



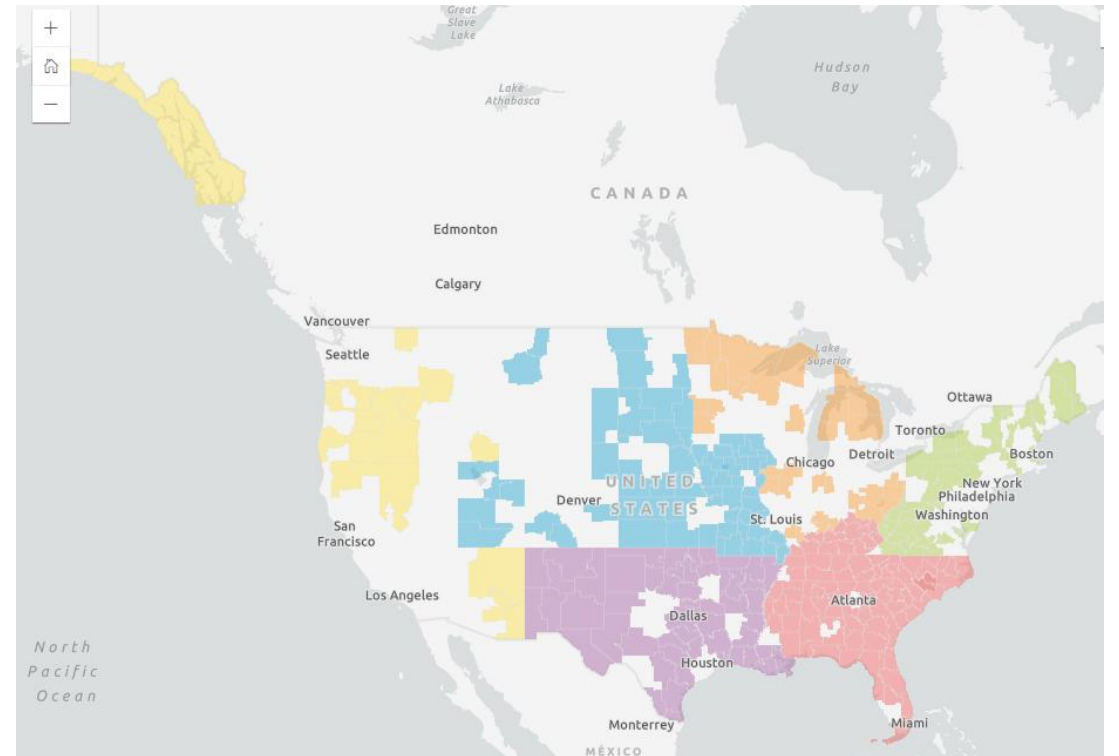
The Future is Now: Data Centers

Joe D'Antonio



The National Association of Development Organizations

- NADO in the membership organization for over 500 Regional Development Organizations in the United States
- Members include Councils of Government, Regional Development Commissions, Regional Planning Councils, and other similar designations



NADO Resources

Rural Energy Academy

- In partnership with the National Association of Counties and the Mana Group Consulting
- Focuses on equipping regional organizations and their communities with the tools to respond to changes in energy production and use
- <https://www.nado.org/rural-energy-academy/>

EDD Community of Practice

- In partnership with the US Economic Development Administration
- Creates peer learning opportunities and written case studies to equip Economic Development Districts to attract transformative projects and investments to their communities
- <https://www.nado.org/eddcop/>



NADO Annual Training Conference

October 19-22- <https://www.nado.org/nado-events/2026-annual-training-conference/>



Why now?



According to McKinsey & Company, by 2030 there will need to be \$6.7 trillion in Data Center Investments. \$5.2 trillion to respond to AI needs and \$1.5 trillion for traditional IT infrastructure.

Data Center Basics

What are they? How do they work? Why now?



