The Effect of Data Centers on Communities

Introduction

Data centers in their simplest form first came to fruition in the 1940's when supercomputers the size of a small home were used to conduct large computations [1]. As computer chips became smaller, higher levels of computation could be completed in an equivalent floor space. This allowed data centers to grow their computational power, but until the 1990's, a data center primarily functioned as a single, high speed computation device. This functionality would be referred to as a mainframe in today's technology. The boom of the internet in the 1990's caused data centers to change their functions from high performance data processing to high speed throughput. In the early days of the internet, hosting a website meant having custom built hardware to host a website. This hardware did not necessarily need to do calculations in the smallest amount of time, but instead, it needed to reliably handle several data requests to deliver a webpage to multiple machines at once. To become more agile, these high throughput servers became centralized. This meant that individuals and small organizations did not need to have their own hardware, but instead, they could rent space on a centralized server to host their website. This is the birth of traditional data centers and made software more accessible to the layman. Everything from loading a webpage, sending an email, posting on social media or streaming a movie requires a traditional data center in the loop.

Around 2022, the use of generative artificial intelligence (AI) technologies boomed, and this requires higher levels of data processing. Because of this, many traditional data centers did not have the computational capabilities required for AI technologies. This requires custom built data centers for AI which are referred to as AI data centers. The higher computational power of AI data centers means more energy use, more heat generation, more data storage capacity, and more physical space to house hardware. In this article, the higher demands of AI data centers and the resultant effects on local communities will be explored and then compared to that of a traditional data center.

Energy Use and Emissions

As of 2018, data centers across the world used an estimated 200 TWh which accounted for 1% of all global electricity consumption [2]. This amount remained mostly unchanged from 2013-2019 [3]. In 2025, data centers used 485 TWh, and this is estimated to reach 950 TWh by 2030 or about 3% of global electricity use [4]. This increased energy consumption not only puts strain on local grids but also increases greenhouse gas emissions. To account for the higher amount of energy being drawn from the grid, energy companies have to build further infrastructure to meet these new energy needs. The costs for this new infrastructure are passed on to locals through increased electric rates which have increased at more than double the rate of inflation in recent years [5]. There has been a move for new data centers to have behind-the-meter (BTM) energy delivery meaning the data centers generate their own energy needs, lessening strain on the energy grid. However, these primarily run on natural gas, so greenhouse gases are still just as much of a concern. Not only this, but this energy is indirectly averted away from other energy needs in society which increases energy costs for consumers.

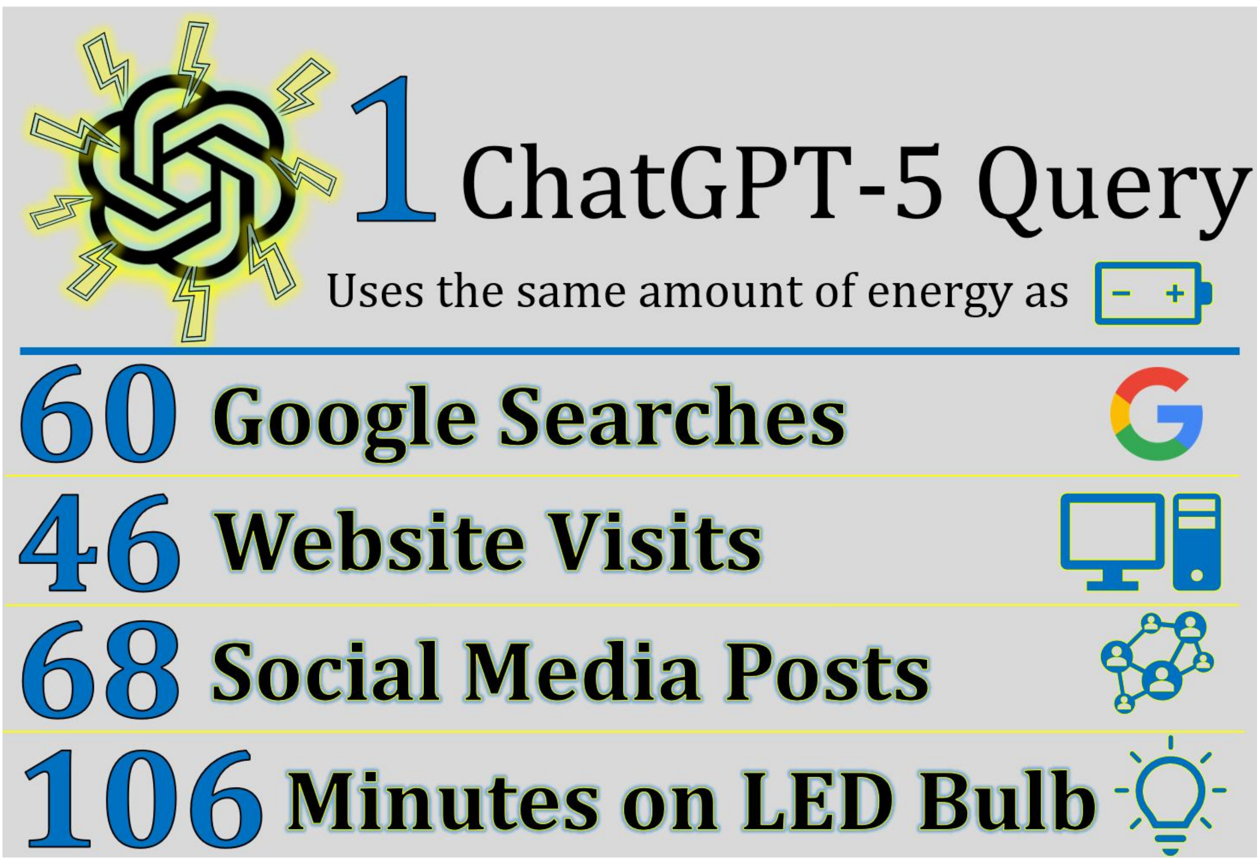
The principal reason for higher energy consumption by data centers is AI specific computation. To understand the energy requirements for AI computation, let's first quantify the energy uses for some everyday tasks. The energy needed to transfer data over the web is approximately 130 Wh per GB (watt-hours per gigabyte) of data [6]. As of April 2026, the http archive has the median size of a webpage around 3 MB of data [7], meaning, the median energy consumption to load a webpage is 0.39 Wh. This is equivalent to running a 10 watt light bulb for about 140 seconds. The energy used to do one google search is also close to this value at 0.3 Wh [8]. Making a post to social media uses about 2 MB of data, depending on what is uploaded, and this is equivalent to 0.26 Wh. Using the same methodology, to stream 1 hour of a high definition video from Netflix takes about 3 GB of data [9], or an energy consumption of 390 Wh. A typical home refrigerator draws about 200 watts of power [10], meaning 1 hour of high definition Netflix viewing is equivalent to approximately 2 hours of refrigeration. Though, this is just an average and can vary greatly depending on the refrigerator. Loading a webpage and streaming a movie are tasks that can be handled by a traditional data center.

