

**Laidlaw Scholars Undergraduate Leadership and Research
Programme**
Research Report

**Uncovering the Social and Ecological Impacts of Data Centres:
Promoting Indigenous Perspectives Amid Canada's Data Centre
Boom**

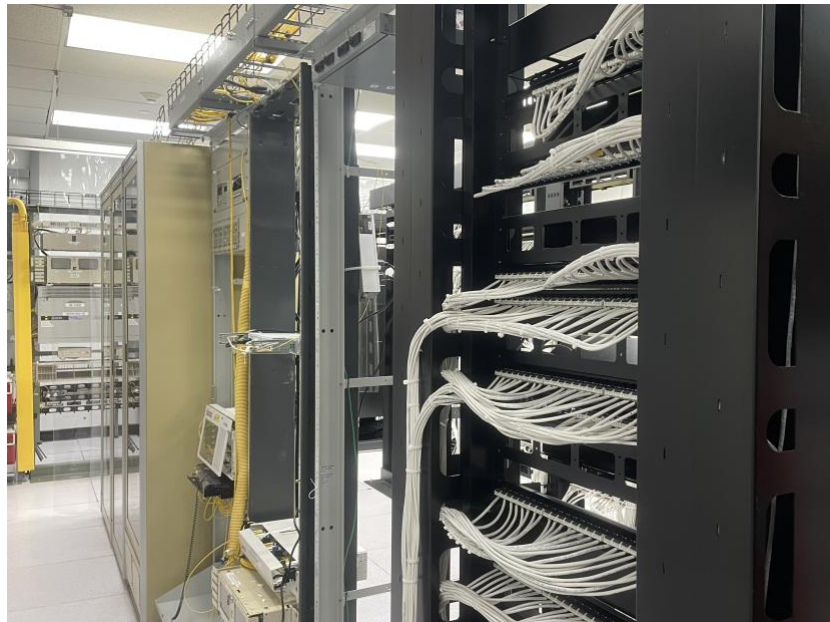


Figure 1: Internal Processors at ThinkOn's Ottawa Data Centre, Photo Captured by Lila Sparks

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UNIVERSITY OF
TORONTO

CENTRE FOR INTERNATIONAL
EXPERIENCE

I sincerely acknowledge that my research has taken place on the traditional, unceded, and unsurrendered Indigenous lands of the Anishinabe Algonquin Nation of “Ottawa” the Michi Saagiig and Chippewa Nations of “Cobourg” and the Mississaugas of the Credit, the Anishnabeg, the Chippewa, the Haudenosaunee, and Wendat peoples of “Toronto”. This land continues to be home to many diverse First Nations, Inuit, and Métis peoples. The ability to depend on these lands is a great privilege, and a direct result of the continued stewardship of Indigenous people. I am grateful for the safety, opportunities, comfort, and solace that I gain from learning, working, and living across Turtle Island and recognize my responsibility to support ongoing reconciliation, justice, and decolonization efforts through my personal and academic pursuits.

1. Abstract

Through my research, I argue that data centres are not a neutral technical infrastructure, but act as a site of power and capital that accelerate settler colonialism. The report first engages with critical data centre studies by outlining a brief history of data centre development, explaining the diversity of the data centre industry, identifying the sociotechnical imaginaries of data centres, and providing an overview of the industry in Canada today. It then analyzes the environmental impacts of data centres, particularly focusing on land, energy, and water, grounding these analyses in the historical context of environmental racism towards Indigenous peoples across Canada. Finally, it explores the social implications of data centres by examining data colonialism, economic impacts, and the surge in community-led resistance to data centres.

2. Methodology

To analyze the social and environmental impacts of data centres, I employ a mixed-methods research strategy.

To analyze the environmental impacts of data centres, I use the province of Alberta's hyperscale data centre industry as a case study, with a focus on the Wonder Valley data centre and the Synapse data centre. In addition, a literature review across academic disciplines consisting of computer engineering, environmental sciences, and history was conducted.

To determine the social impacts of data centres, I conducted 6 open-ended interviews with an industry expert, three community organizers, a Councilor from the Sturgeon lake Cree Nation, and an Indigenous leader working to decolonize data. I combined these interviews with a literature review across academic disciplines consisting of economics, sociology, resistance studies, and Indigenous studies.

I have also supplemented my research report with photographs, many of which were found through social media accounts dedicated to grassroots community organizing, relevant graphs from other academic works, journalistic photographs, and photos taken firsthand during an on-site data centre facility tour.

This research has multiple limitations, including the small scope of interviews I conducted, which limit the breadth of perspectives and may result in overgeneralizations of conclusions about Indigenous, social, and environmental impacts. These limitations have been avoided as much as possible; however, further research must be conducted on this subject to completely unpack the impacts of data centres on the environment, local economy, and social systems of Indigenous, rural, and marginalized communities.

3. Introduction

Today the lands of so-called ‘Canada’ are home to many diverse populations, the majority of which are settlers. As a country composed of settlers who continue to benefit from the systemic oppression of Indigenous peoples, we hold a collective duty to address and account for the colonial histories of this land. Many of these colonial histories are continued in nearly invisible ways, including the development of data centres, the physical infrastructure supporting cloud computing technologies, which are disproportionately impacting Indigenous communities across the country. In Canada, settler colonialism appropriates an individual's personal data as much as it impacts land, water, and communities. As scholar Mel Hogan argues, “data centres play a hand at furthering settler futurity in at least two ways: they stake a claim to land and its proximity to water, and they further locate humanity outside of human bodies, and into machines”¹. Resisting these and other modalities of settler colonialism is a small step towards genuine reconciliation.

Through this research, I argue that data centres are not a neutral technical infrastructure but are key sites of contemporary power and capital, propagated by the sociotechnical imaginaries of the Canadian government and tech corporations profiting from their development. Developing AI or hyperscale data centres in particular, will have unimaginably destructive impacts on both the environmental and social foundations of the communities in which they are constructed; in Canada, this is disproportionately on or near the current and traditional territory of Indigenous peoples. The impacts of data centres will continue to hijack all elements of the environment, through their significant energy demand, causing the mass production of carbon emissions, their insatiable thirst for water, unsustainable construction practices, noise pollution, rare earth mineral mining, and e-waste. Socially, data centres are impacting local economies, further exacerbating digital colonialism, and sparking resistance efforts and social collaboration between impacted communities.

The collaboration between the Canadian government and Big Tech corporations such as Meta, Google, and Microsoft will further colonize and destroy the remnants of this planet’s healthy ecosystems under the guise of ‘sovereignty.’ Which ultimately, promotes a false and unjust narrative, dependent on the continued oppression of all First Nations, Inuit, and Métis peoples across Turtle Island. This situation is unprecedented and requires urgent collective action, beginning with the centring of Indigenous knowledge systems, the recognition of and dismantlement of colonial patterns, and an institutional re-prioritization of human and environmental health over profit. Such human-centric value systems, in place of prosperity-focused initiatives, are the core driver behind ongoing efforts of resistance, which can and will continue to push past political, religious, and personal belief systems for the pursuit of justice. These diversities are our biggest strength when fighting against such injustices and respecting the

¹ Hogan, Mél. 2018. *Big Data Ecologies*. P 640. <https://ephemerajournal.org/sites/default/files/pdfs/contribution/18-3hogan.pdf>.

inherent knowledge and diverse Indigenous systems of knowing is the only solution to such catastrophic issues we face because of colonialism.

4. An Overview of Critical Data Centre Studies

In this section, I will provide background to the development of the Canadian data centre industry, outline the functions of data centres, the different forms they take, and the sociotechnical imaginaries they animate, through a description of the hyperscale centres being constructed there and the regulatory frameworks that are governing them.

4.1 A Brief History of Data Centre Development

The centralization and state-sanctioned control of information processing and distribution have long served imperial and colonial pursuits². Historically, political contention and public debates regarding data centres focused on privacy, surveillance, and the control of personal data. Typical data centres function as the physical infrastructure that houses computing systems and their components; their services are utilized for a wide array of computing projects, such as artificial intelligence, archives, controlled internet access, cryptocurrency mining, and backup power systems³. However, largely thanks to the construction of hyperscale data centres, many longstanding concerns about this industry have begun to take on a new form⁴, with new fears regarding resource extraction, such as energy and water consumption, taking precedence.

Although the concept of the ‘data centre’ dates back only to the 1990s, the characteristic features of data centres have been identified from the origins of the development of computers⁵. For example, during the mid-1960s the United States planned to create data infrastructure with the purpose of storing its citizens' personal data, such as tax returns, census data, and social security⁶ information. In hopes of bringing this project into fruition, the U.S. government began to entertain a series of proposals to construct a National Data Centre. Through subsequent hearings, many deeply troubling privacy concerns related to centralizing and controlling personal data were raised, preventing the construction of the National Data Centre. Historians and privacy scholars both believe the failure of the National Data Centre and the controversy that surrounded it marked a key event in the devaluation of privacy and, a turning point in the political economy⁷, now demonstrating personal data as a collectable, controllable, and desirable asset.

The future of data centres is inextricably linked with the advancements in AI; over the past few years, AI has transitioned from an academic pursuit to a trillion-dollar industry and is poised to

² Edwards, Dustin, Zane Griffin, and Mél Hogan. 2024. “The Making of Critical Data Center Studies.” *Convergence* 0 (0). <https://doi.org/10.1177/13548565231224157>.

³ Balodis, Rihards, and Inara Opmane. 2012. “History of Data Centre Development.” *IFIP Advances in Information and Communication Technology* 387: 180–203. https://doi.org/10.1007/978-3-642-33899-1_13.