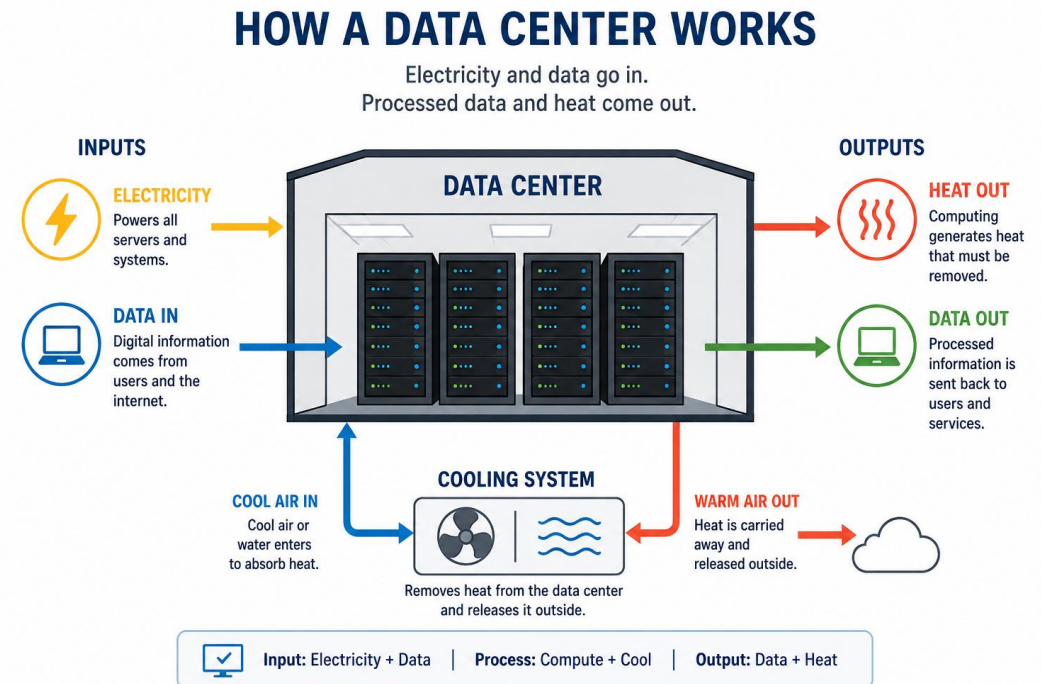
The Purpose of a Data Centers

- Data Centers are facilities designed to house computers that store, process, and transmit data
- Computers within data centers are sorted into racks of between 10 and 42 computers
- Data centers can house dozens, hundreds, or thousands of racks

