed means lost to the community it was taken from. The evaporated and drift water will move through th global water cycle and the blowdown will need to be treated. There are systems to minimize drift and reuse some percentage of blowdown, but they are expensive. Yo can't assume companies will implement them if they aren't required to. But that's tl point of this exercise, to empower leaders to start those mitigation discussions as e in the process as possible.

DIY Water Loss Calculator

Now that we have a publicly accessible calculation - let's make it public!! AllAI Consulting, Inc. utilized the Uptime Institute's Tier Standard: Topology makeup wa calculation to create the world's first public Data Center Water Consumption Calculator (available here).



Generated from the Data Center Water Consumption Calculator

The estimates provided here can serve as the starting point for discussions on data center water use and consumption. Understand that the amount of water that is requested from your aquifer is not the sum total of the water required to cool the da center. Most of the water will not come from your city's aquifer, but it's coming fro somewhere. And given the cost and complexity of piping/shipping water from othe states and regions, it likely isn't coming from too far away. Having a sense of the overall system requirements places you in a position to assess the validity of an operator's water resourcing plans. Having an initial estimate enables you to ask mo consequential questions early in the process. Specifically:

💡 How do the assumptions in your estimate differ from those in the tool?

💡 What is your average facility-level water consumption percentage?

💡 On average, how many hours in a year do your facilities run at peak usage?

💡 What is your local water supply chain and what percentage of the estimated usag can it meet today?

💡 How much of the estimated consumption do your replenishment efforts account for, and in what timeframe?

While all contracts are negotiable, drinkable water is finite. There isn't enough wat for all of us and all of the AI data centers companies want to build. Not given the current technology. But there doesn't have to be. Municipal leaders are charged wit using zoning and permitting processes to ensure there's enough water for the population **first**. Now that this tool provides communities a legitimate seat at the negotiating table, it's critical that we secure our survival first. It is a company's job secure the resources they need to be successful, not humanity's. If they cannot oper their businesses within the reality of the drinkable water that exists on the earth - t perhaps they should innovate. Faster.

Discussion about this post

Comments Restacks

Write a comment...

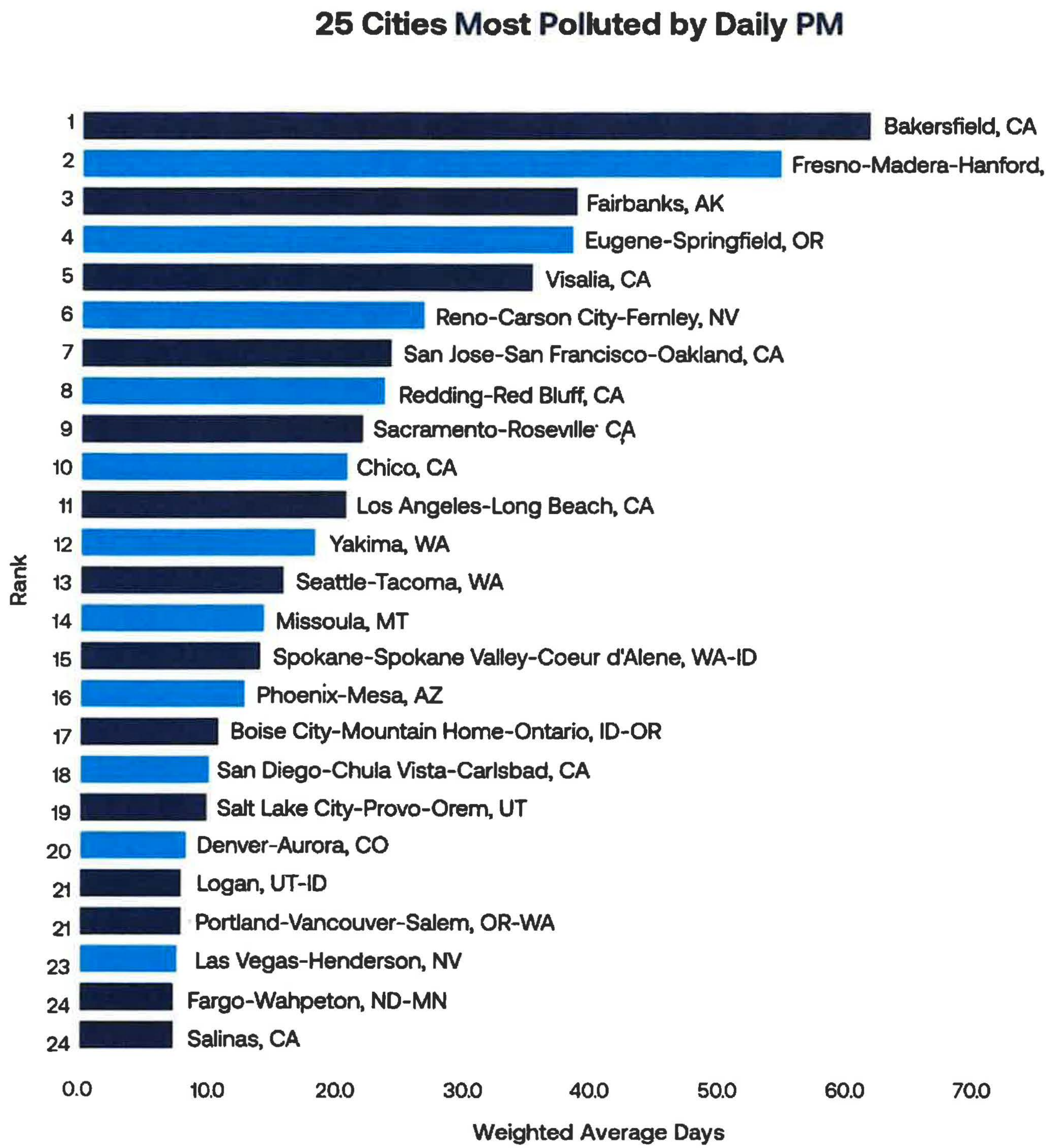
Who needs air anyway?