Energy use for AI technologies will be focused on OpenAI's ChatGPT. ChatGPT requires more energy even compared to other generative AI models, although it is by far the most commonly used model [11], [12]. When doing a single paragraph prompt and response from ChatGPT, the amount of energy consumed is about 2.1 Wh of energy, or 5 times that of loading a single webpage. However, newer models of ChatGPT, like GPT-5, consume closer to an average of 18 Wh per query and response [13]. In this situation, 46 individual webpages could be loaded before using an equivalent amount of energy for one Chat-GPT prompt. Newer models of generative AI only consume more energy than its predecessors, an opposite trend to that of traditional data centers. Also, due to the higher energy demands of AI data centers, more energy is needed to train the AI models, cool the server racks, and circulate the cooling water. These figures mentioned above only account for the energy it takes to complete the necessary computations and deliver the data to the user.

Although GPT-5 was used for determining energy usage and emissions due to its common place in society, these figures can be adjusted for other AI models by accounting for the energy used for a single, average length prompt and response. Anthropic's most recent Claude model uses about 6.3 Wh per query, and Google's most recent Gemini model uses about 2.2 Wh [11]. These energy use numbers are more desirable than that of GPT-5's 18 Wh, but these models are also considered to be less versatile [14]. The desire for organizations and individuals to use ChatGPT is that GPT can be used as a well-rounded assistant. Other AI models may be better at specific tasks, such as writing, coding, or data analysis, but ChatGPT is preferred due to its flexibility in being skilled at all these tasks. People do not need to switch between AI models to do different types of work; ChatGPT can be the go-to place for all types of assistance. Especially for organizations who must pay for subscription services, it is much simpler and cheaper to go through one vendor for all AI services. Also, it should be considered that even for these AI models not made by OpenAI, the general trend of newer models requiring more energy is still present.

Table 1. Energy use relationships to a ChatGPT-5 query.