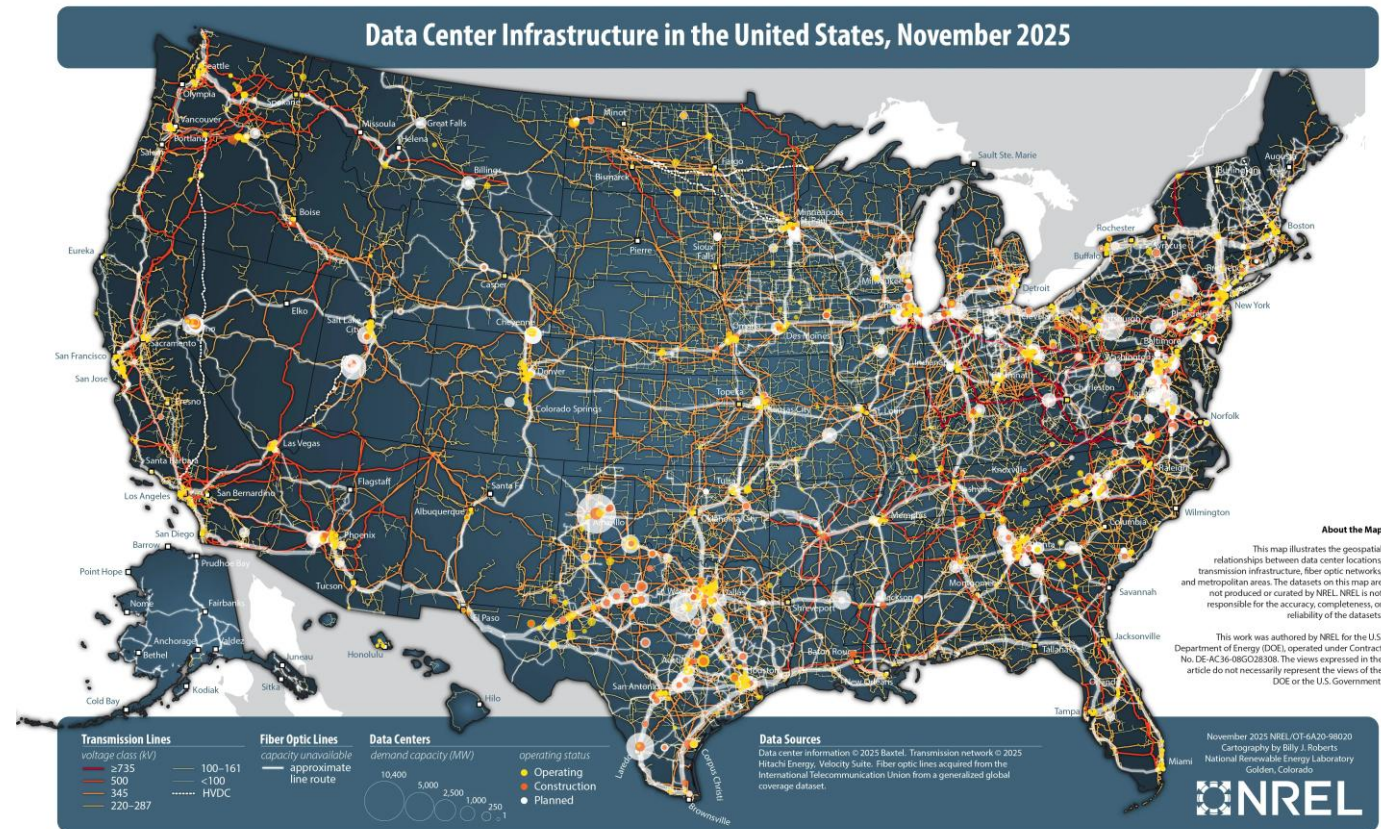


Electricity and Heat

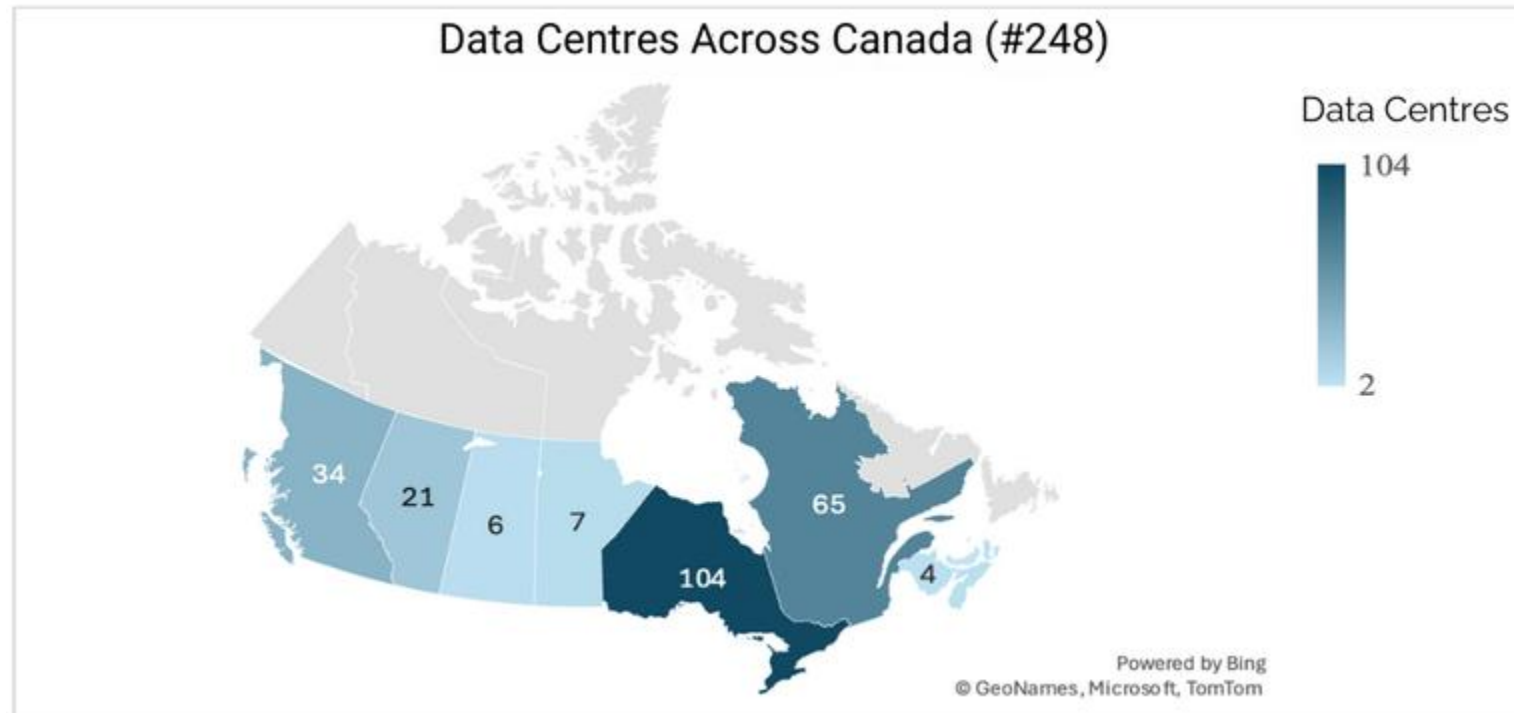
- Computers turn an electrical input into data and produce heat as a by product
- More computers can process more data more quickly, but this requires more electricity and produces more heat
- The heat is dissipated using cooling systems that require water and electricity to run



