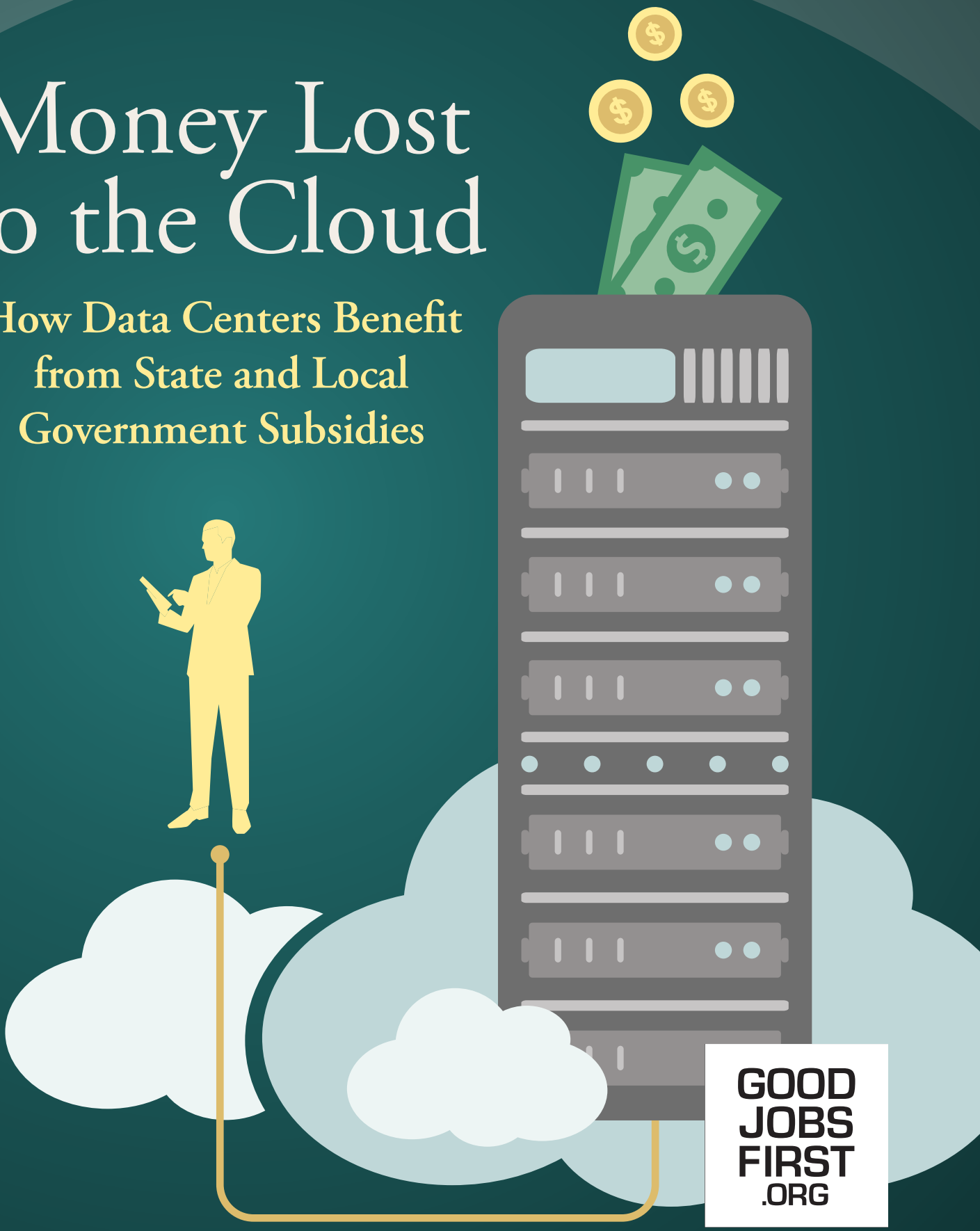
Money Lost to the Cloud

How Data Centers Benefit from State and Local Government Subsidies



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How Data Centers Benefit from State and Local Government Subsidies

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EXECUTIVE SUMMARY

As human activity increasingly takes place online, or in the so-called cloud, tech companies have been rapidly expanding their networks of facilities that store and retrieve digital information. Decisions on where to locate data centers—which consume large amounts of electricity but employ few workers—are primarily based on the availability of reliable, low-cost electricity. Yet state and local governments routinely subsidize these projects, even enacting special new tax breaks just for data centers (also known as server farms).

Despite their New Economy allure, internet companies have fully embraced Old Economy habits of playing states and localities against each other in bidding wars, putting public officials in a "prisoners' dilemma" and causing governments to grossly overspend for trophy deals. Google, Microsoft, Facebook, Apple and Amazon Web Services alone have been awarded more than $2 billion in subsidies. The average cost of their 11 "megadeals" profiled here is astronomical: $1.95 million per job. At that price, taxpayers will always lose, because a worker will never pay $1.95 million more in state and local taxes than public services she and her dependents consume.

The largest per-job subsidy, $6.4 million, was provided to an Apple center by North Carolina. The actual subsidy costs of many deals is much higher but unknown, since some state and local governments fail to project or disclose how much companies will benefit from multi-year tax breaks.

In addition to providing traditional subsidies such as local property tax abatements and investment tax credits, 27 states have established incentive programs specifically for data centers. Many of these programs are not sufficiently transparent, even when it comes to aggregate cost figures. Indeed, 10 states don't disclose aggregate or deal-specific costs. Only 15 states provide easily available online reporting of costs for data center-specific programs. Washington State's, at $57.4 million in fiscal year 2016, is the most expensive.

Subsidies come at the last stage of the data center site selection process and often don't function as true economic development incentives; that is, they don't cause something to happen that wouldn't otherwise. Instead, public officials routinely pay companies to do what they were already planning to do.

To avoid such overspending, we recommend that states and localities fully disclose deal-specific and aggregate program costs, starting when a deal is being negotiated. We also recommend capping all state and local subsidies combined at $50,000 per permanent job. Finally, we urge public officials to walk away from excessive data center subsidy demands. Their economy may be the better for it.

INTRODUCTION

Every time you upload a picture to Facebook, post a tweet, stream a movie or buy something online, data about your activity is stored in a facility known as a data center. These are buildings containing large numbers of fast computers called servers.

