





Executive Summary

Utahns want clean air year-round ASAP so families can lead healthy, active lives and enjoy Utah's beautiful outdoors, and so our economy can thrive. Utahns are willing to make significant changes to achieve cleaner air and expect policymakers to do likewise.

Background:

- Utah's air is clean much of the year, but we regularly exceed healthy air standards during winter months and also at times during the summer.
- Vehicles make up the majority of our emissions today, but homes and commercial, office, and other buildings will be the overwhelmingly dominant sources by 2050.

Survey findings:

- Seventy-five percent of Utahns chose a scenario that was significantly cleaner than current federal health standards.
- Utahns are willing to buy and drive cleaner cars, build significantly more energy
 efficient homes and other buildings, and avoid wood burning during winter inversions.



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The clean air action team worked for 18 months to create scenarios for the future of air quality in Utah.

Air Quality Action Team

Utah Quality of Life Values Study

2014

Your Utah, Your Future Scenarios & Choices



2013

2015

Envision Utah and Governor Herbert invited air quality experts from across the state to join the *Your Utah, Your Future* action team for the topic. The team has **37 members** from the legislature, industry, local businesses and government, advocacy groups, research institutions, and other organizations. The action force is facilitated by Envision Utah.

The study concluded that Utahns value clean air for their health, for the ability to engage in outdoor activity, and for other reasons.

The action team worked for **18 months** to research and model what Utah's air quality future could be like in 2050 under various assumptions. They created **three scenarios** based on different strategies and outcomes for air quality. Based on the public's responses in the *Your Utah, Your Future* survey, the action team will create a vision for Utah's air quality future.

YOUR UTAH. YOUR FUTURE.



Clean Air Action Team Members

Action team members were selected by Governor Gary Herbert and Envision Utah to represent a spectrum of experience and political persuasions. All action team members were invited to participate by Governor Herbert.

- Liz Joy, Intermountain Health Care*
- Lonnie Bullard, Jacobsen Construction*
- Michelle Hofmann, Breathe Utah*
- Senator Stuart Adams
- Rep. Patrice Arent
- Mayor Ralph Becker, Salt Lake City
- Bryce Bird, Utah Department of Environmental Quality
- David Brems, GSBS Architects
- Rebecca Chavez-Houck
- Jeff Edwards, EDCUtah
- Robin Erickson, Utah Clean Cities
- Ryan Evans, Salt Lake Chamber
- Matt Eyring, Vivint
- Dr. Robert R. Gillies, State Climatologist
- Andrew Gruber, WFRC
- Susan Hardy, Mountainland Association of Governments

- Roger P. Jackson, FFKR Architects
- Ron Jibson, Questar Gas
- Linda Johnson
- Terry Marasco
- Mayor Ben McAdams, Salt Lake County
- Nancy McCormick, AARP Utah
- Dr. Robert Paine, University of Utah
- Angelo Papastamos, Utah Department of Transportation
- Rep. Edward Redd
- Robert T. Rolfs, Department of Health
- Steve Sands, Kennecott Utah Copper
- Joseph Shaffer, Tri-County Health Department
- Matt Sibul, Utah Transit Authority
- Amanda Smith, DEQ
- Lowry Snow
- Dr. Charles W. Sorenson, Intermountain Health Care

- Peter Stempel
- Kathy Van Dame
- Vicki Varela, Utah Office of Tourism
- Ted Wilson, UCAIR Director
- Sarah Wright, Utah Clean Energy

*Action Team Co-Chair

Your Utah, Your Future Background

In Need of a Solution

Projections show that Utah's population will nearly double by the year 2050. The *Your Utah, Your Future* survey was designed for Utahns to create a vision for the State of Utah for the next 35 years.

Identifying the Issues

Envision Utah performed a values study to understand **what** Utahns care about regarding the future and **why** those issues are personally important to them. The study identified eleven key issues: agriculture, air quality, recreation, disaster resilience, public lands, transportation and communities, housing and cost of living, education, energy, jobs and economy, and water.

Identifying Choices and Trade-offs Four-hundred Utah experts worked in eight task forces to identify Utah's choices for each of the 11 topics. The information and options in the survey were the direct findings of these taskforces.

Choosing a Future

The *Your Utah, Your Future* survey was designed to prioritize issues and their associated outcomes in order to make strategic decisions for Utah's future. Nearly 53,000 people weighed in on the future that they want to create in 2050.

The Challenge:

By 2050, Utah's population will nearly double in size. Utah will not.



TODAY THERE ARE

2,900,000PEOPLE IN UTAH

BY 2050 THERE WILL BE

5,400,000 PEOPLE IN UTAH



The Your Utah, Your Future survey asked Utahns to indicate their choices for Utah's Future on 11 specific issues.















Resilience









Your Utah, Your Future Background

Survey participants then chose between five overall scenarios for Utah's future, with each overall scenario proposing a set of choices for the 11 specific issues.











Our goal was for 50,000 Utahns to take the Your Utah, **Your Future** survey about their desires for the future for Utah.

Goal

50,000 Respondents

Actual

52,845 Respondents

Your Utah, Your Future Background

(Tulsa, OK)

(Omaha, NE)

The *Your Utah, Your Future* survey garnered more public participation than any such project ever has.



Louisiana Speaks (Southern Louisiana after Katrina)





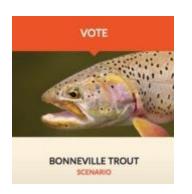
Survey Structure—Part One

Utahns were invited to participate in two parts of the survey. In the first part:

Survey participants chose among five overall scenarios for Utah's future.











Each overall scenario was made up of a set a choices on 11 different topics.















