

UTAHNS' VISION FOR 2050

AIR QUALITY



**Envision
Utah**

*Your Utah,
Your Future*



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UTAHNS' VISION FOR 2050

AIR QUALITY



YOUR UTAH, YOUR FUTURE

PROCESS

UTAH IS GROWING.



TODAY

There are three million people living in Utah.

2050

By 2050 there will be 5.4 million—the population will nearly double in 35 years!

THAT MEANS

2 x the

HOMES JOBS SKIERS
CARS STUDENTS FOOD

OUR GOAL

HELP UTAHNS CREATE A VISION FOR UTAH'S FUTURE



11 TOPICS

Utahns' values guided the selection of 11 topics critical to the future of Utah.



UTAHNS' VALUES

Values studies told us not just what Utahns care about, but why they care about those things.



ACTION TEAMS

Experts from across the state studied the topics and helped shape potential scenarios for the future.

SCENARIOS



8 ACTION TEAMS

OF 400 EXPERTS WORKED FOR 18 MONTHS TO DEVELOP POTENTIAL SCENARIOS FOR UTAH'S GROWTH ACROSS EACH TOPIC.

YOUR UTAH, YOUR FUTURE SURVEY



53,000 UTAHNS

WEIGHED IN ON EACH TOPIC AND EACH SCENARIO, TELLING US WHAT THEY WANT UTAH TO LOOK LIKE IN 2050.

VISION FOR 2050



A COMBINATION

OF SURVEY RESULTS, VALUES, AND ACTION TEAM INPUT FORMED A VISION FOR UTAH'S FUTURE.

For Utahns, poor air quality is the greatest negative attribute of their quality of life and one of their strongest concerns.

INTRODUCTION

UTAH'S AIR IS CLEAN MUCH OF THE YEAR, but in many parts of the state pollutants regularly exceed healthy air standards during winter months and also at times during the summer. Utahns view this air pollution as a threat to their health and their family's health. They also find that poor air quality constrains their freedom to enjoy Utah's beautiful outdoors and affects the state economy by discouraging businesses and employees from locating in Utah.

THE SOURCES OF UTAH'S AIR POLLUTION ARE CHANGING.

Today, most emissions come from vehicle exhaust, but homes, commercial buildings, offices, and other structures will become the dominant sources of pollution by 2050. Utahns are willing to make significant changes to achieve cleaner air. Among other steps, Utahns are willing to buy and drive cleaner cars, switch to cleaner fuel, drive less, build significantly more energy-efficient homes and other buildings, and avoid wood burning during winter inversions.

YOUR UTAH, YOUR FUTURE

VISION FOR AIR QUALITY



THE VISION

Utahns envision a future with clean air year-round so that they and their families can lead healthy, active lives and enjoy Utah's beautiful outdoors. They also see good air quality as essential to economic growth. Utahns want clean air now and for the long term. To ensure a healthy, prosperous future for their children and grandchildren, Utahns envision everyone making adjustments to their businesses, communities, and behaviors that will result in cleaner air.



GOALS

- 1** Reduce emissions as quickly as possible so that all parts of Utah are well within federal health standards for air quality year-round.
- 2** Remain well within federal health standards for air quality in future decades, even as the population nearly doubles by 2050.
- 3** Improve statewide health, recreation, and economic growth by reducing emissions.
- 4** Implement emission-reduction and energy-efficiency strategies with a focus on reducing the cost of living and doing business in Utah (e.g., through reduced utility bills or using less gasoline).

KEY STRATEGIES

- 1** Retool refineries to produce lower-sulfur fuel as soon as possible.
- 2** Shift to driving cleaner vehicles as quickly as possible.
- 3** Reduce emissions from existing and new homes and other buildings through better energy efficiency and lower-emission appliances.
- 4** Increase the convenience of driving less and traveling without a car.
- 5** Educate the public about the most effective steps Utahns can take to reduce emissions.

For more details on these and other strategies, please refer to the recommended strategies section beginning on p. 37

BACKGROUND:

WHERE WE ARE TODAY



**AS UTAH GROWS,
CLEANER CARS AND
THE CURRENT STATE
IMPLEMENTATION
PLAN (SIP) WILL NOT
BE ENOUGH TO KEEP
THE AIR CLEAN IN THE
LONG RUN.**

Utahns care deeply about air quality. Over the past several years, they have rated it a top concern—it is the most cited negative attribute of life in Utah. Improving air quality is rising in priority because it impacts everything from individual health and well-being to the state's overall economic growth.

For most of the year, Utah's air is clean and meets federal health standards. But for some periods in the summer and particularly in the winter, regional weather patterns and topography, combined with emissions from various sources, cause poor air conditions along the Wasatch Front, in Cache Valley, and even in the Uintah Basin. The air has gotten significantly cleaner in the past 30+ years and will continue to improve in the near future as cars produce even fewer emissions.

Unless Utahns make additional changes, however, population growth will prevent the state from meeting federal health standards in the decades to come.

Winter and summer air pollution is largely caused by the same emissions. Poor winter air quality is a result of tiny dust and soot particles known as particulate matter (PM2.5). These particles can become trapped in people's lungs and cause or exacerbate negative health conditions. Roughly 25% of the PM2.5 that we see during winter inversions is directly emitted from a source (e.g., from burning wood), but the majority of the PM2.5 is created in the atmosphere through chemical reactions that require a combination of gases. These gases are emitted by a variety of sources, including vehicle exhaust, water heaters and furnaces, and industrial processes. Poor summer air quality is typically a result of ozone, an odorless, colorless gas that typically resides high in the atmosphere. When it exists in high concentrations closer to the ground, however, it can be detrimental to

health. Summer ozone is not emitted directly into the atmosphere but instead forms through chemical reactions of many of the same pollutants that form PM2.5 in the winter.