Because the equipment works non-stop, data centers require a great amount of electricity and generate a lot of heat. That in turn requires cooling equipment, which consumes even more energy. By one estimate, data centers used 70 billion kilowatt-hours of electricity in 2014. That represents two percent of the country's total energy consumption and equals the energy used by 6.4 million typical U.S. homes in a year.[1]

As we detail below in a section on site selection, in addition to cheap, reliable electricity, data centers also seek out areas that are seismically stable and not prone to flooding or other natural or man-made disasters.

The United States leads the world in hosting data centers with about 44 percent of all major sites worldwide.[2] There are about 1,370 large data centers in the U.S., both "co-locations" (or centers built by third parties which then sell computing service or rent capacity to corporate end users) and data centers owned and operated by major companies. Data centers can be found all around the country, with California, Texas and New York having the largest numbers of facilities.[3]

It's difficult, however, to estimate the exact number of "mega" data center facilities because many companies are quite secretive about them. Google, for example, is thought to have between nine and 21 such facilities in the United States.[4]

Data centers are non-descript, warehouse-looking buildings with no or very few windows. They are highly secured structures, usually surrounded by fences and monitoring systems. Data centers are built to the latest structural standards, designed to withstand natural disasters, to minimize energy and water consumption, and to take advantage of outside conditions such as cooler weather in Northern states.

Some companies build single large data centers while others, like Google for example, favor campuses composed of several small buildings.[5] Apple's North Carolina data center, for example, has 500,000 square feet.

These facilities are of two kinds. Because of their massive data needs, large tech companies such as Facebook, Google, Apple, Microsoft and Amazon Web Services construct their own data centers.

Data centers are by their nature capital-intensive. Large ones can cost up to $1 billion, but companies tend to be very secretive about where that money goes. Cost components include land acquisition, construction of a

facility, infrastructure upgrades including utility hookups, and then of course the servers and related equipment. Purchase of mechanical equipment (computers, chillers, cooling rooms, etc.) and power equipment (standby generators, transformers, power distribution, etc.) are the biggest initial costs. Because of the rigor of the structures and the intensivity of the equipment, data centers can cost between $1,000 and $2,000 per square foot. Companies also tend to replace the servers about every three years, which requires additional investments. Electric power is the largest operating expense, reported at 70–80 percent.[6]

At the same time, data centers have a small employment impact. While the number of construction jobs is comparable to building a factory or distribution center, an operating data center requires few permanent workers: an average of just 30 to 50 permanent jobs, with larger facilities creating up to 200 jobs. Facebook's original Rutherford County data center in North Carolina, for example, created about 500 temporary construction jobs but only 42 permanent positions.[7]

Good information about wage and salary levels at data centers is difficult to find. The jobs created are a mix of low-paying janitorial and security jobs and some more remunerative technical positions (i.e., more of a "dumbbell" distribution of wages than a traditional factory "bell curve.") The exact composition of the workforce is secondary to the fact that it is so small.

The modest employment impact is matched by the limited economic benefit to local businesses. Data centers use few goods or services that can be provided by the companies typically found close to the facilities. The largest value-added capital inputs are computer servers purchased from companies such HP, IBM and Oracle that source from offshore plants.[8]

According to Dave Swenson, an economist at the Iowa State University, "except for the land and the erection of the super-structure, all other capital inputs into the facility come from somewhere else."[9]

Data centers can have a large, positive impact on collected taxes, but only if they pay them. When state and local governments abate sales, property and even income taxes, those benefits can evaporate.

SITE SELECTION FACTORS

Building a data center is a big investment, so companies evaluate a number of criteria before they choose a site. First, they scan for natural hazards. Regions prone to hurricanes, tornados, floods, volcanoes, fires, or earthquakes are eliminated from site-candidate lists, as are places near potential hazards like nuclear reactors or chemical plants.

Cisco, for example, in its first scan, analyzes the occurrence of hurricanes categorized three to five over several decades and also screens sites for proximity to chemical and nuclear plants and railroads that might carry hazardous materials.[10]

Large companies also disperse their data centers across different states to reduce the risk of a catastrophic event impacting multiple facilities at once. Companies also strategically place server farms across various regions to maximize latency, which is the speed with which data travels between data centers themselves and between data centers and users (e.g., West Coast tech companies build some of their data centers along the East Coast to provide fastest results for the East Coast users).

Outside temperature and humidity are also major factors as a cooler and/or dryer climate means lower cooling costs and therefore lower energy costs for operations.[11] For example, Facebook's data center in Prineville, Oregon takes advantage of the region's chilly climate and is fully cooled by outside air flow.

Companies prefer sites that already have good infrastructure, such as access roads, utility lines and good supplies of water. Proximity to highways, airports, and railroads decreases the cost of shipping in equipment and supplies during the construction phase and later during the operation. Data center sites also need high-speed fiber-optic Internet connections. Companies evaluate how much fiber infrastructure is already in place and how much more they would need to install if the available network is not sufficient.[12]

Yet the most important consideration is the cost of electricity, which is used not only to run servers but to cool them and accounts for about three-fourths of a typical center's operating expenses. Many states that are "hubs" for data centers—Washington, Texas, Virginia, North Carolina and Oregon—also have the cheapest electricity in the country.[13] All of those states have typical rates below the national average of seven cents per kilowatt hour. Washington's rate, for example, is 4.5 cents and Texas' is 5.3 cents.[14] As well, like other heavy industrial users of electricity, some data centers are allowed to negotiate even lower rates with electricity providers, which can save them millions on power costs. In the recent years, the source of power has emerged as an issue. Companies, under pressure from environmental groups, increasingly look for renewable sources like hydro, wind or solar.

Facebook, for example, wants locations where it can have 100 percent renewable energy.[15] Apple also lists access to renewable energy as a key factor in its site selection. As of January 2016, 93 percent of Apple's power worldwide came from renewable sources and four of the company's U.S. data centers ran on 100 percent renewable energy.[16]

ECONOMIC DEVELOPMENT SUBSIDIES FOR DATA CENTERS

The Bigger Picture

Economic development subsidies are considered in the last phase of the data center site selection process, after possible choices has been winnowed to a short list, and they carry limited weight. A former Intel official commented: "Government incentives come and go. Decisions need to be made long term."[17] In a survey of data center owners by Mortenson Construction (a commercial contractor that builds data centers, stadiums and other large structures), only three percent of respondents described tax credits and local incentives as the biggest site selection factors.[18] Millions of dollars in tax breaks cannot convince a company to choose a site on a hurricane path or where power costs are high.

