UST and LUST Program Challenges in a Changing Transportation Sector

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Office of Underground Storage Tanks

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Background

This paper from the U.S. Environmental Protection Agency is intended to respond to the Association of State and Territorial Solid Waste Management Officials' February 2023 paper entitled, *Sustainability of State Financial Assurance Funds for the Underground Storage Tank Programs*.[1] The EPA hopes this paper will help state Underground Storage Tank and Leaking Underground Storage Tank programs understand and consider the potential impacts of several converging issues, including concerns with an aging UST infrastructure nationally and an evolving transportation sector, with particular emphasis on how these trends may present challenges to their UST and LUST program operations. This paper can help inform efforts to investigate, develop, and implement potential solutions, and is written in such a manner to allow state UST and LUST programs, if they so choose, to use it to articulate these issues and ideas to key stakeholders outside their immediate programs.

Introduction

The transportation universe is changing rapidly in the United States. The next two decades will see significant growth in the number of electric vehicles across the country and significant reductions in total liquid fuel usage by vehicles.[2] Yet, even as electric vehicles and infrastructure expand rapidly, and the nation's fleet of non-electric vehicles becomes much more fuel efficient, new, state-of-the-art liquid fueling facilities open every month. These facilities are often larger than existing fueling locations, and many of them are adding to the small but growing percentage of locations offering higher blends of biofuels alongside the typical blends of gasoline and diesel.

Meanwhile, many other regulated UST systems are much older. The EPA estimates that around three-quarters of the approximately 530,000 regulated petroleum UST systems at 190,000 facilities in the United States – just under 400,000 – will have reached or exceeded 30 years of age by 2032.[3] There is no requirement under the federal regulation to remove USTs based on age, but 30 years is a common warranty period for tanks, and some states have requirements to remove USTs around that age.

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[1] Association of State and Territorial Solid Waste Management Officials Tanks Subcommittee and State Fund Financial Responsibility Task Force: *2023 Sustainability of State Financial Assurance Funds for the Underground Storage Tank Programs*. February 2023. https://astswmo.org/2023-sustainability-of-state-financial-assurance-funds-for-the-underground-storage-tank-programs/.

[2] Davis, Austin. *Modeling the Demand for Electric Vehicles and the Supply of Charging Stations in the United States: Working Paper 2023-06*. Congressional Budget Office. Publication 58964. September 7, 2023. https://www.cbo.gov/publication/58964.

[3] Estimates derived from EPA calculations based on a combination of state data provided to EPA for regular reporting, and during the development of the EPA UST Finder application. https://www.epa.gov/ust/ust-finder.

Some of these aging UST systems will be replaced with newer systems, but many may be removed without replacement or simply abandoned in the coming decades as newly built facilities slowly capture additional portions of a shrinking fuel market and fewer motor fuel dispensing facilities eventually become necessary.[4]

ASTSWMO's Tanks Subcommittee and State Fund – Financial Responsibility Task Force prepared a report documenting their concerns about how these converging trends will result in challenges for UST and LUST programs across the country.[5] Some of their concerns included:

- **Decreased revenues:** Reductions in fuel sales may strain normal UST and LUST program operations as most are funded by volumetric fuel taxes or fees or annual fees on operating UST systems. (Reductions in fuel sales are one factor that may influence the number of UST systems remaining in operation).
- **Increases in confirmed releases:** States and territories may see an increase in the typical rate of releases to which they must respond.[6] A significant number of aging UST systems will be closed and replaced, or simply closed, and removing USTs for closures often reveals older fuel releases that were previously unknown and must be cleaned up. Thirty-five states have state financial assurance funds (hereafter referred to as "state fund" or "state funds") intended to provide funding for the required cleanups. Yet, even in states that do not have state funds, releases at abandoned sites will likely require public funding and state agency management to be cleaned up. Regardless of who ultimately pays to clean up releases, it appears likely that the increased rate of UST closures and of newly discovered releases will increase the workload and financial stress on LUST programs.

If cleanup expenditures increase at the same time that many state funds see decreases in revenues, this may lead state funds to face financial constraints that can slow their ability to support cleanup activities. Under some scenarios, state funds could even become insolvent.[7] The EPA believes these and the other programmatic concerns for UST and LUST programs identified by ASTSWMO are valid and urges implementing agencies to start addressing them soon, if they have not already.

States will need to investigate, develop, and implement potential solutions to these evolving challenges to their UST and LUST program operations. States may need to modify program

[4] See the EPA's web page at the following links for more detailed information about Aging UST Systems, and Considering Transitions for Aging UST Systems, respectively: https://www.epa.gov/ust/resources-ust-owners-and-operators#aging and https://www.epa.gov/ust/resources-ust-owners-and-operators#transitions.

[5] Association of State and Territorial Solid Waste Management Officials Tanks Subcommittee and State Fund Financial Responsibility Task Force: *2023 Sustainability of State Financial Assurance Funds for the Underground Storage Tank Programs*. February 2023. https://astswmo.org/2023-sustainability-of-state-financial-assurance-funds-for-the-underground-storage-tank-programs/.

[6] "States and territories" are hereafter collectively referred to as "states".

