

Utah's Water-dependent Economy

July 2014

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Water is an essential element of both economic stability and economic development.¹ The combination of historic drought conditions² and continued population growth in the southwestern United States³ has made water an increasingly scarce commodity. Western states have acknowledged that their existing water allocations are insufficient to ensure long-run economic stability and are taking determined measures to protect, procure, extend and maximize their respective water resources.⁴

Ensuring the reliability of existing water resources and developing additional water resources both have important economic implications for the state of Utah. The recently prepared Roadmap of Utah's Future Water Development and Infrastructure suggests the state will need 749,000 acre feet of water to meet the demand of new growth through 2060.⁵ Including both the cost of repair and replacement of the state's existing water systems as well as development of new water supplies and the infrastructure necessary to deliver water when and where it is needed, the estimated water infrastructure cost is more than \$32.7 billion.⁶

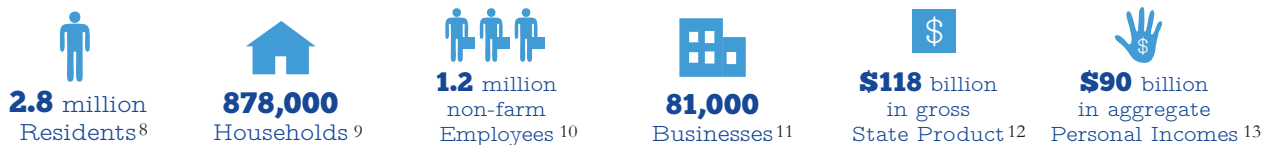
“Our state will need more than **\$32 Billion** for new water demand and existing facility repair & replacement costs **through 2060.**”

Utah Water Basin	New Water Demand (Acre-feet per year)	Cost of Supply and Infrastructure (\$ Millions)	Cost of Repair and Replacement (\$ Millions)	Combined Cost (\$ Millions)
Bear River Basin	43,000	\$534.2	\$418.4	\$952.6
Cedar/Beaver Basin	24,000	\$611.7	\$83.6	\$695.3
Jordan River Basin	152,000	\$2,892.0	\$5,792.5	\$8,684.5
Kanab Creek/Virgin River Basin	143,000	\$3,758.0	\$1,417.1	\$5,175.1
Southeast Colorado River Basin	1,000	\$41.9	\$88.1	\$130.0
Sevier River Basin	10,000	\$598.9	\$510.9	\$1,109.8
Uintah Basin	4,000	\$769.5	\$560.2	\$1,329.7
Utah Lake Basin	214,000	\$2,434.2	\$5,195.8	\$7,630.0
Weber River Basin	128,000	\$2,719.3	\$3,716.9	\$6,436.2
West Colorado River Basin	2,000	\$146.9	\$97.5	\$244.4
West Desert Basin	<u>28,000</u>	<u>\$291.7</u>	<u>\$59.9</u>	<u>\$351.6</u>
State of Utah Total	749,000	\$14,798.3	\$17,940.9	\$32,739.2

Table 1. Estimated Water Systems Cost for the State of Utah Through 2060

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This cost is significant, however, in determining its relative economic impact it must be contrasted against the jobs, labor income and economic output benefits associated with such a public investment. The Utah Division of Water Resources reports that in 2010 (latest data available) the state diverted 952,000 acre feet of water for municipal and industrial uses.⁷ During that same year, the state reported:



The vast majority of both this consumer and supplier economic activity would not exist but for Utah's existing water infrastructure.¹⁴ Notably, 55 percent of the projected water system cost for the state of Utah relates to the cost of repair and replacement of existing infrastructure through 2060 (see Table 1).

“ Thus, if one conservatively assumes **Zero Growth** the state would spend **\$17.9 Billion** on maintaining existing water infrastructure to protect **\$5.4 Trillion** in economic activity, an expenditure level of approximately one third of one percent of gross output.¹⁵ ”

The following economic impacts also demonstrate that Utah's economy and its residents will greatly benefit from new water resource development. They also further underscore the potential opportunity cost associated with failing to ensure a reliable, safe and sufficient water system for the state. Notably, this analysis is not intended to suggest that the cost of repairing and replacing existing water infrastructure is solely to protect current residents and businesses while the cost of developing new water resources and its associated infrastructure is designed to facilitate future growth.¹⁶ In reality, the maintenance of existing infrastructure is necessary to ensure water can be delivered to both existing and new consumers as the state's water infrastructure master plan is complex and highly interdependent. At the same time, the development of new water resources is needed to ensure reliability for the state's existing residents and businesses as drought and other factors affect the total yield from existing water allocations.

