

ECONOMIC IMPACT OF DATA CENTERS ON CENTRAL WASHINGTON

BRIEFLY

World class industries have located in Central Washington, providing stable, diversified employment and expanded tax bases for local governments. The data center industry is among the notable additions to Central Washington's resurgent economy.

Data centers have benefitted Central Washington in several ways. They stabilize and expand the region's tax base, generate millions of dollars in construction spending, and provide family wage jobs. Increased tax revenues are evident not only in smaller cities like Quincy, but countywide in Grant and Douglas counties.

Data centers also give communities in Central Washington a key advantage in the quest for technology-based economic development. Men and women trained to work in data centers provide a talent base that other industries will find attractive. With industrial diversification taking root in the region, data centers add to the base of industries that will complement the region's still-strong agricultural and food processing sectors.

In 2010, the Washington Research Council released "The Economic Contributions of Data Centers in North Central Washington." In that report we identified the positive economic impact new data center development was having on Grant, Chelan and Douglas Counties. The investments made by major data center operations, including Microsoft and Yahoo, buttressed these communities even through the depths of the recession.

In this update to our earlier work, we again find substantial positive economic effects. As the industry has grown, as more activity migrates to the "cloud," these centers take on an even larger role in communications and technology. Correspondingly, the competition among the states for the tremendous capital investment, highly compensated employment, and spillover economic benefits has intensified. North Central Washington enjoys an incumbent advantage and is positioned well for attracting additional investment, assuming it can maintain its advantages in energy and land costs.

Big Buildings in a Growing Industry

The term "cloud" computing suggests something more ethereal than the reality. Rather than floating in the sky, the cloud exists in thousands of individual servers, most of which are located in data centers around the country. Data centers vary widely in size and purpose. At the low end are centers in urban settings that may be as small as 10,000 or 20,000 square feet and have a single user. At the high end are centers, predominantly located in rural areas, that may have 500,000 square feet of enclosed space. (For some perspective, a typical big box retail store will have about 100,000 square feet of space.) Most data centers fall into one of two categories.

First are those centers owned by large businesses such as Microsoft, Yahoo, Amazon, Google and Facebook, used initially to host the company's web-based services. These firms are increasingly selling space on their servers, in the form of cloud services, to other businesses that do not want to own and maintain their own data centers. Consumers have also gotten access to a large

amount of on-line storage for their personal use.

Second are those data centers built by developers who do not, themselves, offer any services, but rather provide space to other businesses. These data centers act as utilities, providing infrastructure to other users, with some centers having a single tenant and others having multiple tenants. Sabey Data Centers, based in Tukwila, has become a national player in this business. Vantage Data Centers, based in Santa Clara, California, also has a Washington presence.

Free-standing data centers consist of large buildings with row upon row of server racks connected by miles of wiring. But the servers themselves are just the beginning. In order to ensure efficient and fail-safe operations, data centers must have robust climate controls and uninterruptible power supply systems that ensure continuous operations in the event of problems with the power grid. And to ensure the integrity of facilities, data centers are often built on large parcels with highly sophisticated security systems. These measures protect the vital flow and privacy of information that society has come to rely upon for daily life, commerce, and mobile device usage.

The amount of data flowing through the internet has been increasing at a phenomenal rate, and data centers have followed that growth trend. They first began to emerge as large real estate opera-

tions during the first dot-com boom, when new internet firms were springing up daily, each with major data storage and website hosting needs. The industry took a breather after the dot-com bust, but picked up again as more and more services moved to the internet. The public's seemingly insatiable demand for data transmission and storage—e-mail, text, streaming audio and video, social networking, search, cloud storage of photo collections, cloud and mobile applications—indicates that data center expansion will continue unabated.

Data Centers and the Central Washington Economy

Washington state is home to a large and growing data center industry. Sabey Data Centers developed early centers in Tukwila, and both proprietary and shared use centers have been built in Central Washington to take advantage of competitively priced land and electric power.

Development of Data Centers in Central Washington. Drawing on news stories and other published sources, Table 1 shows existing data centers in Central Washington. With the exception of the initial Yahoo data center that occupies a floor in the Confluence Center in Wenatchee and Sabey's Intergate.Columbia center in East Wenatchee, all the data centers are in Grant County. The Grant County Public Utility District has offered these centers reliable, competitively priced power, and the area has ample available data transmission capacity. Several of the data centers are being built in phases over the next several years.