Even though subsidies are not a critical factor in a data center location decision, companies, especially the well-known technology firms, have become aggressive in seeking subsidies from states and localities. Some even have staffers devoted to maximizing subsidies. They gain leverage from having household names for which politicians and economic development officials are willing to compete. "Lots of times, governors, in particular, are very fond of these projects," an industry expert once commented.[19]

The competition for data centers is another example of the race to the bottom in awarding tax breaks to profitable companies. In 2009, for example, North Carolina and Virginia competed for an Apple data center. When the company indicated it was more interested in Virginia, the North Carolina legislature quickly enacted a tax apportionment formula known as single sales factor that was estimated to save the company $300 million over three decades. Whether the company's feint towards Virginia was only a head fake, we can never know, but Apple chose North Carolina. In response, Virginia enacted a sales and use tax exemption on computer equipment.

Because data centers are capital- rather than labor-intensive projects, one potential benefit these facilities have on a local economy is taxes paid. However, any fiscal benefits wane when governments abate a large portion of those taxes. As we will see, states often allow—and sometimes automatically grant—the abatement of three main types of taxes generated by those facilities: state and local sales and use taxes on various purchases, real property taxes and personal property taxes.

More than Half the States Now Offer Specific Subsidies to Data Centers

Twenty-seven states have economic development incentive programs specifically designed to attract data centers (see the Appendix). Most of those programs have been created in the last few years, and their proliferation mirrors the growth of the industry. An early 2016 report for the Northern Virginia Technology Council found that since 2012, one third of the states lowered eligibility requirements for their programs

and 17 states otherwise revised or created new programs for the industry.[20]

The majority of the state programs involve sales and use tax exemptions which can typically save companies between five and seven percent on their equipment costs, depending on a state's rates.[21] Often these are structured as "as of right" tax exemptions, not discretionary or competitive awards. That is, they are not structured as commerce agency programs, but rather tax-code provisions overseen by revenue departments. As a result, there is often no disclosure of either the names of the companies benefiting nor even an exemption's aggregate annual cost.

Only 15 states have easily available online data showing program costs (North Dakota and Ohio report the amounts as "minimal"). Washington's program, which cost $57.4 million in fiscal year 2016, is the most expensive. Georgia's program is the second costliest: $42 million in fiscal year 2013 (the most recent figure available). Ten states don't even provide estimates on their program costs.

Data center-specific subsidies are not the only ways states try to attract server farms. Many have provided traditional subsidies (e.g., property tax abatements, investment tax credits, job creation tax credits) to such facilities, including Arkansas, Maine, Maryland, Massachusetts, New Jersey, Pennsylvania, and South Dakota.[22]

Megadeals—Large Economic Development Subsidy Packages for Single Projects

The sum total of all state and local subsidies provided so far to data centers is difficult to determine. In 2015 the Associated Press estimated that during the past decade, the data center industry has been awarded about $1.5 billion in subsidies nationwide.[23] In this report, we detail 11 "megadeals" of $50 million or more which alone cost $2 billion. Additionally, in deals for which known subsidies do not exceed $50 million, we have found an additional $310 million in data center subsidies.

All these figures are incomplete, because as we have noted, many states still fail to disclose tax-exemption costs of subsidies claimed by data centers (sometimes citing taxpayer confidentiality). Also, most localities still don't disclose online their subsidies such as property tax abatements.

Sales and Use Exemption on Electricity Purchase

Iowa, Minnesota, Missouri, North Carolina, South Carolina, Tennessee, Texas and Wyoming have special sales and use tax exemptions on electricity purchased by data centers. Other states have provided companies with deals that exempted tech giants from this particular tax. For example, Google received a tax exemption on electricity from South Carolina and Apple from Arizona. Those exemptions can last for as long as 20 years. Too often states don't disclose how much tax revenue is lost to these special tax exemptions, even though they may be significant because data centers consume so much electricity. This presents a justice issue: while companies with billion-dollar profits pay no tax on electricity, homeowners, tenants and small businesses pay utility taxes.

Complicating matters further, larger projects often receive subsidies from multiple levels of government. For example, Google is projected to receive $81 million in various state subsidies from Alabama plus unspecified amounts from local governments for its $600 million data center in Jackson County. Because property taxes are the largest tax paid by most companies, local property tax abatements can be the largest subsidy awarded in a multiple-subsidy package. So this lack of local government disclosure often obscures very large parts of the story.

These 11 data center "megadeals" (defined as those worth $50 million or more) are also extremely expensive on a per-job basis: an average of $1.95 million per permanent new job (averaging the deals, not a weighted average). Among the biggest beneficiaries are giants of the tech world: Google, Apple, Microsoft, Facebook and Amazon Web Services.

Google is the largest beneficiary of known megadeals, with subsidies in Oregon, North Carolina and Alabama totaling almost $700 million. Apple got $410 million from two megadeals in North Carolina and Nevada. And a Yahoo megadeal from New York State will cost taxpayers $258 million.

The most expensive subsidy per job is in Apple's deal in North Carolina, where in exchange for a promise of 50 direct, permanent jobs, the state and localities offered the company $321 million—$6.4 million per job. This guarantees taxpayers will never break even: that is, the average Apple worker will never pay $6.4 million more in state and local taxes than public services she and her dependents consume. The same is true for the costs per job of all of the megadeals profiled here.

