

Environmental Health

Utah Citizens' Counsel Environmental Health Committee

Article 2. All Utahns, young and old, have the right to live and thrive in a healthy environment that includes clean air, land, and water, and share in the responsibility to pass that healthy environment on to succeeding generations.

Introduction

As was the case last year, we again focus on air quality and water issues. Air quality has been “moderately” polluted all summer because of hot, dry weather. Lack of rain and high temperatures have also decreased water levels in Utah Lake and the Great Salt Lake, as well as leading to a spate of toxic algae blooms in local lakes. Although a number of positive steps were taken by Utah policymakers during the past year, several air quality and water bills passed by the 2016 Legislature represent antiquated mindsets that threaten the environment, quality of life, and economy of our state.

Context: Air Quality

National and international events need to be considered in charting paths and policies in Utah. The UN Framework Convention on Climate Change dealing with curbing greenhouse gas emissions has been ratified by enough countries, including China and the U.S., to go into effect by November 4, 2016.^{1,2} The EPA has proposed the Clean Power Plan to curb emissions from coal-fired electric stations. Utah and 23 other states have blocked implementation of the plan pending judicial appeals.³ In contrast to Utah, California has pledged to get 50% of its energy from renewables by 2030.⁴ In this spirit, Oakland, California has put a halt to the expansion of the Oakland Coal Export terminal. These events have a direct impact on Utah’s attempt to contribute \$51,000,000 to partially fund such an expansion of coal exports.⁵ Money allocated for the coal port in Oakland would be better used if it were distributed to counties impacted by the reduction in coal and oil production to help train displaced workers for the new energy economy.

The 2016 legislative session ended on a mixed note as far as reducing air pollution. Rebates for the purchase of electric and other low emitting vehicles were extended and have helped increase electric vehicle sales⁶ The Legislature has proposed extending the rebates through 2017. Ultra Low NOX water heaters will be required for sale after June 2018. Building codes to reduce building emissions and increase efficiency were modestly revised but were far from meeting the 2015 International Energy Conservation Code.⁷ In particular, HB121, Building Code Amendments, failed to pass in the last session and need to be introduced again in 2017. Tier 3 fuels from Utah refineries are still far away.⁸ More pressure needs to be placed on refiners and car dealers to transition to Tier 3 fuels and cars.⁹ Car dealers in Utah must make plug-in electrics widely available and train their salesmen about the importance of low pollution vehicles. Our recommendation on moderating urban speed limits to 60 mph has not been met. Reduction of the state’s high speed limits would not only reduce fuel consumption and air pollution but also reduce death and injury rates.^{10,11} The crash data analysis in the Appendix shows a very significant increase of crashes (15%) and fatalities (21%) in 2015 above those recorded in the previous five years.

Commendations: Air Quality

- **The bi-partisan Utah Legislature’s Clean Air Caucus efforts to promote cleaner air in Utah**
- **Salt Lake City’s new Sustainability Department.** It intends to achieve zero emissions in all new city buildings and has installed solar PV systems in many buildings. Its website has excellent information on air quality efforts, sustainability, and reduction of greenhouse emissions.¹²
- **The Utah Clean Air coalition (UCAIR) for its efforts to educate and promote activities to clean up Utah’s air.** It has several grant programs for innovation of technology to promote clean air.¹³
- **Breathe Utah, Heal Utah, Sierra Club, and Physicians for a Healthy Environment** for their continued work to promote a healthy environment for all Utahns.
- **Rooftop solar bill HB244,** which allows for solar lease by a Power Purchase Agreement. Several corporations, such as Vivint and Solar City, offer such leases.
- **Rocky Mountain Power’s promotion of solar power with its Subscriber Solar Program.**¹⁴
- **Passage of HB 237, which creates a Clean Air Fund.** Its revenues come from a voluntary tax contribution on Utah tax returns. The contributed money will be used for grants to individuals and for education to promote clean air.¹⁵
- **The Academic Senate of the University of Utah for its vote to reinvest endowment funds,** currently invested in fossil fuel companies, in renewable energy sources.¹⁶