So far, data center development in Central Washington has totaled over 2.5 million square feet, or the equivalent space of 25 big box retail stores, and nearly 2 million square feet of that space is within the city of Quincy. According to Data Center Knowledge,

Quincy has become home to two of the world's most advanced data centers. Both Microsoft and Yahoo have

Table 1: Data Centers in Central Washington

Firm	Location	Year Opened	Square Feet
Yahoo	Wenatchee, Chelan Co.	2006	45,000
Titan/Ask.com	Moses Lake, Grant Co.	2006	--
Microsoft	Quincy, Grant Co.	2007	500,000
Yahoo	Quincy, Grant Co.	2007	180,000
Intergate.Columbia	East Wenatchee, Douglas Co.	2009	430,000
Intuit	Quincy, Grant Co.	2009	240,000
Red Sea TITAN	Moses Lake, Grant Co.	2009	60,000
Microsoft Expansion	Quincy, Grant Co.	2011	144,000
Yahoo Expansion	Quincy, Grant Co.	2011	151,000
Dell	Quincy, Grant Co.	2012	350,000
Sabey Intergate	Quincy, Grant Co.	2012	134,000
Vantage Data Center	Quincy, Grant Co.	2013	133,000

deployed cutting edge designs featuring pre-fabricated components and using fresh air for cooling, placing them among the most efficient facilities in the industry. (Verge 2013)

The economy of Central Washington has grown dramatically in the past two decades, and data centers have been an important part of the diversification that has led to sustainable growth. Central Washington had experienced population stagnation in the 1960s and 1970s, as agricultural processes became more efficient and less labor intensive. The area began to grow again in the 1980s and 1990s, as industries discovered the advantages of Central Washington's attractive quality of life.

Data centers are the most recent addition to the industrial diversification of Central Washington. As seen in Table 1,

these centers began to take off around 2006, with several years of growth. That growth was accelerated by passage in 2010 of a state sales tax exemption for the hardware used in data centers. That incentive expired in 2011, shifting data center construction to other states that also have competitively priced land and power. The tax exemption was restored in 2012, returning Washington's competitiveness for data center location.

Table 2 shows ten-year trends for several economic indicators that track growth and change in Central Washington from before the data centers cluster emerged, until 2011 (the latest year for which full data is available).

Population and employment. The population of the four-county area increased nearly 15 percent over the ten-year period. Kittitas County experienced the

Table 2: Income, Population and Employment

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Population										
Chelan	67,400	67,507	68,013	68,963	69,895	70,773	71,799	72,185	72,453	72,700
Douglas	32,871	33,545	33,944	34,466	35,505	36,340	37,238	38,036	38,431	38,650
Grant	76,942	77,493	78,979	80,121	81,792	83,729	85,983	87,721	89,120	90,100
Kittitas	34,507	35,474	36,773	37,660	38,175	39,134	40,142	40,710	40,915	41,300
Employment										
Chelan	33,890	35,058	36,409	38,535	39,710	39,987	40,547	40,220	39,254	39,748
Douglas	8,988	9,150	9,772	10,321	10,287	10,759	10,904	11,079	10,910	10,839
Grant	31,803	31,331	31,807	32,044	32,425	33,133	35,133	34,521	33,962	34,642
Kittitas	12,402	12,447	12,494	12,621	13,096	13,827	13,966	13,300	13,384	13,467
Personal Income (millions)										
Chelan	\$1,822	\$1,926	\$2,011	\$2,074	\$2,223	\$2,403	\$2,711	\$2,606	\$2,637	\$2,764
Douglas	\$745	\$780	\$817	\$843	\$912	\$999	\$1,136	\$1,101	\$1,126	\$1,189
Grant	\$1,726	\$1,828	\$1,898	\$1,920	\$2,027	\$2,268	\$2,602	\$2,579	\$2,645	\$2,829
Kittitas	\$858	\$884	\$927	\$973	\$1,073	\$1,188	\$1,307	\$1,258	\$1,314	\$1,375
Per Capita Personal Income										
Chelan	\$27,305	\$28,670	\$29,620	\$30,163	\$31,963	\$34,217	\$38,279	\$36,356	\$36,250	\$37,619
Douglas	\$22,539	\$23,307	\$23,981	\$24,340	\$25,650	\$27,367	\$30,524	\$29,019	\$29,185	\$30,500
Grant	\$22,434	\$23,453	\$24,109	\$24,138	\$25,016	\$27,439	\$30,630	\$29,524	\$29,483	\$30,999
Kittitas	\$24,526	\$24,743	\$25,097	\$25,909	\$27,731	\$30,348	\$32,654	\$31,095	\$32,010	\$33,031