Resilience



Recreation Wa







Lands

13

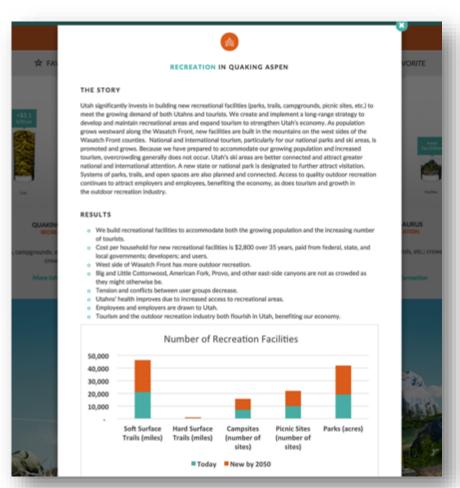
Survey Structure—Part One (Cont'd)

Participants compared the different options within each topic and selected their preferred scenarios for that specific topic.



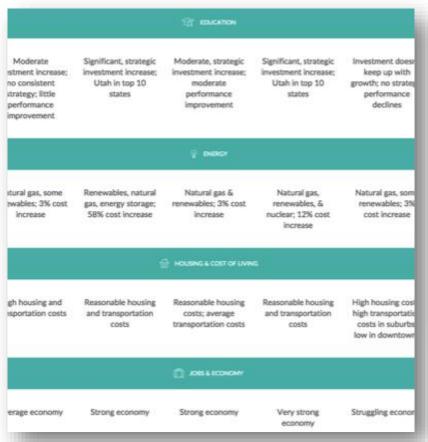
They were provided with in-depth information and background data for each of the topics and choices.

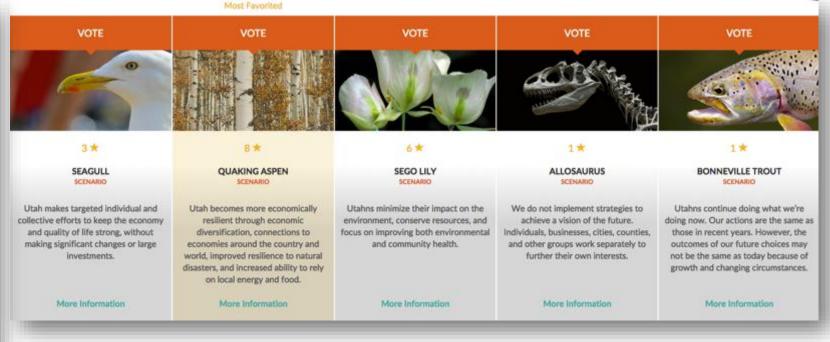




Survey Structure—Part One (Cont'd)

After making selections for each of the 11 topics, participants could study a summary comparison chart and vote on their preferred overall scenario.

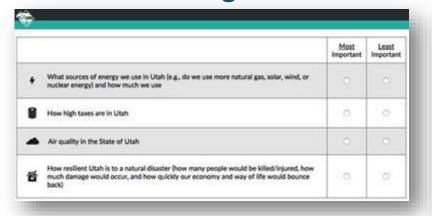




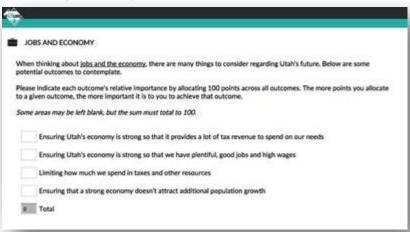
Survey Structure—Part Two

In the second part of the survey, Utahns participated in more traditional survey exercises.

Prioritizing Issues



Weighting Outcome Preference



Together, the results of parts one and two of the survey allow a sophisticated analysis of what Utahns want, why they want it, and what they're willing to do to achieve their goals.

Indicating Tradeoff Willingness

•					
# ENERGY					
f Utah were to focus on using <u>natural</u> a low as possible.					tricity would stay a
n order to get this outcome, some com Nease indicate your willingness to mak					source in Utah.
	Not At All Willing to Make This Trade-off 1	2	Somewhat Willing to Make This Trade-off 3	4	Very Willing to Make This Trade-off 5
We will be vulnerable to supply shocks/price spikes because of reliance on a single energy source that is shipped throughout the country	o		0		è
There will be more air pollution emissions in rural Utah (where the energy is produced) than if we used other energy sources, but fewer than today, because today we are primarily using coal for our electricity	0	0	0	0	0
More land will need to be used for natural gas wells, which have environmental impacts	0	ó	0	0	0

Detailed Survey Methodology

YOUR UTAH. YOUR FUTURE.



Each part of the survey had different goals and provided important information.

Process

Goals



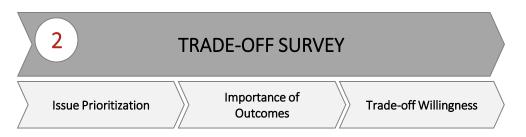
1. Educate Utahns on the key issues facing the state

2. Quantify preferences for issue-specific outcomes

3. Identify areas of consensus and disagreement across issues

4. Quantify preferences for defined scenarios





- 1. Force Utahns to prioritize importance / level of concern for all issues
- 2. Quantify importance of outcomes related to specific issues
- 3. Assess willingness to make trade-offs in order to reach desired outcomes









A random sample survey of Utahns was used to cross-check outreach results

OUTREACH SAMPLE

Utahns that heard about the survey through Envision Utah's outreach efforts and went to the website to vote

- School outreach
- Digital media
- Partner organization emails and posts
- Radio advertisements
- News coverage

Total participants: 52,845

RANDOM SAMPLE

A statistically representative sample of Utahns randomly sampled to participate in the survey

- Direct email
- Physical mail (postcard invitations)
- Phone recruiting

Total participants: 1,264



Survey Participation



All Participants participated in Part One



OUTREACH RANDOM SAMPLE

n=52,845

n=1,264

Outreach Participants had the option to participate in Part Two



OUTREACH

n=13,459

All Random Sample Participants participated in Part Two



RANDOM SAMPLE

n=1,264





Outreach and Random Sample participant responses were very much aligned across issues and preferences.