Recommendations: Air Quality

- **The Legislature should institute a modest tax on fossil fuels and significantly expand incentives for solar and wind energy.**
- **Tier 3 fuels and more low-polluting tier 3 cars need to be made available in Utah as in California and many other states.**
- **The Legislature needs to fund more air monitor stations and improved sensors for the Department of Air Quality (DAQ).**
- **The State building code standards need to be upgraded to improve energy efficiency and reduction of fossil fuels.**
- **UCC urges Utah to reduce and enforce speed limits in urban areas.**

- **The Legislature needs to fund more charging stations for plug-in electric vehicles.**
- **Utah needs to actively promote renewable energy and reduce reliance on fossil fuels.**

Context: Water Availability

We remain steadfast in the opinion that future demand for municipal water can be met easily through conservation and incorporation of agricultural water as farmland is developed by municipalities rather than through investment in major new water projects. For years now, managers of Utah's municipal water (some water conservancy districts and the Division of Water Resources) have warned that demand for water will surpass the currently developed supply in about 25 years, limiting population growth and economic development. The solution, they argue, is investment in major new water projects such as the Bear River Development Project and the Lake Powell Pipeline. We believe these water projects will not be necessary, will cost taxpayers far more than the water is worth,¹⁷ will contribute to the gradual draining of the Great Salt Lake,¹⁸ jeopardizing one of the western hemisphere's most important stopovers for migrating birds, as well as the winter snowpack in the central Wasatch Mountains, and will result in economic and ecological damage to the Lower Colorado River Basin.

With one of the highest per capita domestic water use in the nation, Utah has extraordinary potential for conservation.¹⁹ Actual wasteful use of municipal water is largely a consequence of taxpayers subsidizing water. Consequently, individuals do not see the true cost of water use in their monthly bill, giving them little incentive to conserve. Contributing to the low incentive to conserve are flat pricing structures in which homeowners with the highest rates of use pay only slightly more than homeowners with low usage.²⁰

Let's look at current water allocation. Agriculture consumes by far the most water in Utah-- 82% of total use.²¹ Indoor residential use represents only 2.8%, whereas outdoor residential water use, primarily lawn watering, accounts for 7.1%. These numbers indicate that if our population were to double in the next 50 years,²² our indoor water needs would climb by only 2.8% of our current total water use. This increase could be met by simply restricting total outdoor residential water use to 61% of the current very high rate..

Added to the potential for conservation is the increase in municipal water supply that can occur when farmlands are developed.²³ As cities grow, some farmland is generally sold and developed, allowing transfer of water rights previously used for agriculture to municipal use. For example, the Utah Division of Water Resources has estimated that 100,000 acre-feet of water in the Utah Lake Basin, 95,000 acre-feet in the Weber River Basin, and 25,000 acre-feet in the Jordan River Basin will be available for transfer from agricultural to municipal use.

In 2015, the Office of the Legislative Auditor General questioned the Utah Division of Water Resources' projections that Utah's statewide demand for water will surpass the currently developed supply in a few decades.²⁴ The Auditor General found that the Division's projections for the future were flawed because (1) they were based on unreliable local water use data, (2) the potential of modest and practical conservation policies was not considered, and (3) they ignored the projected growth in municipal water supply that will come from agriculture water that is converted to municipal use as farmland is developed. Nevertheless, the DWR's projections were

used during the 2016 legislative session to justify passage of the Infrastructure Funding Amendments, Senate Bill 80.²⁵ This bill allocates funding for future projects such as the Bear River Development Project and Lake Powell Pipeline by diverting sales tax revenues originally slated for transportation. We fear passage of SB 80 reflects the lobbying efforts of those who would benefit financially from the big water projects rather than the welfare of the state's citizens.