Sources: Personal income and per capital personal income, U.S. Bureau of Economic Analysis; Population, Washington State Office of Financial Management; Employment, Washington State Department of Employment Security

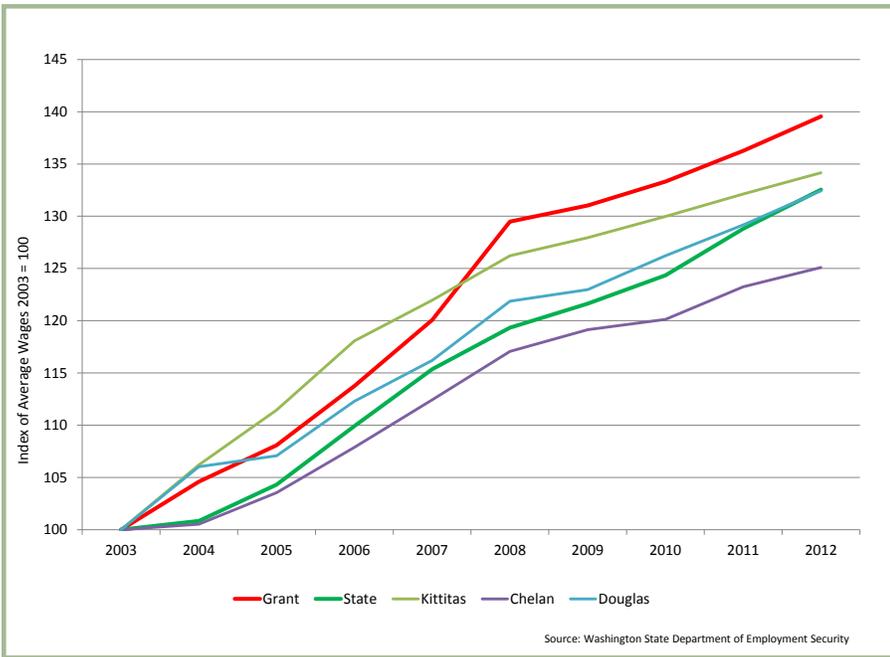


Chart 1: Average Wage Growth

highest level of growth, at 19 percent, with Grant and Douglas Counties both growing about 17 percent. But in the most recent five years, when data centers began to be developed, Grant County grew over 10 percent, while the four-county area grew less than 8 percent.

The employment picture is somewhat different. During the ten-year period, total jobs in the four-county area grew 13 percent, with the highest growth in Douglas and Chelan counties. But in the most recent five years, growth slowed dramatically in Chelan and Kittitas counties. In contrast, employment in Grant County grew nearly 7 percent over the four-year period 2007 to 2011. Jobs in Grant County surged as the first data centers were under construction and coming on line in the 2007–2008 timeframe, dipped slightly in 2009 and 2010, but came back in 2011 as new data center projects emerged.

Personal income and wages. Table 2 shows personal income that came into the counties each year, both in total and on a per capita basis. Total personal income (which includes wages, investment income and transfer payments) into the four-county area grew an astonishing 58 percent over the ten-year period, and grew 38 percent on a per-capita basis.

Grant County led the way on both measures, with total personal income growing 64 percent and per capita personal income growing over 38 percent. Grant County’s lead in income growth is even more dramatic in the more recent five-year period, during which time total income in the county grew nearly 40 percent and per capita personal income grew 24 percent.

While personal income is a good measure of the spending power in a community and the services it can support, the health of the job base is measured by average wages. Chart 1 shows an index of average wages for the four counties as well as the state, beginning in 2003. The indexing sets the wage rates in the various regions of the state at a common base, 100, allowing a clear comparison of change over time. Looking at Grant County, for example, we see that between 2003 and 2008 the average wage increased 30 percent. Another way looking at it is to translate the index to dollars. If the average wage had been \$100 in 2003, by 2008 it had grown to \$130, while the statewide average increased to just \$120.

The impact of data centers shows up in the 2006–2007 timeframe as Grant County’s average wages increased more sharply than the state or the other Central Washington counties. Table 3 shows actual wages paid during this time. Over the ten year period, average wages in the state increased 33 percent while wages increased 40 percent in Grant County. In 2003, the average worker in Grant County earned 63 percent of the state average wage, and this had grown to 67 percent by 2012.

Employment Impact of Data Centers. The long term employment impacts of data centers (as opposed to the short term impacts generated by construction and one-time government expenditures) fall into several categories.

