



TCCRI
Texas Conservative Coalition
Research Institute

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ENERGY & INFRASTRUCTURE TASK FORCE



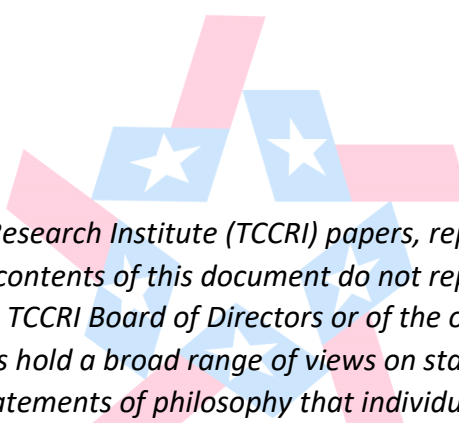
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Texas Conservative Coalition Research Institute

2021-2022 Energy & Infrastructure Task Force

Final Report



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I. Introduction

Energy and Infrastructure are critical for Texas as the state continues to expand in terms of population, economy, and influence. Energy is not only a vital sector of the Texas economy, its reliability and abundance are required by Texas' broad range of diverse industries, from technology to manufacturing. Infrastructure provides the means by which Texas industries expand, and by which Texans supply the workforce.

To those ends, the Texas Conservative Coalition Research Institute's 2021-22 Energy & Infrastructure Task Force explores several areas of state policy relevant to the state's critical energy supply and infrastructure needs.

In the energy sector, the Task Force Report discusses environmental, social, and governance (ESG) policies, how those policies cause harm, and how the state should reject them. It discusses the lack of emphasis on reliable, clean, nuclear power, and how a renewed emphasis on nuclear power could benefit the state. Importantly, the report discusses the state's energy grid in the context of Winter Storm Uri, and rejects the adoption of policies that would raise costs for Texans without necessarily preventing the next Uri.

On the topic of infrastructure, the Task Force Report once again takes a close look at public-private-partnerships and the critical role they play in maintaining the state's growing infrastructure. It also explores major issues impacting the supply chain, including trucker shortages, border crossing times for suppliers, and development of seaport infrastructure.

II. Electricity Market and Grid Reliability

A. Background

The majority of electric power generation in Texas is managed by the Electric Reliability Council of Texas (ERCOT), which manages the electricity load for over 26 million customers, roughly 90 percent of Texas’s electric load.¹ ERCOT manages an electric grid containing over 52,700 miles of transmission lines and over 1,000 generation units, which are increases from 46,500 miles of transmission lines and over 600 generation units only two years ago.² ERCOT members include “consumers, cooperatives, generators, power marketers, retail electric providers, investor-owned electric utilities, transmission and distribution providers and municipally owned electric utilities.”³ Its physical coverage area is roughly 75 percent of the state.⁴ ERCOT is regulated by the Public Utility Commission of Texas (PUC).⁵

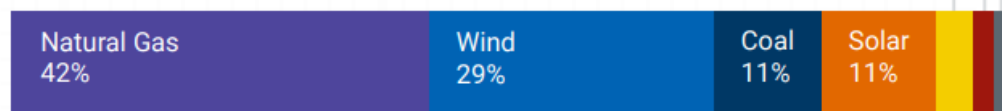
While ERCOT’s footprint in Texas is considerable, there are four regions in the outer geography of the state that fall outside of ERCOT’s coverage area. These non-ERCOT service areas are structured as traditional regulated monopoly utilities, and are still subject to regulation by the Public Utility Commission (PUC) of Texas and the Texas Legislature.

More than 115 retail electric providers offer over 300 unique products to customers in ERCOT.⁶ These include such unique contractual options as 100% renewable energy or “free electricity on the weekends” and similar time-of-use pricing.⁷ As is the case in so many other areas of the economy in which there are true markets, retail prices in the competitive market beat the more regulated markets handily. Not only have rates in the competitive ERCOT market decreased by 31% since deregulation of the retail electricity market nearly twenty years ago, but today’s prices in the competitive energy market are considerably lower than the national average.⁸

Generators in Texas produce energy using a variety of sources, with the highest capacity in the form of Natural Gas (42%) and Wind (29%).⁹

2023 Generating Capacity

Reflects operational installed capacity based on November 2022 CDR report for Summer 2023.



**Other includes biomass and DC Tie capacity.*

The sum of the percentages may not equal 100% due to rounding.

Source: ERCOT¹⁰

As the next section will discuss, there is ongoing engagement and dialogue on the topic of Texas’ energy production portfolio and the potential for a redesign or shift in emphasis between sources.

B. Winter Storm Uri Prompts ERCOT Debate

In February 2021, Winter Storm Uri placed a spotlight on Texas' energy market when millions were left without power. A special edition of the Comptroller's publication, Fiscal Notes, describes the event well:

Winter Storm Uri, the severe weather event of February 2021, will long be etched into many Texans' minds. What might have been a rare opportunity for residents to experience significant snow accumulation turned catastrophic as power blackouts spanned most of the state from Feb. 15-18. A survey conducted by the University of Houston (UH) Hobby School of Public Affairs in mid-March found that more than two out of three, or 69 percent, of Texans lost power at some point during Feb. 14-20, and almost half, or about 49 percent, had disruptions in water service. The storm contributed to at least 210 deaths, and sources cited by the Federal Reserve Bank of Dallas estimated the state's storm-related financial losses would range from \$80 billion to \$130 billion.¹¹

The University of Texas at Austin's Energy Institute produced a report in July 2021 that laid out the "timeline and events" of the electric grid blackouts that occurred during Uri.¹² Among the findings were that all types of generation technologies failed to operate at their expected electricity generation output levels, demand forecasts for the storm were too low and failed to anticipate the severity of the storm, power generators were not sufficiently weatherized, and a natural gas shortage caused natural gas plants to fail, to name a few issues.¹³

As Winter Storm Uri occurred during a time when the Texas Legislature was in session, there was immediate opportunity to assess the state's failures pass legislation intended to help remedy those failures. Those efforts took the form of Senate Bill 2 and Senate Bill 3, which addressed issues related to the PUC's governance and weatherization for electricity generation facilities, respectively.¹⁴

C. ERCOT Redesign Proposals

As a result of several directives included in Senate Bill 3, the PUC contracted with Energy and Environmental Economics (E3) to produce a report called the "Assessment of Market Reform Options to Enhance Reliability of the ERCOT System" (E3 Report).¹⁵ The E3 Report looks at several potential long-term reforms to the ERCOT market design intended "to promote the supply of dispatchable generation." These potential reforms are compared to the status quo Energy-Only market design currently in place. The market designs the E3 Report analyzed are summarized in the following table:

Market Design	Description
Energy-Only (Status Quo)	<ul style="list-style-type: none"> Preserves existing energy-only and ancillary service market design as is (no explicit reliability standard) Incorporates the implementation of the Blueprint's Phase I enhancements
Load Serving Entity Reliability Obligation: LSERO	<ul style="list-style-type: none"> Establishes a reliability standard and identifies the corresponding quantity of reliability credits – assigned to resources using marginal ELCC – that are needed to meet that standard Requires each LSE to procure reliability credits from generators bilaterally to meet its share of the total system requirement based on forecasted pro-rata consumption during hours of highest reliability risk
Forward Reliability Market: FRM	<ul style="list-style-type: none"> Establishes a reliability standard and identifies the corresponding quantity of reliability credits – assigned to resources using marginal ELCC – that are needed to meet that standard Creates a mandatory, centrally-cleared forward market for reliability credits administered by ERCOT that clears based on a sloped demand curve, with cost allocation to LSE based on pro-rata consumption during hours of highest reliability risk
Performance Credits Mechanism: PCM	<ul style="list-style-type: none"> Establishes a reliability standard and a corresponding quantity of performance credits (PCs) that must be produced during hours of highest reliability risk to meet this standard Establishes a retrospective settlement process through which PCs are awarded to resources based on availability during hours of highest risk and purchased by LSEs according to their load-ratio share during those same periods at a price determined by an administrative demand curve Allows generators and LSEs to trade PCs in a voluntary forward market; participation in the forward market is required for generators to qualify for the retrospective settlement process
Backstop Reliability Service: BRS	<ul style="list-style-type: none"> Authorizes ERCOT to procure backstop resources sufficient to maintain a reliability standard based on a forward-looking assessment Backstop resources are deployed last in the bid stack to avoid impact on day-ahead and real-time energy & ancillary service prices to help avoid emergency conditions in system reliability Allocates cost of backstop procurement to LSEs based on pro-rata consumption during hours of highest reliability risk
Dispatchable Energy Credits: DEC	<ul style="list-style-type: none"> Requires each LSE to procure dispatchable energy credits (DECs) from eligible resources at a quantity equal to 2% of its annual energy (MWh) load DECs can be generated by resources with a 5-min startup time, below 9,000 Btu/kWh heat rate, and 48-hour duration that clear in energy & ancillary service markets between 6-10 pm in any day
Dispatchable Energy Credits + Backstop Reliability Service: DEC/BRS Hybrid	<ul style="list-style-type: none"> This design merges the DEC and BRS design

Source: E3 Report¹⁶

Through extensive analysis, E3 recommends that ERCOT implement a “Forward Reliability Market” (FRM) market design, which creates what E3 calls “a forward reliability product” that establishes “a centrally cleared auction for the forward procurement of reliability credits.” Reliability credits are payments to resources retained for reliability based on the resource’s capacity supply obligation retained for reliability.¹⁷ Essentially, an FRM is a capacity market by another name, a concept which TCCRI has long opposed.

As Frank A. Wolak, the Holbrook Working Professor of Commodity Price Studies in the Department of Economics at Stanford University explains in a paper entitled “What’s Wrong with Capacity Markets?”:

The major rationale for capacity markets in the United States appears to be a holdover from the vertically integrated regulated regime when capacity payments compensated generation units for their capital costs, because the regulatory process typically reimbursed unit owners for their variable operating costs ... capacity payments look very much like subsidies to the construction of new generation capacity. Recall that they are payments made to generation unit owners for being available to produce electricity. The requirement to make these payments to owners of generation capacity can lead to over-investment in new generation capacity, which will reduce the spot price of electricity and increase the need for higher capacity payments in the future.¹⁸

Put simply, in a normally functioning market, when supply is greater than demand, prices will come down. In a marketplace in which supply is forced to be greater than demand (i.e. a capacity market) prices will necessarily be higher than they would need to be, to the detriment of all consumers in the market. By contrast, Texas' current "energy only" market can deliver the necessary investment to provide grid reliability at the lowest possible cost to consumers.

