



# Newsletter

## Environmental Connection

Winter 2013

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Sponsored by the Utah Department of Environmental Quality

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### Gov's Budget Would Boost Air Funding

Air quality initiatives to address Utah's air pollution would receive critical funding under the governor's proposed spending plan for fiscal year 2015. [Governor Herbert's budget recommendations](#) include a one-time appropriation of \$1.8 million for air quality research, \$1.3 million for grants to help small businesses reduce their emissions, and \$14.3 million to convert aging school buses and state fleet vehicles to cleaner models.

"I'm very pleased with the Governor's budget proposal," said executive director Amanda Smith. "Governor Herbert has directed DEQ to make air quality a priority and this budget proposal reflects the ability to do that."

The governor's \$13.3 billion budget also includes \$600,000 to increase energy efficiency in state buildings and \$50,000 for the Division of Radiation Control's Radon Program. Ongoing funding proposed for water monitoring in Snake Valley would help track water drawdowns that could contribute to fugitive dust transport into Wasatch Front nonattainment areas.

Top priorities for the governor include education (\$8.3 billion), transportation (\$1.1 billion), Medicaid and other social services (\$865 million) and the corrections system (\$550 million). The proposed budget also includes a modest across-the-board pay increase for state employees (1 percent).

Sources of funding for DEQ's proposed \$58 million operating budget include:

- \$13.1 million from General Funds
- \$18.6 million from federal funds
- \$8.8 million from dedicated credits
- \$13.3 million from restricted and trust funds
- \$4.2 million from other funds

The Legislature will finalize the 2015 fiscal year budget, which runs from July 1, 2014 to June 30 2015, during its 45-day session beginning in January 2014.

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## **Air Board Oks Utah's Statewide Air Plan**

The Utah Air Quality Board on Dec. 4, 2013 approved the state's plan to meet federal health standards for fine particulate pollution, known as PM2.5, in areas along the Wasatch Front, following a seven year effort that involved hundreds of stakeholders and public participation.

The State Implementation Plan (SIP) will phase in many new regulations and rules that apply to not only industries and large manufacturers, but also to small businesses, homeowners and consumers.

"The SIP doesn't eliminate all pollution, but we feel it will get us where we need to be—in compliance with federal air quality standards by 2019," said Bryce Bird, director of the Division of Air Quality (DAQ). "We will start seeing improved air quality because of the rules and regulations in place."

### **Utah's Unique Air Shed**

Utah's mountain-valley topography, diverse economy and growing population create some air quality challenges for the state.

Each year in various parts of Utah, inversions (i.e., the reverse of a normal air pattern with cooler air above and warmer air below) occur during the winter months. An inversion will linger until wind or a storm front passes through. During an inversion, the warm layer acts like a lid, trapping emissions from vehicles, businesses and industrial processes in the cold air near the valley floor. These emissions mix in the cold layer of air to form particulate matter (PM).

Prolonged inversions can lead to high levels of fine particulate pollution (PM2.5). There are two types of fine particulates: primary and secondary. Primary PM2.5 is emitted directly as a particle and enters the atmosphere as soot. Secondary particulates form when precursor emissions react in the atmosphere to create PM2.5. Most of Utah's PM2.5 pollution comes from secondary particles. For example, during winter inversions vehicles contribute more than half of the emissions that lead to the formation of PM2.5.

All states are subject to two health-based National Ambient Air Quality Standards for fine particulates: a 24-hour standard of 35 µg/m<sup>3</sup> and an annual standard of 12 µg/m<sup>3</sup>. Utah meets the annual standard in all areas of the state. Davis and Salt Lake counties, and parts of Box Elder, Cache, Tooele, Utah and Weber counties exceed the 24-hour standard at times during the winter. As a result, the Environmental Protection Agency (EPA) has designated these areas as "nonattainment."