First are the direct jobs associated with data center operations. This includes employees of the data centers themselves as well as employees of tenants of

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Chelan	\$26,902	\$27,045	\$27,856	\$29,022	\$30,244	\$31,493	\$32,051	\$32,316	\$33,154	\$33,655
Douglas	\$22,906	\$24,288	\$24,527	\$25,721	\$26,615	\$27,915	\$28,169	\$28,912	\$29,587	\$30,335
Grant	\$24,678	\$25,812	\$26,674	\$28,071	\$29,633	\$31,955	\$32,337	\$32,899	\$33,625	\$34,439
Kittitas	\$24,702	\$26,231	\$27,532	\$29,164	\$30,128	\$31,180	\$31,607	\$32,105	\$32,638	\$33,141
Statewide	\$39,021	\$39,351	\$40,705	\$42,888	\$45,016	\$46,562	\$47,465	\$48,520	\$50,257	\$51,718

Source: Washington State Department of Employment Security

Table 3: Average Annual Wage

multi-tenant centers. Data centers do not typically disclose the employment at their facilities, but the 2007 Annual Report of the Grant County Economic Development Council (EDC) estimated that the early centers each created between 30 and 50 direct jobs. Conservatively estimating that the twelve data centers identified in Table 1 (including expansions) each created 40 direct jobs, we estimate at least 480 direct data center jobs are located at the centers.

Second are the indirect jobs created in the economy as a result of data center operations. This includes purchased services such as landscaping, maintenance and security, and, of great significance, purchase of electric power and water. Third are the induced jobs created through employee spending at stores, restaurants, healthcare providers, etc., as

well as jobs created by governments due to increased demand for services such as schools.

Depending on operational decisions, data centers are estimated to have a multiplier of from 2.0 to 3.54. (A multiplier of 2.0 means that for every direct job created at a data center an additional job is created elsewhere in the local economy.) The 2007 EDC report estimates that data centers have an employment multiplier of 3.54, meaning that for every direct job created at a data center, an additional 2.54 indirect and induced jobs are created elsewhere in the local economy.

Applying the range of multipliers to the 480 direct jobs identified above, we estimate the total employment—direct, indirect and induced—resulting from data center operations is from 960 to 1,700.

It should be noted that the significant increase in tax revenues brought to the City of Quincy, as discussed below, has allowed the city to increase employment and services well beyond what would be expected through normal demand increases.

Housing and construction. Data centers have added a stabilizing force to the economy of Central Washington. Chart 2 shows the trends in median home prices in the four-county area and statewide. Note that home prices in Grant County increased at a slightly slower pace than the state prior to construction of data centers, but leveled off in 2007 while prices elsewhere took a major dip. Data centers arrived just in time to allow Grant County to escape the housing