Assuming for the sake of simplification that Utah would yield roughly the same amount of economic activity from every new acre foot of water as it does from each current acre foot of water, economic impacts would be material, including the support of 930,000 new jobs, \$93 billion in incremental economic output and \$71 billion additional in personal incomes.¹⁷ In reality, efficiencies gained through conservation measures and offsets resulting from less productive existing resources will affect these ratios; however, absent sufficient

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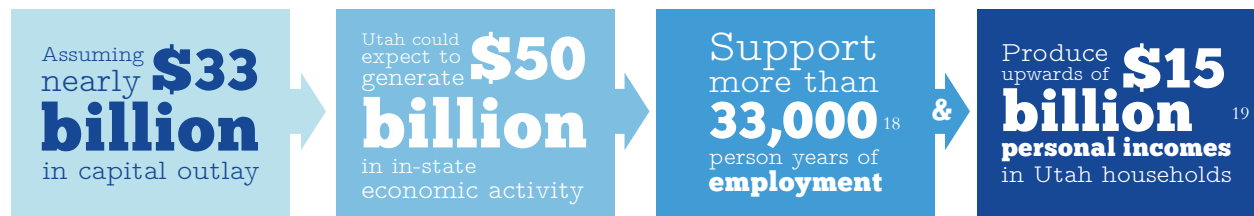
and reliable water resources it is highly unlikely that Utah's full economic potential would ever be reached. Table 2 provides a summary of this potential, or the opportunity cost should the state fail to act.

Table 2. Economic Value of Existing and New Water Resources

	Current Condition		With Incremental Supply	
	Total	Per Acre Foot	Net New	Total
Population	2,763,885	2.90	2,174,527	4,938,412
Households	877,692	0.92	690,537	1,568,229
Employment	1,182,500	1.24	930,349	2,112,849
Businesses	80,951	0.1	63,689	144,640
Gross State Product [†]	\$118,225	\$124,186	\$93,015	\$211,240
Personal Incomes [†]	\$90,112	\$94,655	\$70,897	\$161,009
Wages and Salaries [†]	\$49,502	\$51,998	\$38,946	\$88,448

[†] Values other than per acre foot values reported in millions of dollars.

Also worth considering are the one-time economic impacts associated with water infrastructure development projects:



Utah's growth appears imminent, but its long-run economic vitality is put at risk by environmental and water resource demand factors that threaten to create a perilous supply-demand imbalance. The majority of the state remains in a drought condition, with significant areas in the southwest and northwest regions experiencing severe drought conditions.²⁰ At the same time:

Utah remains among the most prolific economies in the United States.
Utah ranks atop the nation in term of population growth²¹, employment growth²² and personal income growth.²³

Utah is among the nation's lowest states in terms of unemployment.²⁴
Notably, Utah also routinely ranks among the best places to live and work in the United States.²⁵

Growth is likely to continue. Whether relying on projections generated by the Utah Governor's Office of Planning & Budget²⁶ or other respected demographic data providers,²⁷ Utah's population is anticipated to grow at above-average levels well into the future. This will inevitably put increased pressure on the state's existing water infrastructure and require the state of Utah to aggressively maximize the utility of its current water resources while, at the same time, diligently developing available water allocations.

“ **Communities with reliable, safe and sufficient water supplies will thrive.** ”

Simply put, communities with reliable, safe and sufficient water supplies will thrive, while those who have failed to plan, prepare and invest will put both their current economic base as well as their future prospects at risk. Utah's long history as a leader in progressive water policies and its efforts to protect the state's economy and population are critically dependent on steps taken today to ensure water resource stability for the next 50 years and beyond.