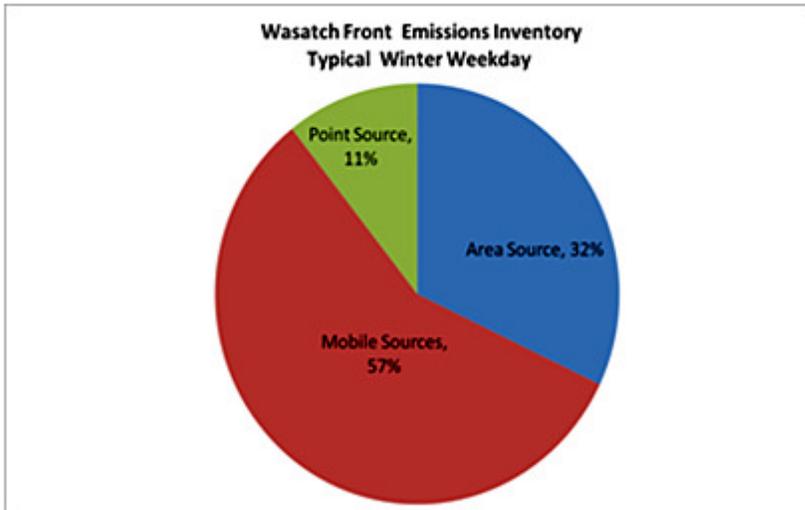
### **Development of a SIP**

In 2006, DAQ initiated the development of the SIP to reduce PM2.5 emissions and bring fine particulate levels below the national standard (i.e., into attainment). It was a multi-step process:

## Step 1: Emissions Inventory

First, DAQ conducted an inventory of the various sources of emissions. The identified sources are categorized as:

- Mobile (e.g., vehicles)
- Point (e.g., large manufacturers)
- Area (e.g., home and commercial heating)



The chart above is based on the DAQ 2008 emissions inventory for the four urbanized Wasatch Front counties: Davis, Salt Lake, Utah and Weber. These are average winter weekday emissions.

## Step 2: Modeling & Testing

The DAQ developed a model to mimic atmospheric conditions, which was used to help test possible strategies to reduce emissions. To be included in the SIP, a strategy not only had to reduce PM<sub>2.5</sub>, but also had to meet the following criteria:

- Must be enforceable
- Must be sustainable
- Must be cost-effective

Because past SIPs have led to considerable reductions in the emissions that form PM<sub>2.5</sub>, it was challenging to find additional control strategies to lower these emissions further.

"There was no silver bullet," said Bird. "We turned to emission reduction strategies that offer smaller, incremental improvements as the means to bring these areas into attainment."

### *Mobile Source Strategies*

Because vehicles contribute more than half of the emissions that lead to the formation of PM<sub>2.5</sub>, DAQ worked closely with stakeholder groups to gather ideas and recommendations for emission control strategies that would complement community needs.

The combination of Tier 2 federal fleet standards and local transportation plans to reduce trips and vehicle miles travelled (VMTs) will result in up to a 50 percent reduction in vehicle emissions by 2019.

State and regional transportation plans and programs administered by municipal planning organizations (MPOs) and the Utah Department of Transportation (UDOT) within the Salt Lake and Utah County nonattainment areas will need to conform to the allowable emission budgets in the SIP to ensure that transportation activities do not interfere with air quality progress.

#### *Point Source Strategies*

DAQ's permitting process and previous SIPs have regularly controlled emissions from point sources.

- Large manufacturing (point) sources will reduce their emissions through the installation of Best Available Control Technology (BACT) required under the SIP. Costs to install point source controls will range from \$1,357 to \$25,319 per ton of reduction.
- Point sources will be required to offset any future emission increases through the nonattainment area banking and trading program.
- When fully implemented, the required application of state-of-the-art emissions controls will reduce annual oil refinery emissions by more than 2,000 tons per year from current emission rates.
- Additional emission controls imposed by this SIP will result in 4,600 fewer tons per year emitted from point sources along the Wasatch Front.

#### *Area Source Strategies*

Utah's Air Quality Board has approved 23 new area source rules to reduce area source emissions, including a ban on consumer products (e.g., hair spray, air fresheners) that contain volatile organic compounds (VOC) above of the defined limits.