Data center and generator co-location as a threat to human survival.

MASHEIKA ALLGOOD
MAY 02, 2025

1 Share

I shifted my AI ethics advocacy to a focus on water because my key concern has alw been community survival and human thriving. Communities cannot exist without drinkable water. They also cannot survive without clean air.



American Lung Association State of the Air 2024

I live in the Bay Area of California, the epicenter of the AI boom. According to the American Lung Association, the Bay Area is the 7th most polluted city in the count in terms of fine particle pollution. The Bay Area is the seat of Silicon Valley and ho to 140 of California's 311 data centers. There are several additional data center proj in the works, including a recently approved 99MW Microsoft data center in Mount View, and the fast-tracking of a 99MW data center housing complex in San Jose. Bu what is the connection here? Why am I talking about data centers in an article abo air pollution?

The answer is simple - generators.

Generators are essentially a backup technology - a failsafe to enable data center operators to keep their systems running in the case of a power failure. Or, at least, t were. While most of the articles you'll find on data center generators discuss them i this traditional role, AI data centers are fundamentally breaking with that construc AI data centers are so power hungry that our electricity infrastructure cannot keep Responsible operators would plan for the constraint and find innovative ways to operate within these defined limitations until more power was made available. But is tech. Responsibility isn't really our thing.

So we're filling the gap with generators. And we're not talking about a gap of hours an occasional basis, data center operators are running gas powered industrial size generators 24/7, with no stated end date. xAI built a 100,000 GPU data center in

Memphis, Tennessee last year. The data center, which is being scaled up to 200,000 GPUs, requires 150MW of power to operate at the 100,000 GPU level. The Memphi power grid can only support 8MW of power. So xAI is using 35 'temporary' methan gas burning turbines to power the facility. The generators are running all day, every day, producing 420MW of power, with no decommission plan.

xAI isn't an anomaly, in the face of power constraints tech is turning to generators primary source of electricity. The practice of using generators to power data center operations is called "co-locating." It has become such a standard practice that the Federal Energy Regulatory Commission has been required to hold proceedings to address cost allocations between data center operators and grid operators, along wi grid stability and reliability concerns. These rules are necessary because companies increasingly creating their own infrastructure for these generator-first data centers directly connecting to gas plants. Pipeline operators are overwhelmed by requests from data center operators to expand their pipeline networks to accommodate dire data center connections. Co-location is quickly becoming the norm, and data cente operators are single-handedly revitalizing the natural gas industry.

But this isn't a climate change discussion, it's about human thriving. So why am I talking about natural gas?

According to the American Lung Association, the Bay Area is the 7th most pollute city in the country in terms of fine particle pollution. The Bay Area is the seat of Silicon Valley and home to to 140 of California's 311 data centers. Data centers that increasingly powering their operations using gas-powered generators. You know w kind of pollution gas-powered generators produce? Fine particle pollution.