Table 1. Data center megadeals.[24]

State	Company	Year	Megadeal subsidy value	Jobs promised or created	Cost per job	Capital investment
OR	Google	2006	$360,000,000	175	$2,057,143	$700,000,000
NC	Apple	2009	$321,000,000	50	$6,420,000	$1,000,000,000
NY	Yahoo	2009	$258,000,000	125	$2,064,000	$300,000,000
NC	Google	2007	$254,700,000	210	$1,212,857	$600,000,000
NV	Switch	2015	$229,000,000	100	$2,290,000	$3,000,000,000
TX	Facebook	2015	$146,700,000	100	$1,467,000	$1,000,000,000
IA	Microsoft	2014	$107,300,000	84	$1,277,381	$1,400,000,000
OH	Amazon Web Services/Vadata	2014	$93,700,000	120	$780,833	$1,100,000,000
NV	Apple	2012	$89,000,000	41	$2,170,732	$1,000,000,000
AL	Google	2015	$81,000,000	100	$810,000	$600,000,000
IA	Microsoft	2010	$65,317,242	69	$946,627	$1,000,000,000

COMPANY CASE STUDIES

Some of the largest names in technology have chosen to locate their new data centers in small rural towns struggling to replace lost manufacturing jobs. Microsoft located in Quincy, Washington, which has lost timber jobs. Apple located in Maiden, North Carolina, which saw its furniture manufacturing jobs go overseas. Those disinvested communities had few opportunities to attract high quality replacement jobs and so became susceptible to firms looking to create bidding wars between struggling towns.[25]

Behaviors of the companies seem to be quite similar: they chose locations with cheap electricity and stable environmental conditions and then seek local and state incentives. Often companies put states and localities into direct competition to maximize tax breaks. Google, for example, in 2007 created a competition between North and South Carolina, making the states believe that there was one project planned, when actually there were two. Microsoft seems to leverage its large investments in Washington and Iowa to get greater tax breaks for itself in both states. Facebook's extraordinary growth has pushed the company into rapid build-out and investment in data centers. It has gotten two megadeals, but seems to be more concerned about access to renewable energy than incentives. And Apple was brazen in directly asking North Carolina to change its corporate income tax structure.

Google

In 2006 Google announced that its first corporate data center would to be located in The Dalles, Oregon. Besides having cheap hydropower and a cool climate, Oregon does not have a sales tax, another big savings for the company. Then because it located the data center in an enterprise zone, the company received property tax abatements for 15 years. That abatement alone was estimated to save the company $360 million.[26] "The deal that this community got wasn't that great….Google put The Dalles on the map in many ways but the company's tax deal is lopsided. Relative to what property taxes would be, [the benefits are] a pittance," a Wasco County Commissioner commented.[27] By 2011, the locality had abated $71 million in Google's taxes and the company was paying only $250,000 in taxes a year. As of 2016, 175 people worked at the facility, but half were contractors.[28]

Just a year later, Google announced a $600 million, 200-job data center project in Council Bluffs, in western Iowa (bordering Omaha). The company said it was attracted to the center of the country because it's a crossroad of Internet connections.[29] The location also has the business basics: a good fiber optic network, cheap power from renewable sources, plenty of clean water and available undeveloped land. Yet despite having all those basics, Iowa and Council Bluffs awarded Google state and local subsidies.

When the Council Bluffs City Council voted on a local tax rebate and abatement package ranging from 100 percent in the first two years to 60 percent in later years, the name of the company was kept confidential.[30] The value of local property tax abatements was estimated at $48 million over 20 years.[31] The company was also approved for $1.4 million in High

Quality Jobs Tax Credits, a state economic development program.[32]

In 2007 for another facility, Google did something we have never seen before: it played North Carolina and South Carolina against each other, ostensibly for one data center, without telling the states' officials that it was actually planning two projects, one in each state. Believing there was only one data center on the table, officials in both states pursued the deal aggressively. Only after both states approved large subsidy packages did Google reveal its secret.[33]

First, after a 13-month negotiation that included staging competition between North Carolina counties and winning the state legislature's enactment of a special utility tax exemption, Google announced a project in Lenoir in Caldwell County, North Carolina. The company was aggressive in demanding tax breaks. At one point Google's negotiator emailed North Carolina officials: "This project will not be in NC if sales tax is accessed [sic]."[34] Pushed by the fear of losing the deal to another location, the state and localities abated all of the most important taxes the company would pay. Google received a 100 percent personal property tax exemption, an 80 percent real estate tax abatement, and a complete sales tax exemption on electricity and equipment. The deal was to last 30 years. In exchange for an estimated $254 million in subsidies, the company promised to create 210 jobs—more than $1.2 million per job.

Soon after, Google announced the second data center, in Berkeley County, South Carolina, for which the company was given sales tax exemptions on electricity and capital investments, state job-creation grants, and local property tax exemptions. The values of the various incentives were not estimated. The deal required Google to create 200 jobs by 2008 to access the job development grants. When it became apparent that the company would not meet the job creation threshold, Google declined the grants.[35]

Twenty-thirteen was a big year for Google data centers. The company opened additional facilities in Iowa and in Oregon. Its second Iowa facility was approved for job creation tax credits of $36.6 million. The Oregon facility received yet another 15-year tax property abatement deal on buildings and equipment. The value of the deal was not publicly estimated and the company committed to create only 10 jobs that would pay 150 percent of the county average wage.[36]

In 2015, Google announced a $1 billion expansion of its second data center in Iowa for which the company received an 80 percent property tax abatement and $20 million from the state economic development agency.[37] The cost of the local subsidies was not disclosed.

In 2016, the company announced yet another data center in The Dalles. Before the announcement, city and county officials approved Google for another 15-year local property tax exemption. The data center will cost Google at least $200 million but create only 50 jobs. Google will pay a fee in lieu of property taxes, starting at about $1.4 million annually and declining to $1 million. Once again, no estimates on subsidy value were released. The Associated Press, however, reported that as of 2015, Google had benefited from $111 million in Enterprise Zone exemptions.[38]

In 2015, Google announced a $600 million data center expected to create 100 jobs in Jackson

County in northeast Alabama. The data center will be located in a former coal-fired power plant and powered by renewable and cheap energy from Widows Creek. Alabama, known for its generous subsidies, offered Google at least $81 million. The state granted Google an investment tax credit of up to $50 million over 10 years to offset income and utility taxes, a state non-educational sales tax abatement of $20 million, and state property tax abatement of $11 million. The County agreed to provide the company with local non-educational property tax abatements, the value of which was not disclosed.[39]

The speed with which Google opens its data centers shows that the company's need for data storage and processing capacity is growing rapidly. It appears that the company, a major independent owner of data centers among the tech giants, has received significant incentives for every facility it has opened.

Microsoft

Microsoft is headquartered in Washington State, and that's where the company opened its first data centers. For years, Microsoft's server farms benefited from the state's sales tax exemption for manufacturers. In 2007, however, the state's attorney general ruled data centers ineligible for the exemption because they do not produce tangible products sold to customers. That meant companies building a data center were required to pay a 7.9 percent tax on facility construction materials and equipment. Microsoft, along with Yahoo, was not happy about the decision.

