



RECOMMENDATIONS

Rolling the Dice: Assessment of Gas System Safety in Massachusetts presents over 50 recommendations for enhancing public safety now.

These recommendations detail multiple ways responsible parties can triage the current system to improve public safety now while accelerating the transition to safer, healthier energy sources.

TRIAGE THE CURRENT SYSTEM

Many immediate and near-term improvements can greatly enhance public safety. Gas companies, state agencies, and municipalities can take steps now to prevent gas incidents and better inform the public.

Recommendations from the report are grouped below by responsible entity and topic.

DEPARTMENT OF PUBLIC UTILITIES

Enhance and Standardize Gas Leak Classification

- Lower the threshold to one percent gas in a confined space and categorize any detectable gas within 15 feet of a building foundation as a Grade 1 hazardous leak.
- Categorize any detectable gas less than one percent in a confined space as a Grade 2 leak.

Enhance Incident Reporting

- Report data on significant incidents by the cause of the leak, the location, and the source of ignition.
- Summarize incident causes in tables, presented in the same way as impacts are currently shared, so that both sets of information are prioritized and accessible.
- Require investigation and incident reports for underpressurization and overpressurization events.
- Include electrical failures that melt plastic pipes.
- Lower the threshold for incidents that require investigations and reports to achieve a more equitable and complete collection of data. Include outage incidents with the potential to reach damage equivalent to the new threshold.
- Conduct investigations and produce incident reports within two years rather than two years or more, as is the current practice.

Increase Oversight

- Investigate Dig Safe errors and oversee improvements in mapping and marking gas lines.
- Investigate ways to mitigate damage to outside meters.
- Require utilities to better educate and inform customers on procedures for gas leak detection and response.
- Require a standard metric for workforce numbers based on each company's miles of pipe, age of pipe, and number of service lines.
- Require utilities to show that they have a sufficient number of qualified union workers to respond to incidents and properly maintain the gas system.
- Enforce and conduct oversight for frequency and effectiveness of winter patrols.
- Require utilities to have at least one experienced professional engineer onsite during pipe replacement work.
- Enforce existing Massachusetts law and regulation with stronger fines to ensure that shutoff valves are accessible and maintained.
- Require the gas companies in one calendar year to locate, repair, and install where missing all critical valves: shutoff valves, gate boxes, and gate valves.

Require Precise Equipment

- Require equipment that can detect gas in parts per billion, such as CRDS technology, as standard utility equipment for performing leak surveys or assessing resources required in emergencies.

Audit Leak Reporting

- Audit gas company leak records, including controls on fixed leaks.
- As a leak detection control, conduct a performance measurement survey with independent experts using CRDS equipment for comparison to utility findings.

Strengthen Emergency Response Plans

- Standardize publicly available safety protocols that utilities must meet.
- Require periodic outreach, appropriate for each customer class, explaining relevant safety information.
- Increase the number of active DPU field inspectors to at least 10.
- With MassSave, develop community programs to double the energy efficiency of homes—perhaps using on-bill financing for weatherization—to improve resilience in the event of future catastrophes and enable transition to heat pumps.
- Require utilities to have detailed disaster preparedness plans and training overseen by experts and require such plans to be routinely updated.
- Commission economic and feasibility assessments of alternatives to gas main replacement and devise a plan to move to highly efficient, renewable heat HVAC systems in the event of catastrophic events.

Reallocate Funding for Pipe Replacement

- With gas distribution companies, consider alternatives, including ground source district heating, to using GSEP funds for gas pipeline replacement.

Protect the Tree Canopy

- DPU should consider gas leaks that damage trees to be environmentally significant and graded as Grade 3 Significant Environmental Impact leaks.
- DPU should enhance gas leaks classification to include safety issues involving trees.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

- Conduct a sea level rise vulnerability study of gas pipeline and related infrastructure (LNG facilities, compressor stations, and metering and regulating stations) in coastal communities to develop a response plan.
- Rigorously measure methane emissions from gas infrastructure and include the emissions in the Massachusetts Greenhouse Gas Emissions Inventory.
- With the Department of Public Health, support studies of gas composition and population exposure to hazardous compounds associated with indoor and outdoor gas leaks. These studies should focus on vulnerable populations, including those with existing lung disease.
- Conduct a public education and awareness campaign of the dangers of particulate matter and other indoor air pollution created by cooking with gas.
- Require municipalities that are substantially dependent on gas and that apply for funding through the Massachusetts Department of Environmental Protection's Municipal Vulnerability Preparedness program to conduct an inventory of household electric service and ability to support temporary electric heating.

OTHER GOVERNMENT PROGRAMS

- Massachusetts Occupational Health Surveillance Program should assess and monitor gas worker health and safety.
- Massachusetts Department of Career Services should promote gas worker career development to help ensure a just transition to renewable energy and energy efficiency jobs.

GAS DISTRIBUTION COMPANIES

Improve Data Collection to Increase Transparency

- Publish and maintain a live leak map, with required real-time leak data.
- Track the active leaks that have been deleted and reconcile the balance of active leaks at the beginning of a new year to the balance of active leaks at the end of the previous year.
- Report any incident involving property damage exceeding \$10,000 or 100,000 cubic feet of gas released to the DPU using a standardized record. These reports should be publicly available for inspection and analysis.
- Inform property owners about their local service line data, including date of installation, material, and whether it is considered leak-prone. Utilities know the location of leak-prone gas infrastructure.
- Inform public officials about local age and condition of gas distribution pipes in their cities and towns. With this information, municipalities can work with the gas utilities to repair infrastructure when other infrastructure is under construction, cutting costs through synergistic scheduling.