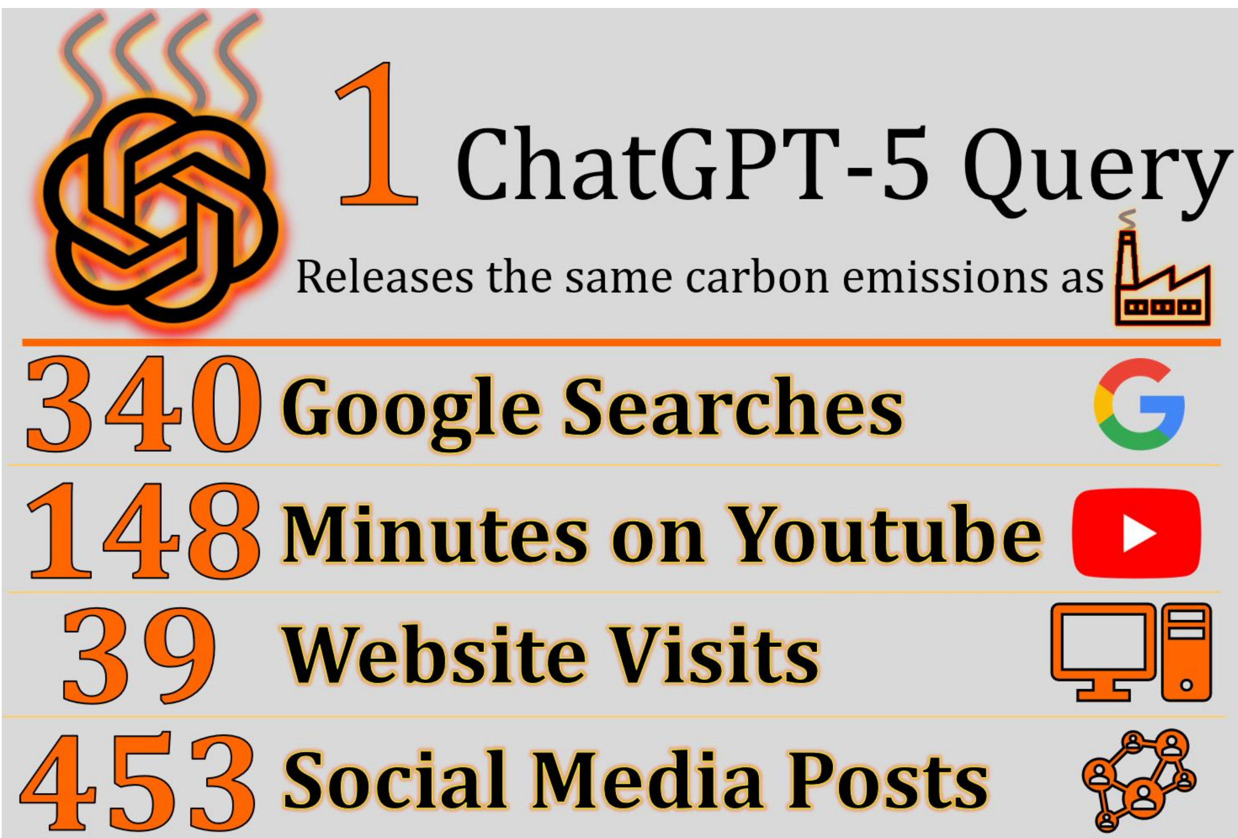
Activity	Energy Use	ChatGPT-5 queries
ChatGPT-5 query	18 Wh	1
Google Search	0.3 Wh	1/60
Loading a Webpage	0.39 Wh	1/46
1 Social Media Post	0.26 Wh	1/68
1 Minutes of Lightbulb Use	0.167 Wh	1/106



This increase in energy demand also leads to far higher carbon emissions by AI models compared to general internet use. One analysis quantified this by showing that a google search emitted 0.2 grams of CO2 emissions, and a ChatGPT query can create as much as 340 times this amount at 68g of CO2 emissions [8]. Some other activities and their carbon emissions compared to ChatGPT can be found in Table 2. The reason emissions do not follow linearly with energy use comes down to how the energy is sourced. Traditional data centers use a level of energy that can be sourced from non-renewable resources, like wind or solar, and traditional data centers can fluctuate their energy demand to draw as little energy as possible from the grid [15]. Due to the much higher energy demand of AI computation, and the constant uptime requirements, renewable energy is not viable as a sole energy source. To provide enough onsite energy for AI systems, natural gas generators are used which have much higher emissions and create far more noise compared to renewable energy sources. There is also an issue with enforcement of traditional data center regulations on newer AI data centers. For example, an xAI data center in Memphis is operating 33 natural gas turbines despite only having permits for 15 of them, and the required pollution controls on these generators is non-existent [16].

Table 2. Carbon emissions relationships to a ChatGPT-5 query.

Activity	CO2 Emissions	ChatGPT-5 queries
ChatGPT-5 query	68 g	1
Google Search	0.2 g	1/340
1 minute of Youtube	0.46 g [17]	1/148
Loading a Webpage	1.76 g [18]	1/39
1 Social Media Post	0.15 g [18]	1/453