- Costs to install area source controls will range from \$238 to \$6,560 per ton. New area source rules will reduce emissions from:
  - Commercial cooking
  - Consumer products
  - Printing and publishing
  - Painting and degreasing
  - Wood stoves and boilers

### Step 3: Public Involvement

With more than 650 comments received from the public during the official public comment period, the PM2.5 SIP was refined and updated to represent the best effort for cleaner air in Utah. Public feedback is a critical part of the decision making process. The public was invited to provide comments and feedback on DAQ's findings and recommendations in the proposed SIP, from October 1 through October 31, as well as attend any one of three public hearings that were held in Ogden, Provo and Salt Lake City. The DAQ reviewed and made changes and adjustments to the proposed SIP based on public feedback.

### Next Steps:

The PM2.5 SIP will be reviewed by the EPA for federal approval. Utah has five years to bring all sources into compliance—based on the strategies outlined in the SIP—in order to achieve attainment of the EPA's health-based National Ambient Air Quality Standards.

See the PM2.5 SIP Development for more information.

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## Clean Utah Honors Businesses for Pollution Prevention

Business and community leaders at the forefront of reducing pollution in Utah gathered on Nov. 12 at the Salt Lake City Public Safety Building for the Annual Clean Utah Luncheon. The new Public Safety Building is the first building of its kind in the nation to achieve a net zero pollution rating.



Jacob Mildenhall, Trent Sorensen, Ken Bean, Randy Bremner,  
and Lonnie Logan of Northrop Grumman, Paul Harding and  
Amanda Smith, UDEQ

"Salt Lake City has made an important investment in Utah's community," said Amanda Smith, executive director of the Utah Department of Environmental Quality (DEQ). "Their demonstrated commitment to protecting the environment is motivating others to take big and small actions to help ensure that Utah remains a great place to live and work."

Salt Lake City received the 2013 Outstanding Award in Pollution Prevention at this year's luncheon. The award recognizes the innovative technologies and energy efficient strategies employed in the design of the new Public Safety Building, including the use of roof canopy solar panels, an off-site solar farm, strategic use of natural light and fluorescent or LED low energy lights, a solar hot water heating system and energy monitoring systems.

A traditional building of comparable size produces approximately 2,670 metric tons of greenhouse gases each year. Salt Lake City's Public Safety Building has an Energy Star performance rating of 100 (the highest possible), with an 80 percent savings in energy use and emissions. The building itself will produce just 524 metric tons per year, which will be offset by solar to reach the net zero goal. The energy savings from the building will pay back the initial investment within five years.



Meritorious Awards for Pollution Prevention were awarded to Momentum Recycling and Northrop Grumman. Momentum Recycling, a Salt Lake City-based company, expanded its recycling services for glass, and green and mixed waste; and upgraded two fleet vehicles to compressed natural gas (CNG). Northrop Grumman, one of the world's largest defense and commercial aerospace

Clean Utah Partners were also honored for their annual accomplishments. Clean Utah Partners have been measuring and reporting accomplishments for over a decade. This year Partners reported saving 11.6 million gallons water and 1.3 million kWh of electricity. Additionally hazardous chemicals used in production were reduced 830,664 pounds and the generation of hazardous waste was reduced by over 5 million pounds. Over 2510 metric tons of solid waste was reduced by partners through recycling. One partner, Hexcel, recycled 5,338,304 lbs. or 2427 metric tons of material. Hexcel's calculations based on the [EPA "WARM" software](#) indicated recycling 5,338,304 lbs. is equivalent to conserving 1,210,449 gallons gasoline or 56 railway cars of coal. Also of significance is a reported economic savings of over \$686,618 dollars between the eight Clean Utah members at the Partner level.



Clean Utah is a voluntary statewide environmental leadership and recognition program, administered by the Utah Department of Environmental Quality's Pollution Prevention Program. The program's goal is to incorporate pollution prevention practices into all aspects of operations resulting in environmental improvements. Clean Utah encourages and rewards Utah businesses and other permit holders for going beyond compliance to preserve and protect Utah's environment. For more information, call Paul Harding at 801-536-4108 or visit [Clean Utah](#).