⁴ Zander, Madelyn. 2024. “Futuring the Cloud: An Ethnographic Study of Critical Data Center Infrastructure Growth, Environmental Threat, and Community Risk.” *ProQuest*. <https://www.proquest.com/docview/3100387207?%620Theses&fromunauthdoc=true&sourcecetype=Dissertations%20>.

⁵ *Ibid.*

⁶ BOUK, DAN. 2018. “The National Data Center and the Rise of the Data Double.” *Historical Studies in the Natural Sciences* 48 (5): 627–36. JSTOR. <https://www.jstor.org/stable/26616643>.

⁷ *Ibid.*

revolutionize data centre operations. As the technology continues to evolve, its impact on data centres will become increasingly profound⁸.

4.2 The Functions and Diversity of Data Centres

Architecturally, hyperscale data centres, often associated with Big Tech corporations such as Google, Microsoft, OpenAI, and Amazon, are engineered on a massive scale to support data processing needs⁹ and should be considered in a category of their own. The size, resource demands, and social impacts of hyperscale infrastructure have already become significant enough to create political shifts domestically and internationally, with concerns regarding grid access, cost allocation, energy security, and energy autonomy¹⁰ on the rise.

Historically, tech infrastructure has been made to be invisible to individuals and communities, a trait that has been replicated in the development of the data centre industry; this was mentioned to me during my tour of ThinkOn's data centre, with an employee stating that "By design, ThinkOn's secure data centre is not visible from the road." Making the physical infrastructure of data centres and "the cloud" invisible to the public is only in part for security. As with other industrial developments, it is also a clear attempt to mask the impact it has on our natural environment. I learned in the context of my research, as well as within critical data centre studies more broadly, that to grapple with the impact of data centres, it is important to reconnect the cloud to the infrastructure that makes it possible, by identifying the physical structures of data centres and identifying their use of local energy, water, and natural resource infrastructure¹¹.



Figure 2: Directions to ThinkOn's Ottawa data centre location, captured by Lila Sparks

⁸ Karunakara Malige, Lohith. 2024. "The Impact of Artificial Intelligence on the Modern Data Center Industry." *SSRN Electronic Journal*, ahead of print. <https://doi.org/10.2139/ssrn.4922638>.

⁹ CISCO. 2026. "What Is a Hyperscale Data Center?" Cisco, July. <https://www.cisco.com/site/us/en/learn/topics/computing/what-is-a-hyperscale-data-center.html#accordion-styled-08dbe8afe4-item-f0e932e929>.

¹⁰ Banca D'Italia, Andrea Gazzani, and Fabrizio Ferriani. 2026. "Banca D'Italia - No. 1014 - Powering the Digital Economy: The Global Expansion of Data Centres and Its Energy Implications." *Bancaditalia.It*. <https://www.bancaditalia.it/pubblicazioni/qef/2026-1014/index.html?com.dotmarketing.htmlpage.language=1&dotcache=refresh>.

¹¹ *Ibid*

There are two critical aspects of energy use for typical data centres. The first is direct energy use, which is required to run the centre's software and computing systems. On the lower end of the spectrum, this form of energy can consume over 100 times the energy that is used in typical offices¹². The second significant energy requirement is mostly from indirect demands. This refers to the energy used to power the functions of a data centre facility rather than run the computing systems. Common indirect energy uses include a data centre's cooling requirements, support equipment, and control systems. A typical data centre utilizes air conditioners or liquid cooling for its computing equipment, which is connected to an uninterruptible power supply (UPS) or diesel generator.



Figure 3: ThinkOn Data Centre's Diesel Generator, Photo by Lila Sparks

In order to prevent any power failures, most data centres fully duplicate all of their electrical systems (including the backup ones) and connect the computing facilities to both diesel and electrical power feeds; this system is commonly referred to as N+1 Redundancy and considered to be an industry standard¹³. A single 100 MW data centre, typically situated within 50km of any one of Canada's metropolitan areas, can consume as much electricity as 100,000 households, placing considerable stress on local electricity infrastructures as a result of the size of this demand¹⁴.

Data centre cooling systems (DCS) are similarly resource intensive. DCS refers to the means by which heat generated by computing machines and other data centre equipment in a data centre is dissipated. Generally, the three most common cooling methods in modern data centres are air conditioning, free cooling/air cooling, and liquid cooling¹⁵.

Previously, air conditioning was the most conventional cooling method, conducted through the vapour compression and refrigeration systems of air conditioning. Although this method is still in use, it is regarded as being inefficient and power-hungry, mostly due to the increased cooling demand of modern data centres, which have surpassed the capabilities of air conditioning methods. Free cooling or air cooling has been championed by the data centre industry as a sustainable¹⁶ substitute for the environmental impacts of air conditioning and their contribution to GHG emissions¹⁷. Air cooling utilizes air from the environment surrounding a data centre.

¹² *Ibid*

¹³ *Ibid*

¹⁴ UNECE, Roberto Monaco, Ana Trbovich, et al. 2025. "Intersection between Large-Scale Digitalization and Environmental Sustainability: An Overview of Use and Impact of Data Centres." <https://unece.org/Sed/Documents/2025/08/Informal-Documents/Data-Centres-Digitalization-and-Environmental-Sustainability>, UNECE, August 4.

¹⁵ Alkrush, Ahmed A., Mohamed S. Salem, Osama. Abdelrehim, and A. A. Hegazi. 2024. "Data Centers Cooling: A Critical Review of Techniques, Challenges, and Energy Saving Solutions.." *International Journal of Refrigeration* 160 (February). <https://doi.org/10.1016/j.jrefrig.2024.02.007>.

¹⁶ Zhang, Hainan, Shuangquan Shao, Hongbo Xu, Huiming Zou, and Changqing Tian. 2014. "Free Cooling of Data Centers: A Review." *Renewable and Sustainable Energy Reviews* 35 (July): 171–82. <https://doi.org/10.1016/j.rser.2014.04.017>.

¹⁷ Calm, James M. 2002. "Emissions and Environmental Impacts from Air-Conditioning and Refrigeration Systems." *International Journal of Refrigeration* 25 (3): 293–305. [https://doi.org/10.1016/S0140-7007\(01\)00067-6](https://doi.org/10.1016/S0140-7007(01)00067-6).

When the outdoor temperature is cold enough, the units either allow direct external airflow or utilize it indirectly via a heat exchanger. The expulsion of the data centre's hot air to the outside environment is not taken into consideration by industry leaders, when this method is imagined as sustainable. Liquid cooling is the method most widely used in the data centre industry due to its cost-effectiveness. In this method, the data centre is directly cooled using either naturally cold water or water that has undergone a heat transfer¹⁸. The social and environmental impacts of this cooling method will be analyzed further in the environmental section of this report below.

4.3 Sociotechnical Imageries and the Data Centre

The cloud, often used as a descriptive term for data centres, is a crucial part of a sociotechnical imaginary that, according to scholar Madelyn Zander, works to “resoundingly obfuscate the material, political, and economic realities of data centre infrastructure”¹⁹. Associating the data centre industry with the cloud²⁰ works to dissociate the former from any of the material, environmental, and social impacts it has, instead associating it with something natural, inevitable, and immaterial²¹. Understanding the distinction drawn between users' imaginaries of the cloud, the industry’s physical reality²², and the metaphors the latter uses to advertise itself is essential to understanding the impact of data centres on the natural environment.

In *Dreamscapes of Modernity*, Sheila Jasanoff describes sociotechnical imaginaries as “institutionally stabilized and publicly performed visions of desirable futures, attainable through advances in technology”²³. She explains that corporations and governments both create stories of technological development that lack obvious grounding in natural, economic, or social disparities, to fulfill nation-specific technological projects²⁴. Terms like *the cloud* used to describe the kinds of technology data centres support are merely metaphors working to distinguish data from its physical reality. Reducing the physicality of cloud computing to a browser icon²⁵, all while the data centre industry continues to pollute the environment.

The expansion of data centres is often justified via public discourse. For example, the Canadian government recently launched its “AI For All” strategy, which pushes for Canada to become a leader in the industry through the expansion of domestic data centre infrastructure. The government's attempts to strengthen the sociotechno-imaginary are evident throughout the Prime Minister's speech announcing their “AI For All” policy. For example, the PM stated:

¹⁸ *Ibid*

¹⁹ Zander, Madelyn. 2024. “Futuring the Cloud: An Ethnographic Study of Critical Data Center Infrastructure Growth, Environmental Threat, and Community Risk.” P 1. *ProQuest*. <https://www.proquest.com/docview/3100387207?%20Theses&fromunauthdoc=true&source=type=Dissertations%20>.

²⁰ Borning, Alan, Batya Friedman, and Nick Logler. 2020. “The ‘Invisible’ Materiality of Information Technology.” *Communications of the ACM* 63 (6): 57–64. <https://doi.org/10.1145/3360647>.

²¹ Carruth, Allison. 2014. “The Digital Cloud and the Micropolitics of Energy.” *Public Culture* 26 (2): 339–64. <https://doi.org/10.1215/08992363-2392093>.

²² Jayn Verkerk. 2021. “Cloud Computing as Digital Imaginary. A Critical Making Approach to User Perceptions and Experiences.” *OPAL (Open@LaTrobe) (La Trobe University)*, ahead of print, May 25. <https://doi.org/10.26686/wgtn.14411111.v3>.

²³ Jasanoff, Sheila. 2015. *Dreamscapes of Modernity: Sociotechnical Imaginaries and the Fabrication of Power*. Edited by Sheila Jasanoff and Sang-Hyun Kim. University of Chicago Press. P 4. <https://press.uchicago.edu/ucp/books/book/chicago/D/bo20836025.html>.