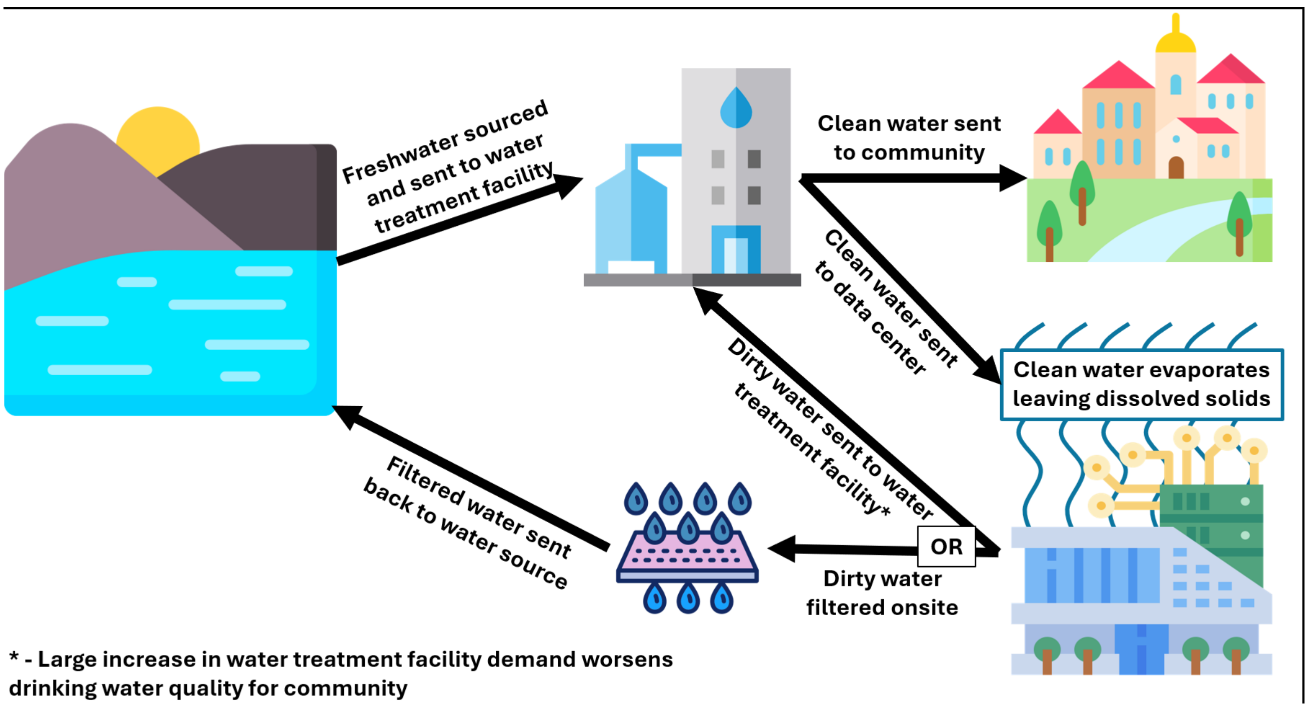


Water Use

The higher energy requirements of AI data centers also lead to higher heat generation compared to traditional data centers. A traditional data center creates an amount of heat that can be removed utilizing air cooling. However, many AI data centers put out an amount of heat that cannot be removed by air alone. Because of this, water cooling is more commonly used in AI data centers. This water is much denser than air and can hold much more thermal energy, meaning it carries more heat away from the server racks, but also takes much more energy to circulate and cool. The heating of the water also means a certain amount of it is lost to evaporation, and this evaporated water must then be replaced in the cooling system. Not only this, but heat is never “removed”, it is only moved away from the servers. This heat must go somewhere, and often that is to the surrounding environment. This creates a heat island effect, and increases the temperature by up to 16° Fahrenheit in the immediate vicinity of the data center [19]. This is felt by people as far as 6 miles away.

Cooling systems for AI data centers can either be an open loop or closed loop system, each with their unique set of pros and cons. An open loop cooling system exposes the cooling water to the atmosphere and relies on evaporation to release the heat from the system. A closed loop cooling system does not expose the cooling fluid to the atmosphere and instead uses a heat exchanger to pull heat out of the system. Because closed loop systems do not expose the cooling fluid to the atmosphere, evaporation of the cooling fluid is much less of a concern. It is estimated that closed loop cooling systems reduce water use by up to 70% [20]. For this reason, closed loop cooling systems have become the preferred choice. However, even these closed loop systems are not without faults. It is common for the heat exchanger in the closed loop system to operate on an open loop system; meaning that the issues with open loop cooling systems are only moved elsewhere instead of being removed completely. In colder environments, air cooling can be used to cool the heat exchanger as opposed to an open-loop liquid cooling system, and only then is water use truly and significantly reduced. No matter the type of closed loop cooling system, it is more complicated than an open loop system, meaning that more upfront costs, more installation time, higher levels of maintenance and more energy are all required for a closed loop system to operate. Not only this, but air-cooled heat exchangers require large fans, and this is the primary source for noise pollution caused by AI data centers. More data on noise pollution will be presented in its associated section later in this paper.