[7] See the EPA's web page at the following link for more detailed information about State Financial Assurance Funds: https://www.epa.gov/ust/state-financial-assurance-funds.

funding structure, modify how their state funds operate, obtain additional authorities, or take other actions that will work for their unique situation to ensure long-term program sustainability. For example, some states may wish to provide incentives to upgrade or remove aging tanks to reduce risks of catastrophic releases, or to spread remediation costs associated with removals over longer time horizons.

This report is broken into two sections:

1. Converging Trends - An Uncertain Future for UST and LUST Programs.
2. Considering Solutions That Work for Your State.

Section 1: Converging Trends - An Uncertain Future for UST and LUST Programs.

This section explains in more detail the key challenges states should prepare for in the coming years. Each of the following concerns is likely to impact states to varying degrees, across drastically varying time periods. This is because each state has a unique combination of environmental statutes and regulations, transportation markets and infrastructure, vehicle fleet composition, and installed UST infrastructure. Regardless, all states will likely face at least some of these challenges in the coming decades. See Section 2 on state-specific planning for more information about the varying rates of electric vehicle adoption across the country.

Efficiency and electrification will reduce future U.S. fuel needs, but USTs, and UST and LUST program operations, will be essential for decades.

U.S. fuel demand may decrease over the coming decades, due primarily to increasing gasoline and diesel vehicle efficiency and the increased deployment of alternative vehicle technologies.[8] However, this will happen gradually, and fuel storage in USTs will remain essential.

Approximately 16.5 million new light-duty vehicles are sold each year in the United States, and their projected lifespan today is more than 15 years.[9] The EPA projects traditional internal-combustion engine vehicles combined with hybrid-electric and plug-in hybrid electric vehicles, which contain internal-combustion engines, could together still represent approximately 75 percent to 85 percent of the light-duty and medium-duty fleet in the United States in 2035, and

[8] U.S. Environmental Protection Agency. *Multi-Pollutant Emissions Standards for Model Years 2027 and Later Light-Duty and Medium-Duty Vehicles – Final Rule (March 2024)*. Section VIII., Part C., Fueling Impacts, p. 28111. https://www.govinfo.gov/content/pkg/FR-2024-04-18/pdf/2024-06214.pdf.

[9] Transportation Energy Institute. *Decarbonizing Combustion Vehicles – A Portfolio Approach to GHG Reductions*. July 2023. https://www.transportationenergy.org/research/reports/decarbonizing-combustion-vehicles-a-portfolio-approach-to-ghg-reductions/.

between approximately 60 percent and 75 percent in 2055.[10] But internal-combustion engines entering the market today use significantly less fuel than those in older vehicles aging out of use. Increasing fuel efficiency will have a significant impact on fuel demand.

Alternative vehicle technologies require even less liquid fuel than the newest internal-combustion engine vehicles. The U.S. Department of Energy estimates battery electric vehicles represented around one percent of registered light-duty vehicles in the fifty states and the District of Columbia in 2023.[11] However, the EPA projects battery electric vehicles could represent approximately 15 percent to 25 percent of the U.S. light-duty and medium-duty fleet by 2035, and approximately 25 percent to 40 percent of the same by 2055.[12] Along with hydrogen fuel cell electric vehicles, and the previously mentioned hybrid electric vehicles and plug-in hybrid electric vehicles, these alternative technologies can collectively be referred to as EVs, and we primarily use that terminology throughout the rest of the document. Industry advancements in the production and sales of these zero- and low- emission vehicles are already occurring both domestically and globally, due to significant investments from automakers, greatly increased acceptance by consumers, and added support from Congress, state governments, the European Union, and other countries.

Declining fuel sales will impact UST and LUST programs that receive funding from fuel sales taxes or fees.

States may experience funding challenges for UST and LUST programs if they do not take action to adjust how they fund their program operations and cleanup programs. Most of the 35 states with state funds currently accepting new releases rely significantly on taxes or fees on fuel sales to pay for cleanups.[13] Some also use fuel taxes or fees to pay for other program activities. While EVs will likely impact the onroad usage of gasoline much more than the onroad usage of diesel in the near term, that may change in the future. See Section 2, Considerations that Work for Your State, for more discussion about state-specific planning.

[10] U.S. Environmental Protection Agency. *Multi-Pollutant Emissions Standards for Model Years 2027 and Later Light-Duty and Medium-Duty Vehicles - Regulatory Impact Analysis (EPA-420-R-24-004, March 2024)*. Figures 8-4 and 8-5. https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P1019VPM.pdf.

[11] U.S. Department of Energy Alternative Fuels Data Center. *2023 Light-Duty Vehicle Registration Counts by State and Fuel Type.* https://afdc.energy.gov/vehicle-registration.

[12] U.S. Environmental Protection Agency. *Multi-Pollutant Emissions Standards for Model Years 2027 and Later Light-Duty and Medium-Duty Vehicles - Regulatory Impact Analysis (EPA-420-R-24-004, March 2024).* Figures 8-4 and 8-5. https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P1019VPM.pdf.

[13] Three additional states have state funds that have closed and are not accepting new releases but may be similarly impacted.

A reduction in the number of operating UST systems will impact UST and LUST programs that receive funding from per tank fees.