1. Policy Recommendation: Reject Capacity Markets in Texas

A key flaw in the E3 Report, due specifically to the guidance E3 was given, is that the E3 Report "did not consider the existing energy-only market structure as a candidate for" recommendation.¹⁹ In other words, it presupposes that the energy-only market should be replaced. But even that flaw flows from a fundamental misreading of Winter Storm Uri. As R-Street Institute explained in its comments to PUC:

The energy issues during Uri were generator performance problems, not installed capacity problems: limited fuel and frozen generator supply problems combined with the potential for never-before-seen levels of customer demand, which went unserved due to lack of supply. The Uri-related problems are best addressed via weatherization requirements, increased coordination between the natural gas and electricity industries, and more conservative operations during wide-spread cold weather. Starting up power plants in anticipation of extreme cold weather is a reasonable precaution.²⁰

Seemingly complex problems often have simple solutions. Within the energy-only market design, generating more power within existing capacity—which does exist—would likely have prevented the Uri blackouts. A complete redesign of the market would not necessarily have done so, and comes with additional costs, some of which can be anticipated, many of which cannot.

There will always be a tension between those who understand that the free market is the best way to ensure that supply can meet demand, and those who believe that steps should be taken to structure the electric market differently in order to prioritize supply. The current debate, stemming from the E3 report is not new. In 2012, at the request of ERCOT, the Brattle Group produced a report on the status of the ERCOT grid. Citing ERCOT's own projections that the reserve margin would fall to 9.8 percent by 2014, the Brattle report summarized five different policy approaches aimed at sustaining a reserve margin of at least 13.75 percent. The policy approaches contained in the Brattle Report ranged from essentially maintaining the then current energy-only market to implementing a regulated resource adequacy requirement, coupled with a "capacity market" that would include a regulated funding mechanism for the construction of new electric generation capacity. Capacity markets are typically structured such that a fee is assessed on retail electric bills. The resultant revenue from this fee is used to subsidize the construction of electric generation in the marketplace.



Proponents argue that this approach attracts necessary investment in generation that would not otherwise occur in an energy-only market. But there is considerable scholarship, on Texas’s energy market specifically, that cuts against the arguments for capacity markets. Take, for example, “The New Frontier for Texas Electricity Competition: Enabling Distributed Resources and Avoiding Price Controls,” in which Josiah Neely of R Street explained in 2020:

Maintaining electric reliability is a major concern for ERCOT and for state regulators such as the state’s Public Utilities Commission (PUC). This can be achieved in a variety of ways. Most states, even those that have competitive electric markets, still maintain a separate “capacity market” that makes payments to generators to ensure adequate generation is available to meet peak demand. Capacity markets can help ensure reliability, but they are costly and involve paying some plants to sit idle for most of the year.

By contrast, ERCOT operates as an “energy only” market, meaning that it does not rely on capacity markets to ensure reliability. Instead, ERCOT relies on price signals to ensure that adequate capacity will be available to meet demand. During periods of peak demand, electric prices rise, encouraging new generators to come online (the same price signals also encourage consumers to reduce demand where this makes sense for them).ⁱⁱⁱ

Neely goes on to explain how Texas’s pricing system relies on scarcity, which, he argues, “when properly designed and implemented . . . does not function as a subsidy to any particular energy source, but helps the market ensure electric reliability in an efficient manner.” Neely also pointed out in the piece the following:

Some have raised concerns about the effects that renewable energy has on electric reliability. Renewable electricity may cost less in the short term. But by keeping prices low, it is claimed, renewables will depress needed investment from other energy sources and increase the vulnerability of the grid.^{iv}

Similarly, in “The Texas Freeze: Why the Power Grid Failed,” Katherine Blunt and Russell Gold explain in the Wall Street Journal that:

Within the competitive Texas power market, there is a strong incentive for generators to keep costs down to recoup their investments. The rapid buildout of wind and solar power, which are now among the cheapest sources of electricity, have pushed prices even lower in recent years, making it more difficult for gas and coal plants to compete.^v

Texas has the capacity to power Texas. The energy-only market has served Texas well. Winter Storm Uri should not be used as a pretext to redesign the grid in a manner that will reduce market forces and likely increase costs for Texans.

D. Natural Gas Supply

One of the contributors to power outages during Winter Storm Uri was a shortage of natural gas, which would have been used by natural gas power generators to meet heightened needs during the storm.²¹ A proposal floated by Brad Jones, formerly ERCOT's interim CEO, is to create a "gas desk" at ERCOT in order to collect information related to natural gas supply for the grid's generators. ERCOT uses several "desks" to collect information and monitor different sectors of the grid, including energy transmission and renewable energy. The "gas desk," according to Jones, would collect "purely operational data." Jones explains:

It only makes sense (because) gas is a significant contributor — over half of our generation uses natural gas for electric generation," Jones said. "We should be able to gather that information. When I say that (it means) purely operational information: Is the line operating? Or is the compressor station out? Is there maintenance being done? Those types of simple things is all we're talking about."²²

1. Policy Recommendation: Reject Establishment of a "Gas Desk" at ERCOT Through Regulatory Means

Mr. Jones' sentiment is understandable and driven by a desire to prevent events like the blackouts during Winter Storm Uri from happening. Yet, it is not clear that a gas desk would have, or even could have, prevented those blackouts. Texas Oil and Gas Association President Todd Staples believes that the proposal "would not have prohibited what occurred during Uri."²³ Railroad Commissioner Craddick was also unconvinced at a September 13 joint hearing of the House State Affairs and Energy Resources committees.²⁴ Craddick's father, State Representative Tom Craddick went further, stating that his constituents, who "are heavily involved" in the natural gas industry "are not for it."²⁵ Given the lack of clarity around the proposal, how it would be implemented, how it would impact the market, and whether it would even prevent future disasters, ERCOT should not proceed with a gas desk unless directed to do so by the Texas Legislature.

III. Environmental, Social, and Governance

Environmental, social, and corporate governance (ESG) investing is a practice that seeks to undermine western values and impose the views of the few on the many. ESG is incompatible with free market capitalism. Instead, it emphasizes radical environmentalism and policies that undermine individual liberty and free enterprise.

ESG refers to a set of non-financial factors measuring a company's adherence to socially and environmentally left policies. A company will then be given a ranking depending upon how closely they align with these policies. These policies can be anything ranging from paying for employee abortions to boycotting the oil and gas industry. The further left a company goes, the higher their ESG ranking climbs.²⁶

A. The History of ESG

Socially Responsible Investing (SRI) and Impact Investing (IR) became increasingly popular in the 1960s and 70s when religious organizations and their followers wanted to ensure their money was not being used to support what they viewed as objectionable industries such as firearms, tobacco, and gambling. Additionally, Americans and others around the world wanted to divest from the South African apartheid regime and any business involved therein.²⁷

Proponents of ESG will claim that their strategy and evaluation is nothing new and simply the newest iteration of SRI and IR. But, in fact, ESG has more in common with the push for Diversity Equity and Inclusion (DEI) programs within institutions of higher education and corporate America than it does with SRI and IR. Both DEI and ESG programs and their proponents utilize seemingly harmless platitudes in order to advance their radical social and environmental policies in private industries that they could never accomplish through governmental means.

Indeed, ESG and all it entails is simply a method of forcing the left's political priorities on the public after failing to do so through the government. Board diversity, executive pay, green building, and so on, are mutations of failed leftist legislation such as the so-called Green New Deal and the Paris Climate Accords.²⁸

B. The Driving Forces Behind ESG

At first glance, ESG has the veneer of the free market at work. Consumers want to invest in companies that adhere to a set of socially left values just like many on the right would like to contribute and support companies that do the same for them. But ESG is just the tip of the iceberg, and there are much more dangerous issues lurking below the surface. While institutions have often used socially responsible investing to ensure that their money was not supporting industries they found objectionable, radical left

groups are now actively trying to take over and fundamentally change industries they do not approve of. ESG is a tool in that mission.

In the summer of 2021, activist hedge fund Engine No. 1 set out to reshape the largest publicly traded international oil and gas company, ExxonMobil.²⁹ Engine No. 1's mission is to "harness the power of investors" and with the help of BlackRock, State Street, and Vanguard, they did just that.³⁰ In just one week, the relatively small hedge fund was able to elect three new board members and push the largest publicly traded international oil and gas company to "reduce its carbon footprint and accelerate its shift from fossil fuels."³¹ Rather than advocating for a decrease in corporate power as has long been a goal of the political left, they have now co-opted corporate agendas through the imposition of ESG.

C. Stakeholders v. Shareholders

Western democracy, with all of its benefits of freedom and prosperity, would not be possible without shareholder capitalism, a system in which corporations are duty bound to pursue policies that return the most profit to the investors. As Milton Friedman famously explained in *Capitalism and Freedom*, "the social responsibility of business is to increase its profits."³² Indeed:

... there is one and only one social responsibility of business to use its resources and engage in activities designed to increase its profits so long as it stays in the rules of the game, which is to say, engages in open and free competition, without deception or fraud.³³

ESG rejects this foundational premise. Under ESG principles, stakeholders are simply parties that have an "interest in a company and can either affect or be affected by the business."³⁴ Stakeholders are increasingly comprised of communities, governments, and trade associations who want a say in the operation of a company without being financially invested in it.³⁵

D. The Problems with Indirect Stock Ownership

If there is a push for increased stakeholder involvement in corporate operations, the rights of shareholders must be emboldened and protected. Even now, an essential right when buying shares of a publicly traded company is the right to "vote your shares" whether that be electing members to the board of directors or making your views known to management on issues which may affect the value of your shares.³⁶ Unfortunately, however, Americans are holding less and less stock in individual companies.³⁷

As of 2016, 52 percent of Americans have "some level of investment" in the stock market while only 14 percent of American families hold shares of individual stocks.³⁸ Herein lies the problem, as American shareholders increasingly own indirect stakes through mutual and pension funds, investment firms such as BlackRock, Fidelity, and Charles Schwab, are empowered to vote on their behalf. With such great

power, they are able to reshape the direction of entire companies, elect board members loyal to their political agenda, and promote ESG policies.