AI data centers not only use more water compared to that of a traditional data center, but they also drain and dirty the water for surrounding communities. Although an AI data center can deliver computational capabilities across the globe, the water used for cooling must be sourced locally. Data centers commonly link directly into regional water grids which are sourced from aquifers, rivers, lakes or other nearby clean water sources. Some data centers do go around the grid, but regardless, the water must be sourced somewhere locally. So wherever a data center goes, it acts like a “big straw” sucking water from the local community [21]. Along with acting like a big straw, AI data centers also contaminate the water due to evaporative cooling. All water has some number of dissolved solids within it, and in small quantities, this provides beneficial nutrients to water drinkers. However, as water evaporates, it leaves behind these dissolved solids which increases the proportion of dissolved solids in the liquid water. This creates a brine with a high ratio of dissolved solids, and this becomes a danger to cooling equipment. Along with this, there are also additives put into the cooling water to reduce corrosion and bacterial growth. Over time, this dirty water needs to be disposed of, and this is done by delivering it to regional water treatment facilities or filtering onsite and dumping the water back into where the original water was sourced. This water is not only dirty, but it is also hot, reaching 55 °C as it exits the server racks [22]. Disposing of this hot and dirty water contaminates local watersheds and is a danger to wildlife who rely on the water source. For water treatment facilities, they must increase their workload to provide clean water for the region. This increased workload causes filters and equipment to be worn faster, potentially making the local drinking water more contaminated. Also, the various additives in the data center cooling water require specialized hardware. As an alternative, some data centers do use recycled or reclaimed wastewater as opposed to local freshwater sources [23]. This water is not treated to the point that drinking water is, which lessens the strain on local water grids. Though, since this water is not as clean as drinking water, it puts more strain on the data center cooling equipment and requires more frequent disposing of the cooling water supply, in turn, increasing the strain on local water treatment facilities.



Icons taken from [24], [25], [26], [27], [28]

With an understanding of how AI data centers use and contaminate water, the question arises: how much water do AI data centers use, and how dirty does it leave the water? The short and easy answer is that a medium sized AI data center consumes around 300,000 gallons of water every day, equivalent to about 1,000 households [29]. Across all data centers in the U.S., this is estimated to be around 449 million gallons of water used daily, or about 0.2% of all water use [20]. Though, in some communities, up to 40% of the water use is directed to data centers [30]. Not only this, but water also must be used to create the electricity that powers the server racks. Considering both the cooling water evaporation and water to generate the electricity, one independent analysis put the water usage of ChatGPT-5 at approximately 39 milliliters for a medium length query [31]. Considering that ChatGPT receives over 2.5 billion queries a day, this total daily water usage value for just ChatGPT exceeds 25 million gallons. Even with these values, it can be difficult to conceptualize how much water this is. We all know that we use water for drinking, bathing, dishwashing, cooking, cleaning and other daily activities, but it can still be difficult to think about the impact of household water usage compared to that of an AI data center. For this reason, a brief analysis is demonstrated below in Table 3 to compare some typical water usage to that of a ChatGPT-5 query. It is important to remember that household wastewater is also much easier to filter and recirculate than that of a data center. Data center water is evaporated, and this water can only return as rain or humidity which requires more filtration and possibly desalination if it combines with a saltwater source. For the data center wastewater, this requires extensive treatment to be returned as drinkable water. Table 3 also shows water use of some traditional data center tasks. Some of these values are taken by combining the data values presented prior to Table 1 with the overall data-water consumption rate which is 200 liters per GB of data [32].

Table 3. Water use relationships to a ChatGPT-5 query

Activity	Water Use	ChatGPT-5 queries
ChatGPT-5 query	39 ml	1
1 Dishwasher run	13,000 ml [33]	333
10 Minute Shower	76,000 ml [34]	1,948
Washing Hands	2,840 ml [35]	73
1 Google Search	3.3 ml [36], [37]	1/12
1 minute of Youtube	7 ml [29]	1/6

Determining how much AI data centers pollute local water supplies is less straightforward. Approximately 20-30% of the water that is lost by an AI data center is lost due to the discharge of mineral rich water, otherwise known as blowdown [38], [39]. For a medium size data center, this is about 75,000 gallons of water blowdown every day. Depending on the data center and if the blowdown water is filtered and recycled, the number of dissolved solids in this water can be anywhere from 3-15 times as much as the intake water [40]. These 75,000 gallons of dirty water must then be sent to regional wastewater management companies to treat the water before it can be used again. Or, it is filtered onsite to regulatory guidelines before being discharged directly into lakes, rivers, or creeks [41]. Wastewater facilities see anywhere from 2-150 million gallons of water per day, so the increase in demand is at most around 3% when considering a medium sized data center [42]. Though, larger AI data centers can currently use as much as 5 million gallons of water a day, creating as much as 1.5 million gallons of water blowdown daily [20], [29]. This amount of additional water puts significant strain on any water treatment facility. There is also a notable trend where newer AI data centers are far larger and more powerful than their predecessors, where a new data center in Utah could use as much as 45 million gallons of water every day [43].

It should be mentioned that a newer method of cooling has proven to be effective: immersion cooling. This method immerses the entire server rack into a non-electrically conductive fluid. This not only provides excellent cooling capabilities, but also greatly reduces the use of resources like water. The downside to immersion cooling primarily comes from the large upfront investment that is needed to establish this cooling system [44]. Not only is a large amount of non-conductive liquid necessary, but the intricate system itself requires specialized installation. This specialization and complex architecture make maintenance more costly, and the fluid itself can evaporate over time, meaning it must be replaced.