Fine particulate matter pollution, also known as $PM_{2.5}$, consists of particles measur 2.5 micrometers or smaller in diameter. These particles are uniquely capable of penetrating deep into lungs, making the health impacts of exposure very serious. E short-term exposure to $PM_{2.5}$ (hours to days), has a significant impact on mortality rates in urban areas. xAI's generators have been running 24/7 for months.

We cannot afford the world we're building. The world doesn't have enough clean ai drinkable water to support both humanity and the technodream the zealots amongs us are attempting to impose on all of society. We keep waiting for these folks to eitl find their 'better angels' or begin to recognize the value of long-term strategic development but they are fervently and adamantly opposed to the eating of frogs. T have a vision for our future that doesn't require any of us to have clean air as a generality. It just needs to be clean in our workspace. And our home. Which is... ou workspace...

San Jose just fast-tracked an application to build a data center and housing comple the middle of downtown. Data center *and* housing. Why wait for dispersion of the a pollution from all of the data centers located throughout the Bay Area to kill us slo when we can just plop a data center in the middle of a downtown housing complex suck the pollution directly from the source?

So, yeah, I'm talking air pollution now. Because, life. Life matters. And I'd like to thank Roishetta Sibley Ozane and Moms Clean Air Force for showing me the way.

Our communities, your community cannot survive without clean air and drinkable water. And they are both at risk in this data center ramp up. Abilene, Texas, they're coming for you first but the list of affected states is long. It's time to enter the fight.

Join us at Taps Run Dry, there is work that only you can do. We're here to help you do it.

1 Like

Discussion about this post

Comments Restacks

Write a comment...

From: Mayor and Council
To: Mayor and Council
Cc: Afshan Hamid; Clerk
Subject: FW: Data Center Discussion
Date: Tuesday, May 20, 2025 5:27:23 PM
Attachments: image001.png

Dear Mayor and Council,

We received the following email which we are forwarding for your reference.

Thank You,
Melissa Lee | Executive Assistant
Mayor & Council Offices | City of Santa Clara
(408) 615-2252 | www.santaclaraca.gov

City of Santa Clara
The Center of What's Possible

From: Tahir Naim <tahirjnaim@yahoo.com>
Sent: Tuesday, May 20, 2025 4:00 PM
To: Mayor and Council <MAYORANDCOUNCIL@SantaClaraCA.gov>
Subject: Data Center Discussion

Hello,

I understand data center developments will be discussed tonight. I hope part of that discussion will focus on SVP commercial rate differentials vs PG&E. They seem to be 40% less and I wonder if we should have such a differential. Maybe only 20% less?

Should there be a tier or separate set of rate tiers for data centers?

I imagine water use by data centers may be separately regulated, but siting in our fair city may want to consider impact on our groundwater. I believe where I live on Graham Lane relies on local wells rather than Hetch Hetchy.

Should there be design requirements for passive cooling via the building design?