Data Center Placement

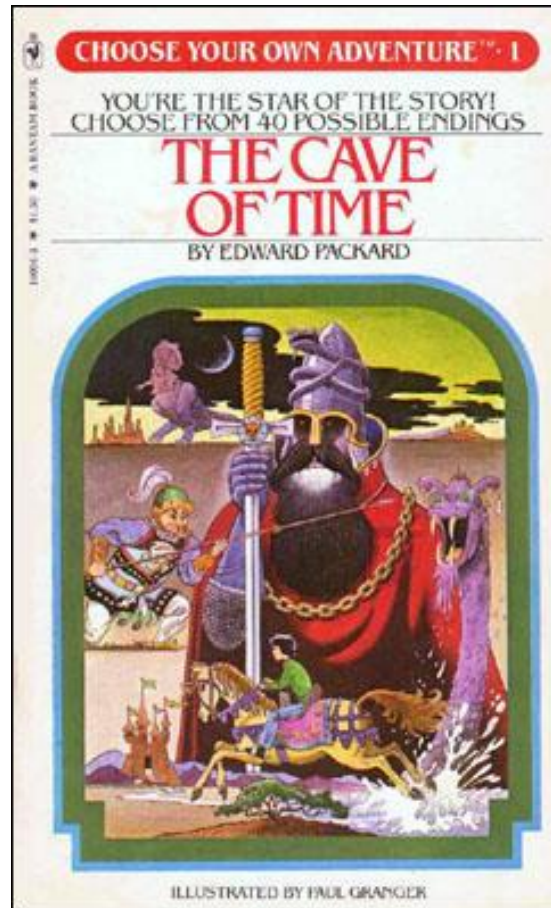


Data Center Placement



The Difference Between Data Centers

Choose your own data adventure!



Additional Data Center Differences

- Kind of cooling system
 - Evaporative
 - Closed Loop
 - Immersive
 - Air Cooled
- Electrical Input Source
 - Grid
 - Onsite Power Generation
- Onsite Security Measures
- AI training site?
- Owner operator?



Data Center Development Partners

- Landowner
- Data Center Developer
- Data Center Operator



Industry Trends

- Data Centers are Going Rural
- Data Centers are Getting Bigger
- The Industry is Becoming More Responsive to Community Concerns
- AI Companies are Going Public, Opening Up New Sources of Capital



