



**Envision
Utah** How we grow matters.

Dear Governor Herbert, President Niederhauser, and Speaker Lockhart,

As you know, Utah's air quality is an issue that matters to everyone. Poor air quality during certain periods of the year ranks as Utahns' greatest concern about their quality of life, and it threatens not only our health but our economy as we seek to recruit and retain businesses and a high-quality workforce.

On October 15, Governor Herbert asked Envision Utah to convene and facilitate the Clean Air Action Team, which includes representatives from health care, business, nonprofit organizations, government, academia, transportation, and more. This independent Team was tasked with working to provide a set of broadly supported recommendations to improve our air quality.

The Team was asked to work throughout 2014, but Team members wished to make more immediate recommendations on high-priority items. These high-priority actions are projected to bring about a significant improvement and make a real difference. Additional recommendations will be studied throughout 2014 in order to reach consensus on a holistic set of recommendations that will make further improvements in our air quality.

We encourage policymakers, businesses, and individuals to study and implement the recommendations of the Clean Air Action Team.

Sincerely,

Robert Grow
President and CEO
Envision Utah
Team Facilitator

Lonnie Bullard
Chairman
Jacobsen Construction
Team Co-Chair

Michelle Hofmann, MD, MPH
Medical Director
Riverton Hospital's Children's Unit
Team Co-Chair





CLEAN AIR ACTION TEAM IMMEDIATE RECOMMENDATIONS

Executive Summary

The Clean Air Action Team recommends immediate action to reduce emissions from vehicles and wood burning. Specific actions are recommended now:

- Vehicles and fuel:
 - Bring cleaner vehicles and fuel to Utah as soon as possible. To the extent allowed by federal law, begin the federal processes to adopt cleaner vehicle and fuel standards so that the standards can be effective as soon as is legally and practically possible. This includes immediately beginning the federal waiver process for vehicle standards, which cannot be implemented until at least two years after the waiver process begins. These standards would require new cars to have fewer emissions and fuels sold in Utah to result in fewer emissions. If necessary under federal law, alternative means to bring clean vehicles and fuel to Utah may need to be explored.
 - Without delaying the process for adopting the cleaner vehicle and fuel standards, study (1) the impacts on fuel refiners and sellers to produce and distribute cleaner fuels in Utah and determine whether and what kind of measures, if any, might be needed to mitigate financial impacts; and (2) whether and what kind of incentives would be feasible and effective to encourage the sale and purchase of cleaner cars and prior to the effective date of the new vehicle standards.
 - Fund additional public education regarding the importance of purchasing a clean car in order to accelerate the change to cleaner cars in Utah.
- Wood burning:
 - Fund a program to replace wood burning stoves in those homes in our “nonattainment” airsheds currently registered as “sole source” with other heating sources, and rapidly phase out the “sole source” exemption to wood burning restrictions.
 - Increase enforcement of wood burning restrictions, simplify and widely share the methods for reporting violators, and quickly respond to reports of violations.
 - Trigger wood burning restrictions immediately once weather patterns suggest an inversion is starting.
 - Fund additional public education regarding wood burning.

Implementing cleaner vehicle and fuel standards and eliminating wood burning and could potentially cut fine particulate during our winter inversions by as much as 10–20% in the short term, and by even more over time as older cars are replaced by the newer, cleaner cars.

The Clean Air Action Team is continuing to evaluate additional strategies to clean Utah’s air, but these steps are recommended for immediate action due to the significance of their potential impact and because implementing cleaner vehicle standards requires action at least two years before the standards can be effective. More detailed discussion follows.