Chart 2: Median Home Prices

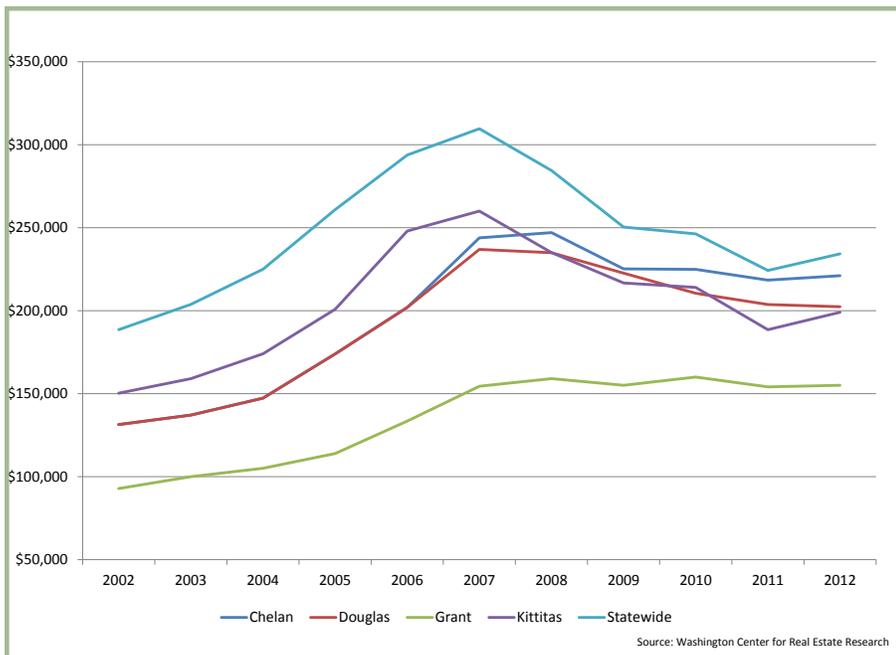
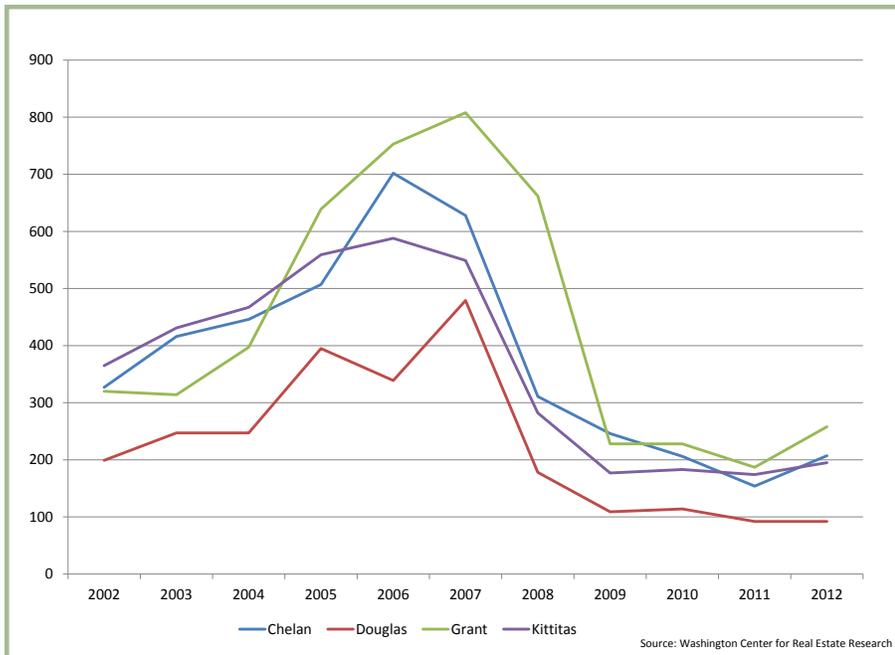


Chart 3: Residential Building Permits Issued Per Year



price collapse that afflicted other counties in Central Washington as well as most of the rest of the state.

But even with the more level home price trend, Grant County did not escape the downturn in construction that hit the rest of the state and nation. Chart 3 shows the annual residential building permits issued in each of the Central Washington counties. In the housing boom years of 2004 to 2007, jurisdictions in Grant County saw a steeper increase in permit activity than the other counties saw. New economic activity generated by data centers likely kept construction going longer in Grant county than in Chelan and Kittitas, which saw homebuilding peak a year earlier. However, beginning in 2008, Grant County experienced a more dramatic decline than the other counties, and began to pull out of that decline in 2012.

Housing growth has been far more dramatic within the city of Quincy, where most of the data centers have located. Quincy grew from 1,650 housing units in 2004 to 2,071 in 2012, for a 25 percent increase.

As residential construction fell dramatically in the mid-2000s, construction employment also fell significantly in most areas of the state. The economic downturn resulted in a fall in commercial construction in most areas, and civil construction, buoyed by stimulus spending, did not make up for job losses elsewhere in the sector. In Central Washington, construction employment fell, but not as far as might be expected from looking at the housing permitting data.

Chart 4 shows construction employment in the four counties from 2003 to 2012. The build-up for housing construction is evident from 2003 to 2007. After housing fell off, total construction employment in the four-county area fell 43 percent, but fell only 9 percent in Grant County, as data center construction got underway just about the same time that housing construction fell. Of course, heavy commercial construction of data centers is different from residential con-