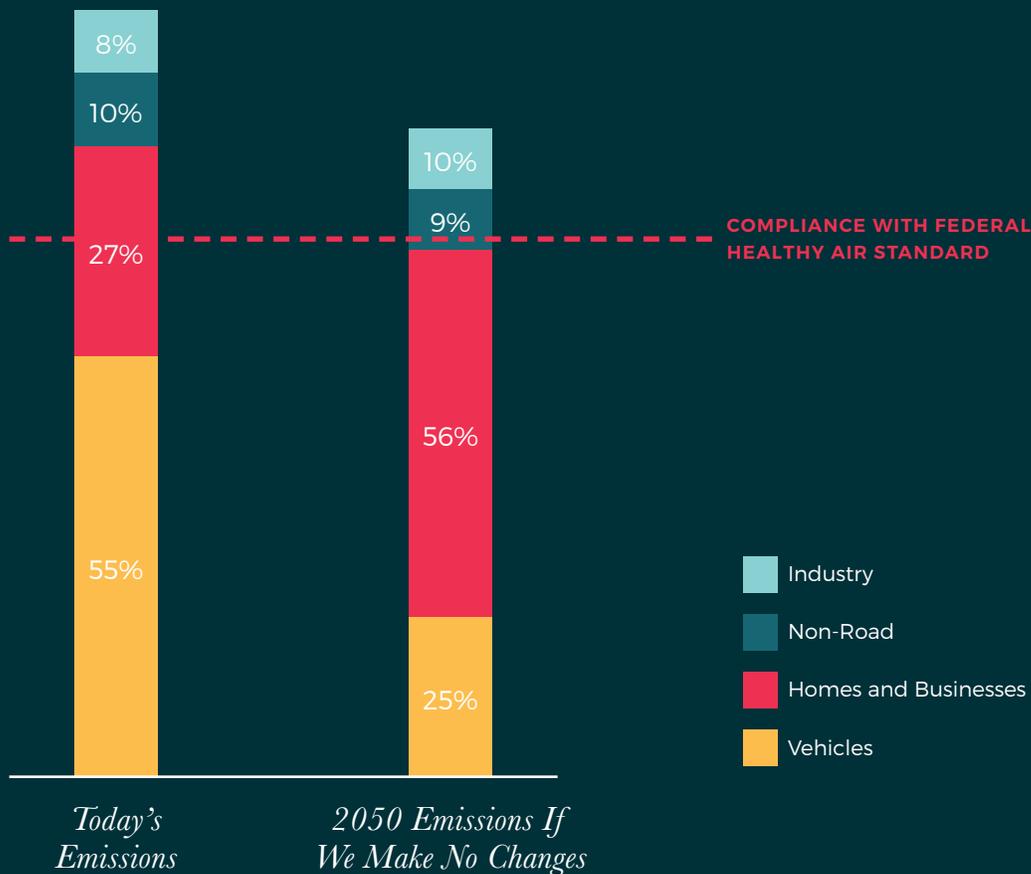
Pollution-causing emissions come from four main sources: mobile sources, area sources, non-road mobile sources, and point sources. Mobile sources—cars and trucks—are the main source of air pollution today, causing 55% of winter emissions. Homes and businesses (more specifically, space heating, water heating, wood burning, etc.) are referred to as area sources and make up 27% of winter emissions. Included within area sources are also various household chemicals, aerosols, paints, emissions from food production and decaying plant/organic material, etc. Non-road mobile sources (engine-powered devices that operate off roadways, such as construction equipment, airplanes, boats, lawn mowers, snow blowers, etc.) cause 10% of winter emissions. Point sources are industry-related sources of pollution like power and industrial plants, and they make up 8% of winter emissions.

Emissions from mobile sources will continue to decrease in the coming years. New federal regulations require the production of cleaner (lower-sulfur) fuels. Unfortunately, some Utah refineries could take advantage of exemptions to avoid producing the cleaner fuel. New regulations will also result in the gradual phase-in of cleaner cars. These cars, when

combined with cleaner fuels, will reduce automobile emissions by 80%, which is enough to significantly decrease total Utah emissions, even with population growth. Utahns, however, do not have to wait for federal regulations to switch to cleaner cars. Vehicles with high smog ratings can already be purchased today. Smog ratings (a number on a one-through-ten scale) are given to all vehicles based on the amount of pollutants they emit from their tailpipes. Cleaner cars have smog ratings of eight or higher (you can find the smog rating on the window sticker of a new car or at fuelconomy.gov). The average car currently sold in Utah has a smog rating of six. A car with a smog rating of ten has no tailpipe emissions (e.g., an electric car).

Emissions from certain area and point sources will also decrease in the future. New state regulations (the State Implementation Plan, or SIP) require significantly reduced emissions from a variety of sources, including industry, household chemicals, paints, and other ambient area sources. Homes and businesses, however, are not currently on the same trajectory as mobile and point sources. As the number of Utah homes and businesses nearly doubles by 2050, area sources (e.g., furnaces and water heaters) will become the dominant source of air pollutants. Improving energy efficiency and lowering the amount of pollutants emitted from both old and new buildings is crucial if Utah is to meet health standards over the long term.

SOURCES OF EMISSIONS



HOW WE CREATED A VISION:

PEOPLE AND PROCESS



TO CREATE A VISION FOR THE FUTURE OF AIR QUALITY IN UTAH, A TEAM OF EXPERTS GATHERED OVER A TWO-YEAR PERIOD TO SHARE KNOWLEDGE AND EXTENSIVELY RESEARCH AND DISCUSS OPTIONS FOR IMPROVEMENT.

Members of the Clean Air Action Team were selected by Governor Gary Herbert and Envision Utah to represent a spectrum of professional experience and political affiliations. Team members included healthcare professionals, legislators, business leaders, community leaders, and other experts from across the state. From 2013 to 2015, the action team met to identify Utahns' choices related to air quality, create scenarios for public input, and synthesize a vision for the future. The Clean Air Action Team was also tasked with recommending immediate actions to improve air quality. The process of creating this vision also included the following components:

- 1 Values studies. In 2013, a study was conducted to specifically examine the impacts of air quality on Utahns' quality of life. This study was coupled with another, broader values study in 2014, which was conducted to identify (1) what factors Utahns view as affecting their quality of life the most and (2) the underlying emotions and values tied to those factors. The studies determined that Utahns view air quality as a top priority in the state because it is linked to many quality-of-life factors that are most important to Utahns. The studies also found that Utahns rank the state's performance on air quality very low compared to other priorities. (More information on the values studies can be found in the Utahns' Values section on p. 17.)
- 2 The "Build Your 2050 Utah" web app. This app allowed Utahns to identify behaviors and activities that affect air quality and interactively learn about the outcomes of making changes to those behaviors. More than 3,000 people across the state gave input through the app. Most voiced a willingness to change driving habits, vehicle and fuel purchases, wood burning, and home energy-efficiency standards if those changes resulted in cleaner air.