Vehicles and Fuel

Since vehicles make up the majority of local emissions, accounting for 57% overall (ahead of both area sources (32%) and industry sources (11%)), improvements in Utah's cars and fuel under "Tier 3" standards will greatly reduce the impact of vehicle emissions on the overall air quality. In fact, **it is likely that no other single feasible strategy would have a greater impact on our air quality.**

Tier 3 refers to an integrated system of vehicle and fuel standards that the EPA has proposed to replace the current Tier 2 standards nationwide. If adopted as proposed, the standards would be phased in from model year 2017 to model year 2025. Under the Clean Air Act, all states must abide by the EPA standards, except that California has the ability to adopt its own, more stringent standards. California has already adopted "LEV III" vehicle standards, as well as cleaner fuel standards, both very similar to the proposed Tier 3 regulations. Other states can also elect to implement the California vehicle standards rather than the federal standards, and there is some ability under the Clean Air Act for a state to adopt "boutique" fuel standards formulated for their particular air quality challenges.

With both the vehicles and fuel working together, the Tier 3 standards would reduce volatile organic compound (VOC) and nitrous oxide (NO_x) emissions by 80% on a fleet average basis and direct particulate emissions by 70% on a per vehicle basis. These reductions are achieved through improved vehicle emissions standards and by reducing the amount of sulfur in fuel from an average of 30 ppm to 10 ppm.

The greatest short-term benefit comes from lower-sulfur fuel, because using it would reduce emissions even in the cars we drive today. Tier 3 standards, if enacted, are projected to reduce total NO_x emissions by 8.2% and total VOC emissions by 2.8% in 2017, and as more people buy the cleaner cars, Tier 3 cars will provide an even greater benefit over time, resulting in reductions by 2030 of total NO_x emissions by 27.8% and total VOC emissions by 23.1% (Figures 1 and 2). Under Tier 3 standards, there is no place in the US that stands to benefit as much as Utah, with 7 counties projected to have the largest 24-hour fine particulate improvements in the US relative to all other US counties (Figure 3).

Tier 3 cars are projected to cost on average \$135 more than current Tier 2 cars. Tier 3 gasoline standards are estimated to increase the cost of gasoline anywhere from one cent to eight cents per gallon on a national basis. Under these estimated costs, the cost per ton of emissions reduced from implementing Tier 3 standards are \$6,072/ton in 2017 and \$4,484/ton in 2030. The actual cost to produce the cleaner fuels in Utah is unknown.

If Utah waits for the EPA to implement Tier 3, Utah may not see the full benefits of the new standards for many years, if ever. The EPA has proposed that Tier 3 be adopted for phase-in beginning in model year 2017. Utah's refineries would likely have several years to comply after the standards are adopted, and many may not actually produce or sell Tier 3 fuels in Utah. The EPA's proposed fuel standards include an averaging system that allows refiners and importers to spread out their investments, which means they would only need to meet a nationwide average to satisfy the fuel standards; if a large gasoline producer decides to produce cleaner fuel in another state, it may be able to average that out by producing fuel that is not as clean as Tier 3 in Utah.



If Utah were to adopt its own low-sulfur standards, fuel could not be averaged across the country to meet the standards, meaning that the fuel sold in Utah would need to meet the new, cleaner standards. It is also likely that Utah could adopt a more rapid phase-in schedule for the new standards.

Because of the uncertainties regarding the timing, phase-in, and exemptions of the proposed Tier 3 standards, it is recommended that Utah take action to bring cleaner cars and cleaner fuels to Utah as soon as possible. Utah needs to begin the process to adopt cleaner automobile and fuel standards now. Under federal law, the new vehicle standards could not go into effect sooner than two model years after the process is started, which means that if the state begins the process now, the earliest effective date would be model year 2017. Rather than risk a later effective date, it is recommended that the process, which requires a federal waiver, begin now by requesting that the Utah Air Quality Board adopt California vehicle standards as soon as possible. It is also recommended that lower sulfur vehicle standards be included in the State Implementation Plan to the extent permitted by federal law.