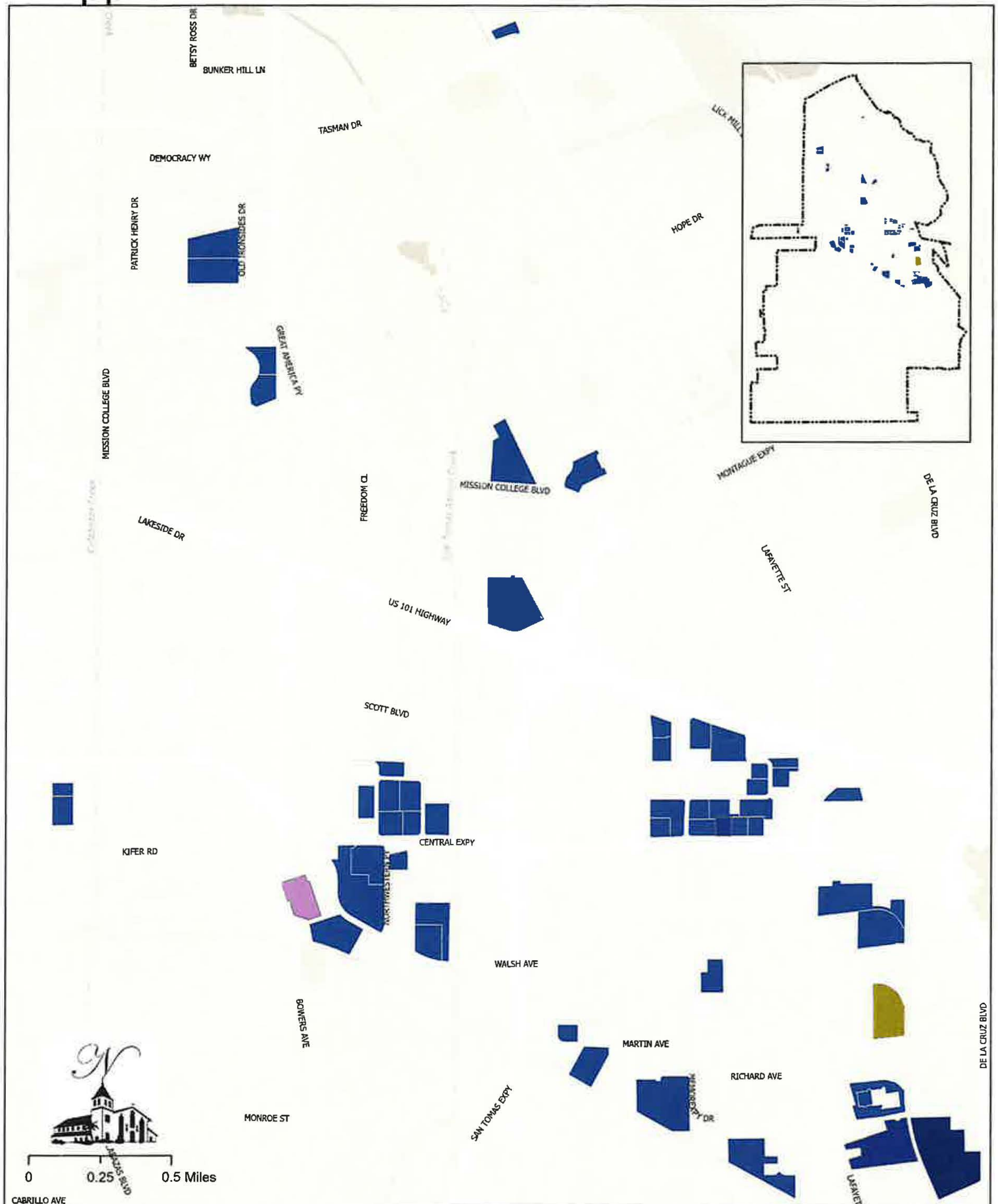
Can we "wrap" other use-types around these buildings such as apartments, offices or hidden parking?

I believe I wrote earlier about the use of data center waste heat in district heating systems. The data centers likely cannot make best use of this heat for powering cooling, but our industrial areas may be able to be redeveloped to have district distribution in mind.

Sincerely,

Tahir J. Naim

Approved Data Center Locations in Santa Clara



Approved | Built / Under Construction:

1. 5101 Lafayette St
2. 4700 Old Ironsides Dr
3. 4650 Old Ironsides Dr
4. 2807 Mission College Blvd
5. 2805 Mission College Blvd
6. 2305 Mission College Blvd
7. 2151 Mission College Blvd
8. 2201 Laurelwood Rd
9. 3030 Corvin Dr
10. 3000 Corvin Dr
11. 2220 De La Cruz Blvd
12. 2970 Corvin Dr
13. 3035 Stender Way
14. 2972 Stender Way
15. 2950 Stender Way
16. 3020 Coronado Dr
17. 3005 Coronado Dr
18. 2820 Northwestern Pkwy
19. 2880 Northwestern Pkwy
20. 2840 Northwestern Pkwy
21. 2915 Stender Way
22. 2901 Coronado Dr
23. 2895 Northwestern Pkwy
24. 2625 Walsh Ave
25. 2600 Walsh Ave
26. 2403 Walsh Ave
27. 2401 Walsh Ave
28. 3105 Alfred St
29. 3205 Alfred St
30. 1350 Duane Ave
31. 3080 Raymond St
32. 3223 Kenneth St
33. 3075 Raymond St
34. 510 Mathew St
35. 3060 Raymond St
36. 3045 Raymond St
37. 3011 Lafayette St
38. 1725 Comstock St
39. 1525 Comstock St
40. 1101 Space Park
41. 1111 Comstock St
42. 1201 Comstock St
43. 1100 Space Park
44. 1500 Space Park
45. 2805 Lafayette St
46. 1550 Space Park
47. 1160 Walsh Ave
48. 651 Walsh Ave
49. 1700 Space Park
50. 2175 Martin Ave
51. 2050 Martin Ave
52. 1700 Richard Ave
53. 1100 Memorex Dr
54. 737 Mathew St
55. 737 Mathew St
56. 1231 Comstock St
57. 2055 Lafayette St

Approved | Unbuilt:

58. 2805 Bowers Ave

Pending Approval

59. 651 Martin Ave

POST MEETING MATERIAL