The Four P's of Data Centers

Power, Pipes, Permission, People



Power

Data Centers used 31 GW in 2025 and are expected to use 66 GW by 2027



Data Center Sizes

Data Center Size	Instantaneous Power Draw	Land Use	Annual Power Draw	Annual Water Draw	Houses of Electricity per year	Houses of Water per year
Micro Data Center	1 Megawatt	5,000 ² Square feet	8,760 megawatt hours	6.75 million gallons ³	812 ⁴	62 ⁵
Enterprise Data Center	5 Megawatts	20,000 ³ square feet	43,800 megawatt hours	20.8 million gallons ⁶	4,059	69,333
Medium Data Center	10 Megawatts	50,000 square feet ⁷	87,600 megawatt hours	110 million gallons ⁸	8,118	366,667
Large Data Center	100 Megawatts	23 acres ⁴	876 gigawatt hours	193 million gallons ⁹	81,178	643,333
Hyperscale Data Center	1 Gigawatt	128 Acres ¹⁰	8,760 gigawatt hours	346 million gallons ¹¹	811,788	1.15 million

The Grid

- 2/3rds of planned data centers are going to connect to the existing power grid
- Large purchasers like data centers push up the cost of energy for other customers connected to the grid
- Increased power needs are leading to increased investment in transmission infrastructure and energy generation
- Some grids are turning back on older power generation stations to cope with the new demand



The Rise of the Super-Hyper Data Centers

- There are currently two data centers under construction that have a 10 Gigawatt Capacity
- That is as much electricity as Finland uses annually
- Together that's as much power as the United Arab Emirates use annually



Onsite Power Generation

- 1/3rd of planned data centers are turning to onsite power generation rather than the grid
- Even grid dependent data centers are often built with onsite backup generators incase of problems with the grid
- The need for power is pushing the construction of Small Modular Nuclear Reactors to provide onsite power generation for some larger data centers



EDDs and Data Center Power usage

- Work with local energy providers to put electrical capacity and demand in context
- Engage with grant making around increased energy capacity in response to data center energy needs
- Highlight possible alternative uses of limited power resources



Pipes



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Water Based Data Center Cooling

Evaporative

- Uses the evaporation of water to remove heat from computers
- Continual water drawn to refill system
- Less energy intensive

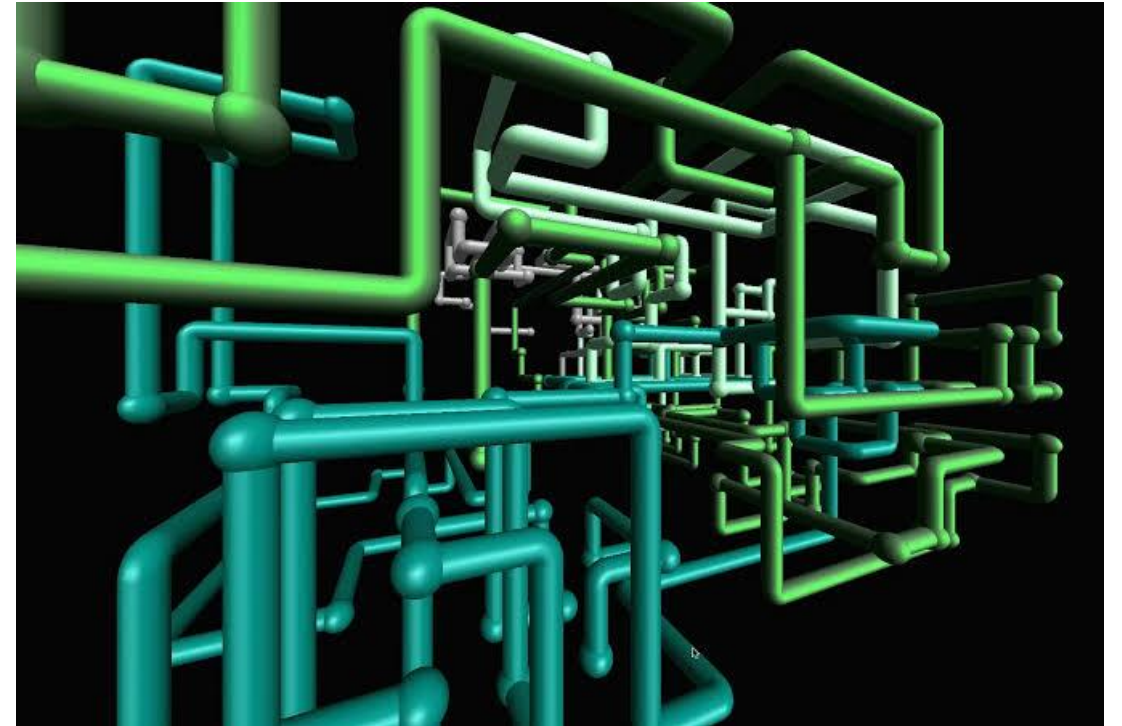
Closed Loop

- Uses circulating water-cooled water to remove heat from computers
- Initial large influx of water to fill system
- More energy required for cooling and circulation