Summarizing, what is at stake in future water availability is not the state's capacity for future growth but wetland habitats throughout Utah, including the Great Salt Lake, the Bear River Migratory Bird Refuge, and water to habitats and users in the Lower Colorado River Basin. Available data indicate that future demand for water can easily be met through conservation and transfer of agricultural water as farmlands are developed.

Harmful blooms of cyanobacteria are increasing in frequency and intensity worldwide and represent a serious threat to the ecological integrity, ecological services, and safe use of Utah's lakes and marshes.²⁶ These blooms result from increases of nutrients in the water, usually elevated nitrogen and phosphorus from agricultural field runoff. Additionally, warming from climate change enhances the initiation, magnitude, duration, and geographic range of cyanobacteria blooms. Thus, the dramatic algal blooms along the Wasatch Front during this past summer represent a warning to be taken seriously.

Commendations: Water Availability

- **The Utah Rivers Council and Friends of Great Salt Lake for their continuing efforts** to educate and inform citizens about water issues facing our state.
- **The Office of the Legislative Auditor General for its 2015 water use report** and ongoing efforts to evaluate the quality of water use data available for future planning
- **Dr. Wayne Wurtsbaugh of Utah State University and colleagues for their white paper** on the impacts of water development on the Great Salt Lake.²²

Recommendations: Water Availability

- **To avoid conflicts of interest, managers of water districts should not be members of state boards and advisory teams.**
- **To encourage conservation, the price of municipal water should reflect its actual cost.** Subsidizing water supply with property taxes must be phased out.²³
- **To encourage conservation, municipalities should institute block rate pricing structures** in which the price of water increases with the rate of use.
- **To reduce the impact of future algal blooms, Utah needs to set nutrient input reduction standards** for agricultural runoff into streams and rivers, institute conservation policies that reduce runoff from agricultural fields, and make protecting the ecosystems of our lakes a rallying cry for efforts by the State to reverse anthropogenic climate change.

Appendix

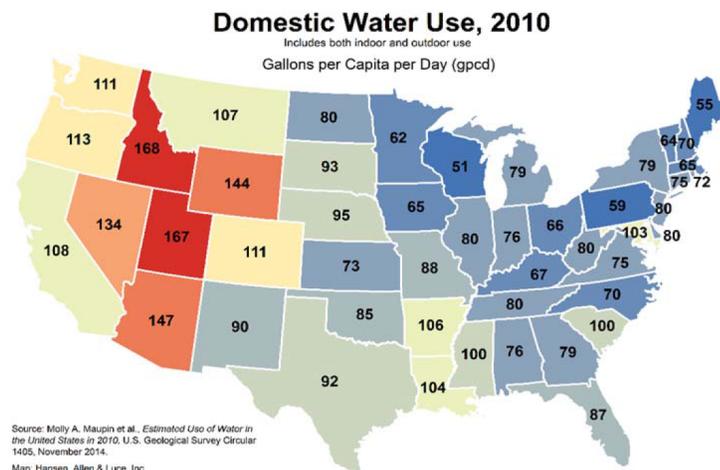
Vehicle Crash Data

Analysis of Utah vehicle crash data from 2010 to 2015 shows a 15% increase in car crashes in 2015 from the average of the five previous years. The urban speed limit was increased in December 2014. The data obtained from the Utah government report at the website <http://highwaysafety.utah.gov/crash-data/utah-crash-summaries/> (2015 appendix) is shown in the Table below. Total crashes (last column) before 2015, averaged over the five previous years, were 52,386 with a standard deviation of 2530. Total crashes in 2015, the first year after the urban speed limit was raised to 70 mph, amounted to 60,012-- an increase of 7626 or 14.6% over the five-year average and a very significant three standard deviations above average. Note also that fatal crashes increased by 21% over the average for the previous five years. The data for 2016 are not yet available. If these data show an equally significant increase in crashes and fatalities, it may give additional incentive to reduce and enforce speed limits.