The action team used this information to create three different scenarios for the future of air quality in Utah. The three scenarios each represented different strategies that resulted in varying levels of air quality in Utah by 2050. These scenarios (p. 23) were presented to the public in the Your Utah, Your Future survey in spring 2015, and 52,845 Utahns weighed in.

After receiving public input on the three air quality scenarios, the action team met to frame a vision, including goals and strategies, to achieve what Utahns said they wanted for air quality in 2050. Several of these strategies have already been proposed by the Clean Air Action Team to policymakers for implementation.

ACTION TEAM MEMBERS

CHAIRS



**LONNIE
BULLARD**

Jacobsen Construction



**DR. ELIZABETH
JOY**

Intermountain Healthcare



**DR. MICHELLE
HOFMANN**

*Medical Director, Riverton
Hospital's Children's Unit*

Stuart Adams*Utah Senate***Patrice Arent***Utah House of Representatives***Ralph Becker***Mayor, Salt Lake City***Bryce Bird***Utah Division of Air Quality***David Brems***GSBS Architects***Rebecca Chavez-Houck***Utah House of Representatives***Jeff Edwards***Economic Development Corporation of Utah***Robin Erickson***Utah Clean Cities***Ryan Evans***Salt Lake Chamber***Matt Eyring***Vivint***Robert Gillies***State of Utah Climatologist***Andrew Gruber***Wasatch Front Regional Council***Susan Hardy***Mountainland Association of Governments***Roger Jackson***FFKR Architects***Ron Jibson***Questar Gas***Linda Johnson***Utah Air Quality Board***Terry Marasco***Utah Clean Air Alliance***Ben McAdams***Mayor, Salt Lake County***Dan McArthur***Mayor, St. George City***Nancy McCormick***AARP Utah***Robert Paine***Chief Division of Respiratory, Critical Care
and Occupational Pulmonary Medicine,
University of Utah School of Medicine***Angelo Papastamos***Utah Department of Transportation***Edward Redd***Utah House of Representatives***Robert Rolfs***Utah Department of Health***Steve Sands***Kennecott Utah Copper***Joseph Shaffer***Tri-County Health Department***Matt Sibul***Utah Transit Authority***Amanda Smith***Utah Department of Environmental Quality***Peter Stempel***Stempel Form PC Architects***Lowry Snow***Utah House of Representatives***Charles Sorenson***Intermountain Healthcare***Kathy Van Dame***Wasatch Clean Air Coalition***Vicki Varela***Utah Office of Tourism***Ted Wilson***UCAIR***Sarah Wright***Utah Clean Energy*

WHY AIR QUALITY MATTERS:

UTAHNS' VALUES

In 2013 and 2014, Envision Utah conducted a series of values studies to identify (1) what factors Utahns view as affecting their quality of life the most and (2) the underlying emotions and values tied to those factors.

POOR AIR QUALITY IS NOW THE PRIMARY FACTOR THAT NEGATIVELY AFFECTS UTAHNS' QUALITY OF LIFE.

According to the 2014 values study, poor air quality is now the primary factor that negatively affects Utahns' quality of life. Its relative importance to Utahns stands in stark contrast to their perception of how well Utah is addressing the issue. Utahns care about air quality because dirty air is a health hazard that impinges on Utahns' primary value: having a safe and secure environment for families. The health impacts of poor air quality cause stress and worry and ultimately a lack of security and well-being.

A similar 2013 study delved more specifically into the values linked to air quality. In addition to the primary concern of negative health effects, Utahns also said that good air quality leads to a healthy, active lifestyle. It encourages them to spend more time outdoors doing what they love, whether it is hiking, skiing, boating, or just simply enjoying the beautiful natural surroundings. Good air quality allows Utahns to enjoy these activities while spending quality time with their families and friends, which in turn creates a sense of personal happiness. Conversely, when the air quality is poor, people feel forced to stay indoors and are unable to do the things they really want. This makes Utahns feel restricted, confined, and that they've lost their personal freedom.

AIR QUALITY AND WELL-BEING



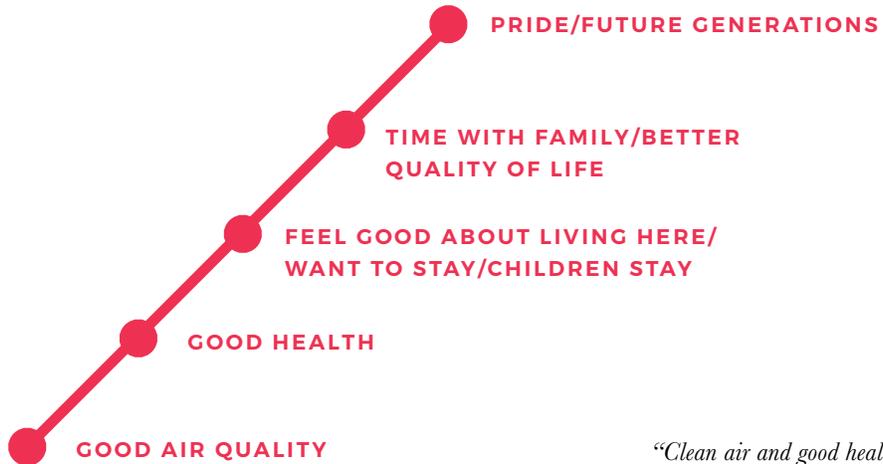
“Good air quality is integral to maintaining good health for me and my family. Better health leads to a better quality of life, less worry, and, ultimately, a sense of well-being.”

AIR QUALITY AND PERSONAL HAPPINESS



“Good air quality contributes to good health, which allows me to lead a healthy, active lifestyle. I can spend time outdoors doing the things I love with the people I love. This brings a sense of personal happiness and enjoyment.”

AIR QUALITY AND FUTURE GENERATIONS



“Clean air and good health make me feel good about living in Utah, leading me and my children to want to stay here. This allows me to spend more time with my family and leads to a sense of pride in what I’ve done for future generations.”