Chart 4: Construction Employment

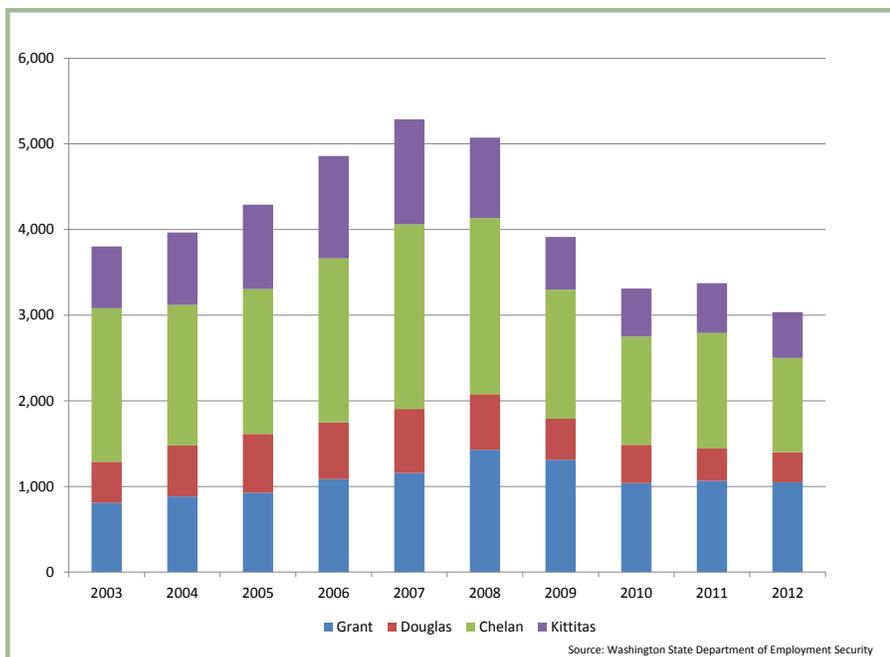


Chart 5: Taxable Sales Growth

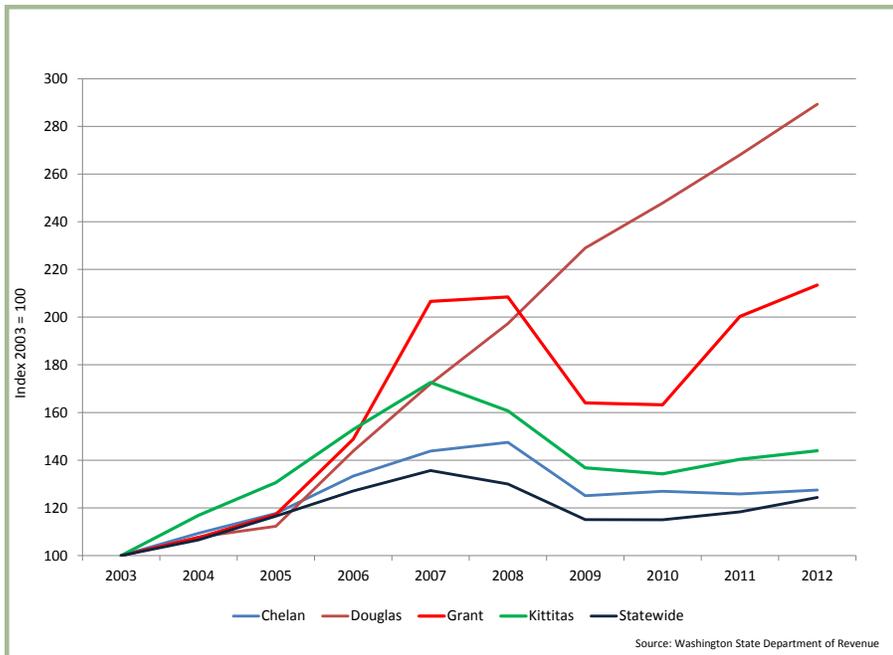
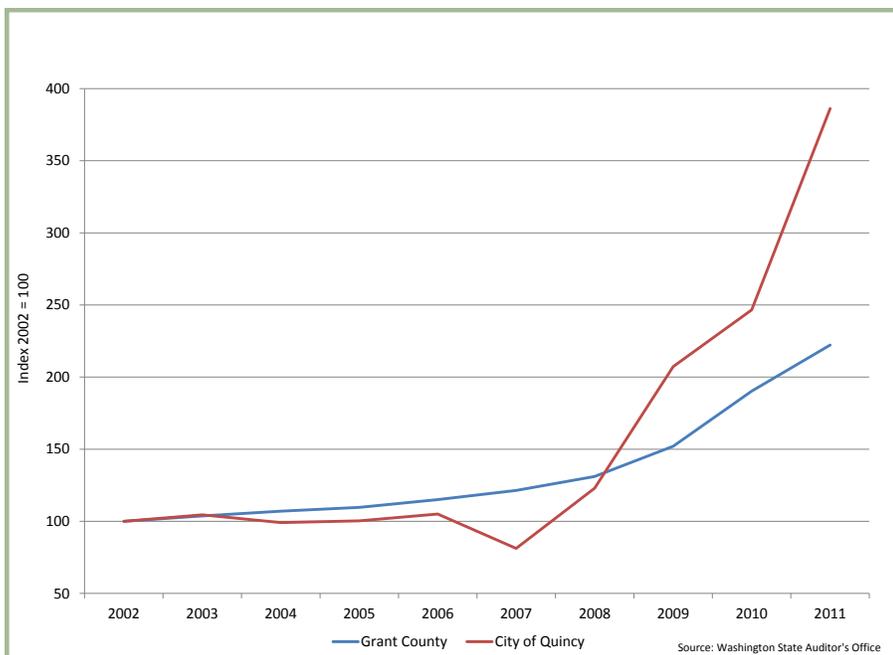