	Variance Across Most Responses		
Issue "Favoriting"	+/- 3%		
Scenario Vote	+/- 4%		
Issue Prioritization	+/- 1.2%		
Importance of Outcomes	+/- 2%		
Trade-off Willingness	+/- 7%		

"We can conclude that the results represent the desires and opinions of Utahns."

"Results were obtained via the largest public outreach effort in the history of Utah, resulting in public input from more than 50,000 people; an effort that was cross-checked with a random sample of 1,264 Utahns, and overseen by Dan Jones & Associates."

—Cicero; Dan Jones & Associates









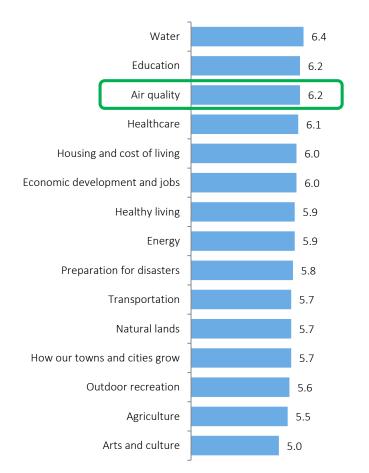




Utahns are Very Dissatisfied with our Performance on Air Quality

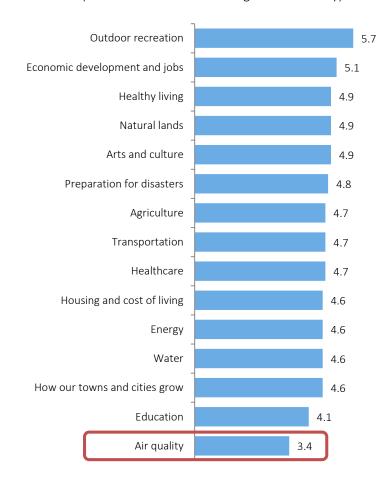
Thinking about the community where you live, please rate each of the following issues where 1 means "not at all important to Utah's future" and 7 means "extremely important to Utah's future."

(Source: Heart + Mind Strategies 2013 Survey)



Please indicate how well you think Utah is performing on each of these priorities using the scale where 1 means "the state is not performing well at all" and 7 means "the state is performing extremely well."

(Source: Heart + Mind Strategies 2013 Survey)



Utahns rank air quality as one of the most important issues in the state, but believe we're performing worse on air quality than on any other issue.

*From 2014 values study.





2014 Values Ladder for Air Quality

Poor Air Quality is just not Healthy for me or my family. It leads to illness, Stress and lack of Security for Future Generations. (Lack of) Security / Future Generations

Stress / Worry
People/Family leaving

Illness / Lack of Healthy Living

Poor Air Quality

In recent years, air quality has become one of the four primary values ladders for Utahns, and Utahns now list it as the most negative aspect of life in Utah.





In addition to the 2014 values study, which found air quality has risen to one of the top four values orientations of Utahns, a 2013 study evaluated in more detail the specific emotions and values that are implicated by air quality. The next series of slides shows that Utahns feel so strongly about air quality because it impacts their lives in many ways and drives a variety of strong emotional responses.



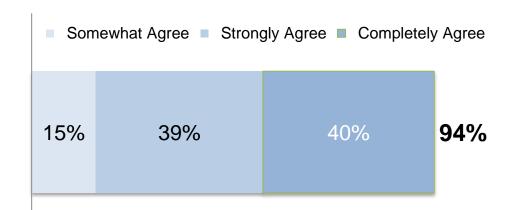
STRATEGIES

Positive Effects of Clean Air: Well Being



Good air quality is integral to maintaining my personal health and my family's good health. No one should have to worry about the air they are breathing or the impact on their health. Good health is key to a better quality of life for me and ultimately a sense of well-being.





Utahns care about air quality primarily because they believe clean air is better for their personal and family health, which leads to less worry and a sense of well being.





Positive Effects of Clean Air: Personal Happiness

Good air quality leads to a healthy active lifestyle. It encourages more time spent outdoors doing the things I love with the people I love. Whether it is hiking, skiing, boating or just simply enjoying our beautiful natural surroundings, it allows for quality time spent with family or friends. This brings me much enjoyment and personal happiness.

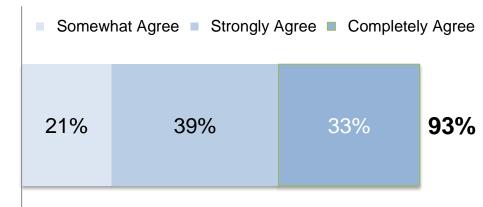
Personal Happiness/Personal Enjoyment

Time With Family

More Physical Activity/Time Outdoors

Good Health

Good Air Quality

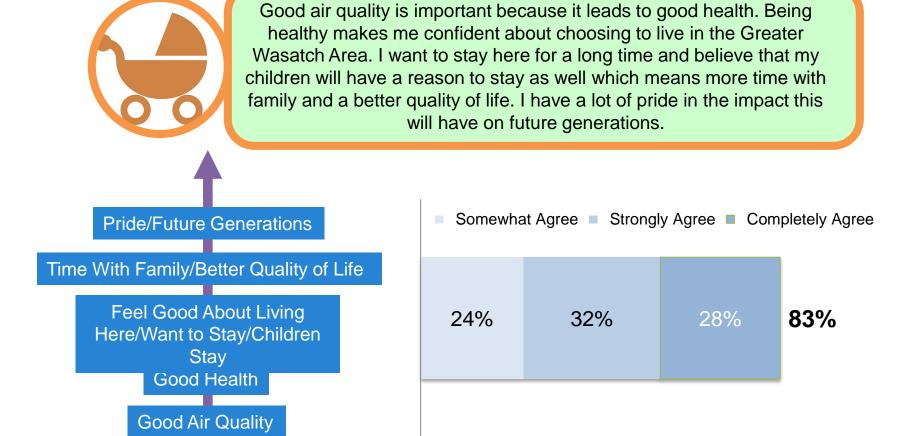


When the air is clean, Utahns feel more able to spend time outdoors doing the things they love with the people they love, which brings happiness and enjoyment.