E. The Consolidation of Power

As American investors lose their voting rights, a handful of CEOs' and asset managers' voting power only grows, and they are more than happy to vote on your behalf. At the New York Times 2017 DealBook Summit, BlackRock Chairman and CEO Larry Larry Fink stated that "I have only one power, and I am going to use that power heavily, and that's the power of the vote."³⁹ In an opinion column for the New York Times, Jeff Sommer described the problem this way:

Fund companies have rarely asked shareholders what issues concern them, to say nothing of how they'd like their votes cast. And it's extremely difficult for investors to know how their fund companies voted, and what their policies are on issues like climate change, corporate compensation ("say on pay") and diversity, equity and inclusion..⁴⁰

Later in the interview Larry Fink, responding to the assertion that diversity is now an investment criterion, he stated that "behaviors are going to have to change...you have to force behaviors and at BlackRock we are forcing behaviors."⁴¹ Asset managers are using their voting power to push an elitist woke agenda on American companies and the issue will only worsen as indirect stock ownership continues to grow. The few now speak for the many and they pursue policies contrary to core western values of individual liberty, free enterprise, and limited government.

F. The Harmful Effects of ESG

Harmful effects of ESG and related policies within corporations are already hurting Texans. At a Texas Senate Committee on State Affairs late last year, Ben (Bud) Brigham, Chairman of Brigham Exploration, an oil, and gas company based out of Austin, testified to the harmful effects that ESG priorities have already had on his business. While attempting to acquire capital investment from a bank with whom his company had previously worked with for many years, Mr. Brigham was denied further funding on the grounds that he had not sufficiently tweeted his support for the issue of climate change.⁴² All of this might lead one to assume that Mr. Brigham publicly denies climate change, but in fact, later in his testimony, he states that climate change is occurring and humans are indeed contributing to carbon in the atmosphere. The problem, he said was that he disagreed that companies should align with the Paris Climate Accords and all companies should seek to be carbon neutral by 2050.⁴³ This is discrimination based on a disagreement over climate policy and the state has a responsibility protect these industries from such actions.

Even profits are considered contrary to ESG priorities says President of the World Economic Forum, Klaus Schwab, "We can't continue with an economic system driven by selfish values, such as short-term profit" and apparently some in the United States agree.⁴⁴ In November 2021, head of the Securities and

Exchange Commission (SEC) and Biden-appointed Chairman, Gary Gensler sent a memo directing staff to focus not on the policy issue and how it will affect companies but rather the social significance/impact of the proposed policies.⁴⁵ There is even talk that the SEC will mandate corporate disclosure of their progress in meeting new ESG requirements.⁴⁶

Americans are not the only ones harmed by ESG. Farmer protests have erupted across Europe as countries pursue radical environmental policies. Over a few weeks in the summer of 2022, more than 40,000 Dutch farmers took to the streets to protest climate related regulations which threaten “upwards of 30% of farmers out of business.”⁴⁷

G. The 87th Legislative Session

Oil and natural gas remain integral components of the Texas economy, and companies pursuing ESG policies actively deny capital to these industries, which harms Texans. In 2021, in an effort to discourage such action, the Legislature passed Senate Bill 13 (Birdwell, 87R), which prohibits Texas state agencies from investing in financial companies that boycott energy companies. SB 13 instructed Texas Comptroller Glenn Hegar to compile and maintain the list of corporations that boycott energy companies. After extensive research and process development, in August of 2022, the Comptroller’s office produced a list of 10 financial companies along with nearly 350 funds that fall under the provisions of SB 13. The legislation does not focus directly on ESG, but takes aim at a single policy of boycotting energy companies that are often included in ESG priorities. Comptroller Hegar released the following statement along with the list of companies:

The environmental, social and corporate governance (ESG) movement has produced an opaque and perverse system in which some financial companies no longer make decisions in the best interest of their shareholders or their clients, but instead use their financial clout to push a social and political agenda shrouded in secrecy,” Hegar said. “Our review focused on the boycott of energy companies, rather than a review of the entire ESG movement. This research uncovered a systemic lack of transparency that should concern every American regardless of political persuasion, especially the use of doublespeak by some financial institutions as they engage in anti-oil and gas rhetoric publicly yet present a much different story behind closed doors. This list represents our initial effort to shine a light on entities that are engaging in these practices and create some clarity for Texans whose tax dollars may be working to directly undermine our state’s economic health.”⁴⁸

SB 13 is an important first step in state policy to reject ESG policies that harm the economy in pursuit of ideological goals. Utah and other states are following Texas’ example. After Texas passed SB 13, a year later, Florida Governor Ron DeSantis pulled his state’s pension fund from considering ESG factors and subsequently removed BlackRock as their fund manager.⁴⁹ In 2022, eight other states, Arizona, Idaho, Kentucky, North Dakota, Ohio, Oklahoma, Utah, West Virginia, and Wyoming have either passed or are actively considering similar steps to those in Texas and Florida.⁵⁰ In the upcoming legislative session,

Texas can again set the standard for what it looks like to push back against harmful ideologies by protecting its businesses and citizens from the predations of ESG and its subsequent ramifications.

H. Policy Recommendations

1. Policy Recommendation: Prohibit Financial Discrimination Based on ESG Policies

Heading into the 88th Legislative Session, Representative Cody Harris has introduced legislation that would prohibit financial institutions from discriminating against a customer based solely on credit scores, ESG, or some other “subjective or arbitrary standards such as the customer’s...” social media posts, political affiliation, employer, or participation/membership in an organization.⁵¹ While this legislation does not address the broader scope of ESG investing, it provides an important protection for citizens against malicious actors seeking to punish those based on a social credit style system. House Bill 709 is an important step in safeguarding the right of free speech and free association in Texas. Passage of HB 709 would be a strong protection for Texans.

2. Policy Recommendation: Remove All State Assets Managed by Proponents of ESG

ESG and its proponents harm investors and often work against core values of Texans and the West at large. Therefore, no state funds should be managed by any financial institution that supports, pursues, or enacts ESG priorities.

3. Policy Recommendation: Encourage Greater Shareholder Protections

Texas should make active efforts to encourage the Federal government to enact protections and provide increased information to shareholders when it comes to their rights to vote their shares.

IV. Renew Focus on Nuclear Power

The topic of green energy is ubiquitous. Through Green New Deal-style initiatives, wind and solar energy are held up as the logical next step in powering the world with clean, reliable energy sources.⁵² These technologies certainly have a role to play in the larger portfolio of energy production, but they lack the reliability that proponents claim them to have. Indeed, the sun is not always shining, and the wind is not always blowing. Therefore, there continues to be a need for readily dispatchable baseload power at all times. Currently, that comes in the form of carbon-based energy such as coal or natural gas, which make up more than 67 percent of Texas's electricity.⁵³ Conservatives understand this and value carbon-based energy production for its affordable price and reliability. Conservatives also understand that innovation within the carbon-based energy marketplace will continue to find ways of producing energy in cleaner and more efficient ways.

Notably, a key form of energy production—nuclear—which combines the reliability of carbon-based fuels with the environmentally friendly aspects of wind and solar is either left out of the conversation or dismissed entirely. Nuclear energy bridges the divide between clean and reliable energy production, yet nuclear energy is often portrayed as dangerous, unstable, and environmentally damaging.⁵⁴ Nothing could be further from the truth.

A. Background

Fascination with nuclear energy in the United States began as an outgrowth of the *Manhattan Project's* search for atomic weapons during World War II.⁵⁵ Immediately following the war's conclusion in 1945, the American government encouraged the development of nuclear technologies for peaceful, civilian applications. Less than a year later, in 1946, Congress created the Atomic Energy Commission (AEC) through the passage of the Atomic Energy Act (AEA).⁵⁶

On December 8, 1953, President Dwight D. Eisenhower, concerned by the expansion of the Soviet Union's nuclear arsenal, addressed the United Nations General Assembly.⁵⁷ He spoke of mankind's need of developing atomic technologies, not for purposes "dedicated to his death, but consecrated to his life."⁵⁸ A year later, Congress replaced the first AEA with the Atomic Energy Act of 1954, which, for the first time, allowed development of nuclear technologies for commercial applications.⁵⁹

Since that day, the United States' relationship with nuclear energy has been tumultuous. America's underutilization of nuclear technologies is often blamed directly on the events surrounding Chernobyl and Three Mile Island, and while these incidents do hold a prominent place in the minds of Americans, blame can be more accurately placed on excessive cost and overburdensome federal regulations. At present, the state of nuclear energy in the United States remains underutilized, but a greater emphasis on nuclear power in the larger energy portfolio could help America to one day become energy independent with a greater emphasis on sustainable and environmentally friendly energy sources.

B. Foreign Utilization of Nuclear Power

Europe increasingly relies on nuclear power as a means of seeking energy production independent of global gas markets. Nuclear power now accounts for 70% of France's energy production⁶⁰ and although in recent months their plants have faced issues stemming from the COVID-19 lockdowns and delayed maintenance, nuclear energy remains a point of pride for the people of France.