As more USTs close than open from one year to the next, states that generate funding based on a recurring fee tied to each registered UST could see funding reductions for their UST and LUST programs. Since future declines in U.S. fuel demand suggest UST facilities may eventually begin closing at faster rates than in recent decades in much of the country, states with funding obtained through tank fees should consider how they will make up for the lost fees or how they will operate with less revenue. This is a similar challenge to those states where funding is tied to taxes or fees on the volume of fuel sold. Switching from one funding source to the other is unlikely to solve the issue.

Several challenges make it difficult to calculate the amount and impact of future fuel declines in the U.S. transportation sector on state UST and LUST programs.

- **Many variables are involved in fuel decline calculations:** Increased vehicle efficiency and vehicle electrification will certainly result in a net decrease in liquid fuel usage. But other changes in the transportation industry may increase demand for fuel, offsetting demand reductions in other areas. All variables have uncertainty over the rate of impact on fuel demand, even if the direction of the impact is clear. But the impact of some changes is unknown, including uncertainties around future changes with driver preferences, commuting patterns, and fleet operations. These may impact the future size of the national vehicle fleet and the future averages of total U.S. miles driven annually.
- **Most data is national, but states need to understand state level impacts:** Many projections about changes in the transportation industry use national level data, while state UST and LUST programs need to make policy and funding determinations at the state level. The EPA has created a modeling tool as a companion to this paper for states to use to better understand how adjusting the numerous variables related to the concerns in this paper might impact state operations and state fund solvency. See "States with state funds: Consider using the EPA's *UST Futures Forecasting Tool* to project challenges and test potential solutions to state fund solvency" in Section 2 for more information.
- **EVs will grow in number everywhere, but the transition toward a mostly electrified national fleet will not be uniform across the country:**
    - **New regulations:** On March 20, 2024, the EPA issued a final rulemaking for Multi-Pollutant Emissions Standards for Model Years 2027 and Later Light-Duty and Medium Duty Vehicles. The final standards are projected to accelerate the transition to alternative vehicle technologies. The EPA projects that from MYs 2030-2032 manufacturers may choose to produce battery electric vehicles for about 30 percent to 56 percent of new light-duty vehicle sales and about 20

percent to 32 percent of new medium-duty vehicle sales.[14] The EPA also projects that consumers will see an increase in the availability of hybrid electric vehicles and plug-in hybrid electric vehicles, as well as cleaner gasoline vehicles.[15]

- **Different state policies:** In 2022, California finalized the Advanced Clean Cars II rule that specifies, by 2035, all new light-duty vehicles sold in the state are to be zero-emission vehicles.[16, 17] Twelve additional states have adopted all or most of the zero-emission vehicle phase-in requirements under ACC II, while the rest of the states have not.[18] This and other factors may play a significant role in a large initial disparity in the rate of EV adoption between states in the next decade or two before EVs become widespread in the light-duty sector. See Section 2, Considerations that Work for Your State, for more information about state policies.
- **Sectoral differences:** The U.S. National Blueprint for Transportation Decarbonization sees electrification being the best pathway to significantly reduce emissions from light-duty vehicles, while decarbonizing the traditionally diesel sectors will likely require some broader mix of liquid fuels, batteries, and hydrogen.[19] EVs may eventually be the primary power source for both gasoline and diesel, but the sectors will probably adopt EVs at vastly different rates. Differences in the rate of rise of electrification between the gasoline and diesel sectors will be an important issue for the EPA and states to monitor.

[14] The paper earlier noted that battery electric vehicles, fuel cell electric vehicles, hybrid electric vehicles, and plug-in hybrid electric vehicles could collectively be referred to as EVs, and the EPA would primarily use the term EVs throughout the rest of the document. However, this projection refers specifically only to battery electric vehicles.
[15] U.S. Environmental Protection Agency. *Fact Sheet: Multi-Pollutant Emissions Standards for Model Years 2027 and Later Light-Duty and Medium-Duty Vehicles*. March 2024. https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P1019VP5.pdf.
[16] EPA has not at the time of publication approved the waiver that would allow California to follow the ACC II program.
[17] California Air Resources Board, "California moves to accelerate to 100% new zero-emission vehicle sales by 2035," Press Release, August 25, 2022. https://ww2.arb.ca.gov/news/california-moves-accelerate-100-new-zero-emission-vehicle-sales-2035.
[18] See page 27988 of the EPA's *Multi-Pollutant Emissions Standards for Model Years 2027 and Later Light-Duty and Medium-Duty Vehicles – Final Rule (March 2024)* for information for each state, at https://www.govinfo.gov/content/pkg/FR-2024-04-18/pdf/2024-06214.pdf.
[19] U.S. Environmental Protection Agency and U.S. Departments of Energy, Transportation, and Housing and Urban Development. *Fact Sheet: The U.S. National Blueprint for Transportation Decarbonization*. January 2023. https://www.energy.gov/sites/default/files/2023-01/EERE_TranspoDecarb_factsheet-508_0.pdf

Most states have thousands of aging USTs, and their owners have additional considerations beyond those of owners and operators of younger UST systems, including the following:

- **An aging UST population suggests more owners may have increasing difficulty accessing private insurance.** In the 21 states that do not have a state fund, UST owners and operators generally rely on private insurance.[20] Some owners and operators have difficulty accessing affordable insurance to meet the financial responsibility requirement once their tanks reach 30 years of age. Some have found challenges in finding companies to insure them, and others have found their premiums to be exceedingly costly or the insurers are issuing high deductible policies that require owners to fund a larger portion of cleanups for aging UST systems. If owners and operators cannot provide proof of financial responsibility, they cannot legally operate their UST system. In some situations, this would likely lead to closure or abandonment of the UST system and the potential for the discovery of more releases with no one to pay for the cleanup.