Positive Effects of Clean Air: Future Generations



Clean air makes
Utahns feel confident
about living in Utah,
and more hopeful their
children will want to
stay, which means
more time with family
and a positive impact
on future generations.



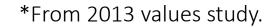


Negative Effects of Poor Air Quality: Lose Freedom



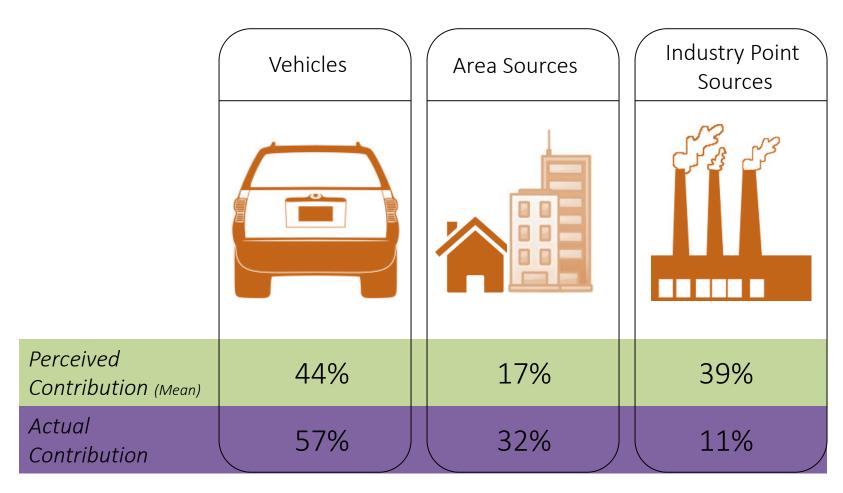
When the air is poor,
Utahns feel they are
unable to do all the
things they want to do.
This makes people feel
restricted and confined.











Utahns significantly underestimate the contribution of area sources today and overestimate industry sources.

BASE: ALL QUALIFIED RESPONDENTS

Q420. When thinking about who or what is most at fault on the winter days that air quality is poor, how much weight do you give to each of the following sources? Please take 100 percentage points and allocate them to the following 3 sources of air pollution in terms of what you feel is most to blame.

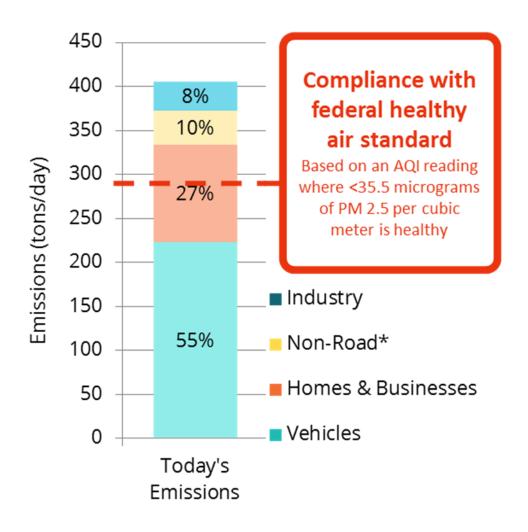












Utah's Air Quality Today

- Utah's air is clean much of the year.
- We regularly exceed healthy air standards during winter months and also at times during the summer.
- Vehicles make up most of our emissions, but area sources (homes and commercial, office, and other buildings) will overtake vehicles in the years to come.
- By 2050, Utah will have 2.5 million more people, which means a lot of new vehicles, homes, and businesses.



Questions Concerning The Future of Air Quality

- What kind of cars will we drive?
 - Cleaner vehicles are already available. How many of us will drive them?
- How much will we drive?
 - Will there be convenient alternatives to driving?
 - How close will we live to our school, work, shopping, and recreational facilities?
- How efficient will our homes and businesses be?
 - What changes will be made in new and existing building construction, and in appliances?
- How will industry contribute to the change?
 - Will our refineries produce cleaner fuel?



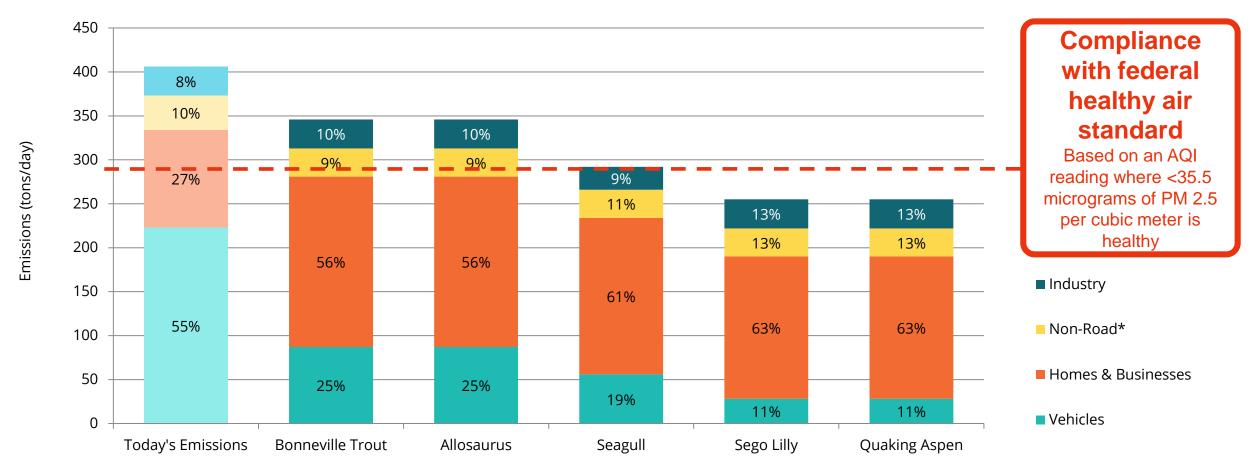
Scenarios Overview

- All scenarios assume:
 - Federal Tier 3 regulations will eventually lead to primarily cleaner (smog rating 8, 9, or 10) cars on the road in Utah.
 - The 2014 State Implementation Plan will reduce area source (homes and other buildings) and point source (industrial) emissions.
- By 2050 area sources (homes and other buildings) will become the leading source of emissions as we almost double the number of homes and businesses and federal regulations require cleaner cars and fuels.