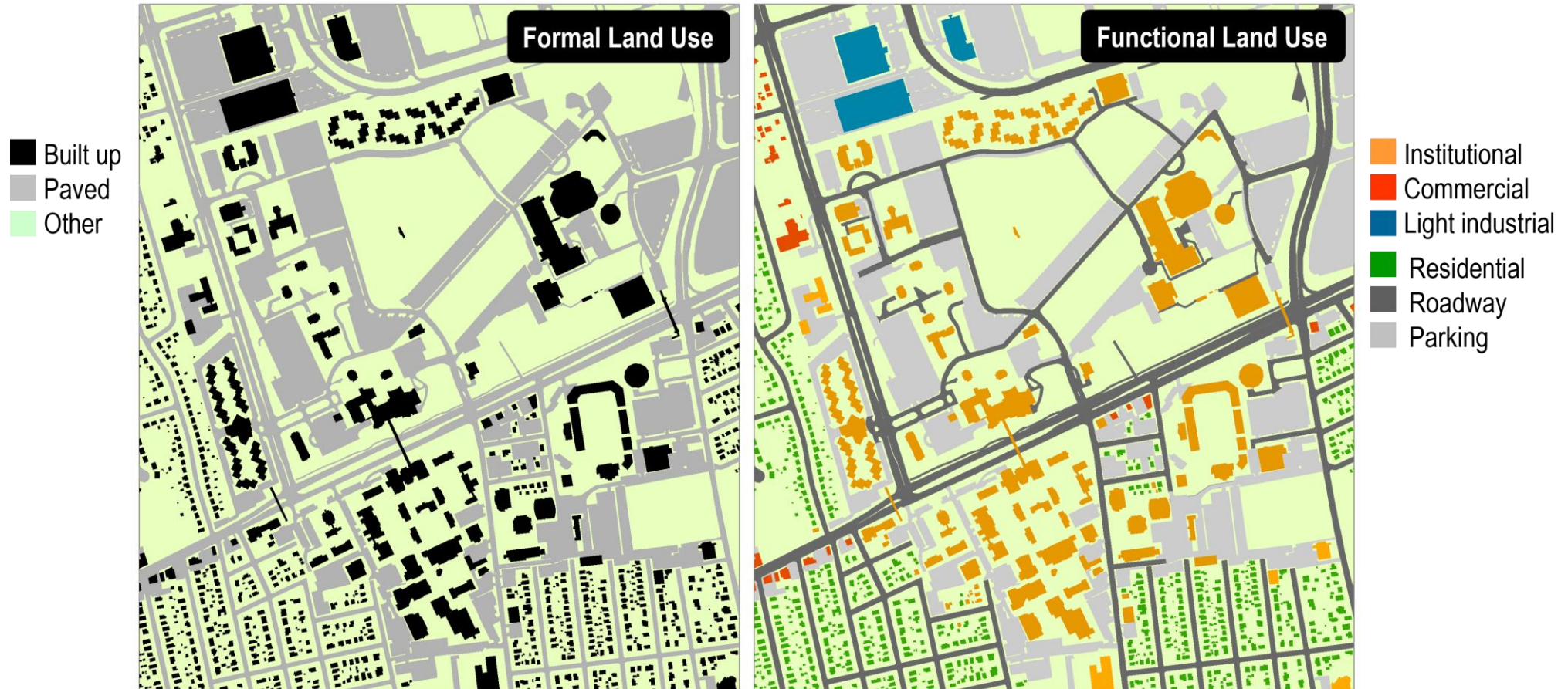


Whole System Thinking

- Closed-loop cooling uses less water onsite, but more electricity
- Depending on the way energy is generated water will be used elsewhere in the system
- Work with energy and water providers within the system to determine where water goes and how it will be used