²⁴ *Ibid*

²⁵ *Ibid*

“The world is changing rapidly, with intensifying economic competition, accelerating technological change, and a global race to secure the talent, infrastructure, and innovation that will define the future. Artificial intelligence (AI) is at the centre of that transformation, changing how people live and work, how businesses compete, and how countries protect their sovereignty.”²⁶

Positioning AI at the centre of societal change offers an example of how the government reproduces the sociotechnical imaginary of data, by aligning it with the notions of technological determinism; declaring that technology drives the cultural, political, and social changes in our society²⁷. In doing so, they successfully convey a sense of urgency to adopt this technology and infrastructure to create a more desirable future for Canadians. In other words, the Canadian sociotechnical imaginary is an example of fear mongering, disguised in the words of encouragement and the promise of a better future.

The plan to reinforce Canadian sovereignty through AI²⁸ is consistently referenced throughout the government's national strategy for AI, with the word "sovereignty" being mentioned more than fifty times in the document. Strategically associating the data centre industry is framed in direct opposition to the United States, as an attempt to make the domestic expansion of data centres seem benevolent in comparison. The push to construct data centres domestically has been accelerated by recent developments in Canada's relationship with the U.S, as tariffs and ‘51st state’ threats made by US President Donald Trump has generated ontological insecurity in Canada²⁹, sparking the government to insistently emphasize sovereignty and pursue a newly ultra-nationalist agenda.

This insistence on linking data centres with sovereignty is problematic in part because Canadian sovereignty is implicated in the colonization of Indigenous peoples and the legitimization of settler society. The concept of sovereignty has been recognized as a political construct utilized as a tool of Indigenous dispossession and oppression by Indigenous scholars for years³⁰. Today, Canadian sovereignty continues to uphold settler colonialism and eliminate the ‘sovereignty’ of many Indigenous minorities. Any attempt to reinforce Canadian sovereignty, whether through the data centre industry or by any other means, constitutes a de facto way of continuing oppression of Indigenous communities.

Although data centres are not inevitable, natural, or immaterial³¹, they have been figured as such through the Canadian government's sociotechnological imaginary, while recognition of the

²⁶ Office of the Prime Minister. 2026. “Prime Minister Carney Launches AI for All: Canada’s New National Artificial Intelligence Strategy.” Prime Minister of Canada. <https://www.pm.gc.ca/en/news/speeches/2026/06/04/prime-minister-carney-launches-ai-for-all-canadas-new-national-artificial>.

²⁷ Robson, Gregory J, and Jonathan Y Tsou. 2023. *Technology Ethics*. January 3. <https://doi.org/10.4324/9781003189466>.

²⁸ *Ibid*

²⁹ Chan, Adin. 2025. “You Had a Friend in Me.” *St. Antony’s International Review* 20 (2). <https://doi.org/10.82556/stair.v20i2.437>.

³⁰ Vigil, Kiara M. 2015. *Indigenous Intellectuals*. July 15. <https://doi.org/10.1017/cbo9781107709386>; McCue, June. 2019. “New Modalities of Sovereignty: An Indigenous Perspective.” *Stu.Edu*. <https://scholarship.stu.edu/cgi/viewcontent.cgi?article=1167&context=ihrir>; Shrinkhal, Rashwet. 2021. “Indigenous Sovereignty’ and Right to Self-Determination in International Law: A Critical Appraisal.” *AlterNative: An International Journal of Indigenous Peoples* 17 (1): 71–82. <https://doi.org/10.1177/1177180121994681>; Bauder, Harald, and Rebecca Mueller. 2021. “Westphalian Vs. Indigenous Sovereignty: Challenging Colonial Territorial Governance.” *Geopolitics* 28 (1): 156–73. <https://doi.org/10.1080/14650045.2021.1920577>; Salgado, Pedro. 2023. “Against Sovereignty: The Colonial Limits of Modern Politics.” *Millennium Journal of International Studies* 52 (1): 85–108. <https://doi.org/10.1177/03058298231194742>.

³¹ *Ibid*

underlying infrastructure required to power AI technologies and its potential impact is hardly a factor in the government's strategy. In reality, this infrastructure is not critical for national interests but rooted in the extraction of material and energy resources, which benefits a few at the top of the private sector, even as the true impacts are felt locally, in the rural, less-developed, working-class, marginalized, and Indigenous communities where they are being disproportionately constructed³².

4.4 The Impact of Jurisdictional Oversight in the Canadian Data Centre Industry

In Canada, data centres are governed through a multi-layered framework, in lieu of a single federal act. Provincial and territorial governments have total authority to regulate energy grids, building design, and construction within their jurisdictions; municipalities govern land-use zoning, while the federal government focuses on national security, tax policies, and collaboration with the provinces and territories³³.

Federally, Canada's government has prioritized the construction of projects they deem to be of national interest by streamlining typical federal environmental assessments such as the *Impact Assessment Act* and *Species at Risk Act*³⁴. As of June 2026, instead of assessing a project under each legislation individually, all federal approvals are automatically granted at once³⁵. The *Building Canada Act* shifts the review process from determining *whether* a project should proceed, to *how* the project should proceed, setting aside thorough environmental assessments. Currently, there are no hyperscale data centre projects listed on the national interest projects list. However, the project referral period remains open, making this new set of regulations available to the industry and a very attractive application option for companies looking to construct their next data centre.

Canada's multi-layered governing framework leads to significant discrepancies in data centre policy across all provinces and territories. Historically, this style of governing has left Indigenous communities out of major decisions both provincially and federally³⁶, especially when they are treated as simply another 'stakeholder' in governance procedures³⁷. The structural inequalities that Canada's governing institutions and systems produce continue to be reflected in data centre policy today. For example, the most recent First Ministers Conference, where all of Canada's Premiers met to discuss some of the biggest issues the country faces, took place from July 21st-23rd, 2026³⁸. Despite consistent demands by Indigenous Leaders for a larger presence at these meetings, they were only allowed to meet with premiers on the sidelines of the

³² Brodie, Patrick. 2023. "Data Infrastructure Studies on an Unequal Planet." *Big Data & Society* 10 (1). <https://doi.org/10.1177/20539517231182402>.

³³ Climate Insight. 2026. "National Building Code of Canada | Climate Insight." [Climateinsight.ca](https://climateinsight.ca/csg/national-building-code-of-canada). <https://climateinsight.ca/csg/national-building-code-of-canada>.

³⁴ Government of Canada. 2024. "National Building Code: 2023 Alberta Edition - NRC Publications Archive." [Nrc-Publications.Canada.Ca](https://nrc-publications.canada.ca/eng/view/object?id=0316d953-0d55-4311-af69-cad55efec499), February 29. <https://nrc-publications.canada.ca/eng/view/object?id=0316d953-0d55-4311-af69-cad55efec499>.

³⁵ Government of Canada. 2025. "Building Canada Act - Projects of National Interest - One Canadian Economy - Canada.Ca." [Canada.Ca](https://www.canada.ca/en/one-canadian-economy/services/building-canada-act-projects-national-interest.html). <https://www.canada.ca/en/one-canadian-economy/services/building-canada-act-projects-national-interest.html>.

³⁶ Alcántara, Christopher, and Jen Nelles. 2013. "Indigenous Peoples and the State in Settler Societies: Toward a More Robust Definition of Multilevel Governance." *Publius: The Journal of Federalism* 44 (1): 183–204. <https://academic.oup.com/publius/article/44/1/183/1864836?login=true#no-access-message#no-access-message>.

³⁷ Latta, Alex. 2018. "Learning from the Northwest Territories Water Stewardship Strategy." *International Indigenous Policy Journal* 9 (2): 1–22. JSTOR. <https://www.jstor.org/stable/48767150>.

³⁸ Celso Cercado. 2026. "National Chief Meets with Premiers to Discuss the Canadian Economy, Climate Change and October First Ministers Meeting." *Assembly of First Nations*, July 22. <https://afn.ca/all-news/press-releases/national-chief-meets-with-premiers-to-discuss-the-canadian-economy-climate-change-and-october-first-ministers-meeting/>.

conference³⁹. In an interview with the CBC, President Victoria Pruden of the Métis National Council stated: “You’ve got maybe five, 10 minutes to press your point, and today premiers had to rush out to meet with the prime minister, I believe. And it’s not enough time for meaningful engagement.”⁴⁰ Situations like this, where Indigenous communities and their leaders are pushed to the sidelines of meetings rather than being given a seat at the table, isolate their communities from the country’s governing networks, making it increasingly difficult to advocate for themselves at a moment when Canada’s industrial expansionist agenda is being clearly announced.

This governing framework also creates significant regulatory discrepancies across provinces and territories. To expand, the provincial government in Alberta has worked to promote themselves as the “North American destination of choice for AI data centre investment.”⁴¹ Their *AI Data Centre Strategy* emphasizes the dismissal of environmental regulations, cutting “red tape” across government by one-third since 2019,⁴² and having the lowest corporate tax rates in the country and a deregulated market that encourages on-site natural gas self-generators⁴³. This creation of a ‘business-friendly regulatory environment’ has made it abundantly clear that Alberta wants data centre development at any costs. In comparison, Manitoba’s Premier Wab Kinew has recently rejected the proposal of a hyperscale AI data centre near the rural area of Ile des Chênes, citing concerns in an interview with the CBC about the impact on both the environment and rural community⁴⁴.

Provincial share of planned data centre capacity

Total capacity of centres that have been announced or are under construction



Source: York University (CBC)

Figure 4: Graph of planned data centre capacity across Canada, courtesy of York University and the CBC.