Some nations have shunned nuclear power altogether. Germany, for instance, shifted away from nuclear power, going so far as to shut down existing nuclear power plants.⁶¹ Some estimates show that by 2025, Germany will have spent upwards of \$500 billion in their transition to renewable energy and in doing so will have made energy "twice as expensive and ten times more carbon-intensive than that of France."⁶² Amid the ever worsening energy crisis resulting from the war in Ukraine, Germany has now been forced to reverse course and is in fact delaying their complete withdrawal from nuclear energy in order to stave off nationwide blackouts as winter grows colder.⁶³ Lack of energy production as a result of their failed energy policy has led them to resurrect "20 coal-fired power plants ... to ensure Germany has enough energy to get through the winter."⁶⁴

Russia is not wholly responsible for the failures of the German electrical grid. Over the past year, Germany's wind generation has been so dismal and their reliance on it so great that in order to make up for the losses "gas-fired power plants increased 15%, coal power plants by 36%, and hard coal power plants by 44%." All of this, not because they lacked the "willpower" as one columnist writes, but because they simply lack the *wind* power.⁶⁵

France, on the other hand, has transitioned to an electric grid based almost entirely on nuclear energy. They produced so much energy at such cheap rates that they became, for a time, the world's largest net exporter of electricity.⁶⁶ That changed when nuclear energy production in France recently hit a 30-year low. For the first time since 2012, France is a net energy importer.⁶⁷ In "anticipation of winter...the French Energy Regulatory Commission" announced that their natural gas reserves are 100 percent fully stocked thanks to imports from Norway, the Netherlands, Nigeria, and Algeria.⁶⁸

France's current nuclear power situation does not indicate long-term unreliability. State run electric company EDF "has committed to restart all of [the nuclear power plants] by this winter."⁶⁹ Current dips in power production stem from delays in maintenance as a result of the country's unprecedented heatwave bundled with the COVID-19 lockdowns.⁷⁰ Uncertainty in their electrical system is not fairly blamed on nuclear energy itself, but rather on their overburdensome and ineffective lockdown policies that made proper maintenance of their nuclear facilities difficult. The media's attempt to place blame at the feet of nuclear energy instead of addressing the real issue is an attempt to discredit nuclear energy on a wider scale.

Europe's energy crisis has put the pros and cons of nuclear energy on full display. Completely abandoning nuclear power has pushed Germany's energy cost and carbon emissions even higher than

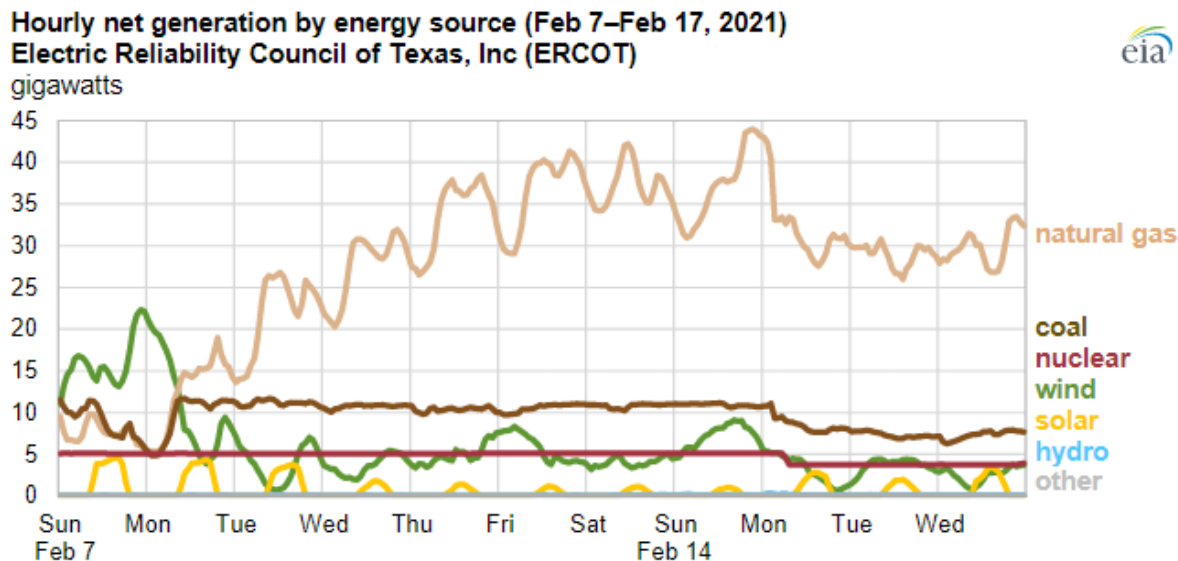
before. Overreliance on nuclear power in France has shown the problems with a fully government run system. Plagued by inefficiencies and grappling with labor strikes, France proves that complete government control of the energy sector can lead to poor management and sluggish response times in the face of disasters.⁷¹ The lesson from Europe is that energy can effectively be a part of the baseline energy supply of any nation seeking energy self-reliance, but the extremes of total reliance on nuclear and outright rejection are paths better avoided.

C. Nuclear Power in Texas

Texas is home to two nuclear power plants, the South Texas Project⁷², which is near Bay City, and Comanche Peak⁷³, near Glen Rose. As of 2019, these two facilities, which house two reactors each, provided the state with 11 percent of the total electricity generated.⁷⁴

The limited nuclear power online in Texas has performed reliably where other sources of production have failed. In 2017, the South Texas Project was able to survive Hurricane Harvey because of its design, storm plans, and dedicated crew. Indeed, during Harvey and in the days after, workers worked shifts to ensure around the clock monitoring of the facility and guarantee its safe operation.⁷⁵

Texas nuclear power again showed its resilience and reliability during Winter Storm Uri in February of 2021. Early in the week, wind and solar energy production plummeted, exposing their unreliability during times of inclement weather. Nuclear energy, however, remained stable, as the chart below illustrates:

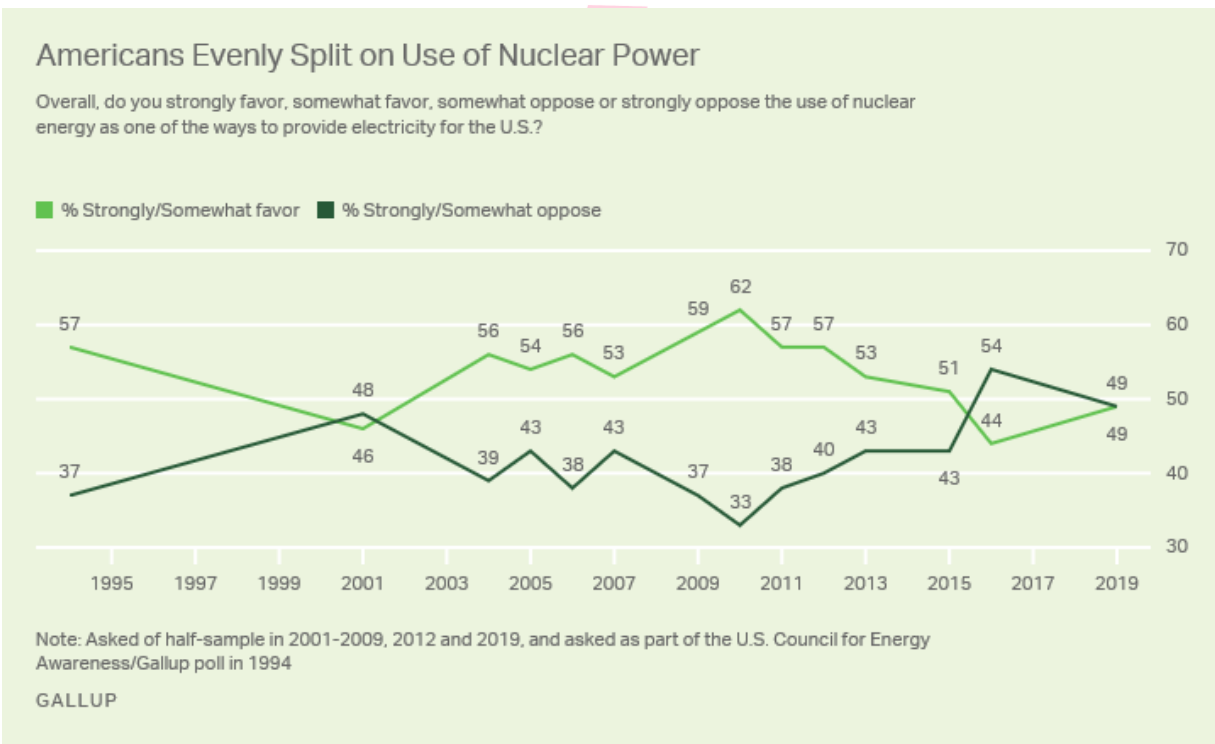


Both Hurricane Harvey and Winter Storm Uri are real-world reminders that nuclear reliability and safety should be highly valued. Given the state’s emphasis on unreliable wind and solar sources, a greater emphasis on nuclear would improve Texas’s energy grid.

D. The Safety of Nuclear Power Generation

From the catastrophic events of Chernobyl in the Soviet Union to slow burning disasters like the leaking of radioactive material in Hanford Washington, accidents do happen.⁷⁶ Americans are likely most familiar with partial core meltdown at the Three Mile Island reactor in Pennsylvania. As a result of electrical and mechanical failures, the reactor experienced a partial meltdown that left many in the United States permanently frightened of nuclear power so close to home.⁷⁷ As concerning as these incidents legitimately are, the fear of this type of danger is outsized relative to the actual danger. In the case of the Three Mile Island incident, the entire event had “negligible effects on the physical health of individuals or the environment.”⁷⁸

Gallup reports that despite having 40 years between the incident at Three Mile Island and today, Americans are still divided on the topic of nuclear energy, as the chart below indicates.



Source: Gallup⁷⁹

The outsized fear of nuclear energy compared to other forms of power generation is driven largely by a misunderstanding of the dangers associated with nuclear power. Indeed, in Matt Ridley’s book *How Innovation Works*, he outlines the startling death toll associated with *other* forms of energy when compared to nuclear:

[Per] unit of power, coal kills nearly 2,000 times as many people as nuclear; bioenergy fifty times; gas forty times; hydro fifteen times; solar five times (people fall off roofs installing panels) and even wind power kills nearly twice as many as nuclear. These numbers include the accidents at Chernobyl and Fukushima.⁸⁰

That is not to say that any of these forms of energy production are particularly dangerous. Rather, what Ridley makes clear is that fears of nuclear power are based on a fundamental misunderstanding of the dangers associated with nuclear power, which is particularly well highlighted when compared relative to other forms of energy production. Sound public policy should take this into account when creating a long-term energy strategy.