Year	Property only crashes	Injury Crashes	Fatal Crashes	Total Crashes
2010	34,155	14,995	218	49,368
2011	36,418	15,645	224	52,287
2012	34,635	15,765	200	50,600
2013	39,301	16,134	202	55,637
2014	37,388	16,426	222	54,036
Average 5 yr	36,379	15,793	213.2	52,386
Standard dev	2,094	542	11	2,530
2015	42,089	17,665	258	60,012
2015 increase	5,710	1,872	45	7,626
multipl stdd	2.73	3.45	3.94	3.01
2015 % increase	15.69	11.85	21.01	14.56

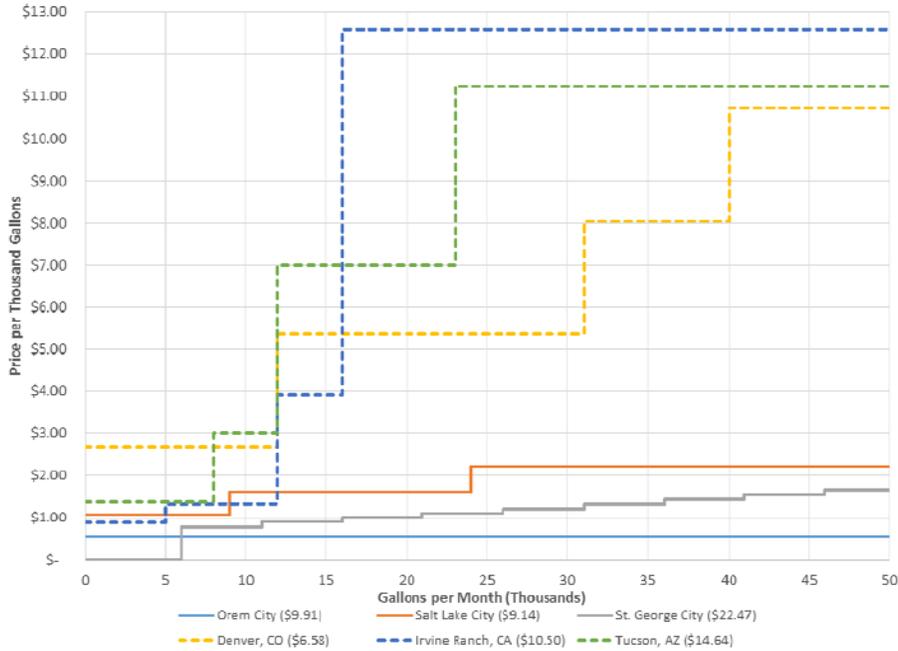
Water Use and Pricing in Utah

National data compiled in 2010 indicate that Utah has one of the highest rates of residential water consumption in the country.²⁷ Given that Utah is also the second driest state in the country, policymakers should focus on ways to incentivize more efficient use.



As described earlier, existing pricing policy for municipal water in most Utah cities does not encourage efficient water use. First, the use of property tax to subsidize the cost of water reduces customer incentive to be conservative. Second, the relatively flat pricing structure that characterizes most Utah municipalities provides no incentive to use water efficiently. As shown in Figure 2, many western cities outside Utah use block rate structures that charge consumers an increasingly higher price as consumption increases.²⁸

Figure 2. Comparison of City Water Rate Structures. A selected group of Utah Cities are shown to have flatter block rate structures when compared to those of other major western cities. More pronounced block rates tend to encourage conservation.



Source: City Water Departments.