  One reason some states have seen a reduction in private insurers is because companies see increased claims as UST systems are removed. As the UST system population has aged, some states have seen a reduction in private insurers to only a few operating in the state. If all private insurers exit the state in a state where no state fund is present, the UST industry would have significant problems meeting the financial responsibility requirements; even a reduction to very few insurers could pose challenges.

- **Owners of aging UST systems will typically see an older UST system requiring more frequent repairs than a newly installed UST system.** Additionally, some states are requiring additional testing for systems to remain operational once they exceed a certain age threshold. Owners of many retail facilities will have to consider the likely future reductions in fuel demand as they evaluate their operations. Many owners and operators may decide to cease operations and close their USTs as they advance in age, especially those whose facilities offer fewer streams of alternative income relative to retail fuel sales margins.

A large number of UST systems will likely be closed in the next two decades.

The national UST population has been shrinking for decades due to facility closures, upgrades, and a general trend this century of seeing multi-compartmented tanks at a new installation becoming more common than having several single-compartment tanks. This reduction in the

[20] State funds do not cover all owners and operators, so some owners and operators in those states may also use private insurance. In both types of states, a small percentage of owners and operators may use another form of financial responsibility, such as letter of credit or surety bond.

UST population will likely continue, and potentially, accelerate. Using data from UST Finder, the EPA estimates that approximately 275,000 operating USTs are currently 30 years of age or older. The EPA estimates based on past closure data reported by states to the EPA, that over 100,000 tanks will likely be removed or replaced by 2034.[21] The EPA anticipates that a greater proportion of the future reduction is likely to be driven by facility closures than facilities moving to more multi-compartmented tanks.

All states may experience significant numbers of UST closures or abandonments. States with more efficient vehicles and higher rates of transition to EVs, and which also rely on private insurance, may experience increases in the rate of closures happening sooner than in similar states where owners have access to a state fund. This differentiation would likely be larger in states with higher percentages of older UST systems.

States may also see an increase in the number of abandoned UST systems in the coming decades at service stations sites that have limited value other than as service stations.

As the demand for motor fuels decline, owners and operators may be more inclined to abandon facilities if they face economic hardship and cannot find a willing purchaser for the fueling facility. This may be an issue even in states with state funds because many state funds do not cover abandoned LUST sites.

The need for public funding to pay for cleanups when the owner and operator are unknown, unwilling, or unable to pay for corrective action will increase if owners abandon their sites or are unable to afford to close their UST systems in states without a mechanism to finance cleanups in these situations.

The rate of discovery of releases to which states must respond may increase.

States may see greater demand for cleanups in the next decade compared to their recent annual baselines. In recent years, state programs have reported a national annual release rate of approximately 1% of the total number of operating USTs.[22] But increases in the number of UST closures in the coming years will also likely increase the annual rate of discovered releases,

[21] The EPA has calculated this estimate based on UST system closure data reported in the EPA's *Semiannual UST Performance Measures* https://www.epa.gov/ust/ust-performance-measures. Reported total closures averaged over 12,000 per year for the previous ten years. The EPA does not have data on the age of the UST systems at the time of their closures but understands most UST systems being removed are typically older systems. Thus, the EPA believes this estimate is a conservative estimate of the future trend (based primarily on past data about annual closures when the average age of UST systems was younger), and that the next ten years will probably see more UST system removals than the previous ten years.

[22] U.S. Environmental Protection Agency. *Semiannual UST Performance Measures*. https://www.epa.gov/ust/ust-performance-measures.

because the most common time to identify a release is when an UST system is closed.[23] National data are limited, but recent data from closures in California between January 2017 and December 2022 found releases were discovered at 29.7% of the 546 facilities that had single-wall UST systems closures or upgrades, and at 6.7% of the 1,042 facilities with double-wall UST system closures or upgrades.[24, 25]

State funds may experience solvency concerns if they don't change their operations.

Continued solvency of state funds is a serious concern for the 35 states that currently have them. Increases in the number of cleanups to be completed due to increases in the number of UST closures will increase expenditures for state funds. And reductions in demand for fuel and fewer operating UST systems will lead to less revenue to perform those cleanups. While most of the state funds rely primarily on the volume of fuel sold for revenue, some rely exclusively on recurring fees from the number of registered USTs. The increasing number of cleanups and decreasing state fund revenue are expected to add to the solvency concerns of state funds that are already experiencing significant inflationary pressures.

