

# Recommendations in Brief

At the request of the Utah Legislature, the Kem C. Gardner Policy Institute – with the assistance of a 37-person Technical Advisory Committee – prepared The Utah Roadmap to assist with legislative policymaking to improve air quality and address causes and impacts of a changing climate. The Utah Roadmap identifies areas of opportunity to further reduce air emissions and ensure a healthy, productive, and prosperous future for all Utahns.

The Gardner Institute and Technical Advisory Committee reviewed past Utah-specific work on air quality and changing climate completed by Envision Utah and the 2007 Blue Ribbon Advisory Council. This previous analysis included over 200 policy options. After a six-month expert assessment, we prioritized 59 of these options as those with the greatest potential to impact Utah's air and changing climate. The Gardner Institute then selected seven strategies – or what we call mileposts – as the first areas of focus.

MILEPOST  
1

**Adopt emissions-reduction goals and measure results** – We recommend the following emissions-reduction goals be adopted by resolution or statute in 2020.

*Reduce criteria pollutant air emissions below 2017 levels by 50% by 2050.*

*Reduce CO<sub>2</sub> emissions statewide 25% below 2005 levels by 2025, 50% by 2030, and 80% by 2050.*

MILEPOST  
2

**Lead by example** – We recommend state government lead by example by converting to an all electric/compressed natural gas/hydrogen/renewable natural gas fleet where practical, adopt energy efficiency goals in state buildings, establish telework targets, provide additional funding for reforestation, and invest more in energy planning.

MILEPOST  
3

**Create a premier air quality/changing climate solutions laboratory** – We recommend Utah establish and fund a premier state-level air quality/changing climate research solutions laboratory to improve emissions inventories and the monitoring network, conduct research, advance new technologies, and convene entrepreneurs and experts to innovate.

MILEPOST  
4

**Accelerate quality growth efforts** – We recommend the state accelerate progress to meet objectives of Wasatch Choice 2050 and other quality growth initiatives statewide that will provide more transportation choices, support housing options, encourage active transportation, preserve open space, improve energy efficiency in buildings, and link economic development with transportation and housing decisions.

MILEPOST  
5

**Position Utah as the market-based EV state** – We recommend the state expand Utah's network of electric vehicle (EV) charging stations, incentivize electric vehicle/compressed natural gas/hydrogen/renewable natural gas use (particularly for older vehicles and large fleets), and involve Utah auto dealers in strategies to increase the zero-emissions vehicle supply.

MILEPOST  
6

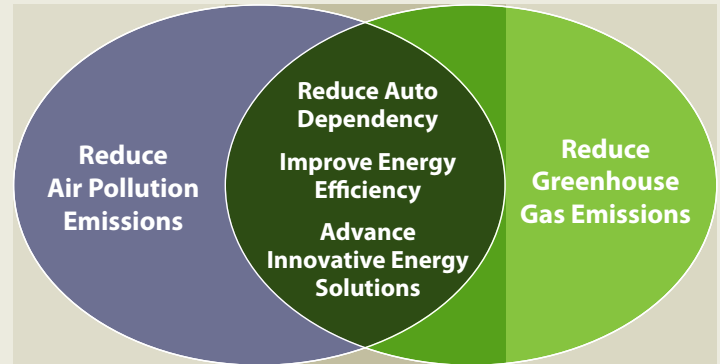
**Provide economic transition assistance to rural communities** – We recommend the state prioritize economic development investment and partnerships in energy-transition areas such as Carbon, Emery, Millard, Uintah, Duchesne, Sevier, and San Juan counties.

MILEPOST  
7

**Participate in national dialogue about market-based approaches to reduce carbon emissions** – We recommend the state become a leader in national discussions about how to harness the power of market forces and new technologies to reduce carbon emissions in a way that protects health, sustains economic development, and offers other benefits to Utahns. Energy storage, research and development for energy technologies, revenue neutral/border adjusted carbon pricing, cap and trade, and other approaches may offer promising options for reducing emissions.

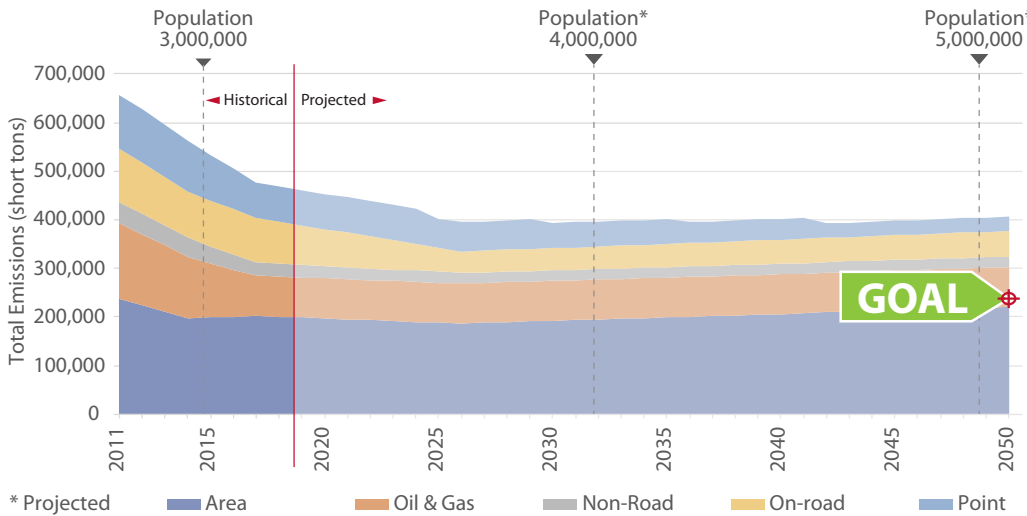
# The Air Quality/Changing Climate Connection