After the tax ruling, Microsoft suspended construction of a data center in the small central Washington city of Quincy, and started lobbying for a full exemption on sales taxes.[40] At that time, a Microsoft official stated: "States such as Iowa and others have come on board with very attractive tax incentive packages to get data centers to locate in their communities.… Washington State is no longer competitive for this type of business."[41] In 2008, Microsoft announced a data center in Iowa (but would not build it until 2010). It was the beginning of Microsoft playing two states against each other to get bigger tax-break deals.

In 2010, unsure about the tax exemption in Washington, Microsoft decided to move forward with its 2008 announcement and open a new data center in West Des Moines, Iowa. However, the company made the announcement only after Iowa approved a package of sales tax exemptions on electricity purchases and capital investments. Iowa's Legislative Services Agency estimated that the subsidy would cost about $36.6 million.[42] The only legislator who opposed the subsidy commented: "States competing with each other have kind of gotten into this slippery slope that we can't get out of anymore… [We should] compete on [education levels, skilled labor, and affordable and reliable access to energy] instead of how much money are you willing to give..."[43] In addition to the sales tax exemption, Microsoft was approved for awards from the High Quality Jobs Tax Credit program totaling $21 million, including for a later expansion. The city also committed $8 million to improve infrastructure around the project. The company was required to create in total just 69 permanent jobs and promised to invest about $1 billion.[44]

After other states started enacting sales tax exemptions for data centers, Washington State followed suit. The new subsidy for data centers in rural communities in Washington exempted

companies from sales tax on equipment, power infrastructure (such as fiber optics and wiring), and installation charges related to those two.[45] However, the program expired in 2011. Under the threat of losing high tech companies,[46] Washington State reintroduced the tax break in 2012. Microsoft made a point of delaying its announcement of a new data center in the state until after the break was reauthorized.

In 2014 Washington's data center sales tax exemption expired again. This time, however, the program was not renewed as quickly. As a response, Microsoft decided to invest $1 billion in its next data center in Iowa, for what would be the company's largest facility in the country at that time. Instead of providing property tax abatements, West Des Moines agreed to create a tax increment financing (TIF) district, which would divert $87 million of property taxes in order to pay for infrastructure improvements such as fiber optic, roads and utilities serving the Microsoft site. The state contributed another $20.3 million in job tax credits.[47]

By playing the two states against each other, "Microsoft may simply have been setting groundwork for a better tax environment in its home state in the future," *Data Center Knowledge* commented. [48] In fact, Washington's sales tax exemption was reinstituted in 2015 with a sunset in 2025. The State Department of Revenue estimates that by fiscal year 2018, the sales and use exemption on data center equipment will save companies $53.6 million on the state level and $14.4 million on the local level.[49] The number of claimants grew from five in 2010 to 15 in 2014 and Microsoft benefited from it every year.[50]

In July 2016, Microsoft announced yet another data center in the West Des Moines. The 1.7 million square-foot complex will cost about $2 billion and employ about 133 people. No property tax abatements on the land or building were offered, but state doesn't allow property taxes on the equipment, the most valuable asset. The state approved $4.7 million in sales tax rebates for Microsoft and said that the company will be eligible for other subsidies in the future. West Des Moines will spend $65 million on infrastructure development, such as roads and power lines, for the facility. The company-specific improvements will be paid for with Microsoft's property taxes (but not in a TIF structure).[51]

Microsoft has also turned to other states to locate data centers. For example, in 2010, shortly after Virginia enacted a new data center-specific subsidy (as a response to losing Apple's data center to North Carolina), Microsoft announced a project in rural Mecklenburg County, in southern Virginia. Here Microsoft also got a lucrative deal. Subsidies went beyond sales and use tax exemptions of $20 million and included a $2.1 million grant from the Governor's Opportunity Fund, a $4.8 million grant from the Virginia Tobacco Commission (which helps formerly tobacco-dependent areas transition), a $50,000 workforce development grant, a $2 million county real estate grant, $3.95 million in water and sewer connections, and most notably 20-year annual grants (effectively rebates) equal to 90 percent of the real estate and business personal property taxes from the county. In the first three years alone, the property tax rebates were estimated at $12 million.[52] The full value of subsidy package has not been officially estimated but it will no doubt surpass $50 million.

A 2016 *New York Times* article points out that most of data center jobs created by Microsoft, and other tech giants, are not filled by local residents of the rural areas because they lack high tech skills. For those who have applicable skills, like electricians, the construction jobs don't last more than six months. Long-lasting positions are limited as Microsoft prefers to fly in their specialists to complete specific tasks. "They talked about 100 jobs, but it's a slow process ... So far the biggest impact has been a couple of lunch tables at the Triangle gas station," the local mayor commented.[53]

Microsoft has been working consistently to reduce its tax obligation in Washington State and to extract state and local subsidies from Iowa. Both states have foregone large amounts of revenue at the company's behest. But as with other companies, the full costs of subsidies provided to the tech giant are hard to estimate because many localities don't disclose the value of abatements and states deem some tax-break information confidential.

Facebook

In 2010 Facebook opened its first two data centers: in Prineville, Oregon and Forest City, North Carolina. Both locations provided Facebook with millions of dollars in incentives.

In Oregon, the company took advantage of the Enterprise Zone program's automatic property tax abatements. In North Carolina, the company was approved for $11.4 million in local subsidies and for an undisclosed amount of state and local sales tax exemptions on data center equipment, electricity and construction materials. The $450 million server farm promised 45 full-time and contract workers. The company touted plans to hire locally for janitorial, security, landscaping and building maintenance positions,[54] but of course these are the low-skilled and lowest-paid jobs.

In 2013, the company staged its first secret competition between two neighboring states, Iowa and Nebraska. During the rivalry, Nebraska enacted changes to its data center-specific tax code to match Iowa's. But in the end, Facebook chose Altoona, a suburb of Des Moines. The facility was to create 31 jobs with an annual average salary of $41,800. Iowa approved $18 million in job creation tax credits and the city agreed to a 100 percent property tax abatement for 20 years, the cost of which has not been estimated.