Endnotes for Article 2 (Environmental Health)

- ¹ “Paris Agreement - Status of Ratification,” *United Nations Framework Convention on Climate Change*, accessed November 30, 2016, http://unfccc.int/paris_agreement/items/9444.php. On October 5, 2016, the threshold for entry into force of the Paris Agreement was achieved. As of November 30, 115 parties to the convention had ratified the agreement. The UN Paris agreement went into force on November 4, 2016.
- ² “Paris Agreement,” accessed October 12, 2016, https://en.wikipedia.org/wiki/Paris_Agreement. This lists the conditions for the agreement, the signatories, and ratifying nations.
- ³ “Clean Power Plan for Existing Power Plants,” *U.S. Environmental Protection Agency*, accessed October 12, 2016, <https://www.epa.gov/cleanpowerplan/clean-power-plan-existing-power-plants>. On February 9, 2016, the Supreme Court stayed implementation of the Clean Power Plan pending further judicial review.
- ⁴ Samantha Page, “California Governor Signs Ambitious Renewable Energy Bill into Law,” *Think Progress*, October 7, 2015, accessed October 30, 2016, <https://thinkprogress.org/california-governor-signs-ambitious-renewable-energy-bill-into-law-255adbb6a378#.2qyac95xm>. This bill mandates that state-regulated electric utilities obtain 50% of their energy from renewables by 2030. Also it requires a 50% increase in energy efficiency in buildings by 2030.
- ⁵ Robert Gehrke, “New Bill Would Have Utah Taxpayers Invest \$51 Million in California Coal Port,” *Salt Lake Tribune*, February 29, 2016, accessed October 30, 2016, <http://www.sltrib.com/home/3599136-155/new-bill-would-have-utah-taxpayers> . . .
- ⁶ “Alternative Fuel and Fuel-Efficient Vehicle Tax Credit,” *U.S. Department of Energy, Alternative Fuels Data Center*, accessed October 30, 2016, <http://www.afdc.energy.gov/laws/4758>. Through 2017, new electric, natural gas, and propane vehicles registered in Utah are eligible for an income tax credit of 35% of the vehicle purchase price, up to \$1,500. Plug-in hybrid electric vehicles (PHEVs) will be eligible for a tax credit of \$1,000. Leased electric, natural gas, and propane vehicles are eligible for a tax credit on a prorated basis up to \$1,500. Leased plug-in hybrid electric vehicles will be eligible for a prorated tax credit up to \$1,000. For additional information, including eligible vehicles and restrictions, see the *Utah Department of Environmental Quality* website, accessed November 30, 2016, <http://www.deq.utah.gov/ProgramsServices/programs/air/cleanfuels/taxcredits/taxcreditsintro.htm>. See also House Bill 87(2016), <http://le.utah.gov/~2016/bills/static/HB0087.html>, and Utah Code 19-1-406, 59-7-605, and 59-10-1009.
- ⁷ “2015 International Energy Conservation Code,” *International Code Council*, accessed October 14, 2016, <http://codes.iccsafe.org/app/book/toc/2015/I-Codes/2015%20IECC%20HTML/index.html>.
- ⁸ Brian Maffly, “Environmental Leaders: Tier 3 Fuels Still a Long Way Away,” *Salt Lake Tribune*, February 17, 2016, accessed October 14, 2016, <http://www.sltrib.com/news/1710714-155/sulfur-tier-iii-refineries-lake-salt> . . .
- ⁹ “What You Need to Know About Tier 3,” *UCAIR*, accessed October 16, 2016, http://www.ucair.org/hot_topics/what-you-need-to-know-about-tier-3/.
- ¹⁰ Howie Garber, “UDOT Discounted Safety Data to Raise Speed Limits,” Op-Ed, *Salt Lake Tribune*, July 25, 2016, accessed October 30, 2016, <http://www.sltrib.com/opinion/4138179-155/op-ed-udot-discounted-safety-data-to...>
- ¹¹ “Standing Up for Utah’s Needs 2015,” *2015 Utah Citizen’s Counsel Report*, 16, accessed October 16, 2016, <http://www.utahcitizenscounsel.org/wp-content/uploads/2016/02/UCCAnnualReport2015.pdf>. This offers rationale for reducing speed limits. See also new data on vehicle crashes in Appendix of the present report.
- ¹² See the Salt Lake City website, SLCgreen, for the extensive sustainability efforts by the city, accessed October 16, 2016, <http://www.slcgreen.com>.
- ¹³ Utah Clean Air Coalition (UCAIR) is housed in the Utah State Department of Environmental Quality, accessed October 16, 2016, <http://www.ucair.org/>.
- ¹⁴ This website provides information for subscribing to their solar power system, accessed October 14, 2016, <https://www.rockymountainpower.net/subscriber>.
- ¹⁵ “Income Tax Contribution for Clean Air,” H.B. 237. This bill establishes a Clean Air Fund based on a voluntary tax contribution to promote better air in Utah, accessed October 30, 2016, <http://le.utah.gov/~2016/bills/static/hb0237.html>.