POOR AIR QUALITY AND LOSS OF FREEDOM



“When the air quality is poor, I worry about health impacts, and I feel like I can’t go outdoors or do the things I want to do. This makes me feel restricted, and I lose my sense of personal freedom.”

CHOICES FOR THE FUTURE:

SCENARIO SUMMARIES

The following scenarios were created by the Clean Air Action Team to represent possible outcomes for Utah's air quality in 2050. The scenarios differed in the following variables:

- Strategies used to respond to Utah's growing population
- Strategies' impacts on future air quality

The scenarios were presented to the public as part of the Your Utah, Your Future survey in spring 2015.

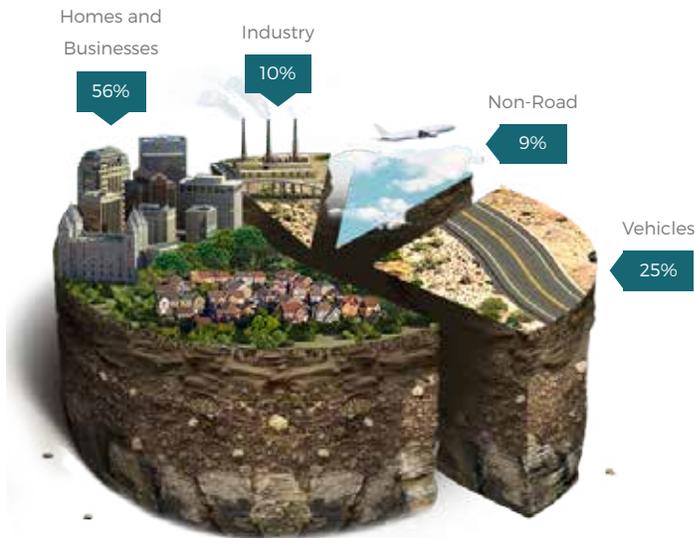
The scenarios were titled Allosaurus, Bonneville Trout, Quaking Aspen, Seagull, and Segó Lily (the state fossil, fish, tree, bird, and flower).

75% OF UTAHNS CHOSE THE QUAKING ASPEN AND SEGO LILY SCENARIO.

ALLOSAURUS AND BONNEVILLE TROUT SCENARIO

20% fewer emissions than today, but we do not meet health standards

Sources of Emissions in 2050



New 2014 state and federal regulations initially reduce car and other emissions, improving air quality. By 2050, however, these improvements are largely offset by the near doubling of homes, businesses, and cars. Driving per person does not decrease, although 90% of Utah's cars are low-emission because of the phase-in of 2014 federal requirements. Included within the 90%

cleaner cars are 5% of Utah's cars that are electric or zero-emission, having been voluntarily purchased by Utahns. Some refineries avoid producing cleaner fuels.

Pollution is not reduced from old or new homes and businesses; the energy efficiency of buildings is not improved through higher building standards.

EMISSIONS ARE

56 TONS OVER

HEALTHY AIR STANDARD PER WINTER DAY

WE TAKE LITTLE PERSONAL OR COLLECTIVE ACTION TO ACHIEVE CLEANER AIR:

- Emissions reduce by 20%.
- We do not meet health standards in 2050.
- Homes and businesses replace vehicles as the primary producers of pollution.
- Average household saves \$100 per year.
- Some businesses, employees, and tourists hesitate to come to Utah.

EMISSIONS ARE

2 TONS OVER

HEALTHY AIR STANDARD PER
WINTER DAY

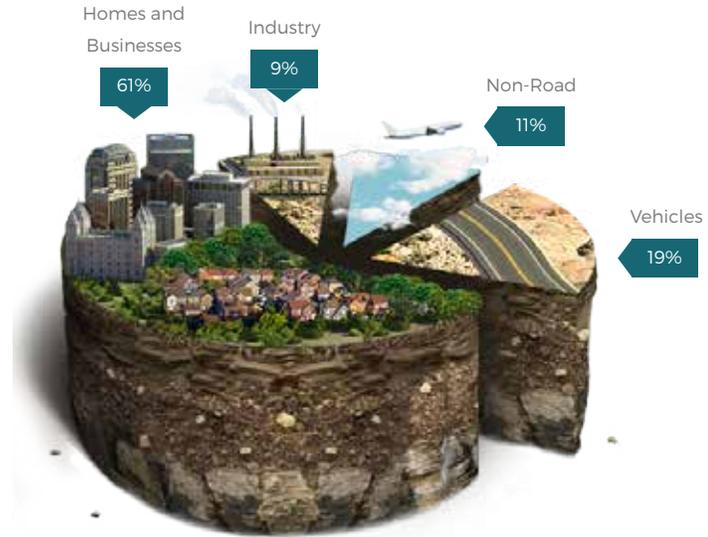
**WE TAKE SOME LIMITED PERSONAL
OR COLLECTIVE ACTION TO
ACHIEVE CLEANER AIR:**

- Emissions reduce by 30%.
- We just meet health standards in 2050.
- Homes and businesses replace vehicles as the primary producers of pollution.
- Average household saves \$360 per year.
- Fewer businesses, employees, and tourists hesitate to come to Utah.

SEAGULL SCENARIO

30% fewer emissions than today to just meet health standards

Sources of Emissions in 2050



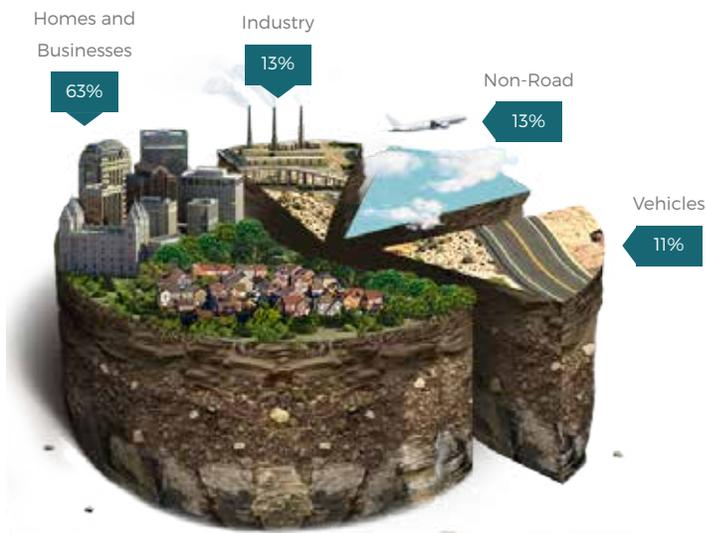
Driving per person decreases 10%, and 95% of Utah's cars are low-emission because Utahns buy cleaner cars over time. Included within the 95% cleaner cars are 10% of Utah's cars that are electric or zero-emission, having been voluntarily purchased by Utahns. All of our refineries produce cleaner fuel to put in our cars.