Scenarios Overview

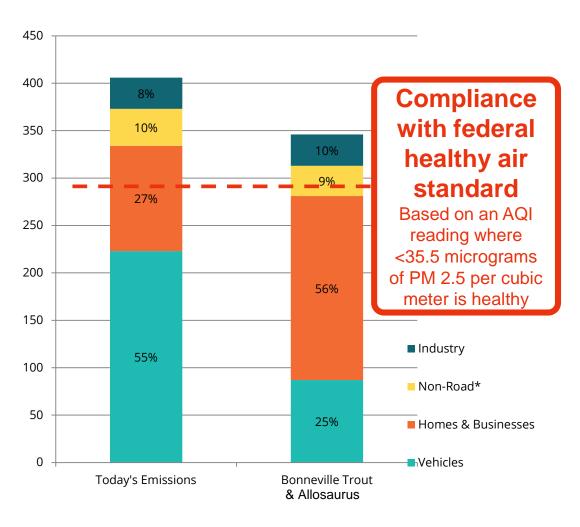
Area sources (homes & businesses) overtake vehicles as the dominant emissions source



^{*}Non-Road sources include all engine powered devices that operate off roads, such as construction equipment, airplanes, lawn mowers, snow blowers, etc.



Bonneville Trout & Allosaurus Scenarios



Vehicle Strategies

- We drive the same amount per person as today.
- 90% of vehicles have fewer emissions; 5% have zero emissions.
- 60% of fuel is clean (i.e., low sulfur).

Home & Business Strategies

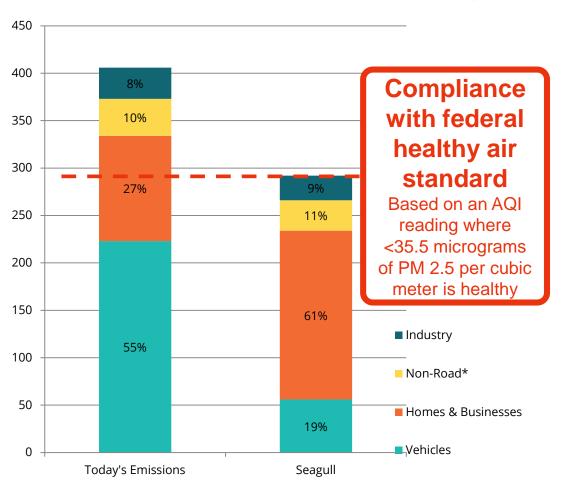
- New buildings are not more energy efficient.
- Older buildings are seldom renovated to be more efficient.
- No ultra-low emission water heaters.
- Wood burning per person remains the same.

Industry Strategies

- Emissions are reduced by 2014 state regulations.
- Only some refineries produce cleaner fuel.



Seagull Scenario



Vehicle Strategies

- We drive 10% less than today per person
- 95% of vehicles have fewer emissions; 10% of vehicles have zero emissions.
- All fuel is clean (i.e., low sulfur).

Home & Business Strategies

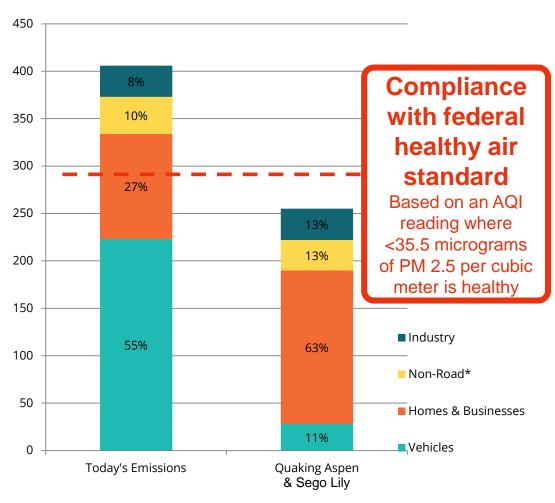
- New buildings are 25% more energy efficient .
- 25% of older buildings are renovated to be 30% more efficient.
- Half of all water heaters are ultra-low emission.
- Wood burning per person decreases by 50%.

Industry Strategies

- Emissions are reduced by 2014 state regulations.
- All refineries produce cleaner fuel.



Quaking Aspen & Sego Lily Scenarios



Vehicle Strategies

- We drive 25% less than today per person .
- 98% of vehicles have fewer emissions; 35% of vehicles have zero emissions.
- All fuel is clean (i.e., low sulfur).

Home & Business Strategies

- New buildings are 50% more energy efficient.
- All older buildings are renovated to be 30% more efficient.
- All water heaters are ultra-low emission.
- Wood burning per person decreases by 75%.

Industry Strategies

- Emissions are reduced by 2014 state regulations.
- All refineries produce cleaner fuel.