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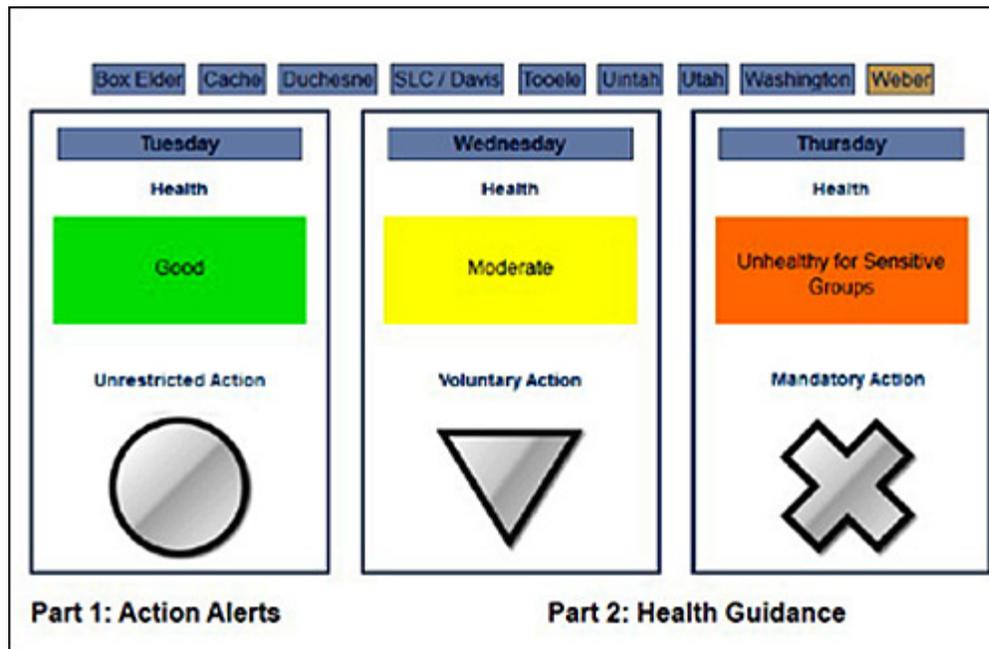
## Air Quality Alerts Focus on Actions & App

The Utah Division of Air Quality (DAQ) unveiled its new air quality alert system in November that conveys dual messages—when to take action to protect health and when to take action to improve air—information that is now available on a smartphone app, UtahAir.

"We are taking a proactive approach to air quality," said Bryce Bird, director of DAQ. "We are not waiting until pollution levels reach unhealthy levels to issue calls for voluntary or mandatory actions, such as prohibiting wood burning or asking people to limit driving."

### Alert System

The DAQ developed, with public input, the new air quality alert system to better communicate the complex health implications and activity restrictions related to air pollution in Utah.



The new alert system helps to curb both vehicle and wood burning emissions. Wood burning restrictions aim to reduce hard-to-see particle pollution that builds up during winter inversion periods. Restrictions are implemented as a proactive measure when fine particle matter (PM2.5) from a variety of sources, such as vehicle emissions and wood and coal burning stoves or fireplaces, is increasing and has the potential to reach unhealthy levels.

"There are opportunities every day to help improve air quality in Utah," said Bird. "While we can't control the weather, with a little help from everyone we can reduce how much pollution we're breathing during an inversion."

The new alert system consists of two parts:

**Part 1 — Action Alerts:** Three basic symbols to indicate unrestricted, voluntary and mandatory actions.

- Unrestricted Action (symbol = circle): Solid fuel burning devices, including wood and coal burning stoves and fireplaces, may be used, but visible emissions must meet air quality regulations (see [Utah Code R307-302-5](#)).
- Voluntary Action (symbol = inverted triangle): Individuals are asked to voluntarily not use solid fuel burning devices, including wood and coal burning stoves and fireplaces; reduce/stop open burning, including fire pits, fire rings and campfires; and TravelWise by consolidating trips. Industry should optimize operations to minimize air pollution emissions.
- Mandatory Action (symbol = X): Solid fuel burning devices must not be used, including wood and coal burning stoves and fireplaces. Open burning may not occur, including fire pits, fire rings and campfires. TravelWise by consolidating trips. Industry should optimize operations to minimize air pollution emissions.

When mandatory restrictions are in place the use of solid fuel appliances may result in penalties ranging up to \$299 per day. If violations of the burning restrictions are observed by the public they should be reported to DAQ by calling 801-536-4000 during business hours or by filling out an [Electronic Complaint Form](#).