On November 27th, 2025⁴⁵, the federal government supported Alberta's aggressive data centre policy agenda by announcing the Canada-Alberta *Memorandum of Understanding*. The memorandum was initiated amidst threats of Albertan separatism; less than three months later, a

³⁹ The Canadian Press. 2026. “Indigenous Leaders Meet Premiers on Sidelines of National Meeting in P.E.I.” CTVNews, July 21. <https://www.ctvnews.ca/politics/article/indigenous-leaders-meet-premiers-on-sidelines-of-national-meeting-in-pe-i/>.

⁴⁰ Forester, Brett. 2026. “Some Indigenous Leaders Call Premiers’ Meeting Positive but Inclusion Remains an Issue.” CBC, July 22. <https://www.cbc.ca/news/indigenous/indigenous-leaders-premiers-9.7279262>.

⁴¹ Government of Alberta. 2024. *Alberta’s AI Data Centre Strategy Powering the Future of Artificial Intelligence*. <https://open.alberta.ca/dataset/f6fe5816-12ac-4ba6-805c-d0a0dd5aebf9/resource/26d62103-f38-4310-a98f-ab4595a4af74/download/ti-albertas-ai-data-centre-strategy.pdf>.

⁴² *Ibid*

⁴³ Municipal Affairs, Government of Alberta. 2026. “Building Codes and Standards | Alberta.Ca.” [Www.Alberta.Ca](https://www.alberta.ca/building-codes-and-standards). <https://www.alberta.ca/building-codes-and-standards>.

⁴⁴ Bernhardt, Darren. 2026. “Premier Says No to Massive AI Data Centre Proposed for South of Winnipeg.” CBC, June 4. <https://www.cbc.ca/news/canada/manitoba/ai-data-centre-manitoba-9.7223138>.

⁴⁵ Privy Council Office. 2026. “Memorandum of Understanding - Canada.Ca.” [Canada.Ca](https://www.canada.ca/en/privy-council/major-projects-office/projects/other/referred/pathways-plus/memorandum-understanding.html). <https://www.canada.ca/en/privy-council/major-projects-office/projects/other/referred/pathways-plus/memorandum-understanding.html>.

provincial referendum on separation was announced by the Alberta government. Despite its violation of many of the province's sacred treaty agreements with members of the Treaty 8 First Nations⁴⁶, the federal government has complied with the province's position. A focus of the Canada-Alberta memorandum is federal flexibility on the *Clean Electricity Regulations* in Alberta. The memorandum reduces typical emission constraints to enable increased access to power for data centre projects⁴⁷. This subsequently, undermines Canada's goals for emission reductions⁴⁸ in an attempt to please Albertans on the brink of separation; utilizing systemic deregulation as a bribery tactic.

Alberta's blatant disregard for environmental justice, Indigenous consultation, and Indigenous rights, in exchange for the construction of hyperscale data centres, is precisely why it is important to concentrate on this province, in the form of a case study, to analyze the social and environmental impacts of data centres. This case study is especially applicable to examining these impacts in an Indigenous context, because if Alberta cannot consult Indigenous leaders before enabling the possibility of separation from Canada, or when constructing a pipeline, or a new mining project, how will their plans for the mass development of data centres be any different?

Overall, it is important to acknowledge that all data centres proposed in Alberta are on Indigenous land, because the entire country of Canada is and will always be Indigenous land. Unfortunately, many of the hyperscale projects in Alberta and across the country have been proposed in direct opposition to Indigenous communities' wishes; some data centres, such as the *Wonder Valley* project, are trying to be built adjacent to reserves. To increase awareness about such hyperscale projects proposed in Alberta, I've created a list of Alberta's three most contested proposals, including all recent and relevant information made publicly available as of August 2026.

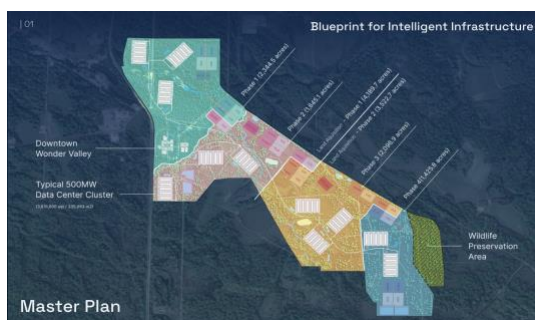


Figure 5: Wonder Valley construction plan, sourced from O'Leary Digital

1. Wonder Valley AI Data Centre

Location: The municipality of Greenview

Owner: Kevin O'Leary - O'Leary Digital

⁴⁶ Grand Chief of Treaty 8 First Nations of Alberta, and Trevor Mercredi. 2026. "Formal Objection to Statements Regarding Section 35, the Duty to Consult, and the Alberta Separation Referendum - Treaty 8 First Nations of Alberta." Treaty 8 First Nations of Alberta, June 10. <https://treaty8.org/press-releases/1246/>.

⁴⁷ Hulecki, Jordan. 2026. "Data Centre Regulation in Alberta." BLG, July 8. <https://www.blg.com/en/insights/2026/07/data-centre-regulation-in-alberta?spid=E7A9F63F89DD430699822BF639C82AAC>.

⁴⁸ Canadian Climate Institute. 2026. "MOU with Alberta Puts Canada's Commitment to Net Zero Emissions by 2050 Firmly out of Reach - Canadian Climate Institute." Canadian Climate Institute, May 15. <https://climateinstitute.ca/news/mou-with-alberta-puts-canadas-commitment-to-net-zero-emissions-by-2050-firmly-out-of-reach/>.

Cost: 70 billion⁴⁹

Size: 64 square kilometers (15,800 acres), 9 gigawatts of on-site power generation capacity⁵⁰

Water Consumption: This project had obtained a preliminary certificate to withdraw up to 24 million cubic meters of water yearly.

Impact: The Wonder Valley project, led by notorious Shark Tank investor Kevin O’Leary⁵¹, is planned to be 32 times larger than the world's biggest data centre and built on the traditional Treaty 8 territory of the Sturgeon Lake Cree Nation, adjacent to their reserve in rural Alberta⁵². As data centres like Wonder Valley consume billions of litres of freshwater per year for cooling purposes⁵³, the Sturgeon Lake Cree Nation has simultaneously been struggling with recurring droughts since 2022⁵⁴. Sturgeon Lake Cree Nation Chief Sheldon Sunshine has stated that the First Nation was not properly consulted before O’Leary Digital received a water license for the project⁵⁵. The Sturgeon Lake Cree Nation has now applied for a judicial review to challenge the provincial government's granting of a Water Act license.



Figure 6: Meta data centre construction plan, sourced from Meta

2. Meta data centre

Location: Sturgeon County⁵⁶

Owner: Mark Zuckerberg - Meta

Cost: 13 billion⁵⁷

Size: 2.9 million square feet, 16 gigawatts⁵⁸

Water Consumption: closed-loop water cooling system

Impact: This proposed data centre is in partnership with *Greenlight Electricity Centre*, which is planning to construct a liquefied ‘natural’ gas (LNG) plant for the centre's sole consumption⁵⁹. The Meta data center will begin operation more than four years before the new natural-gas plant will be constructed⁶⁰, and Sturgeon County has given Meta the right to connect to Alberta's electricity grid in the meantime, increasing consumer prices. All whilst residents of the municipality are voicing concerns over the lack of public input⁶¹, as well as the impacts such a facility would have on the environment, water usage, and the electrical grid.

⁴⁹ Wonder Valley Team. 2026. “Wonder Valley.” Wonder Valley. <https://www.olearydigital.ai/news/shark-tank-investor-kevin-oleary-eyes-huge-70b-ai-tech-park-in-alberta>.

⁵⁰ Andersen, Eagle. 2026. “Updated Info about Water Use, Timelines for Proposed Wonder Valley AI Project in Alberta.” CBC, June 3. <https://www.cbc.ca/news/canada/edmonton/wonder-valley-newsletter-open-house-9.7217459>.

⁵¹ O’Leary Digital. 2026. “Wonder Valley | Where the Grid Ends, We Begin.” Wonder Valley. <https://www.olearydigital.ai/>.

⁵² Ridley, Savannah. 2025. “What Will the AI Data Centre Boom Mean for Canada? | The Narwhal.” The Narwhal, October 8. <https://thenarwhal.ca/ai-data-centres-canada/>.

⁵³ Li, Pengfei, Jianyi Yang, Mohammad A. Islam, and Shaolei Ren. 2025. “Making AI Less ‘Thirsty.’” *Communications of the ACM* 68 (7): 54–61. <https://doi.org/10.1145/3724499>.

⁵⁴ *Ibid*

⁵⁵ Zhao, Emma. 2026. “First Nation in Court to Challenge Proposed Wonder Valley AI Data Centre Project in Northern Alberta.” CBC, June 10. <https://www.cbc.ca/news/canada/edmonton/sturgeon-lake-cree-nation-alberta-wonder-valley-9.7228016>.

⁵⁶ Sturgeon County. 2026. “Sturgeon Data Centre.” Sturgeondatacentre.Com. <https://www.sturgeondatacentre.com/>.

⁵⁷ Facebook company. 2026. “Breaking Ground on Meta’s First Data Center in Canada.” Meta Newsroom, July 8. <https://about.fb.com/news/2026/07/breaking-ground-on-metas-first-data-center-in-canada/>.

⁵⁸ *Ibid*

⁵⁹ Homes, Hilary. 2026. “Meta’s Plan to Power Alberta Data Centre With Fossil Fuels Is a Disaster for Future Generations and the Environment.” Amnesty International Canada, July 9. <https://amnesty.ca/human-rights-news/meta-alberta-data-centre-disaster-future-generations-environment/>.