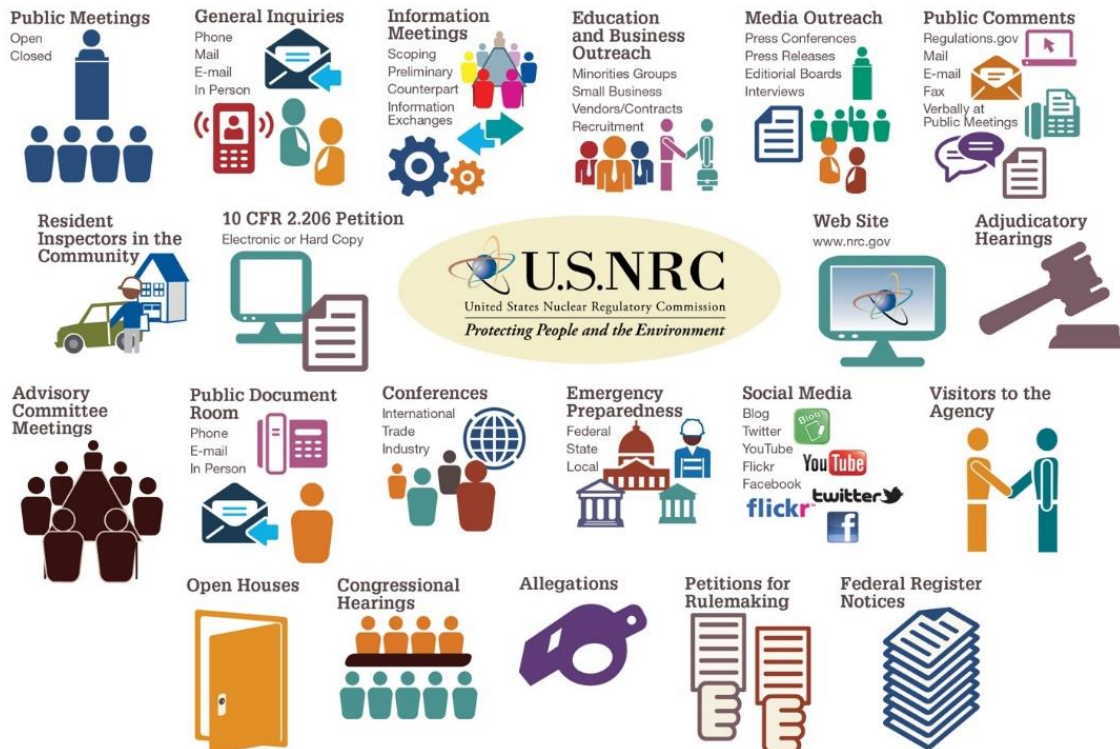
E. Overburdensome Federal Regulations

Nuclear physicist Bernard Cohen writes in his book, *The Nuclear Energy Option*, that the “inexorable escalation of costs driven up by regulation” is the real reason why the West has not invested more into nuclear power.⁸¹ The Federal Agency responsible for those skyrocketing costs is the Nuclear Regulatory Commission. Created by the Energy Reorganization Act of 1974, the Nuclear Regulatory Commission or NRC, expanded greatly following the partial reactor meltdown at Three Mile Island in 1979.⁸² As it expanded, so did the costs associated with building new power plants. During the 1960s, nuclear reactors were one of the cheaper sources of energy.⁸³ In other countries, including France, Japan, and Canada, costs for new nuclear plants did not rise in the same way they did in the United States.⁸⁴ and in some cases like South Korea, costs actually went down during this period.⁸⁵ This indicates that the cost burdens of nuclear power in the United States are more regulatory in nature than financial. While increased safety features, even redundant ones, may sound like exactly what the industry needs, author Matt Ridley notes that the only thing these extra safety features accomplished was to turn nuclear power “from a very, very safe system into a very, very, very safe system.”⁸⁶

In an effort to craft new regulations that would increase the safety of nuclear power plants, they may have had the reverse effect by discouraging innovation. If every action is to be regulated, then any new innovation must be assessed by the regulatory commission thereby discouraging any new action that may in fact be better for the project overall. For instance, the Fukushima power plant was built in 1967 and had glaring safety flaws that would be unlikely to be replicated in more modern designs. Stifling innovation kept the flawed Fukushima power plant open well “past its due date, thus lowering the safety of the system.”⁸⁷ In an effort to increase safety at nuclear power plants, the actions taken by government agencies may have had the opposite effect, resulting in the decreased safety and continued operation of aging facilities.

A barrier to nuclear reform in the United States is the Nuclear Regulatory Commission. The NRC oversees the licensing and approval process for all nuclear projects within the United States.⁸⁸ No nuclear plant is constructed without extensive oversight and input from the NRC, which is illustrated by the infographic below.

NRC Public Participation and Interaction



Source: Nuclear Regulatory Commission⁸⁹

The approval process was designed at a time when each power plant was “custom, built-on-site” and in order to be profitable today, production must shift towards a factory style plant assembly.⁹⁰ This change requires the NRC approval process to also change, which according to some experts, is highly unlikely. Josiah Neeley, a senior fellow in energy policy at the R Street Institute, says the NRC would be fine if “another nuclear plant never comes online,” and, indeed, “they wouldn’t [even] view that as a failure.”⁹¹ Neeley argues that the NRC’s position is that the easiest way to prevent meltdowns is to prevent construction of new plants altogether.⁹²

F. Policy Recommendations

One of the key issues holding back the expansion of nuclear power today is the problem of where to store the nuclear waste created by both nuclear weapons facilities and nuclear power plants.⁹³ Other nations have provided guidance on this issue, however. Conventional nuclear reactors only use about 10 percent of the uranium’s potential energy before being discarded.⁹⁴ While nuclear energy facilities in the United States does not utilize the spent nuclear fuel, countries like France and China are investing heavily into new technologies called Fast Reactors that would run on the recycled nuclear waste, thereby greatly reducing the already small amount of nuclear waste produced.⁹⁵ One of the primary barriers Fast Reactor technology faces is the ever-dwindling cost of uranium.⁹⁶ An alternative is simply to store the spent fuel instead of recycling it. The Federal government has already determined the safest

space within the continental United States to store such waste. The Yucca Mountain Nuclear Waste Repository located in the southwest portion of Nevada has been deemed both safe by the Federal government and it has been approved by the surrounding citizens in Nye County where the facility is located.⁹⁷ Former Senator Harry Reid ardently opposed the approval of the site and actively lobbied for nuclear waste to simply remain on site, stored at the nuclear power plants themselves.⁹⁸ Despite Senator Harry Reid's departure from the Senate in 2017, opposition to the Yucca mountain project remains strong. Both of Nevada's United States Senators Jacky Rosen (D) and the newly re-elected Catherine Cortez Masto (D) remain opposed to the project.⁹⁹ In a 2020 letter sent to the Senate Appropriations committee, Masto and Rosen asked that funding be given after a consent process established.

As the subcommittee continues to consider short- and long-term solutions to address the storage and disposal of our nation's nuclear waste, we respectfully underscore the need to establish a consent-based siting process—such as that laid out in the Nuclear Waste Informed Consent Act (S. 649/H.R. 1544)... Consent is the only viable path forward to guarantee the responsible stewardship of taxpayer dollars and our nation's nuclear waste.¹⁰⁰

Their opposition and calls for consent-based application of nuclear storage/disposal sites seem to completely disregard Nye county's 2012 letter that provided then Secretary of Energy and Obama appointee, Steven Chu with "consent to host the proposed repository at Yucca Mountain."¹⁰¹ Senator Cortez Masto introduced legislation to create the "National Climate Service Corps," tasked with "promoting sustainable communities" amongst many other objectives and yet conveniently leaves out the one source of clean energy that would most aid her efforts.¹⁰²

1. Policy Recommendation: Encourage the Federal Government to Proceed with the Yucca Mountain Project

Texas should encourage the Federal government to proceed with the project at Yucca Mountain and subsequently promote new investments and innovations in nuclear technology. Modifications to the current regulatory structures must also be encouraged and adopted.

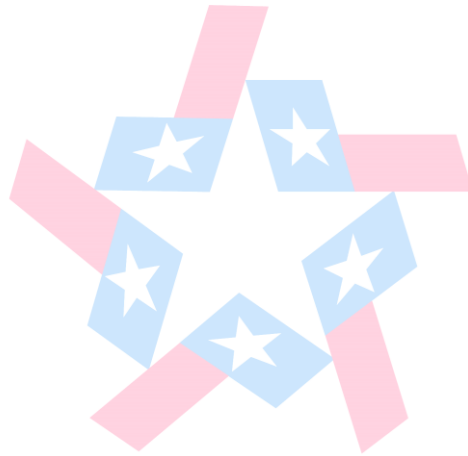
Luckily, the NRC is making steps in this direction and earlier this year it proposed a new licensing framework titled "Part 53."¹⁰³ The proposed rule changes shift to a performance-based approach and rather than defining how manufactures should achieve regulatory objectives, Part 53 "simply defines what the objectives are."¹⁰⁴ But the wheels of government turn slowly, and Part 53 is far from nearing implementation. Until then, the nuclear market remains saddled with unnecessary and outdated oversight regulations.

G. Conclusion

When it comes to nuclear energy in the United States, there is no doubt that it *should* play a larger role than it currently does, but in the face of governmental apathy, regulatory burdens, and pushback from the very people who claim to be concerned about climate change, the real question is whether or not it will.

Public policy driven by environmental and ideological extremism is the driving force behind the proliferation of wind and solar technologies across the nation as nuclear increasingly fades into the background. High startup costs, regulatory burdens, and public misconceptions surrounding nuclear power plants make the prospect of a nuclear revival a difficult one. But conservatives should shift the conversation around energy by placing a greater emphasis on this clean, reliable energy source.¹⁰⁵

The impact Texas can have on federal energy policy with respect to nuclear is somewhat limited, but Texas can and should be a strong voice advocating for greater ease in construction and maintenance of nuclear facilities.



V. Transportation Infrastructure

A. Background

Securing funding to meet Texas' transportation infrastructure needs continues to be a challenge to the state's policymakers. This challenge is the result of several factors: a rapidly increasing population, significant inflation in construction costs, motor fuels taxes failing to keep pace with inflation, and the wear and tear on roads in certain parts of the state that is attributable to oil and gas activities. Although the state has made great progress in addressing transportation funding in recent years, the state will require substantial additional revenue in the coming years to meet its infrastructure demands. In response to these challenges, the state's policymakers should consider alternative financing mechanisms to meet these demands, in particular public-private partnerships ("P3s").