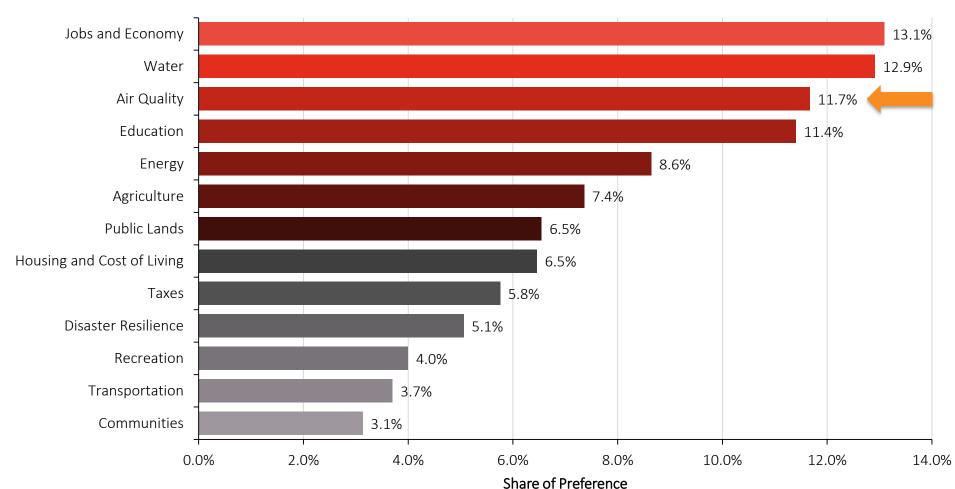






Level of Concern for the Future—Outreach Sample Results

Share of Preference, n=13,459



In the 2014 values study, Utahns ranked all 11 issues as being important to Utah's future. The 2015 survey used a sophisticated technique to force a "weighting" of the issues, providing a wider gradation of concern.

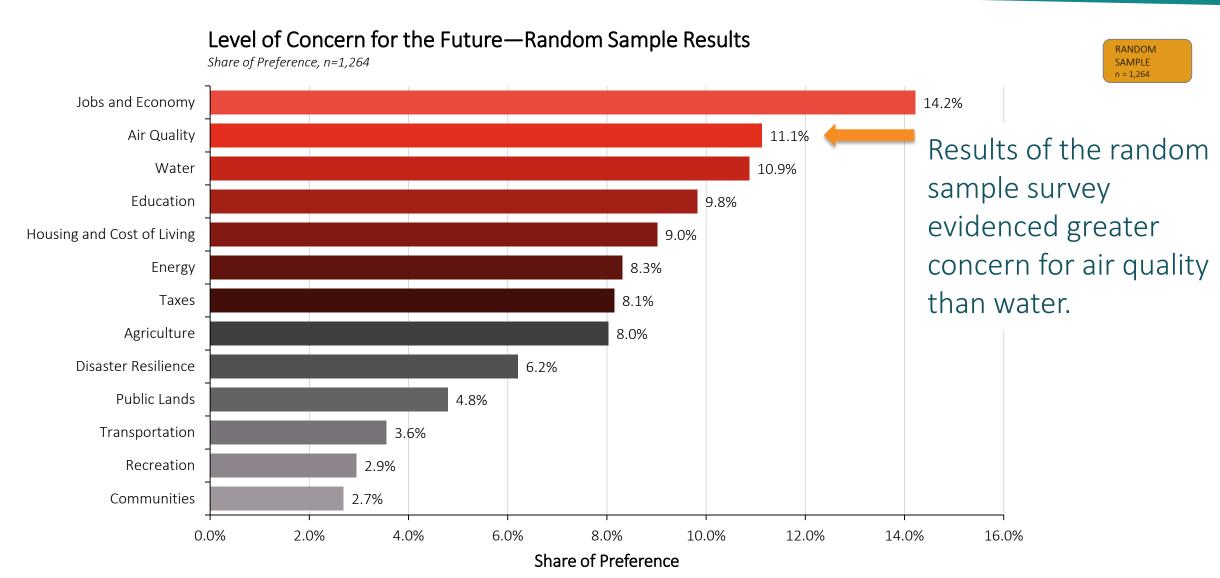






YOUR UTAH. YOUR FUTURE.





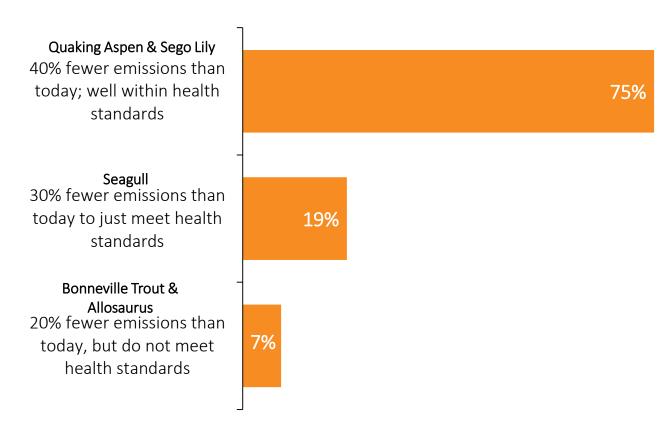






Issue-specific Scenarios

% "Favorite" Selections



What Utahns Want:

75% of Utahns voted to reduce emissions by 40%, which would be well within health standards and involve major changes in how clean our vehicles are, how much we drive, and how energy efficient our buildings are.

Only 7% voted for a scenario in which we don't meet health standards.