Enhance Leak Detection and Reporting

- Increase frequency and rigor of walking surveys to complement driving surveys, uniquely pinpoint subsurface leaks, and provide data for assessing leak grade.
- Start winter patrols earlier in the season and extend the patrol season.
- Continue meter replacement programs—likely the only time when interior pipes and appliances are inspected for leaks—at seven-year intervals or consider shortening rather than extending the time frame.

Use Failsafe Technology

- Install sensors across all distribution areas to shut down supply automatically when necessary.

Augment Reviews and Protocols

- Conduct internal reviews of all work plans and develop a checklist of required steps to use during work plan development.
- Conduct internal reviews of infrastructure engineering drawings.
- Establish checklists and redundant protocols to crosscheck critical decisions with at least two sources of verification to better anticipate human error and prevent accidents.
- Provide incentives for thermal heating alternatives to gas. State legislation should enable pilot projects to assess the benefits and costs of thermal energy heating system alternatives to gas pipeline replacement projects currently eligible under the GSEP.
- Improve communication and coordination with municipalities to perform repairs cost-effectively and with minimal disruption, thus speeding up needed safety changes.

Reallocate Funding for Pipe Replacement

- With DPU, consider alternatives, including ground source district heating, to using GSEP funds for gas pipeline replacement.

GOVERNMENT AGENCIES TOGETHER

- Led by Energy and Environmental Affairs, Massachusetts should conduct a security threat assessment, of the gas distribution system, including both physical threats and cyberthreats, while recognizing that there is no reason to keep information from the public about underground infrastructure.

PIPELINE HAZARDOUS MATERIALS SAFETY ADMINISTRATION

Enhance Gas Incident Investigation and Reporting

Recommendations on incident reports for Massachusetts DPU also apply to the PHMSA, a federal agency.

- Lower the threshold for incidents that require investigations and reports to achieve a more equitable and complete collection of data. Include outage incidents with the potential to reach damage equivalent to the new threshold.
- Conduct investigations and produce incident reports within two years rather than two years or more, as is the current practice.

MUNICIPALITIES

- Improve communication and coordination with gas companies to perform repairs cost-effectively and with minimal disruption, thus speeding up needed safety changes.
- With support from DPU, include large-scale gas system failure risk and response in Municipal Vulnerability Preparedness plans, including special consideration of both overpressurization and underpressurization, as well as seasonal impacts.
- Include an inventory of household electric service and ability for temporary electric heating in Municipal Vulnerability Preparedness plans. This inventory should be mandatory for all municipalities that are substantially dependent on gas if they apply for funding through the Massachusetts Department of Environmental Protection's Municipal Vulnerability Preparedness program.

TRANSITION TO A SAFE, CLEAN, JUST SYSTEM

While *Rolling the Dice* urges the immediate adoption of specific safety recommendations, the report also describes a simultaneous shift Massachusetts must make to safer, healthier energy sources.

Increased periodic leak surveys of substandard pipes, weekly cast iron leak patrols during frost conditions, and repairs of the largest leaks are cost-effective approaches compared to pipeline replacement. Replacing the entire leak-prone portion of the gas distribution system is currently estimated at \$9.3 billion. These funds could be put to better use transitioning away from gas.

Achieving the significant, rapid emissions reduction targets mandated by the Global Warming Solutions Act requires examination of the utility business model. For multiple reasons, investments in gas company projects are becoming less attractive and risk creating stranded assets. One likely outcome of the push to end the use of fossil fuels is the demise of retail gas distribution and the gradual abandonment of the gas distribution network. Other existing technologies such as geothermal, thermal solar, heat pumps, and district energy systems tied to the electric grid will supply thermal energy. A new business model based on existing, available technologies can help utilities shift from delivering gas to delivering thermal energy.

As gas customers move to renewable and clean energy, fewer and fewer ratepayers will bear the growing costs of the thermal gas system. Aligning the new utility business model with the public interest to avoid a disproportionate impact on low-income and environmental justice communities will require vision, flexibility, and close attention to equity.

Given the need to accelerate action to meet greenhouse gas reduction targets and time lines at both municipal and state levels, implementing a strategy of triage and transition now will avoid stranded infrastructure assets and ensure an equitable shift to renewable energy.

LEGISLATIVE MANDATE FOR TRANSITION

Our government, gas companies, municipalities, and individuals can all move our state to safer energy sources by working together to create the legislative mandate and regulations we need.

The strategy of triage and transition outlined in *Rolling the Dice* is proposed in the FUTURE Act, An Act for Utility Transition to Using Renewable Energy, [H.2849/ S.1940](#).

The bill supports many of the report's recommendations. It allows for gas company reform and provides for a managed transition away from gas to safer thermal energy systems by:

- Creating incentives and opportunities for gas companies to offer renewable energy
- Enabling municipalities to manage road construction and public safety by working more effectively with gas companies on repair and monitoring of gas leaks
- Strengthening the voice of municipalities and other stakeholders at the Department of Public Utilities
- Providing municipalities with financial recourse for trees killed by gas
- Permitting municipalities to develop local energy services and infrastructure

This comprehensive look at the Massachusetts legal code for gas distribution enables the Commonwealth to realize a future that is safe and healthy, that protects both workers and the environment, and that encourages innovation in the best technologies to serve the public interest and public safety.