**Part 2 — Health Guidance:** The EPA's national standard Air Quality Index (AQI), which is divided into six, color-coded categories that correspond to different levels of pollution and related guidance for individuals with health concerns. The AQI is intended to help a person understand the potential health effects they may experience when breathing polluted air.

## UtahAir APP

DAQ partnered with Weber State University to launch a new, free smartphone app that delivers real-time air quality information. "Utah Air" app, developed by students at Weber State University as part of the National Center for Automotive Science and Technology (NCAST) in partnership with the DAQ, displays both ozone and small particulate matter (PM 2.5) data collected by DAQ monitors throughout the state. The app is available for both iOS and Android users.

"By making air quality data more accessible, we are helping residents actively participate in keeping Utah's air clean," said Joe Thomas, director of NCAST. "This app empowers individuals to make the small changes that make the biggest difference to help reduce pollution all year."

Utah residents can check into the app daily to know when not to use wood and coal burning stoves or fireplaces, the best times to exercise outdoors, or TravelWise and make one consolidated trip for errands based on current conditions and trends. The three-day forecast can help individuals plan ahead to adjust their travel plans or work schedule to avoid adding harmful emissions during winter inversions.

The app employs DAQ's new air quality alert system and pulls current air monitoring data directly from [DAQ's website](#) hourly.

The Utah Air app is available for free download in both the Apple and Android apps stores. In addition to the new app, DAQ's air quality alerts are available on its [website](#), by calling toll-free (1-800-228-5434), and through regular [email updates](#). Visit DAQ's [News and Events](#) for more information.

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## Improving Uintah's Air One Leak At a Time

The Utah Department of Environmental Quality (DEQ) hopes to put a lid on the formation of troublesome winter ozone in the Uintah Basin with courtesy inspections that utilize an infrared camera that detects leaky equipment, meaning cleaner air for residents.

Earlier this year, DEQ purchased an infrared (IR) camera that can help the oil and gas industry detect equipment malfunctions that, if fixed, would greatly reduce ozone, formed when nitrogen oxides (NOx) react in sunlight with volatile organic compounds (VOC). Currently, oil and gas producers are not required by EPA to use the camera, but it is still a useful tool for improving air quality in the Uintah Basin.



"Using an IR camera for detecting gas leaks, followed by leak repairs, can be an important emission reduction strategy during the winter ozone season as well as all year round," said Bryce Bird, DEQ's director of Division of Air Quality.

Utah is ranked 11th in the country in crude oil and 9th in natural gas gross production. The majority of the crude oil and natural gas production in Utah occurs in the Uintah Basin. A multi-phased study, initiated in 2012 in the Uintah Basin, identified emissions sources, as well as the most effective strategies to reduce winter ozone. Findings from the study indicate that snow cover and temperature inversions are key elements of high ozone episodes and oil and gas operations are responsible for 98-99 percent of VOC emissions and 57-61 percent of nitrogen oxide (NOx) emissions.

IR cameras, a proven technology used extensively in other states, can detect leaks invisible to the human eye. Gas leaks show up as white or black clouds, depending on the camera setting.

A handful of companies in the Uintah Basin already rely on the IR cameras to prevent losing its products to the air. This not only gives them a competitive advantage but also helps keep their employees safe.

"The natural gas industry has safety, regulatory, and financial incentives to reduce methane emissions," said Scott Bassett, Questar's senior environmental coordinator. "Promulgation of EPA's Greenhouse Gas Reporting Rule and oil and gas rules requiring stricter control of VOC emissions prompted Questar subsidiary Applied Technology Services to acquire an IR camera to assist Questar and others companies in identifying leaks. With its high sensitivity, the IR camera finds small leaks quickly and safely."

DEQ's Business Assistance Program is offering courtesy leak detection audits to Oil and Gas companies as part of their outreach activities to the Oil and Gas industry. Companies that are interested in a leak detection audit, should phone Frances Bernards at 801-536-0086 or email at [fbernards@utah.gov](mailto:fbernards@utah.gov) Other available resources include best management practices website and pamphlet. See BizHelp for more information.

*This article was written by Frances Bernards of DEQ's Business Assistance Program. Frances has led DEQ's Oil and Gas industry pollution prevention outreach efforts, including acquiring the IR camera, organizing IR camera training, and promoting the courtesy leak detection program.*