Solvency concerns may force state funds to make structural adjustments to fund an increasing number of cleanups in an era of declining revenues. These adjustments may be needed much sooner in states with the fastest rates of EV adoption. Increased fuel efficiency from internal-combustion engine vehicles and UST removals will occur in all states, but any rate of increases of UST removals and associated increases in cleanup costs are likely to be further accelerated in states where sales of new internal-combustion engine vehicles at some point will be restricted. State funds in states anticipating slower EV adoption probably will not face this cash crunch as soon as states with faster EV adoption rates, but eventually will have the same need to adjust their programs to remain solvent. The EPA encourages states to begin acting now to assess and address future solvency risks even if states believe UST removals and cleanup costs will be spread over a longer time horizon than other states.

If a state fund becomes insolvent it would no longer meet the requirements of having sufficient resources to address covered LUST sites in a timely manner, at which point it could no longer

[23] UST closures occur when an UST is replaced and when an UST is closed without replacement.
[24] California UST Leak Prevention: *January-December 2022 Annual Report.* https://www.waterboards.ca.gov/ust/leak_prevention/docs/epa-evaluations/2022-jan-dec-leak-prevention-report.pdf. Note: California has complete data for the January – December 2023 reporting period showing slightly lower release percentages, but at the time of publication, that report was not yet finalized. The 2023 data show releases were discovered at 25.4% of the 693 facilities that had single-wall UST system closures or upgrades, and at 6.0% of the 1,229 facilities with double-wall UST system closures or upgrades.
[25] California has a deadline to close all single-wall UST systems by December 31, 2025. The state is specifically tracking and reporting data about the different rates of releases identified at closures between single-wall and double-wall UST systems in their UST Leak Prevention Reports. The EPA understands this type of information is currently available from few, if any, other states.

serve as a financial responsibility mechanism. This would force owners and operators in those states to find a different form of financial responsibility. It is not clear that commercial insurance, which is the second most common financial responsibility mechanism for USTs after state funds, will be available to fill the gap as the market for UST financial responsibility insurance has been contracting in recent years. Other FR mechanisms besides state funds or insurance currently exist, but are far less common, and may not be accessible to all owners or operators now, or in the future.

Section 2: Considering Solutions That Work for Your State.

State-specific planning is critical because the internal and external operating environment for each state's UST and LUST program is unique. [26] This section describes general opportunities states might consider as they develop options for reducing risks to their programs associated with the issues described in Section 1.

This is not a comprehensive list of activities. There is no one solution for states to address the concerns discussed in Section 1, because the challenges will affect states in different ways, over different timeframes, and at different scales. States should tailor solutions to fit their unique challenges to future UST and LUST operations. States should also recognize that some changes may have tradeoffs or unintended impacts within or beyond their programs, and carefully weigh any benefits and drawbacks before undertaking any changes.

Identify key players and ensure open communication channels exist.

States should identify all programs, agencies, or departments in the government with equities in UST and LUST operations, and ensure they are aware of these concerns. States should maintain effective communication among the organizations to ensure all interested government organizations understand the authorities and responsibilities for others working in this area.

States should also consider how and how often each of these parties interact with different parts of the regulated community, to enhance two-way communication between government parties and the regulated community wherever possible.

[26] There are numerous aspects that differ across states. See the section below titled "State with state funds: Consider using the EPA's *UST Futures Forecasting Tool* to project challenges and test potential solutions to state fund solvency" for more discussion about some of the variables affecting states.

Consider information about your state's transportation environment that may have impacts on your regulated community and UST and LUST programs.

States may face significant changes in their transportation environment that will have important impacts for their UST and LUST programs. States should attempt to monitor important information or trends that may affect their jurisdictions and identify partners within the state who may be willing to keep UST and LUST programs up to date when important changes occur. Some areas to consider tracking include:

- The state's pace of transition to electrification, including any state legislation relating to the transition of the transportation sector and turnover of the vehicle fleet.
    - EV adoption rates will vary widely across states, and additionally, they are only one piece of information affecting the situation for a state.
    - For example, Colorado, Delaware, Maryland, Massachusetts, New Jersey, New Mexico, New York, Oregon, Rhode Island, Vermont, Virginia, and Washington have passed legislation adopting all or most of the zero-emission vehicle phase-in requirements under California's ACC II rule.[27] These 13 states may see electrification of their light-duty vehicles fleet happen much more quickly than most other states.
    - California has also passed similar zero-emissions requirements for the diesel sector through the Advanced Clean Trucks rule, and Colorado, Massachusetts, New Jersey, New Mexico, New York, Oregon, Vermont, Washington, Maryland, and Rhode Island have adopted those requirements.
- Status of current and future fleet composition.
    - Age and rate of fleet turnover.
    - Share of light duty, medium, and heavy-duty vehicles.
    - Share of privately owned and fleet-owned vehicles.
- Changes in fuel sales. As discussed above, many variables affect fuel sales. Tracking trends in fuel sales will help the state prepare for revenue declines and UST removals.

[27] See page 27988 of the EPA's *Multi-Pollutant Emissions Standards for Model Years 2027 and Later Light-Duty and Medium-Duty Vehicles – Final Rule (March 2024)* for more information for each state: https://www.govinfo.gov/content/pkg/FR-2024-04-18/pdf/2024-06214.pdf.