Reducing air emissions throughout Utah benefits both air quality and changing climate issues. Some emissions-reduction strategies, such as those in the center of the diagram, directly address this connection, improving air quality and the climate.



## Utah's Air Emissions Baseline

Historical and Projected Air Pollutants (NO<sub>x</sub>, VOC, PM<sub>10</sub>, NH<sub>3</sub>, SO<sub>2</sub>)

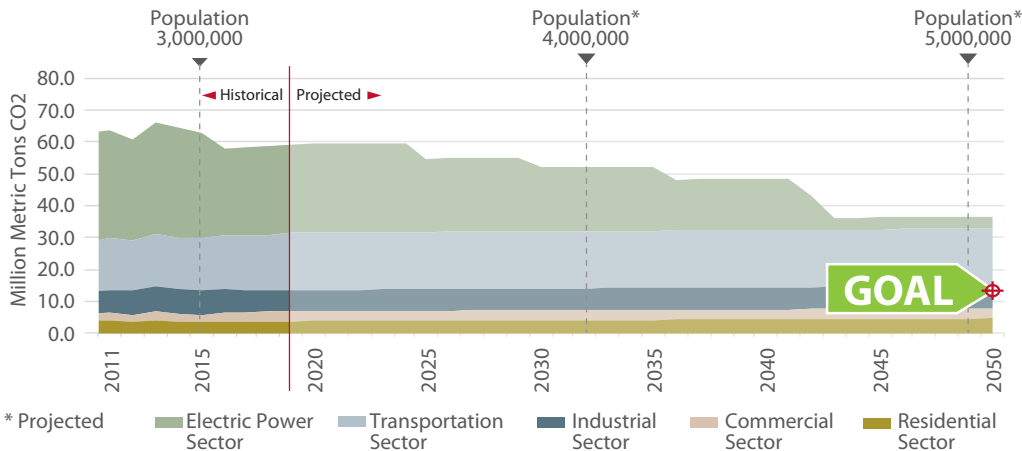


Note: Area sources include stationary source fuel combustion, service stations, painting operations, solvent use, waste management, and light industrial, and a wide range of citizen activities such as lawn maintenance, gas and charcoal barbecues, and home heating. Point sources are localized, large, stationary sources of air emissions such as factories, power plants, foundries, refineries, and chemical plants. Baselines account for potential scenario dates for the notional closures of Bonanza (2030), Huntington (2036), and Hunter (2042) power plants.

Source: Utah Department of Environmental Quality, and Kem C. Gardner Policy Institute

## Utah's Carbon Dioxide Emissions Baseline

Historical and Projected Statewide CO<sub>2</sub> Emissions



Note: Baselines account for potential scenario dates for the notional closures of Bonanza (2030), Huntington (2036), and Hunter (2042) power plants.

Source: US Energy Information Administration (EIA) based on the combustion of fossil fuel (historical), and Kem C. Gardner Policy Institute (projected)

# Challenges and Opportunities

Utah's population and economy have grown faster than most other states for over half a century. That trajectory – two million residents added between 1970 and 2018 – is projected to continue, with Utah reaching a population of four million by 2032 and five million by 2050.

Growth and the development that comes with it – more people, more buildings, more traffic, more economic activity – brings many challenges, as well as many opportunities for a prosperous future. A potential obstacle to Utah achieving its full economic potential, though, is the need for an even more ambitious, comprehensive, and coordinated strategy to reduce air emissions, improve air quality, and address changing climate causes and impacts.