After beginning the approval process for the new standards with the EPA, it is recommended that an analysis be conducted of the costs to, and impact on, the refineries, fuel industry, and automobile dealers for this benefit they would be providing to the state by bringing cleaner cars and fuel to Utah. Other matters may also need to be investigated, such as whether there are certain parts of the state that receive fuel from locations that would necessitate an exemption from the fuel standards. If necessary, the new standards could be postponed or cancelled prior to their effective date.

In addition to the above recommendations, it is important to accelerate the sale and purchase of cleaner cars in Utah even sooner than model year 2017. These cars are already being manufactured and sold in the United States; a car with a smog rating of 8 or higher generally meets the California standards. (Smog ratings run from 1 to 10, with 10 being the cleanest. Smog ratings for all new cars are shown on the window stickers.) To encourage those who buy cars between now and 2017 to purchase cleaner cars, educational efforts are needed. The Governor's Office of Economic Development board has already allocated \$500,000 for an educational campaign this winter that will, among other things, include information about car smog ratings and the benefits of driving cleaner cars. Additional funding is needed to continue this campaign in summer 2014 and winter 2014–15, preferably in the amount of \$1–2 million.

Incentives are recommended for the purchase and sale of cars with higher smog ratings. It is recommended that various incentives be explored, such as sales tax, income tax, registration fee, and HOV lane incentives. Among the options evaluated should be incentives to trade in older cars with more emissions and replace them with cleaner cars. The most appropriate incentive must be implemented as soon as possible to minimize the number of cars with low smog ratings that are sold and put on the road in the short term.



Pre-Tier 3 vs. Tier 3 Emissions Reductions

	2017	2030
NO _x Reductions	8.2%	27.8%
Reduction from pre-Tier 3 fleet due to sulfur standard	93.1%	12.6%
Reduction from Tier 3 fleet due to vehicle and sulfur standards	6.9%	87.4%
VOC Reductions	2.8%	23.1%
Reduction from pre-Tier 3 fleet due to sulfur standard	88.3%	6.1%
Reduction from Tier 3 fleet due to vehicle and sulfur standards	11.7%	93.9%