Consider opportunities to increase funding available to state UST and LUST programs.

Some states have attempted to alleviate concerns about future funding reductions (e.g., from decreases in taxes or fees based on the volume of fuel sold, or from reductions in revenue from per tank fees) by making changes to their program operations, identifying alternative funding sources, or making fee adjustments.

- **Offset revenue reductions associated with volumetric gallon reductions by modifying fuel sales taxes or fees.**
    - Fuel sales taxes or fees. In many states, at least some of the funding for cleanups is generated from fuel taxes or fees charged on gallons of fuel sold. Should a state implement an increase, they could consider allocating some of the increased revenues to UST or LUST program needs.
    - Vehicle-miles traveled tax or fee. States may be considering whether to decouple funding from volumetric-based taxes or fees on fuel sales because both the gasoline and diesel sectors will see fuel reductions from efficiency gains and EVs. Some states have considered implementing VMT taxes or fees to share the burdens of road maintenance more equally across all types of vehicles. Similar to other tax or fee increases, if states choose to implement VMTs, they could consider allocating some of the increased revenue to UST and LUST program concerns.

- **Increase revenues through non-volumetric fee adjustments.**
    - Vehicle registration fees. Some states have instituted higher vehicle registration fees for electric or hybrid vehicles. This difference is intended not as a deterrent to purchasing these vehicles, but to help share the burden of state expenses related to highway maintenance usually paid for at least partially by taxes or fees on liquid fuels that EVs will not incur, or in the case of hybrids, likely pay in smaller amounts. If states choose to institute these fees, they could consider if these fees can assist with state fund challenges.
    - Tire taxes and fees. Some states have considered generating income for road building and maintenance by increasing taxes and fees for purchase of new tires. This change is intended not as a deterrent to purchasing new tires, but to help share the burden of state expenses related to highway maintenance usually paid for at least partially by taxes or fees on liquid fuels that EVs will not incur, or in the case of hybrids, likely pay in smaller amounts. If states choose to institute these fees, they could consider whether these fees can assist with state fund challenges.

States where owners are primarily reliant on private insurance: Consider options to protect access to financial responsibility mechanisms if commercial insurers withdraw from the UST financial responsibility market or dramatically increase premiums.

States where owners and operators are generally reliant on private insurance for financial responsibility may wish to closely monitor insurance availability and consider actions they can take to ensure continued access to financial responsibility mechanisms for their owners and operators. For example, some states may wish to consider:

- Instituting re-insurance programs for commercial insurance companies.
- Encouraging the formation of risk retention and risk purchasing groups.
- Creating a state fund.

States with state funds: Consider using the EPA's *UST Futures Forecasting Tool* to project challenges and test potential solutions to state fund solvency.

- The EPA has developed a financial assurance forecasting tool to assist states in examining the effects of declining fuel use on cleanups, state fund solvency, and facility closures.
- The tool is designed to help states estimate the number of release discoveries, state fund and program funding levels, and the potential number of abandoned sites in potential future scenarios.
- The tool will allow states to project the impact of different combinations of potential solutions. The transportation universe will continue to evolve, so states should plan to reevaluate their situation and forecasts on a regular basis.
- Where data is not available, the tool can be run under a range of assumptions to examine the range of likely outcomes. The EPA recognizes that specific data projections are not available for many variables related to the changing transportation sector, especially at the state level, so EPA has designed the tool to easily change assumptions to examine different ranges of likely outcomes.
- The tool structure is easily modified so states can adapt it to fit their unique structures.
- The tool includes graphics that can help explain the results to management, legislators, and stakeholders.
- States that perform periodic actuarial reviews of their state funds may want to incorporate the forecast tool into their future projections.

States with state funds: Consider modifying state fund activities.

States are responsible for any release covered by the state fund. If revenues are insufficient it may lead to long wait times before the state fund is able to address some releases. The state fund may even become insolvent. If states calculate they might have an inability to support timely remediations or to remain solvent while supporting cleanup activities for the releases for which they are obligated to respond, states should consider how they can modify their activities to reduce cost outlays or increase funds available to them. The following are some activities states could consider:

- **Attempt to decrease future liabilities for cleanups.**

  Most of the releases anticipated to need clean up in the next twenty years will be identified at existing UST systems already active in the state funds. If states choose to modify the rules for their state fund operation to decrease future cost liabilities, states could consider some of the following modifications going forward:

  - Choose to cover only a subset of owners and operators.
  - Tier coverages in different ways or reduce the percentages of covered costs of cleanups.
  - Modify deductible structure to require some owners and operators to pay smaller or larger portions of the cleanup costs.
  - Consider opportunities for regulatory changes for increased inspection and enforcement to prevent more releases from occurring.
  - Review remediation guidance and examine cleanup endpoints given current understanding of LNAPL and the potential for exposure and impacts to receptors.[28]

- **Reduce the average cost per cleanup.**

  States could consider the following activities which may reduce the average cost per cleanup and help state funds expend less as they try to avoid insolvency:

  - Regulatory. Consider adopting alternative cleanup approaches. For example:
    - Consider adopting risk-based corrective action, also referred to as risk-based decision making.[29]

[28] ITRC. 2018. LNAPL Site Management: LCSM Evolution, Decision Process, and Remedial Technologies" [LNAPL-3]. Interstate Technology & Regulatory Council, Washington, D.C. https://lnapl-3.itrcweb.org/.