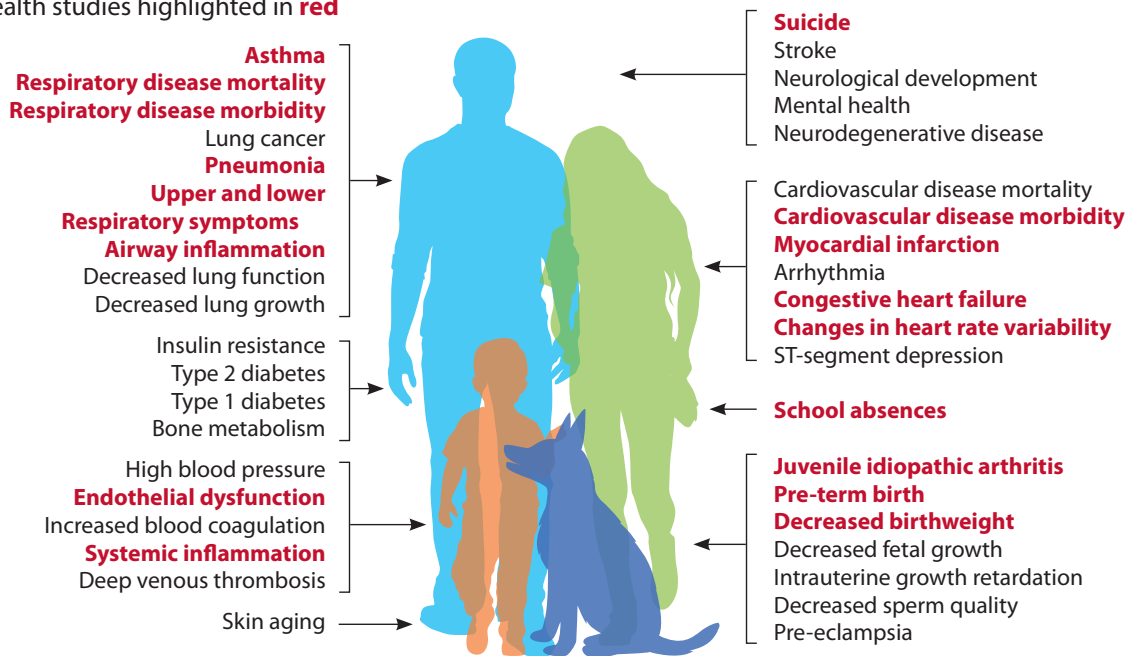
Successful efforts over the past several decades have reduced some types of air emissions by significant amounts. Vehicles are cleaner. Three of Utah's five oil refineries are investing millions of dollars to produce

cleaner-burning Tier 3 fuels. Residents have responded well to educational efforts and incentive programs that, among other things, encourage people to switch gas-powered lawnmowers and snowblowers for electric ones and wood-burning stoves with less-polluting heating sources.

We are fortunate that proactive efforts at the national, state, and local levels have made Utah's air less polluted today than in the past. With a strong foundation of existing efforts and commitment from individuals and groups throughout the state, Utah is well-positioned to meet our air quality and changing climate challenges head-on and with vigor.

## Health Effects of Air Emissions and Pollutants

Utah-based health studies highlighted in **red**



Source: Adapted from Thurston et al., 2017: Utah health studies included in additional reference list.

# Technical Advisory Committee

Nearly 40 individuals with technical expertise in applicable fields were assembled to help identify emissions-reduction strategies and assess their effectiveness, based on adopted evaluation criteria. These experts freely shared their time, knowledge, and experience through multiple working group and committee meetings.

While all Advisory Committee participants actively and diligently took part in the process, not all endorsed every suggested policy action in full, with differences of opinion primarily focused on wanting to encourage more assertive actions and targets.

Participants also suggested that an ongoing process be established to track progress and periodically update emissions-reduction strategies. As one participant put it, *“This is a first step – a very positive first step – on a long journey. Success requires all of us, and everyone in Utah, to remain dedicated and committed to seeing these actions put in place.”*

## Participants

Tom Adams, Governor’s Office of Outdoor Recreation  
Scott Baird, Utah Department of Environmental Quality  
Vicki Bennett/Tyler Poulson, Salt Lake City Department of Sustainability  
Bryce Bird/Glade Sowards/Becky Close, Utah Division of Air Quality  
Josh Brown/Jenny Esker, Rio Tinto  
Andrea Brunelle, University of Utah, Geography Department  
Thom Carter, UCAIR  
Jon Cox/James Owen, Rocky Mountain Power  
Brett Crable, Dominion Energy  
Royal DeLegge/Michael Shea, Salt Lake County  
Robert Gillies/Binod Pokharel, Utah State University  
Andrew Gruber/Kip Billings, Wasatch Front Regional Council  
Thomas Holst/Juliette Tennert, Kem C. Gardner Policy Institute  
Benjamin Horne, Intermountain Healthcare  
Ben Huot, Utah Department of Transportation  
Liza Kasavana, University of Utah Health, College of Nursing  
Kerry Kelly, University of Utah, Department of Chemical Engineering  
Michelle Larsen/GJ LaBonty, Utah Transit Authority  
Brian McInerney, National Weather Service  
Shauna Mecham, Mountainland Association of Governments  
Daniel Mendoza, University of Utah, Department of Atmospheric Sciences and Pulmonary Division  
Logan Mitchell, University of Utah, Department of Atmospheric Sciences  
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Brooke Tucker, Governor’s Office of Energy Development  
Sarah Wright/Josh Craft, Utah Clean Energy