Chart 6: Growth in Property Tax Collections



struction, so not all of the homebuilding workforce could find employment building data centers, but many of the specific trades would fit the labor needs of the data center contractors.

Impact of Data Centers on Local Government

The impact of data center construction and operation shows up most clearly in tax revenues. Even with tax preferences afforded to data center construction, sales and use tax collections rose significantly as a result of data center development. And once the data centers are complete, they appear on local tax rolls and result in large increases in property taxes collected by local governments.

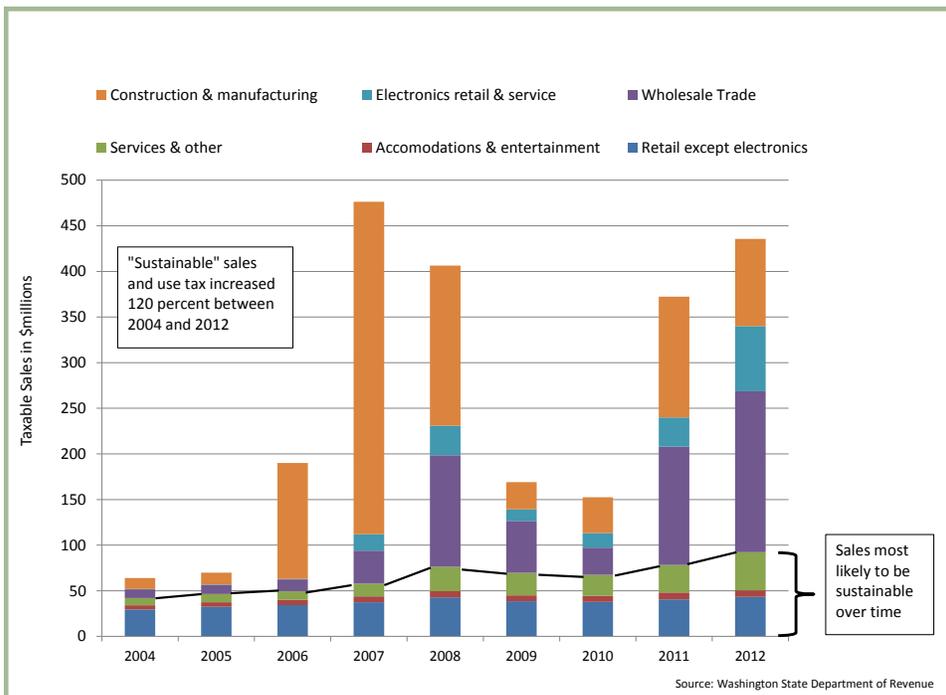
Sales tax impacts. Chart 5 shows the growth in taxable sales in the four counties of Central Washington and statewide, from 2003 to 2012. All counties followed the general pattern of the state until 2006, then, the two counties with data centers, Grant and Douglas, experienced an acceleration in taxable sales. The vast majority of this growth came from taxable construction, and the majority of that taxable construction consisted of data centers. When the first wave of data center construction in Grant County wound up in 2008, taxable sales dipped, and recovered when the next wave of data center construction began in 2010 and 2011. In Douglas County, which started from a much smaller base of taxable sales (about one fourth of Grant County) a combination of data center construction and new retail businesses has kept taxable sales rising consistently to nearly triple the 2003 level.

Property tax impacts. Data centers have also had a significant impact on property taxes. Chart 6 shows the countywide property tax levy collection for Grant County and the city collection for the City of Quincy from 2002 to 2011. Under Washington's property tax system, a jurisdiction can only collect 1 percent more each year from its existing tax base, so the only way to grow collections more than 1 percent is to add new-

ly-built properties to the tax base. Grant County had, as seen in Chart 3, experienced significant home construction prior to 2007, so property taxes were already on the upswing when data centers came onto the county tax rolls in 2008. Grant County added about \$125 million to its property tax rolls in 2006, \$462 million in 2008, when the first data centers came online, and \$1.5 billion in 2010.