25% of older homes and businesses are renovated to be 30% more energy efficient. New building standards require all new homes and businesses to be 25% more energy efficient than those built today. Even so, the emissions from homes and business grow significantly by 2050 due to the near doubling of the number of buildings.

QUAKING ASPEN AND SEGO LILY SCENARIO

40% fewer emissions than today; well within health standards

Sources of Emissions in 2050



Driving per person decreases 25%, and 98% of Utah's cars are low-emission because even more Utahns buy cleaner cars over time. Included within the 98% cleaner cars are 35% of Utah's cars that are electric or zero-emission, having been voluntarily purchased by Utahns. All of our refineries produce cleaner fuels.

All older homes and businesses are renovated to be 30% more energy

efficient. New building standards require all new homes and businesses to be 50% more energy efficient than those built today. By 2050, the number of homes and businesses has nearly doubled and are by far the largest source of pollution, but retrofits and new building standards have significantly tempered the increase in emissions that would have otherwise occurred.

EMISSIONS ARE

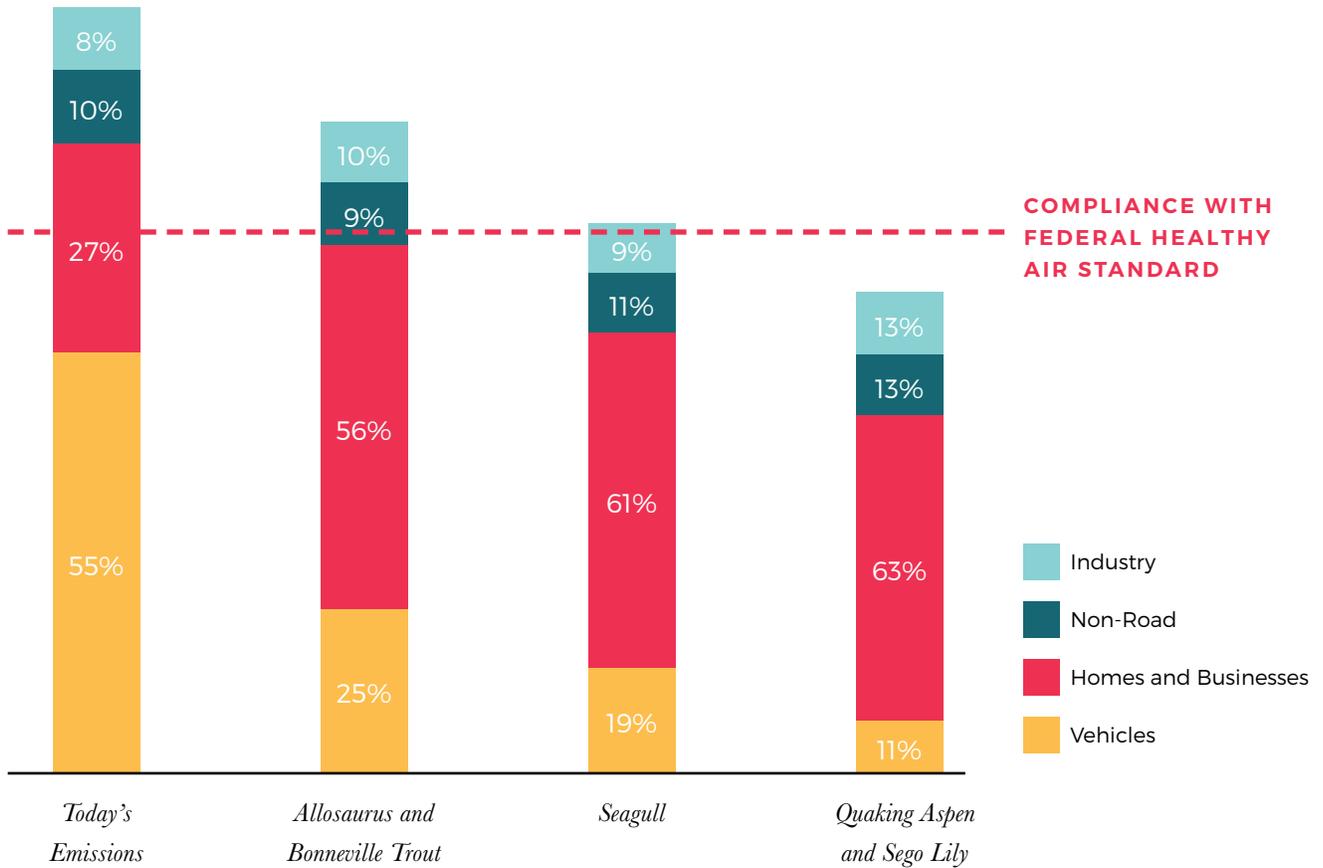
35 TONS UNDER

HEALTHY AIR STANDARD PER WINTER DAY

WE TAKE SIGNIFICANT PERSONAL AND COLLECTIVE ACTION TO ACHIEVE CLEANER AIR:

- Emissions reduce by 40%.
- We are well within health standards in 2050.
- Homes and businesses replace vehicles as the primary producers of pollution.
- Average household saves \$1,375 per year.
- Businesses, employees, and tourists do not hesitate to come to Utah.

SUMMARY OF SCENARIOS



YOUR UTAH, YOUR FUTURE

SURVEY RESULTS

In April and May 2015, 52,845 Utahns shared their voice through the Your Utah, Your Future survey. Participants chose their favorite scenarios for air quality and other topics. After choosing their favorite scenarios, survey participants had the option to answer a series of questions to prioritize air quality among other issues, determine the most important outcomes related to air quality, and identify how willing they would be to take specific actions to ensure those outcomes. The survey results were cross-checked against a random-sample survey to ensure they represented the desires and opinions of Utahns.