Before examining the factors contributing to the state's need for transportation funding, it is important to emphasize a crucial point: the Comptroller's January 2023 estimate that the state will have a record budget surplus of \$32.7 billion at the end of the 2022-2023 biennium does not mean that Texas' transportation funding challenges are solved. The State Highway Fund (SHF) is the state's primary source of funding the Texas Department of Transportation (TxDOT). The Comptroller's Biennial Revenue Estimate for 2024-2025 actually projects *a decline* in revenue directed to the SHF in each of FY 2024 and FY 2025, relative to FY 2023.¹⁰⁶ Although these declines relative to FY 2023 funding levels are minor (1.6 percent in FY 2024 and 0.4 percent in FY 2025¹⁰⁷), the factors contributing to the state's need for increased transportation infrastructure continue to exert relentless pressure.

A brief example will illustrate the enormous costs associated with transportation infrastructure. In 2022, the Texas A&M Transportation Institute (TTI) found that IH-35 in Austin (between U.S. 290 East to the north and Ben White Boulevard to the south) was the most congested roadway for trucks in Texas (based on 2021 data),¹⁰⁸ and the third-most congested overall.¹⁰⁹ An astounding 178,000 trucks use this road segment every day.¹¹⁰ TTI estimates that the cost of all congestion delays on this stretch of IH-35, whether for trucks or non-trucks, amounted to \$1 billion in 2021 alone.¹¹¹ In January 2023, TxDOT estimated that the cost of its proposed project for this stretch of IH-35 (which includes costs related to bridges and nearby pedestrian and bicyclist paths) would be \$4.45 to \$4.50 billion.¹¹² For context, total appropriations to TxDOT in FY 2023 are \$14.96 billion.¹¹³

The state's rapid population growth is perhaps the most important contributing factor to the state's growing need for transportation funding. Texas continues to be one of the fastest-growing states in the country. As of July 1, 2021, Texas was home to approximately 29.5 million people.¹¹⁴ From mid-2020 to mid-2021, Texas' population grew by more than 310,000, ranking first among all states in absolute population growth.¹¹⁵ Based on migration patterns from 2010-2015, the Texas Demographic Center projected in 2019 that the state's population will grow to 47.4 million by 2050.¹¹⁶ While Texans can justifiably be proud of their economy and the way it attracts people from around the country and even

the world, this population growth puts a tremendous strain on Texas infrastructure. This rapid growth is part of a long-term trend; in 1990, Texas' population stood at only 17 million.¹¹⁷

Although Texas' population has soared over the last few decades, and average daily miles driven in the state increased by 70 percent from 1990 to 2019,¹¹⁸ the state's revenue from motor fuels taxes has actually declined in inflation-adjusted terms since 1999.¹¹⁹ This decline in real terms is crucial because much of the revenue from motor fuels taxes is dedicated to the State Highway Fund (SHF). Texas's motor fuels tax imposes a tax of 20 cents on a gallon of gasoline, one of the lowest state rates in the country.¹²⁰ The decline in inflation-adjusted motor fuels tax revenue is not surprising given that Texas has not raised its motor fuels tax rate since 1991.¹²¹ Motor fuels tax revenue is also less than what it would otherwise be due to welcome innovations in fuel efficiency in automobiles.

The funding challenges which the Texas Department of Transportation ("TxDOT") faces are even more significant when taking into account the inflation within the construction industry. As the Comptroller's Office noted in 2019:

The Federal Highway Administration's National Highway Construction Cost Index, used by planners and policymakers to calculate the inflation of highway construction costs for items such as asphalt and machinery, has risen by 84 percent since 2003, far surpassing the general inflation rate of 33 percent during the same period.¹²²

Additionally, the oil and gas boom in the last few years is another contributing factor to the pressure on Texas' transportation budget. Horizontal drilling and fracking impose heavy demands on local transportation systems. As one news source stated in 2018:

Drilling a single long-lateral well can now require more than 500 tons of steel pipe, a 14-football-fields-long string of sand-carrying railcars and enough water to fill more than 35 Olympic-size swimming pools. The cumulative stress of moving so much mass over a concentrated set of asphalt roads in 50,000-pound (or heavier) truckloads causes enormous wear and tear that many rural counties cannot afford to repair.¹²³

Unsurprisingly, this heavy wear and tear on rural roads means upgrades and repairs are necessary to a greater extent than they would otherwise be. Fortunately, the 86th Legislature took strong action to address this problem, appropriating \$250 million to the Transportation Infrastructure Fund for grants to counties the roads of which have been adversely affected by the state's increased oil and gas production.¹²⁴ Nevertheless, it is likely that growth of the oil and gas sector in the coming years will continue to put stress on roads in mineral-producing areas of the state.

In summary, several factors currently combine to place great pressure on the state's transportation budget. Faced with this dilemma, the state must consider all feasible options for financing transportation.

B. Some Suggested Solutions are Not Feasible

Two logical possibilities for addressing the state’s need for transportation funding are: (1) diverting existing tax revenue to transportation, or (2) raising additional tax revenue for transportation. Unfortunately, neither of these possibilities is satisfactory or adequate.

With respect to channeling exiting revenue to transportation, the Legislature has already taken significant steps in recent years to accomplish this goal. The 83rd Legislature (2013) passed Senate Joint Resolution 1 and House Bill 1 (83S3) to allow for the transfer of certain oil and gas severance tax revenues to the SHF. SJR 1 (in the form of Proposition 1) was approved by voters in November 2014. The 84th Legislature (2015) went even further, passing Senate Joint Resolution 5 to allow for the transfer of up to \$2.5 billion of state sales tax revenues and (potentially) a portion of the motor vehicle sales and rental tax to the SHF each year. SJR 5 (in the form of Proposition 7) was approved by voters in November 2015. As a result of these actions taken by legislators and approved by voters in 2014 and 2015, more than \$9.5 billion in additional funding was budgeted for transportation in the 2022-23 biennium.¹²⁵ While not all of these funds are budgeted for construction projects, all are directed to transportation costs, such as payments on transportation-related bonds.¹²⁶

Table 1 below illustrates the growth in All Funds funding for TxDOT over the last five biennial budgets and the additional funds that have been directed towards transportation as a result of Proposition 1 and Proposition 7.

Table 1: Estimate of All Funds, Transportation, in each of the Last Five General Appropriations Acts (numbers are in billions)

Biennium	All Funds	Funding Increase Over Previous Biennium	Prop. 1 Funds	Prop. 7 Funds	Combined Funds from Props. 1 and 7
2012-13	\$19.80	-	-	-	-
2014-15	\$20.95	5.80%	*	-	*
2016-17	\$23.05	10.10%	\$2.41	-	\$2.41
2018-19	\$26.60	15.40%	\$2.51	\$2.91	\$5.42
2020-21	\$30.78	15.70%	\$3.91	\$4.40	\$8.31
2022-23	\$30.24	(1.75%)	\$4.53	\$5.06	\$9.59

Source: Applicable General Appropriations Act

*SJR 1 (83S3, 2013), which led to Proposition 1, was enacted after the General Appropriations Act for the 2014-2015 biennium was enacted earlier in 2013. Thus, although the initial transfer of funds to the SHF pursuant to Proposition 1 took place in FY 2015, the budget for the 2014-15 biennium did not reflect that. According to the Legislative Budget Board, transfers to the SHF in FY 2015 pursuant to Proposition 1 totaled \$1.74 billion.

As the table illustrates, the transportation budget has increased significantly from biennium to biennium, and especially in the last two biennia as the effects of Propositions 1 and 7 began to be seen. From the 2012-13 biennium to the 2022-23 biennium, budgeted All Funds, Transportation increased by a healthy 52.7 percent. The Legislature’s increased funding for transportation deserves praise, especially

since it was done without imposing new taxes on Texans. Asking the Legislature to devise yet more new ways to shift existing tax revenue to transportation would risk leaving other critical functions of state government underfunded, especially in light of the property tax compression in House Bill 3 (86R) and the state's increased financial commitment to public education.

A second possibility - creating additional tax revenue streams or increasing the motor fuels tax - should be rejected. Texas' championing of low taxes and limited government involvement in the economy has played a critical role in the "Texas Miracle." The welcoming economic environment of the state continues to attract individuals and families from all around the country. While the COVID-19 pandemic caused significant harm to the economy, Texas rebounded quickly. By the end of 2021, the number of jobs in Texas exceeded the number of jobs in February 2020.¹²⁷

As a former president of the Dallas Federal Reserve presciently remarked in June 2020:

Before the coronavirus struck, the tax, cost-of-living, regulatory and pro-business climate in Texas was draining capital and jobs (and Congressional apportionment) from the Northeast, the Midwest and California, as well as investment from abroad. Should Texas smartly and safely navigate Covid recovery, the movement of capital and people (and political power) will further accelerate.¹²⁸

Rather than increasing the tax burden on families across the state when unemployment is high and job security is uncertain, policymakers should continue to emphasize the policies that have made the state the nation's job-creation engine. While increased funding pressures have caused the majority of states to raise their motor fuels taxes since 2013,¹²⁹ Texas voters will likely expect policymakers to find alternative solutions. A 2019 poll which explored voters' thoughts on how to obtain additional funding for public education found that 72 percent of Texans opposed raising the motor fuels tax.¹³⁰

Faced with the challenges noted above- strong population growth, slow growth (if any) in motor fuels tax revenue, and significant inflation in construction costs- the Legislature should consider any means of financing transportation that have proven to be successful at other times or in other states. P3s are one such non-traditional way of financing transportation projects and have been implemented successfully in Texas before.

C. Public Private Partnerships

Over the last several decades, P3s have been a viable and important infrastructure investment tool for state and local governments. P3s involve contracts between a public entity and a private investment consortium to build and operate public infrastructure. These partnerships allow for the sharing of both resources and risks and have been used to finance a variety of needs such as roads, bridges, broadband development,¹³¹ and facilities for water treatment, energy generation, and even recreation.¹³²

In many P3s, the private group finances the design, development, construction, and operation of the project. The public agency will typically retain ownership of the project, oversee its operation, and manage the private group's involvement, often involving a decades-long contract. Projects can be financed through combinations of state contributions, private activity bonds (PABs), and equity investment by the private developers, although some P3's are financed entirely by the private entity. Over the course of the project term, the private partner's investment and a return on this investment are repaid through tolls, designated revenues, cost savings, and/or lease agreements. Additional revenue that is accrued can either go directly to the private partner or be split between the private and public partners, depending on the terms of the contract.