¹⁶ Brian Maffly, "University of Utah Faculty Vote to Dump Fossil Fuel Investments," *Salt Lake Tribune*, May 3, 2016, accessed October 16, 2016, <http://www.sltrib.com/news/3848394-155/university-of-utah-faculty-vote-to...>

¹⁷ Gail Blattenberger and Gabriel Lozada, Letter to Governor Gary Herbert from 19 university economics faculty stating their concerns that Utah taxpayers will ultimately be required to pay for 72% or more of the costs to build and maintain the Lake Powell Pipeline (2016), accessed October 23, 2016, <http://utahrivers.org/wp-content/uploads/2016/09/2016-Letter.pdf>.

¹⁸ Wayne Wurtsbaugh, et al, "Impacts of Water Development on the Great Salt Lake and the Wasatch Front," *Watershed Sciences Faculty Publications* (2016), accessed October 23, 2016, http://digitalcommons.usu.edu/wats_facpub/875/.

¹⁹ "A Performance Audit of Projections of Utah's Water Needs," *Office of the Legislative Auditor General*, 2015, accessed October 19, 2016, http://le.utah.gov/audit/15_01rpt.pdf.

²⁰ Ibid.

²¹ "How Utah Water Works: An Overview of Sources, Uses, Funding, and Pricing," *Office of Legislative Research and General Counsel*, 2012, accessed October 20, 2016, <http://le.utah.gov/interim/2012/pdf/00002706.pdf>.

²² "Population and Demographic Trends in Utah," *Office of Legislative Research and General Counsel*, May 2015, accessed October 20, 2016, <http://le.utah.gov/interim/2015/pdf/00002536.pdf>.

²³ "A Performance Audit."

²⁴ Ibid.

²⁵ "Infrastructure Funding Amendments," Senate Bill 80, 2016 General Session, accessed October 21, 2016, <http://le.utah.gov/~2016/bills/static/SB0080.html>. Also a news article by Don Gilman, "Adams' Bill Passes, Redirects Funds Towards Lake Powell Pipeline, Other Water, Education Projects," *St. George News*, March 11, 2016, accessed October 21, 2016, <http://www.stgeorgeutah.com/news/archive/2016/03/11/djg-adams-bill-aims-to-fund-lake-powell-pipeline-other-water-projects/#.WfqqdqvDq4Q>.

²⁶ Karl E. Havens and Hans W. Paerl, "Climate Change at a Crossroad for Control of Harmful Algal Blooms," *Environmental Science & Technology* 49 (2015), 12,605-06. J. M. O'Neil et al, "The Rise of Harmful Cyanobacteria Blooms: The Potential Roles of Eutrophication and Climate Change," *Harmful Algae* 14 (2012), 313-34. Hans W. Paerl and Jef Huisman, "Climate Change: A Catalyst for Global Expansion of Harmful Cyanobacterial Blooms," *Environmental Microbiology Reports* 1 (2009), 27-37. Hans W. Paerl et al, "Mitigating Cyanobacterial Harmful Algal Blooms in Aquatic Ecosystems Impacted by Climate Change and Anthropogenic Nutrients," *Harmful Algae* 54 (2016), 213-22.

²⁷ "A Performance Audit."

²⁸ Ibid.