1

WHAT UTAHNS WANT FOR AIR QUALITY

Utahns want clean air. They ranked air quality as one of the state's most important issues, and a resounding three out of four Utahns voted to reduce emissions by 40% from today, even as Utah's population nearly doubles. In the scenario that Utahns chose for 2050, Utahns drive 25% less, one third of Utah's cars have zero tailpipe emissions, existing buildings are retrofitted to be 30% more efficient, all new buildings are 50% more efficient, and all water heaters are ultra-low emission, among other strategies.

2

WHY UTAHNS WANT IT

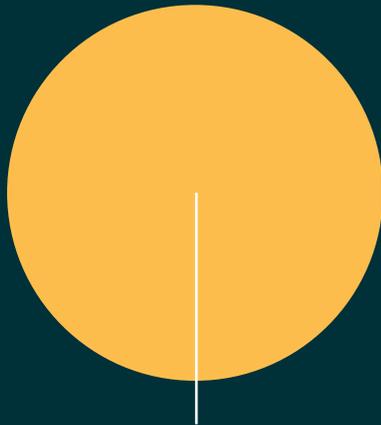
Utahns are most concerned about the negative effects poor air quality has on health, but they also care about enjoying the outdoors, growing the economy, and saving money by improving energy efficiency.

3

WHAT UTAHNS ARE WILLING TO DO

To achieve better air quality, Utahns are willing to buy and drive cleaner cars with cleaner fuels; build more low-emission, energy-efficient homes and businesses; and avoid wood burning during winter inversions. Though they are somewhat less willing to curb driving, they want to increase the convenience of getting around without a car by locating housing closer to destinations, expanding public transportation options, and making it easier to walk and bike in communities.

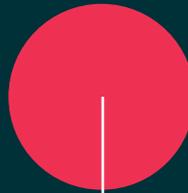
WHAT UTAHNS WANT



75%

40% fewer emissions than today; well within health standards

Quaking Aspen and
Sego Lily



19%

30% fewer emissions than today to just meet health standards

Seagull



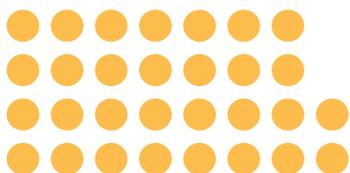
7%

20% fewer emissions than today, but do not meet health standards

Allosaurus and
Bonneville Trout

WHY UTAHNS WANT IT (OR WHAT OUTCOMES UTAHNS EXPECT FROM AIR QUALITY)

Survey participants were asked to allocate 100 points across these outcomes based on which they considered most important.



30%

Reducing total pollution and its health consequences



18%

Reducing total pollution and its impact on my ability to enjoy the beautiful outdoors



16%

Reducing total pollution and its impact on our economy



14%

Maximizing how much money I can save by using more efficient cars, buildings, appliances, etc.



12%

Protecting the economic benefits (jobs, tax revenue, etc.) that come from Utah industries that produce air pollution

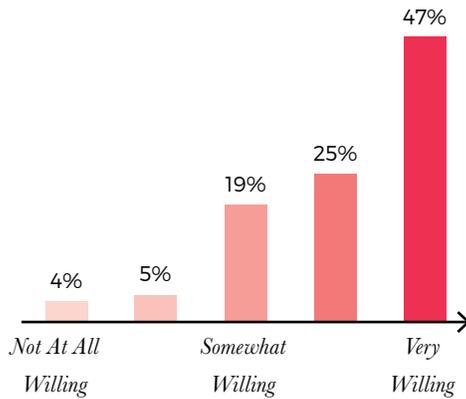


11%

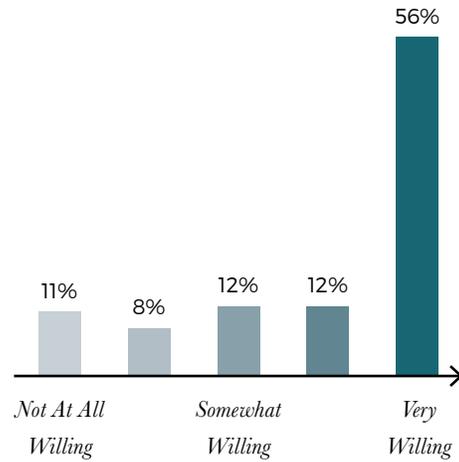
Limiting how much Utahns have to change their lifestyles to clean the air (reducing driving, buying cleaner cars, building cleaner buildings, not burning wood, etc.)

WHAT UTAHNS ARE WILLING TO DO TO IMPROVE AIR QUALITY

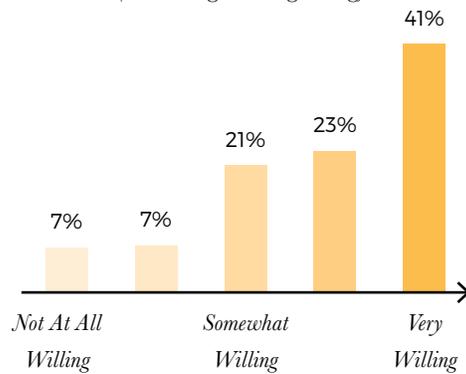
Build energy efficient homes and businesses with less polluting appliances and higher upfront cost.



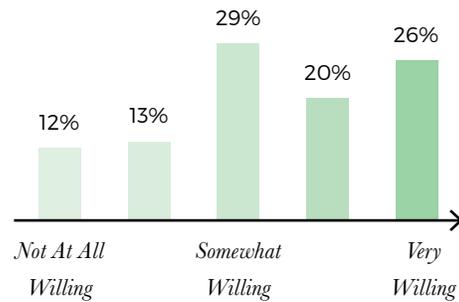
Avoid burning wood during winter inversions.