Texas has a history of utilizing P3s to help finance public projects. The 82nd Legislature (2011) passed the Public Private Facilities Infrastructure bill (Senate Bill 1048) allowing the use of P3s for infrastructure development projects at the state, county, city, and school district levels. While transportation projects were not included in SB 1048, legislative action in 2007 (Senate Bill 792, 80R) had already authorized the limited use of private sector investment in transportation infrastructure projects, and Senate Bill 19 (82R, 2011) established a streamlined process for local toll projects.

TxDOT uses a version of P3s called Comprehensive Development Agreements (CDAs) to partner with private companies to design, finance, and maintain tolled highways.¹³³ A variety of CDA arrangements have been used throughout the state, including the construction, financing, and maintenance of the 17-mile LBJ-635 corridor expansion in Dallas and the North Tarrant Express Project (NTE) in Tarrant County. The benefits to the state from these projects are significant. For the LBJ-635 project, the state contributed \$490 million, but ultimately received a \$2.6 billion investment in new road capacity for one of the most congested areas of the DFW region.¹³⁴ The improvement project was completed three months ahead of schedule and opened in September 2015.¹³⁵ For the NTE, which opened in November 2014, a 13.3-mile corridor along the north loop of I-820 and SH-121/183, from I-35W in north Fort Worth to FM 157 in eastern Tarrant County, was substantially improved. During the construction phase, general-purpose lanes were rebuilt, frontage roads were rebuilt and expanded, and four managed toll lanes were added. By the end of 2015, the completed project handled almost 200,000 vehicles daily.¹³⁶

Both the LBJ and NTE projects utilize "TEXpress" lanes, which are able to dynamically manage traffic in real time through variable toll pricing. At the same time, pre-existing lanes were not tolled, but were, in fact, rebuilt and improved as part of the projects. These lanes remain free for all vehicles. Notably, Texas law makes clear that TxDOT may not operate a non-tolled state highway as a toll road, or transfer operation of that highway to an entity which will operate it as a toll road, unless:

- The Texas Transportation Commission designated the highway as a toll project before the contract to construct the highway was awarded;
- The project was, among other things, designated as a toll project on or before September 1, 2005;

- The highway is reconstructed so that the number of non-tolled lanes on the highway is greater than or equal to the number before the reconstruction; or
- A road is constructed adjacent to the highway such that the number of non-tolled lanes on the converted highway and the new road is greater than or equal to the number on the highway before the conversion.¹³⁷

Bob Poole of the Reason Foundation reported high levels of satisfaction among drivers using the LBJ and NTE projects: one year after NTE's completion, 70 percent of users of the overall highway (general purpose and electronic toll lanes) gave it a favorable rating.¹³⁸ And users of the LBJ rated that corridor even higher one year after project completion, at 76 percent.¹³⁹ Importantly, tolls did not discourage middle-class Texans from making use of the toll roads:

Local officials in Austin, Dallas, Houston, and elsewhere support continued use of tolling and P3s for much-needed congestion-relief projects...And as we see on express toll lanes around the country, on LBJ and NTE only 15 percent of the cars are luxury brands. Toyota, Ford, and Honda are the most common vehicles in toll lanes.¹⁴⁰

P3s can also offer valuable improvements to the transportation system by bringing private sector expertise to the public arena. Private companies often have substantial expertise in financing and asset management, thereby successfully leveraging billions of dollars for investment into public infrastructure. P3s are able to accelerate and guarantee the completion of large and complex projects in ways which are often superior to the delivery model of state and local governments.¹⁴¹ As the U.S. Department of Transportation has explained, "FHWA [the Federal Highway Administration] encourages the consideration of public-private partnerships (P3s) in the development of transportation improvements. Early involvement of the private sector can bring creativity, efficiency, and capital to address complex transportation problems facing State and local governments."¹⁴²

Additionally, the option to include long-term maintenance of the project in addition to the design and construction can make P3s a very appealing solution to public infrastructure needs. Despite these benefits, the use of P3 projects nationwide and in Texas is relatively limited. In its 2018 Roadway Inventory Annual Report, TxDOT reported that the state had only 732 miles of tollway mileage, compared to 314,648 total centerline miles,¹⁴³ of which 80,455 are defined as "highway" miles.¹⁴⁴

Furthermore, P3s have the benefit of integrating various phases of a project, such as the design portion and the construction portion. This integration can properly align the incentives of parties to maximize efficiency. A January 2020 report by the Congressional Budget Office (CBO) on P3s recognizes this potential synergy and is worth quoting at length:

Partnerships [i.e., P3s] can facilitate quicker or cheaper completion of a project by bundling two or more elements of a project because information that would otherwise be known at only one stage is more likely to be shared among stages. A traditional contract does a relatively poor job of addressing the risks that arise from privately held or

incomplete information. For example, having separate contracts for designing and building a facility exposes the project's owner to constructability risk—the risk that the design produced will not be the most cost-efficient option to build or will not match the builder's abilities. If such a mismatch occurs, the project's owner must first pay the builder to fix the resulting problem and then attempt to collect from the designer compensation for any added costs—which requires proving that the designer had legal liability because of a design that became more difficult and costly to complete than had been expected.

When the stages of an infrastructure project are consolidated under one project manager, that manager has an incentive to reduce the cost of the other stages of the project for which it is responsible. So a private partner that not only designs and builds but also operates and maintains a piece of infrastructure will be motivated to design it in a way that improves its long-term performance and reduces life-cycle costs (for example, by using more expensive but longer-lasting materials). Thus, when the same firm builds and maintains a project, it is motivated to use materials and methods to minimize costs over the life of a project, not just in its construction. Partnerships will be most cost-effective when the partner can realize substantial savings from keeping costs low over the life of the facility.¹⁴⁵

Despite the success of projects such as the LBJ-635 and NTE, opposition to tolling as well as opposition to private sector entities operating public infrastructure has resulted in TxDOT turning away from the P3 infrastructure delivery method at a time when other states, like Virginia and Maryland, have used P3s to develop billions in infrastructure. In Texas, none of the 84th, 85th, 86th, and 87th Legislatures, spanning 2015 thru 2021, authorized new CDAs. Meanwhile, in 2016, Virginia approved the I-66 “Outside the Beltway” managed lanes project that will deliver a \$2.5 billion dollar project with no state investment, and includes an upfront payment of more than \$500 million that can be spent on other transportation priorities in the corridor.¹⁴⁶ In 2019, Maryland's governor announced he plans to let \$9 billion in P3 transportation projects as public private partnerships.¹⁴⁷ Additionally, in 2020 Maryland authorized use of P3s to relieve congestion by widening parts of the Beltway.¹⁴⁸ In Pennsylvania, policymakers made creative use of P3s in the recently-concluded Rapid Bridge Replacement Project, which “bundled” the repair of more than 550 bridges in poor condition under a single contract.¹⁴⁹

The Texas Transportation Code still authorizes CDAs as a method of developing transportation infrastructure projects¹⁵⁰; ensuring that the statute is utilized should remain part of Texas's approach to addressing the congestion challenges on Texas highways. Indeed, tackling congestion is something to which privately financed projects are well-suited. As one commentator in *Forbes* magazine observed in 2017:

Another thing Texas' toll roads have accomplished is greater mobility. The Dallas and Houston metros, in particular, have been the nation's two fastest-growing metros by net population since 2010. But their congestion levels are not as bad as similar-size metros, according to traffic studies by Inrix and TomTom. This is because they've expanded

highway capacity to accommodate population growth, acknowledging that the laws of supply and demand apply to roads like with anything else. Perhaps more crucially, though, they've priced the use of these roads, to avoid a tragedy of the common...The most congested portions of Texas' cities, meanwhile, are the major roads that follow the generic socialized model, rather than this private one.¹⁵¹

It should also be underscored that there is no inherent risk to the State of Texas if its highways are funded with private capital. Indeed, the recent experience with State Highway 130 near Austin underscores this point. While the private company that oversaw the project – SH 130 Concession Company – filed for bankruptcy, the state committed no funds to the project and was not liable for any of the outstanding debt associated with the project.¹⁵² At the same time, the highway remains open to vehicular traffic and provides a valuable part of central Texas's transportation infrastructure south of Austin.¹⁵³ As the above-referenced *Forbes* article explained:

But what the government is not forced to do for Texas' public-private toll roads is assume much of the risk. If a road fails—such as one stretch did along a rural portion between San Antonio and Austin—it is shuttered, and the costs eaten by the private investors. Contrast this with most other major U.S. roadways, which don't have this level of user-fee-based accountability. Instead, they are funded--without question and in perpetuity--by gas tax revenue (and increasingly, general fund revenue). Without any market correction process, such roads don't endure the same scrutiny about whether they are even justified. Money for them just keeps rolling in, footed by taxpayers.¹⁵⁴

All of which is to say that the state should continue to value the options available through public-private approaches to its transportation infrastructure challenges.

While P3s are a valuable tool for complex and expensive projects, they are of course not a panacea. They can involve substantial transaction costs, such as the legal costs of negotiating a deal with the private investors. More importantly, irrespective of whether a transportation project is traditionally financed or done through a P3, taxpayers ultimately must bear large costs relating to the project, whether through taxes, toll charges, or “availability payments” (discussed below). On the other hand, toll charges are paid only by self-selecting taxpayers, and P3 private partners contribute some of the necessary funding. Another limitation of P3s is that they typically involve contracts lasting several decades; because of the substantial risk of unforeseen problems arising over the course of this long period, private investors will demand a high rate of return on their investment.