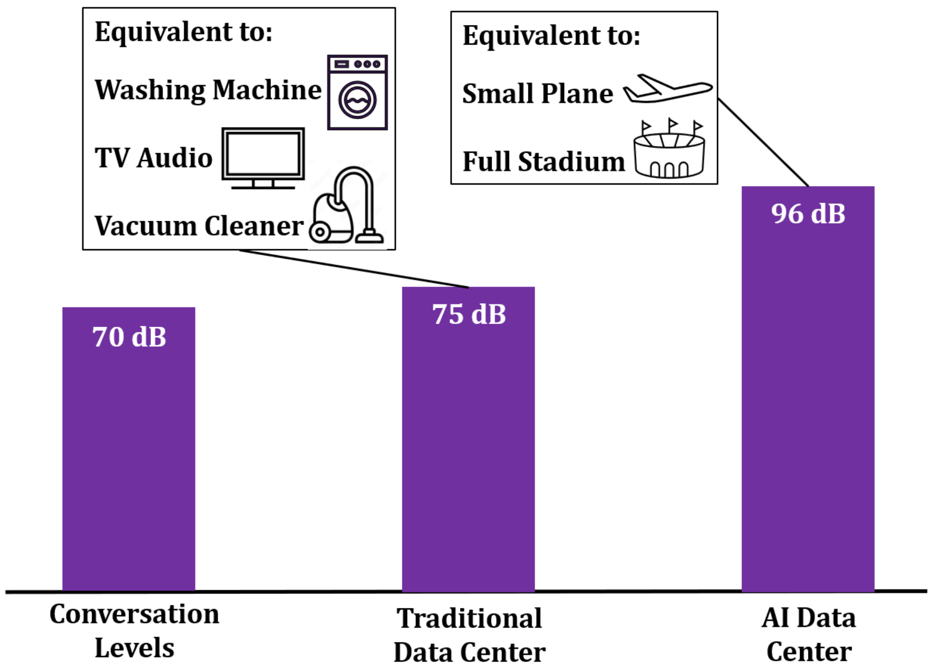
Noise Pollution

As AI data centers are built, particularly in rural communities, one of the first things that people notice is how loud these data centers are. The principal sources of noise are the natural gas turbines that create energy for the data center and large fans that are used in the cooling systems. Along with noise that is heard, there is also infrasound. This is sound that is outside the hearing range of humans, however, it still creates a pressure in the air that is known to cause hearing issues, loss of sleep, and cardiac issues [45]. Not only this, but the 24/7 uptime of AI data centers means this noise is a constant issue no matter the time of day.

Before talking about the metrics of how loud AI data centers are, it is important to understand what sound measurements are indicating. Decibels (dB) is the most common unit used to describe how noisy something is; however, decibels is a logarithmic measurement. You may have heard before that normal conversation is around 60 dB and a large jet engine is about 120 dB, but it is also intuitive to understand that a jet engine is much louder than just twice that of a normal conversation [46]. A logarithmic measurement captures exponential increases, meaning that an increase of 10 dB creates 10 times the amount of sound power. Therefore, the difference in sound power from 60 dB to 120 dB is actually 10^6, or 1 million times as much sound power. The reason for decibels being a logarithmic measurement is because we as humans perceive sound on a logarithmic scale, but the amount of sound power is what causes damage to our ears.

With an understanding of what decibels represent, the number of decibels created by AI data centers can be better understood. A 2016 study showed that noise within traditional data centers is averaged around 75 dB, and reaches a maximum around 80 dB [47]. This is roughly equivalent to listening to TV. This noise is also controlled on a day cycle, meaning that traditional data centers are much quieter during nighttime hours compared to the daytime. Alternatively, newer AI data centers run closer to an average of 96 dB, and reach maximums up to 105 dB when backup generators are active [48]. This is roughly equivalent to the sound made by a stadium full of passionate spectators. In many cases, these AI data centers are being placed just a few hundred feet from residential areas, not nearly far enough for sounds this loud to dissipate adequately [49]. Also, unlike a sporting event, noise from a data center never stops.

Noise levels below 85 dB are considered safe, but as sounds reach past this point, hearing damage becomes a major concern. The difference between traditional data centers and newer AI data centers cuts past this threshold significantly. Sounds reaching 100 dB for even just 15 minutes can begin to damage hearing [50]. The number of decibels heard decreases as we get further away from the source, meaning that residents are not necessarily experiencing 100 dB even if the data center equipment is creating this noise. Still, this noise is at best a constant annoyance and at worst is causing significant health issues for residents, which most have lived in the area long before an AI data center was even built. This also raises a major concern for the depreciation of property values following the construction of an AI data center.