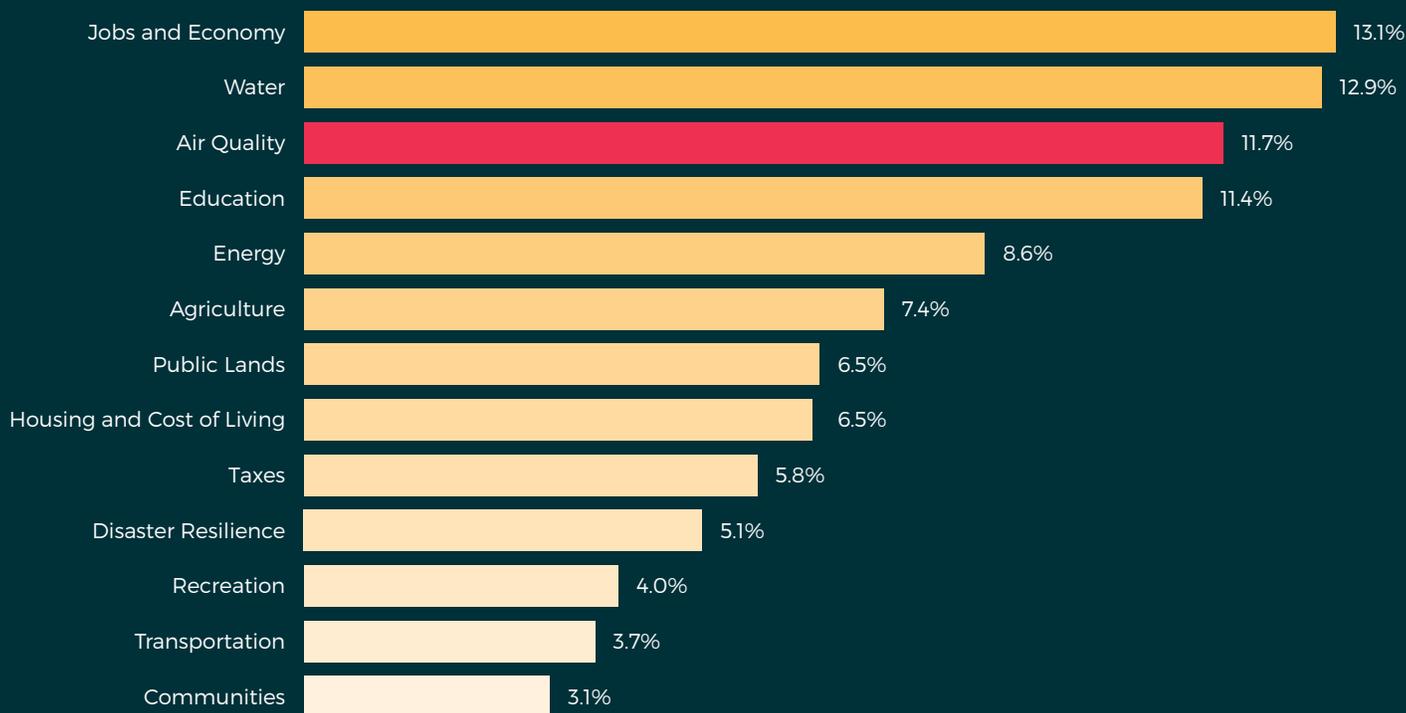
Buy cars that produce less pollution (have a higher smog rating).



Limit driving (use public transit, walk, bike, carpool, etc.).



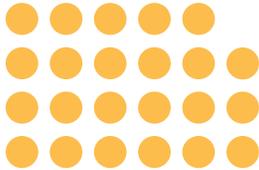
LEVEL OF CONCERN FOR THE FUTURE



Air Quality is one of Utahns' top three concerns for the future and has a significant effect on health, recreation, and the economy.

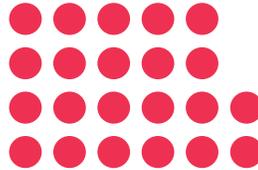
The survey asked Utahns to weight the topics based on their importance in light of Utah's population growth. This resulted in a share of 100 points being allocated to each topic according to the average level of concern for that topic.

OUTCOMES UTAHNS EXPECT FROM COMMUNITY AND TRANSPORTATION DESIGN THAT IMPACT AIR QUALITY



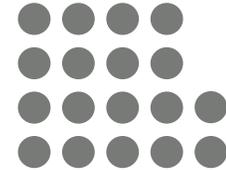
23%

Improving how convenient it is to get around without a car (public transportation, walking, biking)



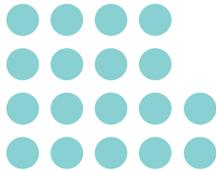
22%

Limiting traffic congestion



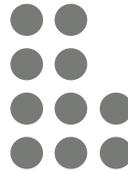
18%

Minimizing how much land we develop for homes and businesses



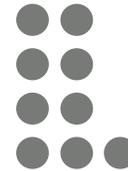
18%

Making sure daily services and amenities (work, shopping, parks, etc.) are close to where people live



10%

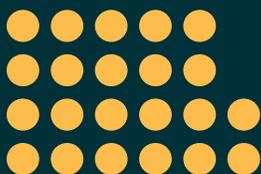
Ensuring there are plentiful neighborhoods that are mostly just single-family homes on large lots



9%

Reducing how much we spend on roads, pipes, rail, and other infrastructure

OUTCOMES UTAHNS EXPECT FROM ENERGY THAT IMPACT AIR QUALITY



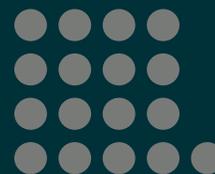
22%

Minimizing how much air pollution happens (primarily outside the Wasatch Front) when we produce electricity



19%

Minimizing how much carbon dioxide (a greenhouse gas that is implicated in climate change) is emitted when we produce electricity



17%

Limiting our energy supply's vulnerability to disruption



16%

Limiting how much each household needs to spend for energy



15%

Minimizing how much water we use to produce electricity



12%

Ensuring nuclear power production doesn't happen in Utah

REALIZING THE VISION:

RECOMMENDED STRATEGIES



MOBILE SOURCES OF AIR POLLUTION

1 Improve Utahns' access to clean fuel.

- Work with refineries to produce cleaner, Tier 3 fuels that have less than 10 parts per million (ppm) of sulfur as soon as possible.
- Educate Utahns about the benefits of low-sulfur fuel and, where feasible, provide them with information about the sulfur content of the fuel they are purchasing.

2 Dramatically accelerate the transition to cleaner, Tier 3 vehicles, phasing them in faster than Tier 3 regulations require, and rapidly increase the number of zero-emission (e.g., electric) vehicles.