- 1 Note that the Western Governors' Association Policy Resolution 2014-03 states, "The scarce nature of water in the West makes it a crucial resource for the communities, industries, habitats, and farms it supports. Clean, reliable water supplies are essential to maintain and improve quality of life."
- 2 See, e.g., United States Department of Agriculture, Disaster and Drought Information available at http://www.usda.gov/wps/portal/usda/usdahome?navid=DISASTER_ASSISTANCE; March 16, 2014; see also, Anderson, M., and Woosley, L., Jr., Water availability for the Western United States--Key scientific challenges, U.S. Geological Survey Circular 1261, 85 p. (2005).
- 3 See, e.g., Benetsky, M., 2007-2011 County-to-County Migration Flows, U.S. Census Bureau Journey to Work and Migration Statistics Branch Social, Economic, and Housing Statistics Division. Working Paper No. 2014 -036 (2014). (Noting, a large net influx of movers to the southwest)
- 4 See, e.g., Fort, D. and Nelson, B., Pipe Dreams: Water Supply Pipeline Projects in the West, Natural Resources Defense Council (June 2012); see also, Nagourney, A. and Lovett, I., Severe Drought Has U.S. West Fearing Worst, The New York Times; February 1, 2014 noting ("The deteriorating situation would likely mean imposing mandatory water conservation measures on homeowners and businesses, who have already been asked to voluntarily reduce their water use by 20 percent.")
- 5 Prepared for Governor Gary R. Herbert by the Utah Division of Water Resources, the state's conservancy districts, the Bear River Association of Governments and the Governor Gary R. Herbert.
- 6 Id.
- 7 Utah Division of Water Resources, Municipal and Industrial Water Use in Utah. December 29, 2010. (Noting, currently water users in Utah divert, about 4,200,000 acre-feet of fresh water each year (af/yr) for agricultural purposes and about 952,000 af/yr for M&I purposes, totaling 5,152,000 af/yr.)
- 8 United States Census Bureau, mid-year population estimate.
- 9 United States Census Bureau, Profile of General Population and Housing Characteristics: 2010 . Available at: http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=DEC_10_DP_DPDP1. Accessed March 11, 2014.
- 10 United States Department of Labor, Bureau of Labor Statistics. State and Area Employment, Hours, and Earnings. Series ID#: SMU4900000000000001. Available at: <http://data.bls.gov/cgi-bin/dsrv>. Accessed: March 16, 2014.
- 11 Id at Quarterly Census of Employment and Wages. Available at: <http://www.bls.gov/cew/>. Accessed: March 16, 2014.
- 12 United States Department of Commerce, Bureau of Economic Analysis, Gross Domestic Product by State (millions of current dollars). Available at: www.bea.gov. Accessed: March 18, 2014.
- 13 Id. at State Economic Profiles.
- 14 Note also, respecting the limitation in statewide water delivery data, it is worth noting here that employment, output and incomes have all increased considerably since 2010.
- 15 Calculation conservatively assumes that Utah total gross product of \$118 billion in 2010 would be realized between the 46-year period between 2014 and 2060. This translates into \$5.4 trillion in economic activity (i.e., \$118 billion times 46 years equals \$5.438 trillion). Dividing the estimated cost of water system repair and replacement of \$17.91 billion by this aggregate economic output figure equates to 0.330 percent.
- 16 Note, e.g., that the Western Governors' Association Policy Resolution 2014-03 states: "Many communities in the West anticipate challenges in meeting future water demands. Supplies are nearly fully allocated in many basins across the West, and increased demand from population growth, economic development, and extreme weather and fire events places added stress on those limited water resources. Sustainability of our natural resources, specifically water, is imperative to the foundations upon which the West was developed. Growth and development can only continue upon our recognition of continued state stewardship of our unique resources and corresponding responsibilities."
- 17 Calculation based on existing utility of water resources multiplied by incremental acre feet of water as set forth in the Roadmap of Utah's Future Water Development and Infrastructure. See note 13.
- 18 A person year of employment is defined as one person working fulltime for one year.
- 19 Applied Analysis using the Minnesota IMPLAN Group's economic input-output model.
- 20 Luebehen, E., United States Drought Monitor, U.S. Department of Agriculture. Available at: <http://droughtmonitor.unl.edu/Home/StateDroughtMonitor.aspx?U>; March 18, 2014; see also, DeMille, D., Southern Utah's drought conditions persist, The Spectrum; March 18, 2014 (Noting, "With water managers from across the state in St. George for the annual Utah Water Users Workshop, much of the discussion was about the statewide challenges ahead for what is simultaneously one of the driest and one of the fastest-growing states in the nation. But for some in Southern Utah, drought conditions are causing more immediate concerns.")
- 21 U.S. Census Bureau, Population Division, Annual Estimates of the Population for the United States, Regions, States, and Puerto Rico: April 1, 2010 to July 1, 2013 (NST-EST2013-01). (Reporting that the state of Utah's population increased by 1.61 percent between 2012 and 2013, the third highest rate in the United States (including Washington, D.C.).
- 22 See, U.S. Bureau of Labor Statistics, Regional and State Employment and Unemployment Summaries, 2013 and 2014.
- 23 U.S. Department of Commerce, Bureau of Economic Analysis. Table SA1-3 Personal income summary. March 2014. (Data indicates that Utah's incomes increased by 5.2 percent between 2011 and 2012 (latest data available) placing the state number sixth nationally in terms of personal income growth during that period.)
- 24 See, U.S. Bureau of Labor Statistics, Regional and State Employment and Unemployment Summaries, 2013 and 2014.
- 25 See, e.g., Forbes® lists of Best Places for Business and Careers (ranking Provo, Utah #2 and Ogden, Utah #16 in 2013); Best Places for Raising a Family (ranking Provo, Utah #3 and Ogden, Utah #8) and Best States for Business (placing Utah #3 nationally and noting, "Last year's No. 1 state, Utah, falls from the top spot for the first time since 2009 and ranks No. 3 overall. The state still has a very pro-business climate and companies benefit from energy costs that are 29% below the national average.)
- 26 See, Governor's Office of Planning & Budget 2012 Baseline Projections available at <http://governor.utah.gov/DEA/projections.html>; March 2014. (Noting an expectation that the state of Utah's population will reach 5.97 million by 2060. This translates into a growth rate of 115 percent between 2010 and 2060, twice the rate expected in the same report for the United States overall (53.8 percent).
- 27 See, e.g., University of Virginia, Weldon Center for Public Service, National and State Population Projections; August 2014. (Estimating that Utah's population will increase by 43.8 percent between 2010 and 2040, making it the fourth fastest growing state in America during that period).