During the summer of 2015, Facebook won additional tax breaks for a second data center in Prineville, but not before indicating that it had another unnamed location ready in case sufficient subsidies were not provided.[55] Facebook has about 150 employees in Oregon, including contractors, but most are security and low-level technician positions. Servers are managed from the company headquarters in California. Between 2012 and 2015, Facebook received $44 million in Enterprise Zone subsidies, with $11.9 million in exemptions in 2015 alone.[56]

The same year, Facebook announced its largest data center, in Fort Worth, Texas. The company plans to eventually invest $1 billion and create up to 100 jobs; however initially only 40 positions will be created. The company will benefit from yet another megadeal, this time of at least $147 million over 20 years. The entire amount will come from the city, which will provide the company with grants derived

from various taxes paid by Facebook, including real and business personal property taxes, local sales taxes, and electricity franchise fees. In addition, Facebook will be fully exempt from state sales taxes on the purchase of equipment, software, and electricity. Tarrant County also approved a 60 percent abatement of real and business personal property and up to 40 percent abatement of hospital district taxes, both for ten years. The costs of state tax exemptions and county tax abatements were not estimated.[57]

What truly drew Facebook to Texas was not subsidies but the company's desire to power the data center with renewable energy, in this case wind power. In an interview with *Site Selection Magazine*, a Facebook official said that the company targeted Texas in the first place because of its "deregulated energy market and [Facebook's] ability to have a choice in energy supply…" "…the fact that [Texas] has terrific natural wind resources ... sealed the deal," the official added.[58]

In 2016 as this report was being written, Facebook staged another competition, this time in Southwest. The company said it would build a $250 million data center in either Los Lunas, New Mexico or West Jordan, Utah (a Salt Lake City suburb).

To makes its case, the Los Lunas Village Council approved $30 billion in Industrial Revenue Bonds (IRBs) that will provide the company with cheaper borrowing rates and a 30-year property tax abatement (the land will be owned by the Village and thus will be exempt from taxes; Facebook instead will pay a fee in lieu of taxes of up to $100,000 a year). Facebook initially hid its identity, applying for the IRBs under the name Greater Kudu LLC. The process was so secretive that even the Village Council was not informed who the corporate parent was.[59] The application estimated the number of permanent positions between 30 and 50 and construction jobs between 200 and 300.

Local officials in Utah also were tight-lipped for a long time about the company behind the project. State, county and city local officials initially offered $240 million in subsidies: $185 million in property tax abatements, $50 million in energy tax rebates, and $1.5 million in sales tax rebates.[60] The number of jobs was estimated at up to 100. After it became known that the subsidy was for Facebook, some county officials started questioning the deal. "…I worry that we're being taken advantage of and getting fleeced by a company that's pretty sophisticated," Salt Lake City's mayor commented.[61] One Councilmember asked, "When I looked at this, I had to ask myself: If this is not Facebook ... would this same deal be extended? Or are we star struck because it's Facebook?" [62] After negative voices and votes of opposition to the subsidy package from local taxing jurisdictions, the city of West Jordan, which was competing for the project, terminated its subsidy negotiations. Soon after, Facebook announced that the data center will open in New Mexico.

What seems to be driving Facebook in this case, however, is the need for the data center to be fully powered by renewable energy: solar or wind. In New Mexico, Facebook even has agreed to pay the cost of building a new solar power plant, in exchange for a fixed price on electricity for the next 20 years from a local utility company. New Mexico regulators are expediting processes to provide Facebook with renewable energy.[63]

Later to construct its own data centers than other companies, Facebook has nonetheless sought large subsidies for every single data center it owns. The company also learned that by playing two locations against each other, it can gain expedited permitting and approvals for its data centers. But the company also is striving to power its data centers with only clean power.

Apple

Apple started operating data centers in 2006 when it bought its first facility in Newark, California near Silicon Valley for $50 million.[64] With the growth of its cloud services, Apple soon needed to look to the East Coast for a location for its new data center. The search started in 2007 and North Carolina and Virginia emerged as competitors. Both of them decided to go aggressively after the company and offered subsidies to lure Apple.

In 2009, Apple chose Maiden, North Carolina, a small town 40 miles northwest from Charlotte, for a $1 billion data center. The site selection process was kept strictly confidential as the company pushed the state to alter its corporate income tax apportionment formula. In the midst of the Great Recession, the prospect of even 50 well-paying jobs at a high-profile company in the region with 15 percent unemployment rate looked desirable to state and local officials.

In a special session and just one minute of debate, the North Carolina legislature passed a bill creating the so-called "single sales factor" apportionment formula for one unnamed company, although news media had already named Apple as the company in question. Apple wanted to be in North Carolina but insisted upon the tax deal.[65] Emails later released by the North Carolina Department of Commerce revealed that two days after Apple made clear to North Carolina officials it was proceeding quickly with Virginia's offer, the company sent North Carolina's secretary of commerce the changes it wanted in the state's corporate tax formula.[66] Within a month, it became law. "What this bill says is if somebody brings us enough money we'll change the law for them. This kind of legislation is unseemly at a minimum and in a worst-case scenario amounts to selling ourselves," Rep. Jonathan Rhyne, a legislator from Lincoln commented.[67] (The switch to single sales factor meant that two other variables, property and payroll, would no longer be used to compute the share of Facebook's taxable U.S. income assigned to North Carolina. Since the data center is valued at $1 billion, this exclusion presumably substantially reduced the company's state corporate income tax liability.)

Hours after Gov. Bev Perdue signed the law, Apple announced Maiden, North Carolina as its location for the data center. The law stipulated the company had to forgo any other state subsidies. As it has in 2004 for a Dell assembly facility, the Tarheel State again allowed a second auction, this time among local governments. Cleveland and Catawba counties offered detailed, secret incentive plans[68] and Catawba County prevailed. In addition to single sales factor that is projected to save Apple $300 million in three decades, Catawba County approved a 50 percent real property tax abatement and 85 percent personal property tax abatement for Apple.[69] Those local subsidies were estimated at $21 million over 10 years.

Just few years later, in 2011, a *Washington Post* article painted a dismal picture of Maiden,

where the data center was built. Local residents had not seen any benefits from the Apple investment. Few of the dislocated furniture factory workers had the high-tech skills needed for those few jobs Apple created. Benefits of the $1 billion investment didn't seem to trickle down to the community. "People from around here don't get those jobs" a local resident commented; another one added "Apple really doesn't mean a thing to this town."[70]

Apple was planning to build its next data center in Washington State, but when the state allowed its sales tax exemption for data centers to expire in 2011, Apple turned to Prineville, Oregon, which had similar conditions to Washington but does not have a sales tax. In addition, the company automatically avoided property taxes by locating in an enterprise zone. Those savings amounted to $4.8 million between 2013 and 2015.[71]

In 2012, the company opened a data center in Reno, Nevada with substantial state and local subsidies. They include an 85 percent personal property tax abatement and sales tax rebates on equipment acquisition. In total, $89 million was offered to Apple, mostly in local subsidies. [72] Combined, the incentives reduced the company's tax obligation in the state by 79 percent.[73] The server farm was projected to create 41 long-term jobs.