⁶⁰ Energy Now. 2026. “Meta Data Centre in Alberta to Start up Ahead of Adjacent Greenlight Power Plant - Canadian Energy News, Top Headlines, Commentaries, Features & Events - EnergyNow.” Canadian Energy News, Top Headlines, Commentaries, Features & Events - EnergyNow. <https://energynow.ca/2026/07/meta-data-centre-in-alberta-to-start-up-ahead-of-adjacent-greenlight-power-plant/>.

⁶¹ Oram, Tristan. 2026. “Residents Sound off on Meta Data Centre in Sturgeon County.” St. Albert Gazette, July 10. <https://www.stalbertgazette.com/local-news/sturgeon-county-residents-sound-off-on-data-centre-12534996>.

3. Synapse (Olds, Alberta)

Location: Olds, Alberta

Owner: Synapse Real Estate Group

Cost: 10 billion ⁶²

Size: 2,000,000 square feet, 1.4GW of power from an on-site gas plant

Water Consumption: Over 15,800 Gallons of Municipal water daily ⁶³

Impact: The application for Synapse's data centre in the heart of Olds was initially rejected by the Alberta Utilities Commission (AUC), however, the project has re-applied⁶⁴. Although the company claims their centre will provide up to 3,000 jobs during construction, it will only support 300 longer-term operational jobs afterward ⁶⁵. Old's residents are extremely concerned about potential health and environmental impacts, especially due to the 1.4 GW gas plant that will be constructed on site to power the data centre⁶⁶. The concerns have amounted to a significant amount of local activism, with the non-profit *Little Town Big Data* being created as a response to the project and demonstrations of solidarity taking place frequently⁶⁷. Presently, the AUC has paused Synapse Real Estate Corp's application to request more information about its impacts.

5. The Environmental Impacts of Data Centres

This section will outline the environmental impacts that data centres have through analyzing their interactions with energy, water, and land.

5.1 Energy

Although visually, data centres do not spew out black smoke or grind greasy cogs, they are not bereft of environmental impacts⁶⁸. The rapid increase of cloud computing has resulted in substantial shifts in data centre energy consumption and carbon footprints. Data centres are running and consuming energy 24 h a day, 365 days a year⁶⁹, resulting in a waste of up to 90% of the electricity they pull from the grid⁷⁰. While many data centres across the globe have been championing their efforts to increase energy efficiency, it is important to note that efficient energy use is frequently used as a proxy for sustainability, exemplified by the industry's lack of attention to the adverse effects energy reduction strategies may have on other elements of the centre, also known as a 'pollution shift'⁷¹.

⁶² Synapse . 2026. "Synapse Data Center []." Synapsedatacenter.Com. <https://synapsedatacenter.com/>.

⁶³ Town of Olds. 2019. "Water, Environment & Emissions | Proposed Data Centre Developments." Engage Olds. <https://engage.olds.ca/data-centre-developments/water-environment-emissions>.

⁶⁴ Zapata, Karina. 2026. "AI Data Centre, Power Plant Proposal in Olds, Alta., Back on the Table." CBC, April 10. <https://www.cbc.ca/news/canada/calgary/olds-data-centre-reapplied-9.7158499>.

⁶⁵ *Ibid*.

⁶⁶ Ali, Rukhsar. 2026. "Olds Power Plant, Data Centre Application Paused as Alberta Regulator Seeks Answers." CBC, June 18. <https://www.cbc.ca/news/canada/calgary/olds-data-centre-power-plant-auc-9.7238203>.

⁶⁷ MacPherson, Jody. 2026. "Hundreds of Rural Albertans Line up to Battle Data Centre Goliath." The Energy Mix, May 29. <https://www.theenergymix.com/hundreds-of-rural-albertans-line-up-to-battle-data-centre-goliath/>.

⁶⁸ Jones, Nicola. 2018. "How to Stop Data Centres from Gobbling up the World's Electricity." Nature, September 12. <https://www.nature.com/articles/d41586-018-06610-y>.

⁶⁹ Shehabi, Arman, Sarah Smith, Dale Sartor, et al. 2016. "United States Data Center Energy Usage Report." *Escholarship.Org*, June 22. <https://escholarship.org/uc/item/84p772fc>.

⁷⁰ Glanz, James, Santa Clara, and Calif. Jeff Rothschild. 2012. *Power, Pollution and the Internet*. <https://www.sebis.com/main/en/publications/Power>.

⁷¹ Whitehead, Beth, Deborah Andrews, Amip Shah, and Graeme Maidment. 2014. "Assessing the Environmental Impact of Data Centres Part 1: Background, Energy Use and Metrics." *Building and Environment*

82 (August): 151–59. <https://doi.org/10.1016/j.buildenv.2014.08.021>.

In order to comprehend the magnitude of their energy consumption, it is essential to position the data centre industry within a broader context of global energy usage. The aviation industry, for example, has long been condemned for its extreme levels of pollutant emissions, contributing over 2.4% of global GHG emissions annually⁷². Presently, the data centre industry is at least equivalent to this level of emissions, and on track to greatly surpass them, accounting for 2.5% to 3.7% of GHG emissions⁷³. By 2040, digital data storage is projected to contribute to 14% of the world's emissions⁷⁴. The largest contributor to these emissions comes from the source of electricity powering data centres, often referred to as indirect emissions. Although some data centres are powered by 'green energy', a significant portion remain reliant on electricity derived from fossil fuels. For example, Bill 8, *Alberta's Utilities Statutes Amendment Act*, "encourages data centres to bring their own generation for their power needs"⁷⁵ to reduce the strain that they will inevitably place on the provincial electricity grid. Alberta's Bill 8 makes their preference for data centers reliant on fossil fuel power generation clear, going as far as asking Albertans to "think of them [data centres] as digital refineries"⁷⁶. As a result, Alberta's Meta data centre is partnering with the private sector to build a new gas power plant for the data centre, which will run on over one gigawatt of electricity daily. For comparison, electricity demand in Calgary (Alberta's largest city with a population over 1.6 million people⁷⁷) averaged about 1.24 gigawatts of electricity demand per day in 2025, making this new data centre, which will also rely on partial power from Alberta's electricity grid, require more electricity than the entire city of Calgary every day⁷⁸.

Access to clean energy must be treated as foundational to community growth for all communities across Canada, rather than prioritized for infrastructural projects such as data centres. Energy distribution in Canada continues to support new modes of technological colonialism⁷⁹, which is exemplified through current Indigenous energy access across Canada. Although renewable energy accounts for over half of Canada's electricity generation, the energy requirements for remote Indigenous communities have been severely neglected. For example, there are approximately 144 remote Indigenous communities that are powered by isolated diesel systems⁸⁰, which are responsible for carbon emissions, spills, leakages, poor-quality services, and the restriction of community development. Overall, approximately one-third (32%) of Indigenous peoples in Canada meet Statistics Canada's definition of energy insecurity, a stark contrast with the general population, where only 5.6% of Canadian households met this

⁷² Raphael, Daniel, Nwakamma Ninduwzor-Ehiobu, Ochuko Felix Oripete, Blessed Afeyokalo Egbokhaebho, Akeeb Adepoju Fawole, and Chiemela Onunka. 2023. "Impact of Data Centers on Climate Change: A Review of Energy Efficient Strategies." *The Journal of Engineering and Exact Sciences* 9 (6): 16397–01e. <https://doi.org/10.18540/jeev19iss6pp16397-01e>.

⁷³ *Ibid*

⁷⁴ Thangam, Dhanabalan, Haritha Muniraju, R Ramesh, et al. 2024. "Impact of Data Centers on Power Consumption, Climate Change, and Sustainability." *Advances in Computational Intelligence and Robotics Book Series*, March 15, 60–83. <https://doi.org/10.4018/979-8-3693-1552-1.ch004>.

⁷⁵ Government of Alberta. 2025. "Powering New Pathways for Data Centres." Alberta.Ca, November 20. <https://www.alberta.ca/powering-new-pathways-for-data-centres>.

⁷⁶ *Ibid*

⁷⁷ Alberta, Government of. 2025. "Calgary - Population." Alberta.Ca. <https://regionaldashboard.alberta.ca/region/calgary/population/#/?from=2021&to=2025>.

⁷⁸ *Ibid*

⁷⁹ Gry Hasselbalch. 2022. "Data Pollution & Power - a White Paper for the Global Sustainable Development Agenda." *Data Pollution & Power - A White Paper for the Global Sustainable Development Agenda*. https://www.academia.edu/83505278/Data_Pollution_and_Power_A_White_Paper_for_the_Global_Sustainable_Development_Agenda.

⁸⁰ Karanasios, Konstantinos, and Paul Parker. 2018. "Explaining the Diffusion of Renewable Electricity Technologies in Canadian Remote Indigenous Communities Through the Technological Innovation System Approach." *Sustainability* 10 (11): 3871. <https://doi.org/10.3390/su10113871>.

definition in the 2021 Census⁸¹. The burden of the cost of electricity has never been evenly distributed across the country. Many Indigenous leaders have expressed grave concerns about the impact of energy poverty on their communities, citing choices between adequate heating or food⁸², these issues of affordability and access will only be exacerbated by the energy demands of data centres.