[29] U.S. Environmental Protection Agency. *Memorandum: OSWER Directive 9610.17: Use of Risk-Based Decision-Making in UST Corrective Action Process.* March 1995. https://www.epa.gov/sites/default/files/2014-02/documents/d9610.17.pdf.

    - Carefully explore innovative new standards, such as the upcoming ASTM *Moving Sites to Closure* standard. [30]
  - Operations. Consider adopting practices to keep cleanup costs down, such as more targeted monitoring strategies.
  - Technical. Approve new lower-cost cleanup technologies or techniques in your state such as using nature based cleanup solutions or closing cleanup projects when they no longer pose a threat.

- **Attempt to close as many sites as possible, as quickly as possible.**
  - Another strategy a state could adopt would be to do more work now to assess and permanently close abandoned USTs, to close as many existing corrective action projects as possible, and to engage in efforts to find potential releases. The goal would be to complete cleanups and close sites now while the state still has a strong revenue stream. (Many state funds end the year with a surplus and states might be able to spend more money and get more sites closed.)
  - States may wish to consider procedural modifications or new technologies to streamline or minimize administrative workloads related to the cleanup process.

- **Increase money available to state funds.**

  Some states are considering modifications in the following areas to preserve or increase funding specifically for state funds. Each potential modification comes with benefits and drawbacks.

  - **Raise the reserve cap.**
    - Currently, some state funds stop collecting new revenue when the state fund surplus reserve reaches a pre-determined ceiling, or "reserve cap."
    - States could consider raising the allowable ceiling to build larger reserves that can then be used to continue cleanups in later years when the state fund income stream is reduced. Building a larger "rainy day fund" now may give the state funds more financial flexibility in later years.
    - States should be aware that larger balances may become subject to diverting state fund reserves to other purposes outside of state fund programs and consider how they might prevent future diversions. Some states project the full cost of a cleanup and encumber the money needed for future work at their existing sites. This signals that while a

[30] At the time of publication, work is ongoing on ASTM's draft of the *Moving Sites to Closure* standard.

state fund may appear to have a large balance, some portion of that balance is already spoken for.

- **Adjust state fund deductibles and cost shares.**
  - States could increase deductibles or cost shares to reduce the state fund's share of cleanup costs.
  - Note: Unless a state fund provides first dollar coverage, owners would have to show a separate form of financial responsibility for the state fund deductible.
- **Adjust the annual fee for covered parties.**
  - States could increase revenue by adjusting the annual fees charged to UST owners and operators covered by the state fund.
  - For example, some states may use differential registration rates on a sliding scale related to the age or compliance of the UST systems in their regulated universe.

Consider creating funding mechanisms to address cleanups at abandoned sites.

States may wish to prepare for the possibility of an influx of abandoned gas stations or LUST sites. A few possibilities to consider include the following:

- Modify state statutes or regulations to allow state regulators to take responsibility for corrective action at abandoned sites and dedicate funds to address abandoned LUST sites.
- Institute a program to generate revenue to clean up abandoned sites from the interest earned on the balance in the state fund.

Consider if incentives or required upgrades or removals of aging UST systems may be beneficial.

The challenges discussed in Section 1 suggest the possibility of significant numbers of UST removals happening in a state over a short time period at some point in the future. More removals generally mean more newly identified releases to clean up.

The following are examples of state-sponsored incentives or requirements to help reduce release risks or to spread closures (and thus increases in newly identified releases), cleanup costs, and workload demands over as great a time period as possible. Incentives or requirements both may help to reduce the risk of program insolvency and reduce the number of abandoned sites if properly implemented. If states project that they will face a wave of closures and cleanups happening in a manner or timeframe that will present challenges to their UST or LUST program

operations in the future, they could consider adopting some of the following program incentives or requirements.[31]

- **UST Upgrade or Removal Incentive Programs.**
  At least seven states have implemented funding programs to help owners upgrade, remove, or replace UST equipment. There is no funding available from the EPA to remove UST systems based solely on the age of an UST system. (However, other federal grants may help with this – see later in this section.)

- **UST Upgrade or Removal Requirements.**
  Some states have paired their incentive programs with removal requirements, while other states have instituted removal requirements for USTs meeting certain criteria without incentive programs. For example, they have required removing UST systems with single-walled equipment or replacing tanks that have reached a certain age. Whether paired with incentive programs or not, upgrade or removal requirements have generally reduced the number of older UST systems or systems potentially more likely to have releases, since double-wall systems show less propensity to have a release.