Apple continues to push states and localities to offer tax breaks. In 2015, Arizona, hoping to attract a future Apple project, extended credits and exemptions for renewable energy and sales tax exemptions on electricity or natural gas to the company's data center in Mesa.[74]

Amazon Web Services

Amazon operates its data centers through a subsidiary, Vadata Inc. Though secretive about its data centers, Amazon has been unabashed about looking for locations that offer the most in subsidies. For example, Amazon's two data centers in Oregon's Morrow and Umatilla Counties benefit from property tax exemptions through local Enterprise Zones. Since the beginning of its operations in Oregon, Amazon has benefited from $11 million in property tax exemptions;[75] in FY 2015, the savings were $5.4 million for the Morrow location and $3 million for the Umatilla location. The annual average employment in 2014 at the first location was 81 and only seven at the second data center. [76]

In Ohio, Amazon is getting subsidies of about $100 million for its three data centers located in Dublin, Hilliard and New Albany, Columbus suburbs. The state subsidies came as 15-year, 100-percent sales tax exemptions and 15-year, 75-percent state income tax credits, valued jointly at $81 million. Dublin offered free land valued at $6.8 million and a 10-year $500,000 performance-based grant. Hilliard provided the company with a 15-year 100 percent property tax abatement estimated at $5.4 million over the period. New Albany also offered 100 percent tax abatements for 15 years, which value has not been estimated.[77]

CONCLUSION

High tech companies must have data centers; they are essential to their business plans enabling Americans' increasingly online way of life. Yet despite their new technology, the tech giants have learned well the old economy's "war among the states," "race to the bottom," "prisoners' dilemma" game of playing places against each other. Compounding the problem are the companies' fame and the slow, long painful recovery from the Great Recession, which has made public officials more anxious than usual to appear aggressive on jobs. This situation has led to overspending on data centers and excessive subsidy-per-job price tags, like the North Carolina's $6.4 million per job subsidy for Apple.

Data centers create very few permanent jobs, so one of the biggest benefits that a community can hope for is a stronger tax base. But that benefit fails to materialize when the major taxes such as sales, utility and property levies are abated. Few jobs and meager taxes leave communities like Maiden, North Carolina standing alone at the economic development altar.

Localities hope that after tax breaks expire, data centers will provide tax-base benefits to their communities. But that is an untested belief. What is the life cycle of a data center? Might not companies demand a renewal of their tax breaks as they re-equip data centers? We at Good Jobs First have seen many examples of companies threatening to relocate if new subsidies are not offered to older facilities. With the tech world's notoriously short product life cycles, there is no guarantee that data centers will stay around for two or three decades.

There is also a larger question that local officials should start to ask. Companies like Google, Microsoft, Apple and Facebook generate billions of dollars in profits and have enormous cash hoards. They have everything they need to run their businesses: access to capital and markets, strong customer bases, and some of the smartest people on earth who create new technologies for future corporate growth. So why should communities use their limited financial resources to subsidize such self-sufficient companies to build something the companies must have?

POLICY RECOMMENDATIONS

Some of the policy recommendations we suggest here are reiterations of points we have advocated for more than 18 years. Others are specific to data centers.

Program and Deal Transparency

At every stage of the process, state and local policy makers should embrace transparency and fully disclose online to the public the projected dollar value of all subsidies data centers are being offered as well as how much they actually receive over time.

Good Jobs First believes that even though states that currently fail to report their aggregate revenue losses on data center exemptions may have to start reporting those losses under Governmental Accounting Standards Board Statement No. 77 on Tax Abatement Disclosures, this does not free them from providing good quality subsidy data on a project-specific basis. The same should apply to local governments for aggregate property tax abatement revenue costs, even to school districts that lose revenue passively. It should also absolutely apply to utility tax exemptions and/or power-rate discounts so that other ratepayers can see how much electricity or water is not being taxed or how much it is being discounted—and therefore how much of a burden shift is being placed upon them.

The identity of recipient companies should not be hidden while subsidies are being debated and voted upon. Parent-company names should be known not only to policy makers but also to the general public. This will help reduce over-spending and encourage policy makers and economic development officials to be more prudent in allocating limited public dollars.

Cap Subsidies at $50,000 per job

We recommend that states cap the total value of state and local subsidies to data centers at $50,000 per permanent job. As we detailed in a recent study, this would be consistent with two longstanding federal-program caps, and it would far exceed caps in place in at least 19 individual state programs.[78] Only by capping subsidies at this level or below can taxpayers reasonably expect to ever break even. Especially at the local level, such a cap would reduce the percentage and duration of property tax abatements so that localities can enjoy at least some of the tax-base benefit of a data center during its life cycle.

Know When to Fold 'Em

Finally, our main message to state and local officials: you should be absolutely stingy in dealing with a possible data center siting. Internet-based companies *have to* grow the cloud and they will choose stable areas with cheap electricity. They will barely benefit your local economies because they create so few jobs and often import top-wage labor. If tech corporations also demand $2 million per job in subsidies, taxpayers will incur huge losses. No private party would agree to a bargain with such high costs and such low benefits and you would be wise to refuse such demands.

Appendix A: States with Data Center Subsidy Programs.