5.2 Water

“Flowing within us is original water, lifeblood of Mother Earth that sustains us, as we come from this land. Mother Earth’s power is in the lifeblood of Mother Earth, which is our water. Mother Earth has the power to destroy us all, and if we keep harming her, one day she may decide to destroy everything.”⁸³ (*Anishinabek Nation Chief Water Commissioner Autumn Peltier of Wiikwemkoong Unceded Territory*)

From time immemorial, Indigenous ways of kinship have fostered healthy, thriving ecosystems reciprocally. For many Indigenous peoples, water, is more-than-human, a fellow life form with personhood⁸⁴, agency, and afforded respect and dignity⁸⁵. Therefore, water cannot be regarded as a resource to be owned, managed, or exploited, but rather, as a relative, which demands responsibility from humanity. Water is the force that creates the conditions necessary for life to emerge and continue. Water is inside us and connects us to all forms of life on earth.

In the Settler-Canadian context, water is instead conceptualized as a commodity to be bought and sold, allowing federal and provincial governments to make decisions about water through a monistic lens, prioritizing a Euro-Centric philosophy positioned in direct contrast to the personal, spiritual, and political beliefs of many First Nations people⁸⁶. This dominant perspective, which commodifies water, is the root cause of making access to water “one of the greatest problems that humans will face in the 21st century”⁸⁷.

Across Canada, access to clean water is not equally distributed. Oftentimes, who you are determines whether you have drinkable water. If you are First Nations living ‘on reserve’, there is a significantly larger chance of having undrinkable water⁸⁸, so much so that Indigenous people are ninety times more likely when compared to Canadians, to lack piped water⁸⁹. Water security is intrinsically linked to poverty, food insecurity, physical health, and mental health⁹⁰,

⁸¹ Government of Canada, Statistics Canada. 2024. “Estimation of Energy Poverty Rates Using the 2021 Census of Population.” [Www150.Statcan.Gc.Ca](https://www150.statcan.gc.ca/n1/pub/46-28-0001/2024001/article/00001-eng.htm), February 20. <https://www150.statcan.gc.ca/n1/pub/46-28-0001/2024001/article/00001-eng.htm>.

⁸² Resource Works. 2025. “Ending Energy Poverty Among Indigenous Communities Is Essential.” *Resource_Works*, May 27. <https://resourceworks.com/ending-energy-poverty-among-indigenous-communities-is-essential/>.

⁸³ *Anishinabek Nation Chief Water Commissioner Autumn Peltier of Wiikwemkoong Unceded Territory delivered this speech to the Global Landscapes Forum at the United Nations General Assembly on Saturday, September 28, 2019.*

⁸⁴ Yazzie, Melanie, and Cutcha Risling Baldy. 2018. “Introduction: Indigenous Peoples and the Politics of Water.” *Decolonization: Indigeneity, Education & Society* 7 (1): 1–18. <https://jps.library.utoronto.ca/index.php/des/article/view/30378>.

⁸⁵ Lees, Anna, and Megan Bang. 2023. “Indigenous Pedagogies: Land, Water, and Kinship.” *Occasional Paper Series* 2023 (49). <https://doi.org/10.58295/2375-3668.1500>.

⁸⁶ Wilson, Nicole J, and Jody Inkster. 2018. “Respecting Water: Indigenous Water Governance, Ontologies, and the Politics of Kinship on the Ground.” *Environment and Planning E: Nature and Space* 1 (4): 516–38. <https://doi.org/10.1177/2514848618789378>.

⁸⁷ Somerville, Margaret. 2014. “Developing Relational Understandings of Water through Collaboration with Indigenous Knowledges.” *Wiley Interdisciplinary Reviews: Water* 1 (4): 401–11. <https://doi.org/10.1002/wat2.1030>.

⁸⁸ Baijous, Warrick, and Robert J. Patrick. 2019. “‘We Don’t Drink the Water Here’: The Reproduction of Undrinkable Water for First Nations in Canada.” *Water* 11 (5): 1079. <https://doi.org/10.3390/w11051079>.

⁸⁹ Hanrahan, Maura. 2017. “Water (In)Security in Canada: National Identity and the Exclusion of Indigenous Peoples.” *British Journal of Canadian Studies* 30 (1): 69–89. <https://doi.org/10.3828/bjcs.2017.4>.

⁹⁰ Hanrahan, Maura, Atanu Sarkar, and Amy Hudson. 2015. “Water Insecurity in Indigenous Canada: A Community-Based Inter-Disciplinary Approach.” *Water Quality Research Journal of Canada* 51 (3): wqjrc2015010. <https://doi.org/10.2166/wqjrc.2015.010>.

demonstrating how this enormous disparity results from and maintains the colonial relationship between Canada and Indigenous peoples. This mode of water management in First Nation communities has historically been a technocratic mission, controlled by state-led authorities, beginning with the establishment of coerced, unequal, and misleading Treaties, such as Alberta's Treaty 8, which fulfilled the Crown's intention to extinguish Indigenous peoples' "rights, titles, and privileges to the lands"⁹¹. Now, there are 40 long-term drinking water advisories in 38 Indigenous communities across the country, meaning that the water in these communities is unsafe and undrinkable, requiring treatment such as boiling before being consumed⁹². One drinking water advisory can mean that over 5,000 people lack access to safe, clean drinking water⁹³, and some water advisories, such as the one for Neskantaga First Nation, date as far back as 1995⁹⁴.

On the other hand, federal, provincial, and municipal governments continue to create data centre-friendly water policies. For example, O'Leary's 'Wonder Valley', set to be the world's largest data centre, is proposed to be constructed adjacent to the Sturgeon Lake Cree Nations (SLCN) reserve in rural Alberta. This project had been approved to withdraw a preliminary amount of up to 24 million cubic meters of water and granted a licence for the withdrawal of up to 6 million cubic meters of water annually (one cubic meter is equivalent to 1,000 litres) from nearby Smoky River⁹⁵, despite the SLCN, Greenview and its surrounding areas' struggles with droughts dating back to 2022. The severity of such droughts has increased to the point of Greenview's Council declaring an agricultural disaster for the livestock industry in July of 2025, citing "worsening drought conditions, persistent moisture shortages, and significant grasshopper infestations"⁹⁶ as the cause.

The SLCN received absolutely no consultation regarding the proposal for Wonder Valley and the projects excessive water demands that the Municipality of Greenview was planning to accommodate. The Nation had to learn about the project through a municipal press release. Following this, Chief Sheldon Sunshine submitted a formal cease and desist letter, addressed directly to Premier Danielle Smith. In his letter, Chief Sunshine cited grave concerns over the environmental and social impacts this project may have, the violations it poses to Treaty No.8, and the lack of free, prior and informed consent throughout the application and approval process⁹⁷. Now, the SLCN has challenged Alberta's issue of a water licence to the Municipality of Greenview in the Court of King's Bench, due to the unfulfillment of their constitutional duty

⁹¹ Passelac-Ross, Monique, and Christina Smith. 2010. *Defining Aboriginal Rights to Water in Alberta: Do They Still "Exist?" How Extensive Are They?* <https://ucalgary.scholaris.ca/server/api/core/bitstreams/3487222d-7ff2-4bad-87de-2d0c59a0dc26/content>.

⁹² Government of Canada; Indigenous Services Canada. 2026. "Ending Long-Term Drinking Water Advisories." Sac-Isc.Gc.Ca. https://www.sac-isc.gc.ca/eng/1506514143353/1533317130660?_ga=2.241683649.236618088.1786824656-1914109101.1786824656.

⁹³ Lauret, Ayla, Kerry Black, Stavan Goliwala, and Tim Vogel. 2025. "Out of Sight, out of Mind? The Crisis of Decentralized Water and Wastewater Servicing in Indigenous Communities." *Environmental Science & Policy* 168 (June): 104058. <https://doi.org/10.1016/j.envsci.2025.104058>.

⁹⁴ The Council of Canadians. 2019. "Safe Water for First Nations." The Council of Canadians, November 13. <https://canadians.org/fn-water/>.

⁹⁵ O'Leary Digital. 2026a. *Wonder Valley Project Update Newsletter Spring 2026 Project Overview*. <https://mdgreenview.ab.ca/wp-content/uploads/2026/05/WV-Project-Newsletter-Spring-2026.pdf>.

⁹⁶ Sandrini, Laura. 2025. "MEDIA RELEASE: Greenview Declares Agricultural Disaster for Livestock Industry." Municipal District of Greenview No. 16, July 14. <https://mdgreenview.ab.ca/greenview-declares-agricultural-disaster-for-livestock-industry/>.

⁹⁷ Chief Sheldon Sunshine. 2024. "Open Letter: Sturgeon Lake Cree Nation Concerns over AI Data Centre in Traditional Territory." Sturgeon Lake Cree Nation, January 13. <https://www.sturgeonlake.ca/wp-content/uploads/2020/07/13-01-25-Chief-Sunshine-Open-Letter-Premier-Smith-Re-O-Leary.pdf>.

to consult. They have recently won the preliminary right to proceed towards a formal hearing, expected to be held in December. Although this is a positive change, it is a small win on a much larger scale of issues; now, according to the United Nations, by 2030, AI's water use, marked at 9.3 trillion litres, will be equivalent to the needs of 1.3 billion people⁹⁸. The strain this industry will put on the world's already fraught water supply systems will not only exacerbate the water inequalities faced by Indigenous communities in Canada and perpetuate current water inequalities across the globe but also place strain on the most abundant communities, commodifying water until it is no longer accessible to anyone.

5.3 Land

Land, supporting the diverse ecosystems necessary for survival and well-being, is the foundation of all terrestrial life. According to the United Nations, the land footprint of data centres' expected electricity use in 2030 will be over 14,500 square kilometres, 10 times the size of Mexico City, and twice the size of the Jakarta metropolitan area, which is home to over 32 million people⁹⁹. Moreover, data centres contribute to global land pollution at every stage of their life cycle, beginning with mineral extraction required for their construction, noise pollution emitted during their operations, and finally, the electronic waste (e-waste) produced during their decommission.