Infrastructure: Land Use and Hardware

The amount of land needed for newer AI data centers is considerably larger than that of traditional data centers. In 2019, a new traditional data center in the Phoenix, Arizona area was, at the time, considered a mega-sale facility at a size of 50 acres [51]. Even today with AI data centers being relatively new, the average size of data centers is just 3 acres [52]. This 3-50 acre range is the amount of land that a rural homeowner often sits on. In comparison, a new Amazon AI data center in Indiana is set to use about 1,000 acres of land [53]. This is the same size as nearly 8 Mall of Americas or all 4 theme parks of Disneyworld [54], [55]. In an even more extreme case, a new AI data center proposal in Box Elder County in Utah was originally estimated to use as much as 40,000 acres [56]. Though, community pushback has led to a redesign where only 10,000 acres may be necessary, a comparable size to the entire island of Manhattan [57].

There are various reasons that AI data centers require so much land. The level of computation needed for AI tasks is significantly larger than that of traditional tasks. A single computer chip has not gotten significantly more powerful in the past decade; therefore, many more computer chips are necessary to accomplish AI computation. More computer chips mean more server racks, which means more physical space. With more server racks, more cooling systems are necessary, which also requires more space. Also, because AI data centers require liquid cooling systems as opposed to air cooling, more powerful pumps and filtration systems are necessary, requiring yet more space. Then, considering that many AI data centers are going behind-the-meter with their energy needs, natural gas generators are needed to create that on-site power. Altogether, there is no single reason why so much land is needed to build an AI data center. Instead, there is a combination of reasons that each feed into one another.

Another piece of the infrastructure is the hardware; the computer parts necessary for the actual AI computation. Namely, the Tensor Processing Units (TPU) are needed to do the computational tasks, Random Access Memory (RAM) is needed to store the parameters for the AI model, Central Processing Units (CPU) are needed to manage workflows for the AI model, and high density storage like Solid State Drives (SSD) are needed to store large data sets. A personal computer has these same parts, but designing this hardware for AI specific tasks makes the AI computation faster and more efficient. Therefore, many computer hardware manufacturers are switching their manufacturing from parts designed for the typical home computer to parts designed for an AI server rack. This is leaving less availability for the manufacturing of home computer parts, thereby curbing supply and raising the prices of home computer parts. A commonly used example of this is the company Micron. Micron has made RAM since the 1980's for the home computer and for data centers, however, in December 2025 they dedicated all of their manufacturing for AI data centers [58]. Prior to this point, a computer hobbyist could purchase 16 GB of modern ram for less than $100, but 8 months later, this price has inflated to over $200 for the same hardware. With Micron no longer in the home computer market, less supply is available, and economics 101 will tell you why this leads to increased prices.

Samsung, the other major manufacturer of RAM, is still continuing to make RAM for home computers but has significantly reduced the amount they are making so that they can create more AI focused RAM modules. In 2022, Micron and Samsung accounted for nearly 70% of all RAM sold to consumers, so losing this share of the home computer market increases prices for any person who plans to purchase a computer [59]. This shortage in RAM availability is expected to last at least through 2027 [60]. Similar trends are also occurring for all computer parts, and this effect is being felt by PC enthusiasts, small businesses, and even students who use a laptop for schoolwork. Altogether, consumers in 2026 can expect a price increase for a new, fully built computer as high as 20% compared to last year [61].

Conclusion

Data centers are a necessary part of modern society; from social media and conference calls, to streaming and web surfing, a data center is somewhere in the loop. With the development and demand of AI computation in the 2020's, data centers dedicated to AI have vastly increased the amount of energy, water, land, and emissions needed for new data centers. From 2013 to 2020, data centers worldwide hardly increased their energy demand [3]. Data centers became more powerful over this period, but at the same time, technology progressed and made the hardware more efficient. There is something positive to be said about the natural, organic growth of technology and using that technology to make the lives of average people simpler and more connected. However, since 2020, data centers worldwide have doubled their energy use and are expected to double it again by 2030 due to the demand for AI infrastructure [4]. This energy demand is affecting local communities through increased energy rates and strain on the local energy grid. For example, Henrico county in Virginia has asked local teachers to turn off the lights, unplug electronics, and avoid heaters to decrease the demand on the energy grid so that data centers in the area can use that energy [62]. This increased energy demand also leads to higher emissions and considering that new AI data centers are using behind-the-meter natural gas turbines for energy, the emissions created by AI data centers far exceed that of traditional data centers. An AI data center adjacent to the Boxtown neighborhood of Memphis, Tennessee, a predominantly black community, has qualitatively reported health issues associated with the emissions coming from this new data center [63]. This same data center is running 33 natural gas turbines despite only having permits for 15 of them, and they have reported higher rates of respiratory related illnesses. So there is certainly some credence to the anecdotal reports of Boxtown residents, but a definitive causation has not been made [16]. This also calls into question ethical concerns of creating sacrificial zones to build these carbon-emitting AI data centers and the fact that these sacrificial zones disproportionally affect marginalized communities. The environmental racism in Boxtown is akin to that seen in cancer alley in Louisiana, an 85 mile stretch of petrochemical plants between Baton Rouge and New Orleans that mostly cuts through low-income and marginalized communities [64]. This region is known to have the highest cancer risk in all of the United States [65].