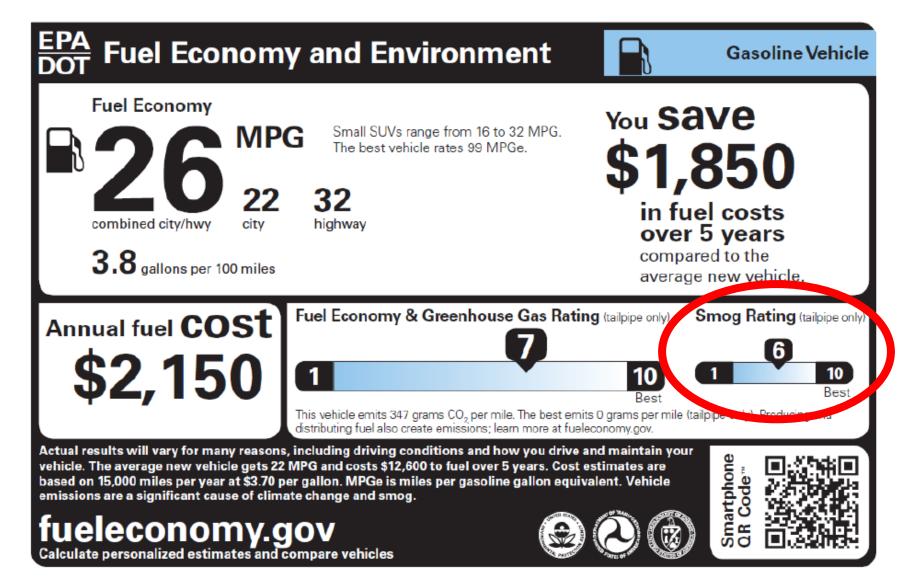


Utahns Chose a Scenario that Includes the Following Actions:

- Utahns drive 25% less per person
- -98% of cars are cleaner (smog rating 8-10), 35% are zero emission (likely electric)
- All gasoline is cleaner—Utah refineries must retool to produce lower-sulfur fuel
- All existing buildings are retrofitted to be 30% more energy efficient
- All new buildings are 50% more energy efficient (in 2016 the legislature will consider the newly proposed 2015 international energy conservation code)
- All water heaters are ultra-low NOx (a gas that produces particulates)
- Wood burning decreases by 75% per person
- The new State Implementation Plan drives down industry and area sources



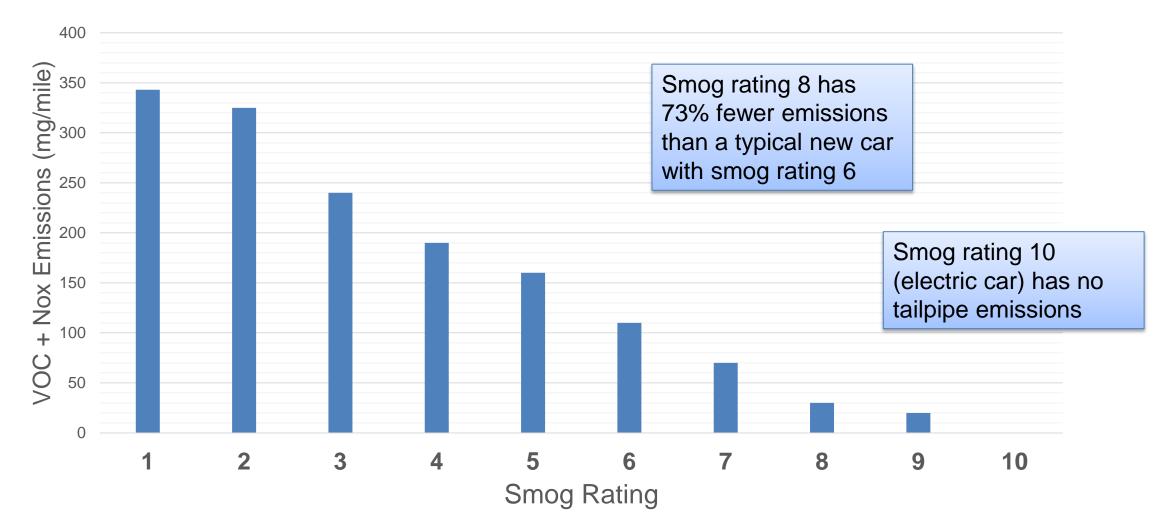
Car Window Stickers Include Smog Ratings



You can also find your smog rating at fueleconomy.gov



Higher Smog Ratings Produce Significantly Fewer Emissions





The 2015 International Energy Conservation Code Will Reduce Emissions Significantly, if Adopted in Full

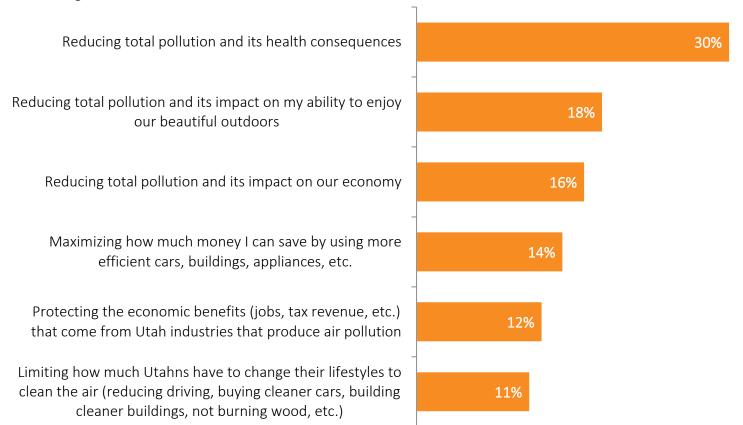
- Each new home will use 24% less energy
- Homeowners will save an average of \$297 per year
- Each home not built to the 2015 energy code will be very difficult to retrofit later
- The 2015 code will be considered in the 2016 legislative session
- Further improvements in building energy efficiency will be required to meet Utahns' air quality goals

Source: Cost-Effectiveness Analysis of the Residential Provisions of the 2015 IECC for the State of Utah, Pacific Northwest National Laboratory (June 2015)



Importance of Outcomes

Average % Allocated



Why Utahns Want Better Air Quality:

Utahns want to mitigate air pollution's negative effects on their health, their recreation, and the economy.







YOUR UTAH. YOUR FUTURE.