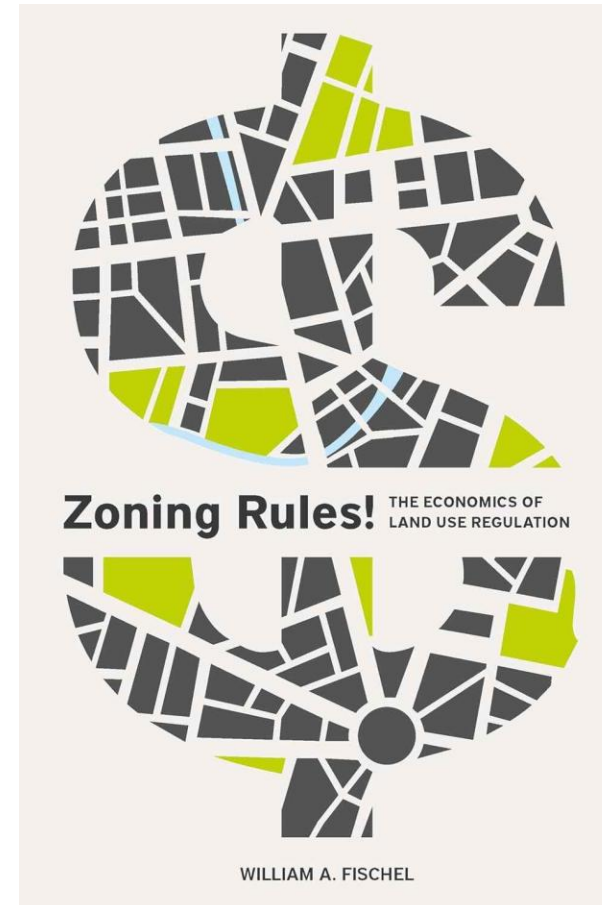


Permissions



Data Center Zoning Considerations

- Data centers often fall through the cracks of existing zoning as they are not quite industrial but also not quite commercial
- The size of some data center projects also requires rezoning of parcels to fit into



Things to Include in Zoning



- Noise
- Building Design
- Strain on the Grid In Areas of Development
- Heat dissipating in the Ground
- Verification of water and electrical usage

Data Centers and Brownfields



- Though large data centers require large plots of land, smaller data centers can be a good fit for brownfields
- Determine what additional infrastructure is needed at a brownfield site to get it shovel ready to encourage data center redevelopment

The Role for EDDs in Planning



Some EDDs provide direct zoning assistance to counties and municipalities so will be directly involved in the process



Others can provide detailed technical assistance when developing ordinances



EDDs can all provide information to planning authorities to ensure important aspects of the zoning process are not missed

People



Public Engagement

- \$130 billion in data center projects has been paused due to public push back on development
- The majority of people when surveyed say they do not want a data center in their community
- Moratoriums at the municipal, county, and state level are proliferating

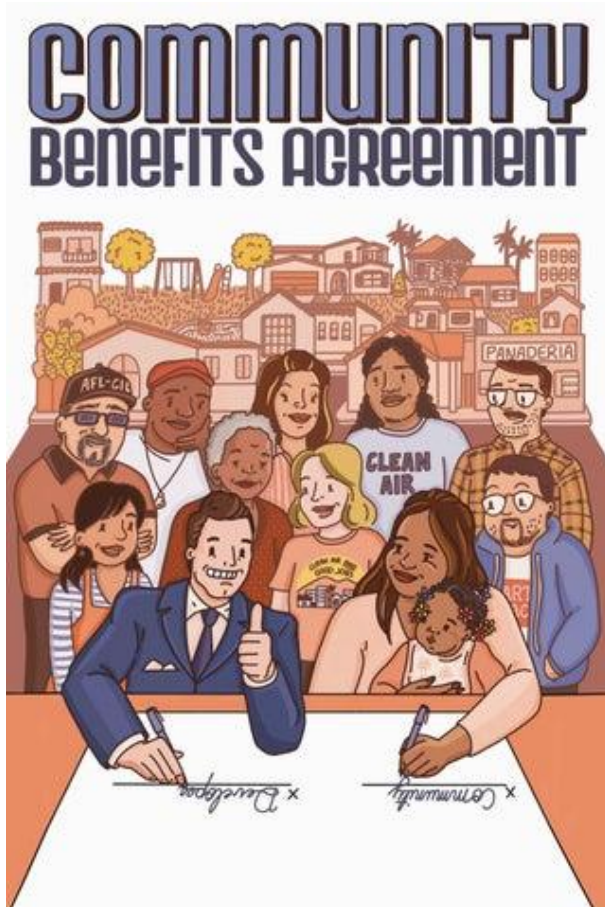


Concerns about NDAs



- Non-disclosure agreements are a common tool used in economic development negotiations
- Some large data center developers have made best practices against them
- They do not abrogate existing transparency laws
- Be aware of all applicable laws before signing one