Figure 1. Source: Utah Division of Air Quality

Tier 2 vs. Tier 3: NO_x and VOC

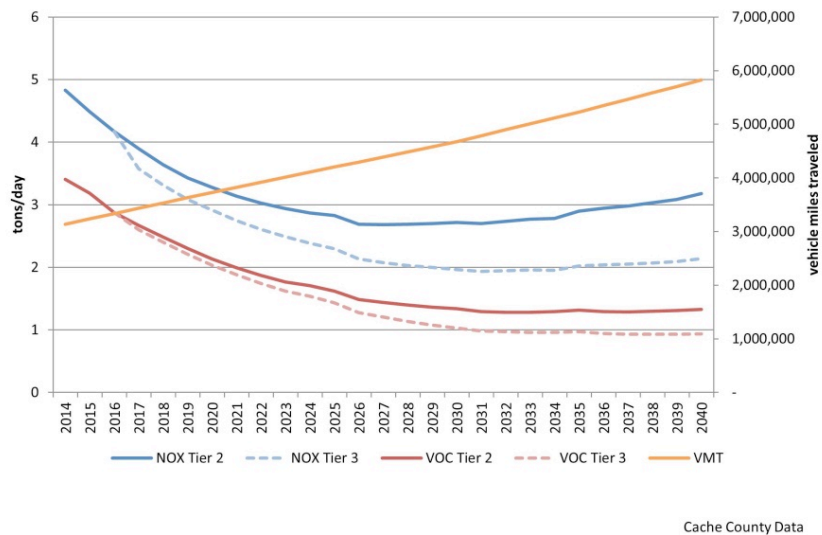


Figure 2. Source: Utah Division of Air Quality



Projected Change in 2030 24-hour PM_{2.5} Design Values from Tier 3

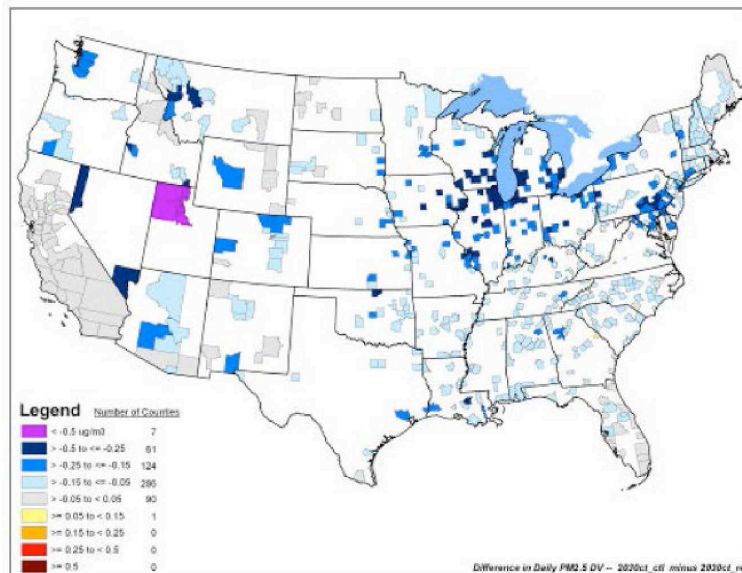


Figure 3. Source: Utah Division of Air Quality

Wood Burning

Wood burning has a large impact on air quality. Along the Wasatch Front, it may contribute somewhere between 5 and 15% of total fine particulate matter during inversions. Based on EPA emission factors, heating one home with a wood burning stove as a sole heating source is equivalent to 200 homes heated with natural gas in terms of direct fine particulate and 500 homes in terms of volatile organic compounds.¹ Not only does wood burning have implications for poor air quality in the ambient airshed, it also has health implications for air quality within the homes in which the wood burning occurs.

Residential wood burning is currently restricted from November 1 to March 1 when fine particulate levels reach 25ug/m³. Recently, the standard was changed so that burning would be restricted earlier in an inversion when poor air quality is forecast. In 2012–13, 33 restricted days occurred in Salt Lake County. There are approximately 207 homes registered in all PM_{2.5} “nonattainment” areas of Utah as

¹ Kelly, Kerry et al. “Contribution of Woodsmoke to PM_{2.5} During Wasatch Front Inversions.” PowerPoint presentation. Salt Lake City, UT. 15 Jan 2014.



having wood burning as their sole source of heat, and those homes are allowed to burn wood even on restricted days. The registration list is closed, and no new homes may be registered.

The extent to which wood burning occurs in homes other than those that are registered as sole-source homes, or in commercial establishments, is not fully known, but it is estimated that sole source homes account for only a fraction of the emissions due to wood burning.

It is recommended that a program be funded to replace wood burning stoves and fireplaces with other heating sources in those homes that are currently registered as sole source. This would allow the “sole source” exemption to wood burning restrictions to be phased out, which would improve air quality and simplify enforcement of wood burning restrictions. Replacing a wood burning stove with a forced-air heating system is estimated to cost \$6,000 to \$10,000 per home. For the 207 homes, the total cost would be approximately \$1.2 to \$2 million, or about \$8500 per ton of emissions reduced. Costs could potentially be reduced by 50% or more if systems other than forced-air systems are used (e.g., a propane stove). For sole source homes not near a natural gas line, a propane stove may be the most cost-effective answer.

It is also recommended that enforcement of wood burning restrictions be increased. Increased enforcement could take the form of additional inspectors as well as increased fines. In addition, phone numbers and other methods for reporting violations should be simplified and widely publicized, such that it is easy for people to report violations and reports result in swift action. It is also recommended that local governments, particularly in “nonattainment” areas, be allowed to impose more stringent wood burning standards than those imposed by the state, and be authorized to enforce those standards.