The 'Wonder Valley' project is attempting to claim over 15,800 acres of land¹⁰⁰; if successful, this will make it the largest data center campus in the world. The environmental consequences of rapid industrialization in otherwise natural areas, such as the perimeters of the boreal forest where Wonder Valley is attempting to be constructed, are well recorded. As our forests continue to shrink due to rapid industrialization, substantial habitat loss and fragmentation occur, leading to continuous species migration, most strongly impacting large mammals¹⁰¹, important for many Indigenous peoples who practice hunting.

The disruption of traditional hunting grounds is an impact of data center industrialization that has often been left unconsidered. The Wonder Valley project is proposed within the heart of SLCN territory, where significant hunting and trapping currently takes place. In an interview with the CBC, Chief Sunshine describes the cultural significance of having access to lands like these, referencing a traditional camp his family hosted in the area earlier this August, where they harvested plants for medicinal uses, and his grandson caught a moose. He stated, "That was my grandson's first moose. For our family, that's pretty significant"¹⁰². Not only will the construction of this infrastructure be detrimental to natural environments, but chronic noise pollution produced by operational data centers will exacerbate its impacts on Indigenous hunting practices.

⁹⁸ The United Nations . 2026. "Rising Emissions, Depleting Water and Vanishing Land—UN Scientists: AI Is Threatening Natural Resources for Billions." United Nations University. <https://unu.edu/inweh/news/environmental-cost-of-AIs-Enrgy-use-carbon-water-and-land-footprints>.

⁹⁹ *Ibid*

¹⁰⁰ The Government of Alberta. 2024. "Wonder Valley AI Data Centre Park (Phase 1)." Major Projects Alberta . <https://majorprojects.alberta.ca/details/Wonder-Valley-AI-Data-Centre-Park/11477>.

¹⁰¹ Smith, Rebecca. 2018. *Evaluating the Impacts of Anthropogenic Development on Large Mammals across Protected and Industrialized Landscapes in Western Canada*. <https://dspace.library.uvic.ca/server/api/core/bitstreams/eb8d35b5-0501-4523-a147-501389b79fde/content>.

¹⁰² Andersen, Eagle. 2026b. "We Have Serious Concerns,' Northern Alberta Chief Says after Hosting Community Meeting on Wonder Valley." CBC, August 12. <https://www.cbc.ca/news/canada/edmonton/sturgeon-lake-cree-nation-wonder-valley-engagement-session-9.7305052>.

A study conducted on Alberta's boreal forest demonstrates this impact by comparing bird populations near noise-generating energy facilities to quiet sites. Researchers found that total songbird density is roughly 1.5 times higher at quieter sites¹⁰³.

There are also many indirect impacts of data centres on land, all spanning across international borders. To expand, minerals required to construct the computing infrastructure of data centres, like copper for electric wires, and lithium and cobalt for its batteries are linked to significant environmental degradation and abhorrent human rights violations. Rare earth mineral mining contributes to deforestation, water depletion, biodiversity loss, greenhouse gas emissions, and contamination, across the globe in all its sectors. However, these impacts are often unevenly distributed, with local communities, Indigenous populations, and current or prior zones of conflict being especially vulnerable to environmental destruction, forced labour practices, and the unequal distribution of economic benefits¹⁰⁴. Exemplified in the mining industries for lithium and cobalt, which are continually linked to child labour in many mining communities, like the Kolwezi population in the DRC, where it has been reported that children are involved in major risk mining operations¹⁰⁵.

Lastly, the end-of-life management of data centres pose a significant challenge, mainly resulting from the production of e-waste. AI-related e-waste is projected to weigh over 2.5 million tonnes annually by 2030 alone: the equivalent of discarding nearly 250 Eiffel Towers each year¹⁰⁶. Much of this pollution is then exported to an unacknowledged 'elsewhere', most commonly in the Global South. These environmental impacts of the data centre industry, much like the industries of critical mineral mining, work to further colonial initiatives through unjust environmental degradation, creating sacrifice zones of extraction and destruction in formerly colonised countries and communities.

6. The Social Impacts of Data Centres

This section will outline the social impacts data centres have, through analyzing their contributions to data colonialism and local economies, as well as examining citizen-led resistance to their construction.

6.1 Data Colonialism

Data centres are the physical infrastructure and powerhouses behind data colonialism. In recent years, the mass collection and large-scale capture of data have become integral to the AI field.

¹⁰³ BAYNE, ERIN M., LUCAS HABIB, and STAN BOUTIN. 2008. "Impacts of Chronic Anthropogenic Noise from Energy-Sector Activity on Abundance of Songbirds in the Boreal Forest." *Conservation Biology* 22 (5): 1186–93. <https://doi.org/10.1111/j.1523-1739.2008.00973.x>.

¹⁰⁴ Sahoo, Janmejaya. 2026. "Critical Mineral Mining and Environmental Sustainability: Impacts, Challenges, and Pathways for Responsible Resource Development KEYWORDS Critical Minerals Environmental Impacts Sustainable Energy Transition Resource Governance Circular Economy Biodiversity Loss." *Journal of Geointerface* 5 (1): 122–32. <https://doi.org/10.5281/zenodo.20561518>.

¹⁰⁵ Hosseini, Mohammad, Peng Gao, and Carolina Vivas-Valencia. 2024. "A Social-Environmental Impact Perspective of Generative Artificial Intelligence." *Environmental Science and Ecotechnology* 23 (December): 100520. <https://doi.org/10.1016/j.esec.2024.100520>.

¹⁰⁶ *Ibid*

Data, as theorized by Kate Crawford in her book, *The Atlas of AI*, has shifted from ‘*image to infrastructure*’, where the person, meaning and context behind any particular piece of data, such as image, text, personal records, and much more, are erased the moment it becomes a part of a mass that will drive a broader system generating profit. This “unswerving belief that everything is data and there for the taking”¹⁰⁷, is a core premise in ideologies of data colonialism.

Data colonialism mirrors historical colonial patterns, where the global data economy is concentrated in the hands of the few Big Tech corporations. This monopoly over power is perpetuated through mass data collection mechanisms, algorithmic control, and the nonconsensual establishment of data centre infrastructure on the land of marginalized peoples¹⁰⁸. The term “Data is the new oil” exemplifies the colonial asymmetries at the core of this industry, as it positions marginalized communities as the “new oil fields” from where data is extracted¹⁰⁹.

All data are human artifacts, often composed of culturally sensitive information in many Indigenous communities. Traditional languages, oral histories and knowledge are often extracted without consent¹¹⁰ and used for training AI systems, offering little to no benefit to the communities it has stolen from. Indigenous sovereignty is further eroded by the monopolistic and corporate control over the servers, cables, and software of data centres, enabling the physical warehouses housing this extracted data and increasing this digital divide. The permanent presence of data centres can act as a significant community burden and physical reminder of settler control¹¹¹. Data centres remain a critical component of political power, working to physically concentrate the control over data and knowledge, and must be considered as tools of control, rather than regarded as apolitical infrastructure.

6.2 The Data Centre Economy

Most data centres have been advertised as incredible economic opportunities; this is false. Data centres are pitched to local communities through a techno-optimist imaginary with a focus on tax incentives, new jobs, data sovereignty, clean energy, and economic diversification. The historical patterns of industries propagated through such means of advertising demonstrate how the well-being of Indigenous, Black, immigrant, and low-income communities is sacrificed in return for the prioritization of wealth.

In the context of Crown-Indigenous relations, many of these projects have been pitched under the guise of so-called ‘*economic reconciliation*’, including data centre expansion. For example, in *Alberta’s AI Data Centre Strategy*, Economic reconciliation and Indigenous partnerships are

¹⁰⁷ Crawford, Kate. 2021. “Atlas of AI.” Yale University Press. P 93. <https://yalebooks.yale.edu/book/9780300264630/atlas-of-ai/>.

¹⁰⁸ Mador Qosimov. 2025. “DIGITAL COLONIALISM: WHO OWNS the WORLD’S DATA ECONOMY?” *Теоретические аспекты становления педагогических наук* 4 (16): 60–77. <https://inlibrary.uz/index.php/tafps/article/view/109509>.

¹⁰⁹ *Ibid*

¹¹⁰ Bishop, Darin, Megan Davis, Dickie Farrar, et al. 2016. *INDIGENOUS DATA SOVEREIGNTY TOWARD an AGENDA*. <https://static1.squarespace.com/static/5d3799de845604000199cd24/t/5d6f8aac27641800017a9473/1567591089094/Indigenous+Data+Sovereignty+Book.pdf>.

¹¹¹ Au, Yung. 2022. “Data Centres on the Moon and Other Tales: A Volumetric and Elemental Analysis of the Coloniality of Digital Infrastructures.” *Territory, Politics, Governance*, December 16, 1–19. <https://doi.org/10.1080/21622671.2022.2153160>.

described as ensuring “inclusive growth and shared prosperity”¹¹². Demonstrating a form of performative progressiveness, framing Indigenous economic participation into extractive industries and only referring to reconciliation in the context of a mutually profitable venture, rather than sincerely addressing the ongoing systemic violence occurring against Indigenous peoples across Canada.