On top of the energy and emissions is also the water use. While on the surface, AI data centers do not appear to use a large amount of water (Table 3), what should be considered is what happens to this clean water. When we shower or do the dishes, a negligible amount of water is lost and this water is free from toxins, making it much easier to re-process into drinkable water. An AI data center not only uses a large amount of clean water, but this water is either evaporated or dirtied. Evaporated water can only be recaptured through rainwater or humidity, which can be done, but this uses much more energy and is much more difficult than filtering wastewater that comes from a home. Particularly in arid regions or smaller communities, clean water should be directed to necessities as opposed to AI computation. The Dalles, a city of less than 20,000 in Oregon, is seeing 40% of their water supply being redirected to a local AI data center [30].

Another concern with the water used by AI data centers is the dissolved solids and toxins in the water. AI data centers send large amounts of water to water treatment facilities, and because this water is so heavy with dissolved solids, the filters become rapidly dirty making the output water from the treatment facility dirtier. A Georgia community has seen stark differences in the amount of sediment in their water, and residents report fear of consuming this water [66]. Also, the toxins within the water coming from an AI data center require specialized filtration, requiring more materials and energy demand, and this is something not all treatment facilities are capable of. In some cases, this dirty water is simply disposed of instead of being sent to treatment facilities. In eastern Oregon, data centers have increased the nitrate levels in groundwater to over 8 times the legal limit and this water is being used for agriculture [67]. Traditional data centers commonly rely on air cooling systems as opposed to water cooling, so the water used by a traditional data center is essentially zero; a stark difference to AI data centers.

Noise pollution is also an issue with AI data centers compared to traditional data centers. A traditional data center makes an average noise around 75 dB, about the same amount of noise as a washing machine or television [47]. Comparatively, AI data centers make an average noise around 96 dB and peak at 105 dB, about the same amount of noise as a stadium full of people [48]. This noise difference ultimately comes down to the cooling equipment and large gas turbines that an AI data center requires. People that live close to a large stadium are well aware of the noise created during active hours. However, when the game or event is over, the noise from the stadium subsides. An AI data center does not turn off, meaning, it is like hearing the noise from this stadium constantly, no matter the time of day. Also, infrasound, which is sound outside the human range of hearing, is a concern of AI data centers. Infrasound is known to cause cardiac issues and sleep inconsistency, though, the long term effects of infrasound from AI data centers is yet to be determined [45].

The land used by AI data centers is also of large concern. A traditional data center may use a few dozen acres of land, a comparable size to a rural homestead [51], [52]. On the other hand, an AI data center can use 1,000 to 10,000 acres of land, anywhere from the size of Disneyworld's 4 theme parks to the island of Manhattan [53], [55]. This land can cut through wetlands, farmland, and wildlife territories. Eminent domain is also being used to seize property, and the supreme court has affirmed the use of eminent domain for new, privately owned AI data centers so long as an economic development can be justified [68].

Since AI data centers require so much computational power, manufacturers of computer parts have shifted their manufacturing from consumer parts to parts dedicated to AI data centers. This has been most notably seen in RAM production, where one manufacturer, Micron, has withdrawn completely from consumer RAM products. This has caused RAM prices to essentially double in a matter of months. Other computer parts have also begun to be swept up by the AI data center market, and consumers can expect to see a price rise of up to 20% for a new computer; a price that is not expected to come down anytime soon if at all [61].

The effect of AI data centers is becoming largely recognizable to the people across the world. From local pollution and energy grid strain to land use and economic instability, AI data centers are becoming an intrusive part of everyday life. What is important to ask ourselves is what are we to gain from the massive and rapid influx of AI data centers? Maybe you use generative AI to expedite mundane tasks, maybe you enjoy the AI remixes of old songs and movies, or maybe you see AI as an effective tool for medical diagnostics. Either way, we need to recognize and understand the societal costs of having these technologies. Some of the tasks that AI is nearly unanimously seen as being beneficial, such as early cancer recognition, can be achieved without the need of AI chatbots that create workout plans and meal recipes. Growing organically into a new technology in order to learn the benefits and drawbacks prior to widespread adoption can be profoundly constructive to society as a whole. The hasty adoption of AI data centers is causing layers of damage to locals and can deter people from anything and everything AI moving forward, even if it could potentially be beneficial to their well-being. There are also dangers of AI that are not fully understood, such as cognitive decline and systems weaponization. Particularly in adolescents, the lack of AI literacy is already being seen in the overreliance of AI systems [69]. Slowly expanding the adoption of AI technologies can help us better understand how these technologies affect our cognition, society and the environment. With a better understanding of these effects, educated decisions can be made as to the best way of adopting the new technology and whether adoption of certain subsets of AI should take place at all. This paper excludes specific recommendations for AI adoption into society and instead focuses on the effects that AI data centers have on the surrounding community. What can certainly be said is that the implementation of AI technologies is occurring at a careless rate causing a danger to health, the economy, wildlife, infrastructure, and civilization as a whole. We need to stand against new AI data centers and allow further research of the technology before we dedicate more precious resources to something we do not fully understand how to best implement.

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