Community Benefit Agreements



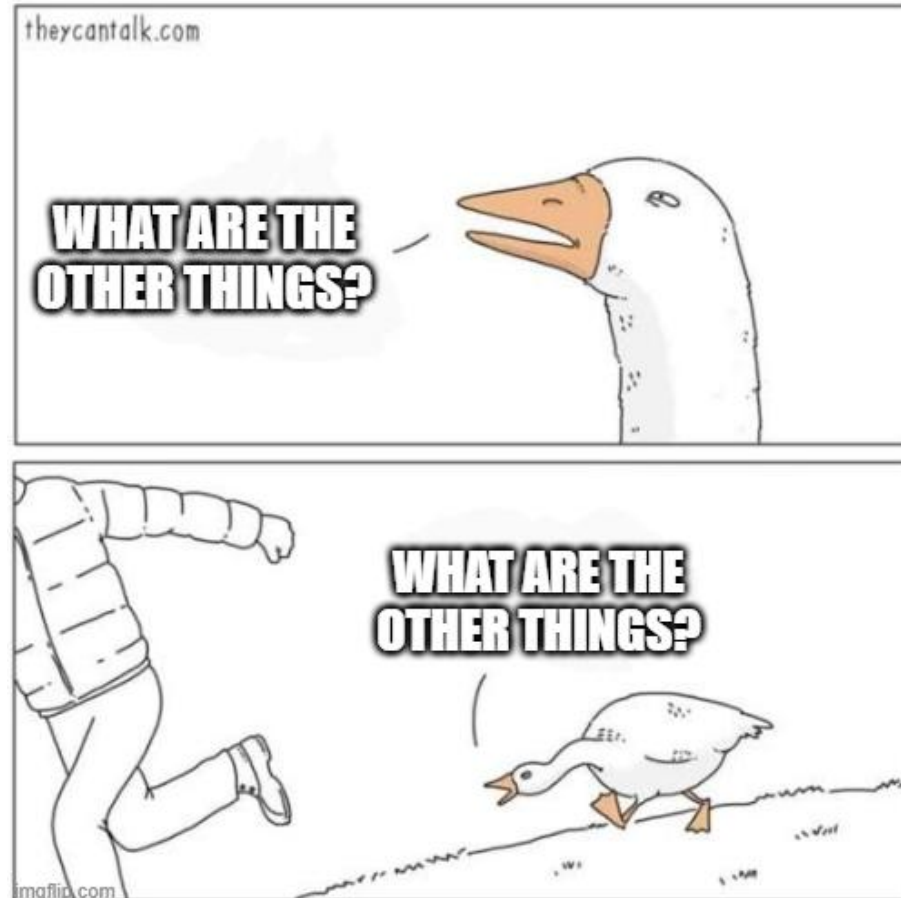
- Community Benefit Agreements can be used in addition to create incentives for communities to approve development and provide boundaries for development
- They require strong enforcement mechanisms and clear lines of arbitration to be effective

The Role of EDDs with the Public

- As non-political entities EDDs are well placed to provide neutral information on data center development to both the public and governments
- The CEDS process provides a good way for EDDs to include the perspective of business, government, and public stakeholders
- EDDs should remain a neutral party in data center development and allow the public and the political process to make decisions



Other Considerations



Pricing In Risk

- Concerns about an AI bubble mean that communities need to price in the risk of an overbuild out of data centers or particular companies going out of business
- Include decommissioning plans as part of approval for production
- Ensure that communities are not locked into anything if a project falls through



Construction



- Data centers are particularly heavy forms of development so will create additional wear and tear on infrastructure during development
- Consider pricing this in during the development process

Questions?