Currently, wood burning restrictions go into place when fine particulate levels reach 25ug/m³; however, any wood burning in the early stages of an inversion, before particulate levels have built up to the standard, persists in the airshed throughout the inversion. Therefore, it is recommended that wood burning restrictions go into place whenever meteorological conditions indicate that an inversion is beginning to build—essentially, as soon as a storm leaves the area.

Finally, in addition to legal enforcement, it is recommended that funding be made available for widespread public education about the air quality and health impacts of wood burning. Again, the Governor’s Office of Economic Development board has already allocated \$500,000 for an educational campaign this winter that will include information about wood burning. Additional funding is needed to continue this campaign in summer 2014 and winter 2014–15, preferably in the amount of \$1–2 million.

About the Clean Air Action Team

On October 15, 2013, Governor Gary Herbert announced that he was asking Envision Utah to convene and facilitate the efforts of a Clean Air Action Team. The Action Team includes representatives from health care, business, nonprofit organizations, government, academia, transportation, and more. This independent team was tasked with working to provide a set of broadly supported recommendations to improve our air quality. These recommendations can then be implemented by government, businesses,



and individuals; it is the broadest group ever assembled in Utah to evaluate strategies and develop a holistic approach to solving our air quality issues. All ideas are on the table for evaluation.

The Team was asked to work throughout 2014 to finalize a set of recommendations, but Team members wished to make more immediate recommendations on high-priority items as set forth herein. Additional recommendations will be studied throughout 2014 in order to reach consensus on a holistic set of recommendations.

The Clean Air Action Team is one element of the Your Utah, Your Future process that is being led by Envision Utah at the request of Governor Herbert. Your Utah, Your Future is a collaborative effort to establish a vision together for our Utah and our future as we add another 2.5 million people by 2050. Learn more at envisionutah.org.

Clean Air Action Team members:

- Dr. Michelle Hofmann, Physician, Breathe Utah, University of Utah (co-chair)
- Lonnie Bullard, Jacobsen Construction (co-chair)
- Stuart Adams, State Senator
- Patrice Arent, State Representative
- Ralph Becker, Mayor Salt Lake City
- David Brems, GSBS Architects
- Rebecca Chavez-Houck, State Representative
- Jeff Edwards, Executive Director, Economic Development Corporation of Utah
- Robin Erickson, Utah Clean Cities
- Ryan Evans, Salt Lake Chamber
- Matthew Eyring, Chief Strategy and Innovation Officer, Vivint Inc.
- Dr. Robert Gillies, State Climatologist
- Andrew Gruber, Executive Director, Wasatch Front Regional Council
- Susan Hardy, Mountainland Association of Governments
- Roger Jackson, FFKR Architects
- Ron Jibson, President and CEO, Questar
- Linda Johnson, Citizen
- Terry Marasco, Executive Director, Moms for Clean Air
- Alan Matheson, State Planning Coordinator and Governor's Environmental Advisor
- Ben McAdams, Mayor Salt Lake County
- Nancy McCormick, State President, AARP
- Dr. Robert Paine, Pulmonologist, Program on Air Quality, Health, and Society, University of Utah
- Angelo Papastamos, UDOT Travelwise
- Dr. Edward Redd, State Representative and physician
- Dr. Bob Rolfs, Deputy Director, Utah Department of Health
- Steve Sands, Kennecott, Air Quality Board
- Joseph Shaffer, Director of Health, Tri-County Health, Uintah Basin
- Matt Sibul, Utah Transit Authority



- Amanda Smith, Executive Director, Dept. of Environmental Quality
- Lowry Snow, State Representative
- Dr. Charles Sorenson, CEO, Intermountain Health Care
- Peter Stempel, Stempel Form Architects
- Cody Stewart, Governor's Energy Advisor
- Kathy Van Dame, Air Quality Board
- Vicki Varela, Director, Utah Office of Tourism
- Ted Wilson, Executive Director, UCAIR
- Sarah Wright, Executive Director, Utah Clean Energy