State	Year established	Program	Cost	Cost Year	Program Details
Alabama[79]	2012	Statutory property and sales and use tax abatements and exemptions and income tax credit	not available	not available	Sales and use tax abatements and exemptions; property tax abatements and exemptions; and income tax credits and deductions for data processing, hosting, and related services. Companies must create 20 jobs and pay $40,000 wage, including benefits; subsidy can last for up to 30 years if $400 million is invested.
Arizona[80]	2013	Transaction Privilege Tax (TPT) and Use Tax exemptions	$1,700,000	FY 2015	State, county and local transaction privilege tax and use tax exemptions on qualifying purchases of data center equipment. Companies must invest between $25 and $50 million, depending of the project location.
Georgia[81]	2005	Computer Hardware and Software for High Technology Companies	$42,000,000	FY 2013	Sales tax exemption for equipment when a company spends $15 million in year.
Indiana[82]	2012	Local property tax exemption for data centers	not available	not available	Data center can receive property tax exemption when company invests $10 million and pays 125 percent above average county wage.
Iowa[83]	2009	Special sales tax refund for data centers. Special sales tax exemption for data centers. Property tax exemption for data center businesses	not available	not available	Fifty to 100 percent refund on sales and use tax on electricity and equipment. Full exemption from property tax on equipment. Depending on project type, a company must invest between $1 million and $200 million.
Kentucky[84]	2009	Tax refunds for data centers	As of 2016, no companies used the program.		Sales tax refund on purchases and operation of certain communications and computer systems. Data centers have to invest at least $100 million in equipment.
Michigan[85]	2016	Data center exemption	$11,000,000	FY 2015	Sales and use tax exemption on data center equipment. There are no requirement for individual data centers but the industry must create 400 jobs by 2022 and 1,000 jobs by 2026.
Minnesota[86]	2011	Data Center Sales Tax incentives	$8,700,000	FY 2016	20-year sales tax exemptions on computers and servers, cooling and energy equipment, energy use and software. Data centers also pay no personal property tax. Data centers must invest $50 million in two years.
Mississippi[87]	2011	Sales and Use Tax Exemption for Data Center Enterprises	not available	not available	Sales and use tax exemption on computer equipment and software. Data center must invest $50 million, create 50 jobs, and pay 150 percent of the average state wage.
Missouri[88]	2010	Data Center Sales Tax Exemption Program	not available	not available	State and local sales and use tax exemptions. Depending on a type of a project (now or expansion), data center must create five to 10 jobs that pay 150 percent of average county wage and must invest between $5 million to $25 million.

State	Year established	Program	Cost	Cost Year	Program Details
Nebraska[89]	2010	Nebraska Advantage Package, special provisions for data centers	not available	not available	A tier system in which companies receive sales tax refunds based on capital purchases or on tangible personal property. Data centers are also eligible for personal property tax exemptions. Program requires between $3 million and $200 million to be invested and at least 30 jobs must be created.
Nevada[90]	2013	Data Center Tax Abatement	$55,781 (property tax abetment only)	FY 2016	Partial abatement of personal property taxes and sales and use taxes for up 10 years if a company creates 10 jobs and invests $25 million or for 20 years if a company creates 50 jobs and invests $100 million.
New York[91]	2000	Sales and Use Tax Exemptions for Operators of Internet Data Centers (Web Hosting)	$14,000,000	FY 2016	State and local sales and compensating use tax exemption on certain personal property and services. No minimum investment is specified.
North Carolina[92]	2006	Three Data Centers Sales & Use Tax Exemptions	$16,500,000	FY 2017	Three sales and use tax exemptions for purchase of electricity, equipment, business property and computer software. A company must invest $75 million or $250 million, depending which exemption is used. No job creation is required. Program encourages investment in "less prosperous areas."
North Dakota[93]	2015	Sales and use tax exemption for enterprise information technology equipment and computer software used in a qualified data center	"minimal usage"		Sales tax exemptions on equipment and software. There is no minimum investment requited but a data center must be at least 16,000 sq. ft.
Ohio[94]	2011	The Data Center Sales Tax Exemption	Minimal, below $1 million	FY 16	Partial or full sales tax exemption on equipment. Data center has to invest 4100 million and have $1.5 million annual payroll.
Oklahoma[95]	1993	Computer Services and Data Processing Sale Tax Exemption	not available	not available	Sales tax exemption on machinery and equipment for data centers that have 80 percent of revenue coming from out of state.
Oregon[96]	1986	Enterprise Zone	$33,700,000	FY 2015	Even though it is not a data center specific program, data centers have extensively used it. Program provides five or 15-year property tax abatements. Oregon does not collect sales tax.
South Carolina[97]	2012	Data Center Materials	not available	not available	Sales and use tax exemption on electricity, computer equipment, hardware and software. Data center must invest between $50 and $75 million and create 25 jobs that pay 150 of average state or county wage. Jobs need to be preserved for three years.
Tennessee[98]	2007	Sales and Use Tax Exemptions for Data Centers	not available	not available	Sales tax exemption for certain hardware and software purchases. Data centers have to invest minimum of $100 million and create 15 jobs that pay 150 percent of the state's average occupational wage. Sales tax on electricity is also lowered from 7 percent to 1.5 percent.
Texas[99]	2013	Data Center Exemptions	$11,000,000	FY 2011	Full exemption on sales tax for computers, equipment, cooling systems, power infrastructure, electricity and fuel. Data centers must invest $200 million and create 20 jobs that pay 120 percent of average county wage.

State	Year established	Program	Cost	Cost Year	Program Details
Utah[100]	2010	Web Search Portal Sales Tax Exemption	$80,000	FY 2015	Sales and use tax exemption on certain equipment. No investment or job creation is specified.
Virginia[101]	2009	Sales and Use Tax Exemption for Data Centers	not available	not available	Sales and use tax for computer equipment. Data centers must invest $150 million and create 50 jobs that pay 150 percent of prevailing wage in a locality.
Washington[102]	2010	Tax Exemptions Extended for Certain Purchases by Eligible Data Centers and Their Tenants	$57,400,000	FY 2016	Sales and use tax exemptions on purchase of equipment and power infrastructure. Data center must be located in a rural county and have at least 100,000 square feet.
West Virginia[103]	2009	High Technology Valuation Act	$170,000 (property tax reductions only)	2015	95 percent reduction in personal property taxes and full exemption from sales tax on equipment, construction materials, and software/hardware. There are no specific investment or job creation requirements.
Wyoming[104]	2010	Managed Data Center Cost Reduction Grant Program. Data Center Sales Tax Exemption	$15 million (appropriation for the grant program.) $13.6 million (sales tax exemptions.)	FY 2014 (sales tax exemptions)	The state offers grants to reimburse data centers for cost of power or broadband infrastructure. Grant amounts are based on the amount of investment. Sales tax emption on certain equipment if data centers invest a total of $7 million and $2 million annually. Sales tax exemption on additional equipment if a company invests a total of $50 million and $2 million annually.

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