In particular, Alberta claims that they will continue to prioritize economic reconciliation by “promoting economic development opportunities and partnerships with Indigenous communities through programs like the Alberta Indigenous Opportunities Corporation (AIOC)”¹¹³. State-granted economic development opportunities, partnerships, and co-ownership initiatives have long been recognized as a function of settler colonialism sustaining itself. In, *Red Skin, White Masks*, Glen Coulthard argues that the power relations in Canada have shifted from an unconcealed structure of domination to “a form of colonial governance that works through the medium of state recognition and accommodation”¹¹⁴. Therefore, the politics of economic reconciliation are rooted in the transaction of profoundly asymmetrical and nonreciprocal forms of recognition, either imposed on or granted to Indigenous communities by the settler state and society, in exchange for Indigenous acceptance or acknowledgement of the state's ultimate authority or ‘ownership’ over their lands and the ability to industrialize it.

On the other hand, the employment opportunities being advertised from data centres are not likely to bring much benefit to anybody. The rapid industrialization required to construct a data centre risks triggering a boom-bust economic cycle, similar to what occurs during infrastructure development for mining and LNG industries. During the construction phase, or ‘boom period’, many employment opportunities are created; however, this leads to the influx of workers and their families into small towns, increasing the cost of housing, reducing access to healthcare, and, exacerbating crime, drug and, alcohol addiction issues¹¹⁵. Although economic boom cycles can generate some wealth, individuals dependent on the construction period of a data centre for employment will be increasingly vulnerable to the social and environmental risk factors that occur during bust cycles. This drastic fluctuation in demand for employees is becoming a defining feature of data centre industry development. For example, the Meta data centre, proposed in Sturgeon County, estimates the creation of over 3,000 construction jobs at its peak, and only around 300 permanent jobs once it's running¹¹⁶. Another data centre I had visited during my research this summer only had three full-time employees. Typically, the working conditions expected from these employment opportunities are considered to be ‘hostile’ to human labour. For example, many data centres omit the inclusion of essential accommodations required for a

¹¹² Government of Alberta. 2024b. *Alberta's AI Data Centre Strategy Powering the Future of Artificial Intelligence*. <https://open.alberta.ca/dataset/f6fe5816-12ac-4ba6-805c-d0a0dd5aebf9/resource/26d62103-f38-4310-a98f-ab4595a4a774/download/ti-albertas-ai-data-centre-strategy.pdf>.

¹¹³ *Ibid*

¹¹⁴ Coulthard, Glen. 2024. “Red Skin, White Masks.” University of Minnesota Press, March 18. <https://www.upress.umn.edu/9780816679652/red-skin-white-masks/>.

¹¹⁵ Stokes, Debra M., Bruce G. Marshall, and Marcello M. Veiga. 2019. “Indigenous Participation in Resource Developments: Is It a Choice?” *The Extractive Industries and Society* 6 (1): 50–57. <https://doi.org/10.1016/j.exis.2018.10.015>.

¹¹⁶ Data Centers, Meta. 2026. “Hello, Sturgeon County!” Meta Data Centers, July 8. <https://datacenters.atmeta.com/2026/07/hello-sturgeon-county/>.

human workforce, such as break rooms and washrooms, in the name of optimization, instead using every inch of their floor plans to house computing systems.

The aftermath of a data centre construction period is when the 'bust' part of a boom-and-bust economic cycle begins. Mass layoffs, extreme financial difficulties, and mental health struggles typically ensue. In addition to these impacts, Indigenous communities, often disproportionately subjected to large infrastructure developments on their territory, are especially impacted by the boom-bust cycle. During boom cycles, Indigenous peoples face multiple barriers when trying to take advantage of new employment opportunities, due to cultural issues, racism, and social-historical barriers to education and training services¹¹⁷. During bust cycles, due to disproportionate struggles with alcoholism and other addictions, which are then exacerbated by this economic cycle, Indigenous Peoples are in greater need of support. This conflicts with the industrial industries status quo¹¹⁸; which has normalized leaving communities with limited capacities on their own to handle the pressure of these changes after all profit has been made.

6.3 Citizen-led Mobilization & Resistance

Widespread organized resistance to the development of data centers and AI more broadly is occurring across the country. This resistance cannot be defined by a simplistic reaction to technological advancement and disruption; instead, the roots of this movement come from a much deeper, human-centred response, which is shaped by organizational culture, trust, and ethical concerns, that has created a kind of solidarity spanning across political and individual identities¹¹⁹. AI has been purposely designed to intensify alienation, exploitation, racialized climate degradation and extractivism, and, without successful resistance, these outcomes will become solidified. Organizing acts of resistance has been made increasingly difficult in the age of technology, with data centres acting as the infrastructure supporting many cases of state-sanctioned surveillance and oppression. Technologies undermining the right to protest anonymously include generative AI in facial recognition, mobile data tracking, biometric data, and metadata¹²⁰.

The expansion of data centres and the deployment of AI technology have already made life much worse for many Indigenous, marginalized, and working-class individuals, yet these communities have demonstrated the most strength, resilience, and solidarity when mobilizing against such issues. A prominent example of this kind of resistance is the Sturgeon Lake Cree Nation's ongoing legal dispute against the validity of the water license Wonder Valley was granted.

¹¹⁷ *Ibid*

¹¹⁸ Ryser, Laura, Sean Markey, Don Manson, and Greg Halseth. 2017. "From Boom and Bust to Regional Waves: Development Patterns in the Peace River Region, British Columbia." *Journal of Rural and Community Development / Revue Du Développement Rural et Communautaire* 9 (1). <https://journals.brandu.ca/jrcd/article/view/837>.

¹¹⁹ Baker, Aziz. 2025. "Organizational Resistance to Artificial Intelligence." *Tuvien.At*, ahead of print. <https://doi.org/10.34726/hss.2025.136721>.

¹²⁰ Zalnierute, Monika. 2024. "Facial Recognition Surveillance and Public Space: Protecting Protest Movements." *International Review of Law, Computers & Technology* 39 (1): 1–20. <https://doi.org/10.1080/13600869.2023.2295690>.

Similarly to the SLCN's preliminary success in court, the organization, *No Data Centres on Treaty Land*, successfully advocated for a data centre moratorium in Saskatoon. Collaboration with other activists, a community-led protest and the drafting of a moratorium, which was then signed by the Saskatoon chamber, led to this success. This action is now influencing citizens and councilors in Regina to consider similar proactive actions, where Bell-Canada's 300-MW data centre is currently under construction¹²¹.

Furthermore, the community of Olds, Alberta has recently succeeded in stopping the construction of the Synapse hyperscale data centre, following months of community-led-organizing and resistance spearheaded by the *Olds Transparency Project* and *Little Town Big Data* organizations. The Synapse data centre project was turned down, for the second time, by the Alberta Utilities Commission, with the commission referring to the power demand of the data centre as "unprecedented" and "not in the public interest"¹²².

The construction of hyperscale data centres has created the potential for bipartisan coalitions, exemplified by such instances of community-led resistance and solidarity; the safety of the natural environment and protection of a community's future cannot be reduced to a simple right or left issue, despite how hard sociotechnical and political imaginaries may try to position it. Such empowerment of community-led activism and collective solidarity will ensure that the deterministic technological imaginaries pushed by industry and governments alike will never become reality.

7. Conclusion

Data centre development has a hyper-localized impact. But they are part of a larger story of extraction, marginalization, and colonialism in exchange for profit. Similar instances of data centre exploitation have occurred across the globe in countries such as Chile and Brazil, where Indigenous communities and their land are targeted for development. Canada's Eurocentric governance structure continues to perpetuate colonial biases, causing Indigenous communities to be disproportionately impacted by the development of heavily industrialized projects like hyperscale data centers.

The sociotechnical imaginary produced by the government of Canada purposefully associates technologies such as data centres with "the cloud" in order to disassociate them from their tangible, physical impacts. In reality, data centres have an insatiable thirst for resources such as water, energy, and land. This resource demand, paired with the business-friendly regulatory

¹²¹ Kurz, Larissa. 2026. "City of Regina Joins Saskatoon in Reviewing Bylaw Regulations for AI Data Centres." *Leader Post*, August 6. <https://leaderpost.com/news/regina-city-hall/city-of-regina-set-to-follow-saskatoon-by-drafting-ai-data-centre-policy/>.

¹²² Alberta Utilities Commission . 2026. *Synapse Real Estate Corp. Synapse Data Center Power Plant Project*. https://www.oldstransparencyproject.ca/data/30732_X%5B%5D_Decision%2030732-D01-2026%20-%20Synapse%20Data%20Center%20Power%20Plant%20Project_001920.pdf.

conditions established both federally and provincially in Alberta, have already caused significant environmental damage due to regulatory oversight.

Socially, data centres are the physical infrastructure supporting data colonialism. They store government and corporate collections of the deeply personal data of individuals, using it to train generative AI models, which then reproduce religious, sexual, racial, and gendered inequalities that have been engraved into our societies for generations. Data centres are advertised as offering economic and employment opportunities for rural, working-class, and marginalized communities. These techno-utopian claims are far from the truth. Although the construction process of hyperscale data centres creates a rapid demand for workers, causing the local economy to “boom” from an influx of workers relocating to the area, this “boom” raises costs of living and quickly introduces crime and the trafficking of drugs and alcohol. These construction periods are short-lived; once a hyperscale data centre has been built, they are generally self-sufficient, resulting in the layoffs or terminations of employees, which causes a ‘bust’ in the local economy and further exacerbates crime and addiction problems due to increased financial hardships.

The social and ecological consequences of data centres have become blatantly clear to communities across the country and has sparked grassroots organizing in response. These efforts have brought together residents across the political spectrum, including worker unions, farmers, and Indigenous activists. This form of solidarity, which spans different identities and personal belief systems, is stronger because of its diversity.

Although the future of data centre development remains uncertain, the movements and moments in which diverse groups come together in solidarity to mobilize against the extractive, exploitative, colonial nature of data centres possess the ability to create genuine structural change.

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