The impact was even more dramatic in the city of Quincy, with its population of 7,000. In 2006, Quincy had a total assessed value of about \$260 million. By the time Intuit opened its data center in 2009, Quincy's tax rolls had grown to over \$1 billion. And bear in mind that this increase in the total assessed total assessed value of all commercial and residential properties occurred at a time when residential values across the state were falling. Quincy achieved the dramatic revenue growth seen in Chart 6 even after lowering its levy rate from \$3.14 per \$1,000 in 2007 to \$2.40 per \$1,000 in 2012, reducing property taxes on a home worth \$150,000 by approximately \$111.00 per year at a time of rapidly expanding service provision by the local government.

Chart 7: Taxable Sales in City of Quincy



Near-term and long term tax revenue streams. The very different shapes of the curves for Grant County in charts 5 and 6 point to the two different kinds of tax benefits that data centers bring. Initial construction of data centers results in a spike in sales tax, both from the construction itself, and from the spending by construction workers in the local economy. Once the data centers come online, property taxes and spending by the facility itself and its employees provide a more sustainable flow of new revenue.

While real and personal property tax revenues may flatten as data center projects are completed, revenue will generally continue to grow. With personal property taxes, paid on servers, the assessed value of the assets will decrease annually as the assets age. But every time the assets are replaced, the new assets come on the rolls at a higher value than the depreciated value of the retired assets.

Sales tax revenue will peak during the construction cycle, but ongoing purchases of taxable items by the data centers will cause sales tax revenues to stabilize at a higher level than before the centers began operations. The presence of the data centers, then, establishes a new, higher and sustainable baseline for retail sales tax collections. Chart 7 shows an estimate, for the city of Quincy, of those taxable sales that would be attributable to one-time construction spending and those that might be sustainable over time. For each column, the bottom three bars—retail, accommodations and entertainment, services—reflect ongoing activity by residents and businesses in the city, while the top three bars—construction & manufacturing, wholesaling, electronics sales and service—are most likely tied to one-time projects.

The City of Quincy has taken advantage of both the short term and long term revenue streams. According to Quincy Mayor Jim Hemberry, the city was able to, among other things, build a new library, undertake much needed street improvements and update its vehicle fleet

with the one-time sales tax revenues. On an ongoing basis, according to Hemberry, the city has begun new recreation programs, expanded its police department and taken over local ambulance services. Hemberry noted that the original vision for the data center effort was to “invest the new revenues back into the community.” Port of Quincy Commissioner Brian Kuest noted that other local jurisdictions, including the Port, school district and hospital district, also benefit from the increased property tax base.

Quincy’s success in attracting data centers was not accidental. The Port of Quincy, recognizing its natural advantages, aggressively added fiber optic capacity to the city to complement its available land base, water supply and, importantly, competitively priced power. Now, according to Commissioner Kuest, Quincy “has the most competitive package of land cost, power cost and water availability of any potential data center site in the nation.” Quincy worked to streamline its permitting process such that one data center representative indicated that Quincy was the easiest city they had worked with anywhere in the country.

Comment

Observers of Washington’s economy in the 1980s referred to the “Two Washingtons,” noting that while the Puget Sound region was doing well, most of the rest of the state was not. In the past 20 years many areas of the state have undergone economic transformations, none more so than Central Washington. While the agricultural and food processing sectors are still large and very strong, new, world class industries have located in Central Washington, providing stable, diversified employment and renewed tax bases for local governments. The data center industry is the latest addition to Central Washington’s resurgent economy.

The arrival of the data center industry has benefitted Central Washington in several ways. In addition to providing family wage

jobs over the long term, the centers have provided welcome improvements in the fiscal situation for local governments. In the short term, sales tax revenue from construction has provided millions of dollars for one-time expenditures on infrastructure and public facilities. Then, once the centers are in operation, property and sales taxes generated by the centers themselves, as well as the data center employees’ sales and residential property taxes, provide a long term increase in revenues. These increased revenues are evident not only in smaller cities like Quincy, but countywide in Grant and Douglas Counties.

Data centers also give communities in Central Washington a toehold in the larger quest for technology-based economic development. The pool of individuals who are trained to work in data centers provides a start in developing a talent base that other industries will find attractive. With industrial diversification taking root in Wenatchee, Moses Lake and elsewhere, data centers add to the base of industries that will complement the region’s still-strong agricultural and food processing sectors to provide direct and far reaching benefits to the entire citizenry of Central Washington.

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