- **Leverage Funding Programs Targeting Other Goals for UST and LUST Program Benefit.**
  There are several programs that may be able to fund UST upgrades, site assessments, removals, or cleanups and help UST and LUST program efforts.
    - The EPA's Brownfields Program provides grants and technical assistance to communities, states, tribes, and others to assess, safely cleanup, and sustainably reuse contaminated properties.[32] Operating gas stations and many responsible party-lead cleanups would not be good candidates for Brownfields program assistance. However, there are many potentially eligible UST or LUST sites that would be a great fit, including lower priority abandoned LUST sites as well as abandoned USTs and UST facilities. State UST and LUST programs are encouraged to build strong relationships with Brownfields programs at the federal and state level and work together to achieve mutual goals between the programs.[33] States or other stakeholders may contact state Brownfields representatives for more information.[34]

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[31] States interested in learning more about the types of programs discussed in this section should see: Association of State and Territorial Solid Waste Management Officials Tanks Subcommittee - Financial Responsibility Task Force: *Pay for Prevention Program Resource Document*. August 23, 2024. https://astswmo.org/pay-for-prevention-program-resource-document/.

[32] See the EPA's webpage entitled "About" to learn more about Brownfields, at: https://www.epa.gov/brownfields/about.

[33] U.S. Environmental Protection Agency, Region 6. *Underground Storage Tanks and Brownfields: Opportunities for Partnership and Success*. June 2023. https://www.epa.gov/system/files/documents/2023-07/OUST-OBLR%20Discussion%20Paper_%20June%202023.pdf.

[34] See the EPA's webpage entitled *Brownfields Near You:* https://www.epa.gov/brownfields/brownfields-near-you.

- At least seven states have or have had grant funding or tax incentives related to installing compatible infrastructure for higher blends of biofuels. Some states may see a secondary benefit to their programs because such funding efforts also update aging UST infrastructure.
- Additionally, there are federal and private opportunities that may allow recipients to upgrade or remove their UST systems while adding biofuels capabilities to UST systems or when adding capabilities for zero or low emission vehicle technologies. The EPA published three short documents about federal grants that may be of interest to UST owners and operators.[35]

Caveats regarding incentive programs, removal requirements, and funding programs:

- **Implementation considerations.** Any increase in UST removals increases the chances of finding newly identified releases. States implementing these types of incentives may discover many new releases sooner than if they did not have the incentive programs. States should be prepared to address these additional releases as they are discovered.

- **Measuring impact.** Although evaluating the impact of these programs on UST and LUST programs quantitatively, beyond the number of USTs removed or replaced, is difficult, they generally are seen to provide two major benefits:

    1. Spreading discovery of releases at closure to which the state must respond over a longer timeframe by encouraging the earlier removal of some older UST systems. This has the benefit of smoothing funding expenditures.
    2. Fewer potential total releases. It is safe to assume that a non-existent UST system is not going to leak, and a newly upgraded or replaced system installed to today's requirements and materials is probably less likely to release than an older system. Encouraging removal and replacement helps prevent older UST systems from having new releases.

- **Capital constraints.** States should keep in mind that funding programs to assist with removals, absent cleanup costs, will be far less expensive on a per-facility basis than programs to replace UST infrastructure. New UST system infrastructure and the skilled labor required to install it can be very expensive. However, states may wish to use funding for UST system infrastructure replacement programs despite high cost. For example, ensuring fuel availability for emergency response efforts in rural areas might be a priority for a state and lead them to consider assisting with upgrades to ensure facility viability. States considering assistance programs should consider the full range of their needs, priorities, and capital constraints and attempt to find the right balance that works for them.

[35] See the EPA's web page entitled *Federal Grants of Interest to UST Owners and Operators*: https://www.epa.gov/ust/federal-grants-interest-ust-owners-and-operators.

Consider analyzing and expanding available data to better identify release trends and UST universe characteristics to improve accuracy in state forecasting models.

- Data analysis will help prepare states for the coming impacts of changes to the transportation sector. In-depth data analysis can help states identify trends specific to their regulated universe, including potential increases in confirmed releases and the characteristics of UST systems associated with releases at closure. Further consideration of this data, along with the status of existing cleanups in the state, and state-specific requirements (such as closure of aging USTs, USTs beyond a warranty period, or USTs with single-wall components) will assist with forecasting impacts to the state funds.
- Although available data has expanded over the years with improved databases, states may find the need to track additional data elements to effectively analyze these trends. One approach to evaluate data needs is to develop specific questions that align with trends and determine what data is needed to answer the questions. States can then determine how to collect missing data and to incorporate it in their program evaluations.
- The EPA will continue to explore opportunities to support better data analysis and data sharing about USTs and releases from USTs that can benefit state UST and LUST programs and the regulated community. This may include future internal analysis efforts or partnerships with external parties, such as ASTSWMO.

Conclusion

The EPA understands the challenges states are facing in a rapidly changing transportation sector. While all states will likely need to make some changes to avoid difficult situations as these trends continue converging, not all will face them in the same way. It is critical that states take action early to evaluate and, as needed, mitigate risks to their programs, especially the risk of financial constraints impacting state funds' ability to support cleanup activities.

Early engagement on these issues with state leadership is key. Many of these changes will take years to develop and implement, sometimes requiring action beyond what is possible by environmental agencies.

The EPA stands by to assist states now, and in the future, as they evaluate their situations and implement solutions that they believe will work best for them during this dynamic time for the UST system and transportation industries. The EPA will continue working with ASTSWMO and partnering with states to understand the evolving needs of state UST and LUST programs over the coming years.