- Educate individuals and businesses about smog ratings and the positive effect low-emission and zero-emission vehicles have on air quality; work with car dealers to stock and sell more vehicles with high smog ratings (e.g., by providing sales materials that identify clean cars).
- Expand incentive programs that encourage Utahns to buy low-emission vehicles and especially zero-emission vehicles, regardless of the fuel used (electric, gasoline, natural gas, etc.).
- Shift vehicle fleets (e.g., those used by cities, car rental companies, and school districts) to low-emission vehicles through conversions, retrofits, or new vehicle purchases, and remove older, high-emission vehicles from circulation.
- Increase the number of vehicles that have zero tailpipe emissions (e.g., electric or fuel-cell cars).
- Expand infrastructure for charging electric vehicles, fueling with natural gas, etc.

SULFUR IN GASOLINE “FOULS” OR “GUMS UP” THE POLLUTION CONTROL EQUIPMENT IN CARS SO IT DOES NOT WORK AS EFFECTIVELY.

SMOG RATINGS:

Window stickers on new cars include smog ratings. Smog ratings can also be found at fuelconomy.gov. A smog rating of 10 has no tailpipe emissions.



SOME BENEFITS OF BUILDING AND REVITALIZING MIXED-USE CENTERS:

- Improves air quality by reducing driving distances and making non-auto travel more convenient
- Improves convenience of traveling, increases transportation options, and reduces how much time people must spend driving
- Reduces household transportation costs by decreasing how far people have to drive and by increasing Utahns' ability to take public transportation, walk, or bike
- Improves community health by making walking and biking more convenient and safe
- Preserves historic centers in our communities



3 Reduce how often and how far Utahns need to drive by building and revitalizing mixed-use centers in communities.

- a) Revitalize historic main streets and town centers.
- b) Encourage and remove barriers to the development of compact mixed-use centers within existing communities, particularly in underutilized commercial areas.
- c) Design new communities around village and town centers, where compact housing is co-located with jobs, services, schools, recreation, and religious and civic buildings.
- d) Design mixed-use centers to make walking and biking convenient.
- e) Locate centers around existing high-frequency public transportation where feasible, and plan new routes to serve centers.

4 Continue to build a balanced transportation system that increases the convenience of traveling with or without a car.

- a) Expand the public transportation system to improve frequency, coverage, access, and convenience.
- b) Locate job, education, and healthcare centers near high-capacity public transportation.
- c) Improve infrastructure (sidewalks, bike lanes, trails, etc.) and community design for walking and biking, particularly near public transportation stations.
- d) Connect communities through a network of trails and parks.
- e) Continue to improve and expand the road system to limit congestion.

- f) Continue and enhance public-education efforts (e.g., TravelWise and the Clean Air Challenge) to encourage trip chaining, reduced driving, etc.
- g) Promote telecommuting, compressed workweeks, flexible hours, parking cash-out programs, ridesharing (vanpools, carpools, car sharing), etc.
- h) Ensure public transportation and infrastructure for walking and biking is well financed.

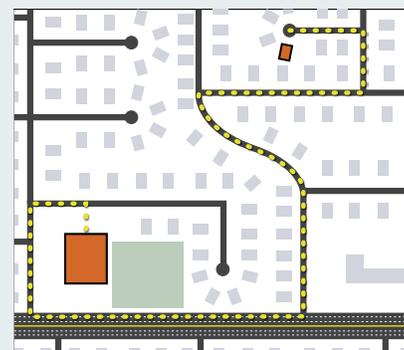
5 Design communities to improve convenience of travel even as we grow.

- a) Provide interconnected networks of streets that accommodate a variety of travel modes.
- b) Design buildings and communities to be more easily accessible to bicycles and pedestrians and to make walking and biking pleasant and safe.
- c) Continue to accommodate convenient automobile travel and access, without undue congestion.

CONNECTED STREET NETWORKS

provide shorter, more direct routes than disconnected, cul-de-sac style networks and encourage walking and bicycling. Because pedestrians, cyclists, and drivers have more route options, traffic is dispersed, resulting in safer, less crowded streets, and decreased tailpipe emissions

POORLY CONNECTED STREETS



WELL-CONNECTED STREETS



SOME BENEFITS OF HAVING MORE ENERGY-EFFICIENT HOMES AND BUSINESSES:

- Reduces household utility bills as energy efficiency improves
- Reduces business costs as energy efficiency improves
- Curbs emissions from homes and other buildings, the fastest growing source of pollution
- Reduces energy demand

WOOD BURNING INFO:

- An inefficient wood stove can emit as much pollution as five diesel trucks.
- Older adults and children are at greater risk of heart and lung impacts from smoke particulates.
- Burning dry wood with sufficient air flow reduces wood smoke.

AREA SOURCES OF AIR POLLUTION

1 Improve the energy efficiency of homes and businesses.

- a) Build new homes and other buildings to be significantly more energy efficient.
- b) Retrofit existing homes and other buildings to significantly improve their energy efficiency.
- c) Encourage people to conserve energy by turning off lights, unplugging appliances, implementing energy-efficiency improvements, turning down thermostats, etc.
- d) Provide homebuyers with more information about the energy efficiency of homes they are considering.

2 Replace existing appliances (water heaters, furnaces, etc.) with low-emission varieties.

- a) As they wear out, replace water heaters with comparably priced ultra-low NOx models.
- b) Replace furnaces and other appliances as new, lower-emission technologies emerge.

3 Substantially reduce wood burning in urban areas during winter inversions.

- a) Continue to provide financial assistance to install other heating options in homes where wood burning is currently the only means of space heating.
- b) Continue and enhance efforts to educate Utahns about the air quality impacts of wood burning.

4 Reduce emissions from other area sources and from non-road mobile sources.

- a) Continue and enhance efforts to educate Utahns on how to reduce emissions by replacing gas cans and two-stroke engine equipment, etc.
- b) Explore new technologies for food preparation in restaurants.

POINT SOURCES OF AIR POLLUTION

1 Work with industries to continue to reduce emissions.

2 Promote cleaner energy production, reducing emissions primarily in rural Utah.

- a) As power companies use less coal due to environmental regulations, continue to convert coal-fired power plants to plants fired by cleaner burning natural gas.
- b) Encourage the development of renewable energy resources.