Willingness to Make Tradeoffs

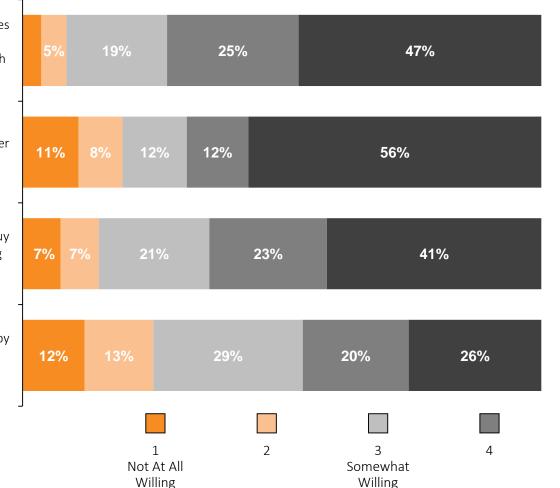
% Level of Willingness, n=4,885

We would have to build more energy-efficient homes and businesses with appliances that emit less air pollution, typically at a higher up-front cost but with an overall savings

You would have to avoid burning wood during winter inversions

The next time you buy a car, you would have to buy one that produces less air pollution (higher smog rating)

You would have to limit the amount you drive by taking public transportation, biking, walking, combining trips, carpooling, etc.



What Utahns are willing to do to improve air quality:

Utahns are very willing to build more energy-efficient homes and businesses, avoid wood burning, and buy cleaner (higher smog rating) cars.

They are also willing to limit the amount they drive.





Source: Survey – Please indicate your willingness to make each trade-off in order to improve Utah's air quality.



n = 52,845

In addition to the specific results from air quality questions, a number of results from other topics show support for improving air quality.



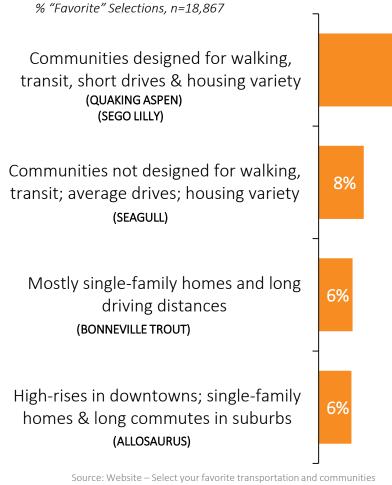




82%







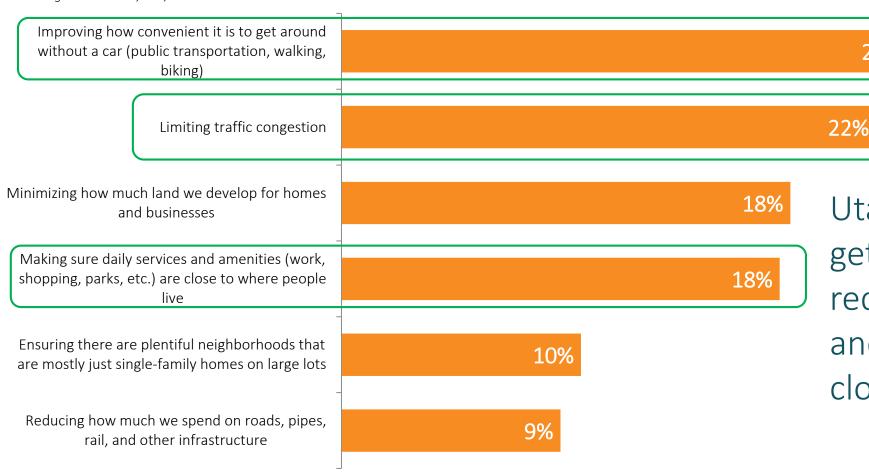
Source: Website – Select your favorite transportation and communities outcome(s) from the 4 presented below for Utah in 2050. Consider infrastructure costs, amount of land developed, and access to public transportation/services/jobs/amenities.

Utahns want their communities to be designed around walking, transit, and short drives.



Importance of Outcomes—Transportation & Communities

Average % Allocated, n=4,849



Utahns want to be able to get around without cars, reduce traffic congestion, and have their destinations close to their homes.

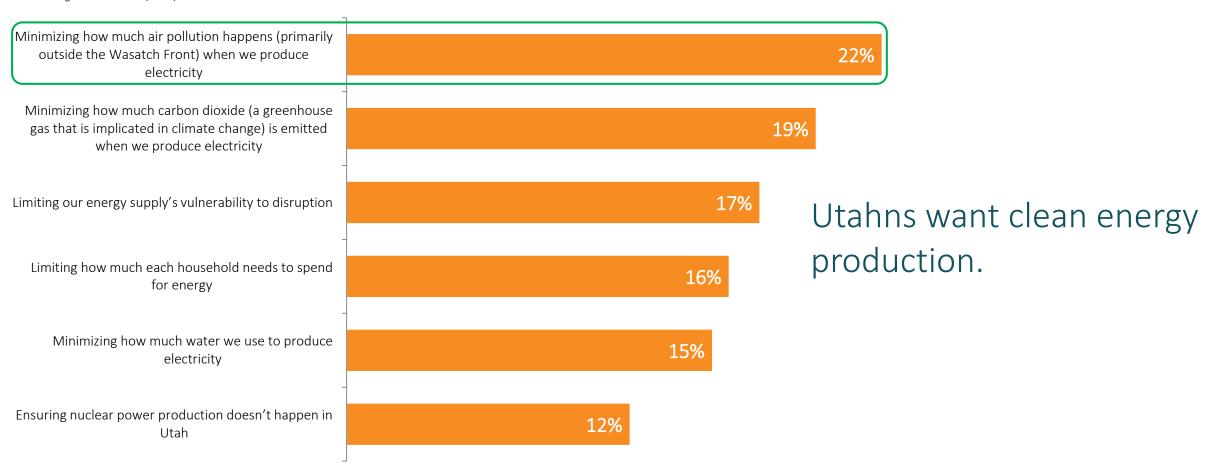




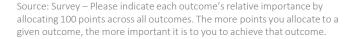


Importance of Outcomes

Average % Allocated, n=4,924









The Survey is still available!