The January 2020 report by the Congressional Budget Office identified a trend beginning in 2009 in which private investors increasingly rely on availability payments for a large portion of their return on investment, rather than relying exclusively on toll revenue.¹⁵⁵ Availability payments are a series of installment payments made by state or local government to the private partner in the P3 project so long as the project is operating and “available” to the public, regardless of whether traffic flows and toll revenue meet estimated projections. As such, availability payments shift risk from the private partner to

taxpayers. This trend towards using availability payments was apparently driven by private investors in some pre-2009 cases going bankrupt due to their overestimates of toll revenues generated by the P3 projects. Since then, private investors have become more cautious and have sought to safeguard their investment by securing a more predictable stream of payments. This trend makes it critically important that the public partner in a P3 project hire sophisticated legal and financial counsel that are well versed in negotiating these types of agreements- a failure to do so could result in a one-sided agreement which burdens the public partner and its taxpayers for years, which is not something the state should contemplate. To assist public bodies in assessing P3 projects, the U.S. Department of Transportation has published *Public-Private Partnership (P3) Procurement: A Guide for Public Owners*.¹⁵⁶ It is important to emphasize, however, that availability payments and the associated burden on taxpayers are not required for a P3 project; for example, a project could be negotiated in a manner such that the term of the contract terminates once the toll revenue received by the private partner reach a certain net present value.¹⁵⁷

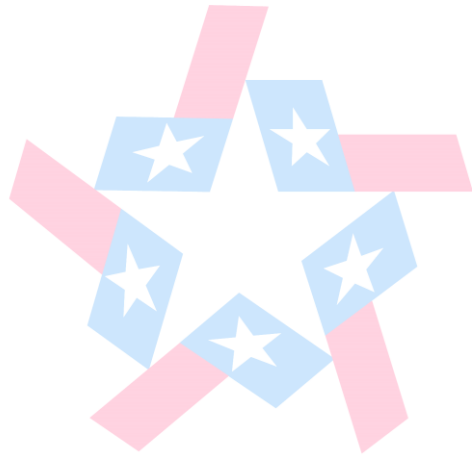
At a time when other states are embracing new and innovative project delivery methods such as public-private partnerships, Texas, once a leader in innovative project delivery, has turned its back on utilizing private investment in infrastructure in favor of more traditional methods, which by themselves are insufficient to meet the state's needs. For example, the 87th Texas House of Representatives passed House Bill 3467 (Canales), which would have extended a P3 agreement term to continue work on State Highway 130. The bill received 36 Nay votes in the House before it died in the Senate without a Senate committee hearing.

While P3s are not a cure-all, they should have a place in the state's transportation plans because of their potential to relieve congestion in especially crowded areas and to harness the expertise of the private sector. During the 87th Session, the Legislature should give serious consideration to expanding and encouraging the use of P3s.

D. Policy Recommendations

1. Policy Recommendation: Utilize Private Finance to Construct and Maintain the State's Transportation Infrastructure

Several factors combine to place consistent pressure on the Texas transportation budget. The Legislature in recent years has made great efforts to provide new streams of funding for transportation projects, which has led to billions of dollars in additional funding. But still more funding is needed, and traditional solutions by themselves are likely to prove inadequate. Policymakers should strive to make sure that increased use of P3s is at least part of the solution to this problem. P3s have a track record of sound performance in Texas and elsewhere and offer some advantages over traditional transportation financing. The Legislature should consider turning to private funds to ensure that Texas's transportation infrastructure is able to accommodate the state's economic growth and ever-growing population.



VI. Supply Chain Issues

(Note: The following is adapted from testimony TCCRI submitted to the House Committee on Transportation on September 8, 2022)

A. Introduction

Texas currently faces a number of problems in the field of transportation and supply chain logistics. The COVID-19 pandemic caused massive supply chain disruptions around the world, but even if the pandemic had never happened, Texas' ports and trucking industry would still face challenges. These challenges, of course, are exacerbated by Texas' ever-growing economy and population; more people and more businesses mean more demand for goods. While that same growth makes Texas the envy of other states, it means continuous infrastructure improvements are necessary. These improvements are costly and it can be a number of years before they are completed and provide benefits. The following will examine different parts of the supply chain and makes a number of policy recommendations that will contribute to a well-functioning supply chain

B. Truck Parking

Trucks play a crucial role in the nation's supply chain, and Texas plays an outsized role here. According to the U.S. Census Bureau's Commodity Flow Survey that is done every five years, in 2017 trucks moved 71.6 percent of the goods shipped in the United States.¹⁵⁸ Texas led the nation in the total weight of truck shipments that year, more than double the nearest state (California).¹⁵⁹ As the state's economy grows, so will its need for trucking.

Although it receives little attention in public policy discussions, an essential part of trucking logistics is parking availability. The Texas Department of Transportation (TxDOT) released a comprehensive report on this topic in April 2020 ("the Report").¹⁶⁰ The Report is a valuable resource for the Legislature and this portion of this writing incorporates much of it.

Several factors create demand for truck parking. First, long-haul truck drivers undertake journeys of hundreds of miles or even more and need to park their trucks when they stop for rest. Second, truckers who drive for hours and arrive at the applicable facility before the window of time in which their drop-off and/or delivery is to take place often are not permitted to simply arrive early at the facility and park on those grounds. Driving around the facility until the window opens wastes fuel and is not feasible given the risk of traffic congestion, particularly because many shipping drop-off and pickup facilities are located in large urban areas with heavy traffic.

Third, the Hours of Service (HOS) regulations issued by the federal Motor Carrier Safety Administration (FMCSA) impose various limitations on truckers, such as taking a minimum 30-minute break after 8 hours of driving; working no more than a 14-hour shift in a day (with time spent on breaks included in

calculating the 14 hours); not driving more than 11 hours in any 14-hour shift; and limiting the number of hours that may be driven during periods of both seven consecutive days and eight consecutive days.¹⁶¹ The HOS regulations cannot be avoided by dishonesty; most commercial motor vehicles in the U.S. are subject to the FMCSA's electronic logging device mandate. These devices track truckers' activity and enable law enforcement to examine this activity.¹⁶²

In addition to the above factors creating strong demand for truck parking, the supply of parking is heavily constrained by the variety of local, state, and federal laws generally preventing truckers from parking in many locations, such as the shoulders of highways in non-emergency situations. Surveys of truck drivers indicate that more than half admit to parking in unauthorized locations at least once a week, with adherence to HOS regulations being a key motivation.¹⁶³

According to the Report, there are approximately 27,000 truck parking spaces at truck parking locations in Texas, with 96 percent of them being located within one mile of an interstate or U.S. highway.¹⁶⁴ More than 90 percent of these spaces are provided by the private sector; private entities offer almost 25,000 spaces, spread over approximately 650 locations, while TxDOT and other public entities offer about 2,300 spaces at approximately 175 locations.¹⁶⁵

Despite these thousands of spaces, it is clear that truckers still struggle to find adequate parking. The statewide average peak hour for truck parking is from 1:00 AM to 2:00 AM.¹⁶⁶ During this hour, privately-owned truck parking facilities see an average of 92 percent of their spaces used.¹⁶⁷ Notably, the majority of these facilities have 100 percent of their spaces used at peak hour, but the average utilization rate is "only" 92 percent because some outliers with a low utilization rate drive down the average. Publicly owned facilities have lower utilization rates at peak hours, although the facilities with the best amenities see an average utilization rate of 86 percent. Again, that figure of 86 percent obscures the fact that many of these facilities are at 100 percent utilization.

Surveys of truck drivers reveal that a parking facility's amenities heavily influence demand for its parking spaces. Amenities that truckers particularly value include restrooms, lighting, trash cans, food options, showers, internet service, and laundry. Of the state's roughly 175 public parking facilities, more than half of them lack restrooms.¹⁶⁸ Private facilities tend to offer better amenities, but again, there is fierce demand for their parking spots.

A lack of parking capacity for trucks is important for two reasons. First, it creates inefficiencies in the supply chain. Given the uncertainty of obtaining parking, truckers may be forced to cut their shifts short to secure parking for their off-duty rest periods. Or, given the lack of parking around many drop-off and delivery locations, truckers may be forced to arrive early and secure whatever nearby parking they can while they wait for their window of time for delivery or pickup window to arrive. A 2016 survey by the American Transportation Research Institute, the nonprofit research organization for American Trucking Associations, found that a trucker on average spends about one hour a day looking for parking, which effectively results in lost wages for the trucker and contributes to overall supply chain inefficiency.¹⁶⁹

Second, and more importantly, a lack of parking for trucks creates serious safety hazards for the public. Truckers who are experiencing fatigue, or who have reached their HOS limits for the day but cannot find a place to legally park, may park in unauthorized locations, such as the shoulders of highways. From 2013 to 2017, there were more than 2,300 crashes in Texas involving parked trucks, in which 138 people died.¹⁷⁰ Moreover, during the same time period, there were over 1,500 accidents in Texas involving truckers who were driving while fatigued or possibly fatigued. Truckers who feel compelled to park due to fatigue and/or HOS limitations but cannot find truck parking are forced to drive with fatigue or park illegally, thereby risking fines and creating a public safety threat.

1. *Policy Recommendations*

Texas risks serious supply chain failures if stakeholders fail to address the shortage of truck parking spaces in Texas. By 2050, peak demand is expected to be 170 percent of current capacity.¹⁷¹ To preempt threats to the supply chain, the state should consider the following steps.

Policy Recommendation #1: Collect data from public parking facilities for trucks, including the number of trucks parking per day, broken down by time of day. Gathering parking data can be done at a low cost (e.g., with cameras), and will help policymakers gauge the effectiveness of their efforts.

Policy Recommendation #2: Explore a truck parking availability system (TPAS), which displays in real-time available parking at public facilities in the state. This idea is extremely popular with truck drivers. Notably, a pilot TPAS project is being overseen by TxDOT on behalf of four states in the I-10 corridor (Arizona, California, New Mexico, and Texas). This pilot program covers 37 different public parking facilities along the corridor in these states.

Policy Recommendation #3: Make the data from a TPAS available to the private sector so that it can continue to improve upon existing mobile applications showing parking space availability for trucks.

Policy Recommendation #4: Encourage TxDOT to consider provision for truck parking when it purchases a new right-of-way.

Policy Recommendation #5: TxDOT should work with municipalities and state agencies to identify public property which could be made available to truckers, especially those that are not heavily utilized at night.

Policy Recommendation #6: Similarly, TxDOT should identify private parties that may have excess parking capacity. Fairgrounds and stadiums, for example, often have excess capacity. It is unclear whether private parties would have sufficient incentive to permit truck parking on their grounds, but if necessary, the state could examine the provision of a tax incentive to such private parties.

Policy Recommendation #7: Build new truck-dedicated parking facilities. The Report notes that 32 sites have already been identified as feasible targets for new facilities.

C. Truck Driver Shortage

In 2021, the American Trucking Association (ATA) reported a shortage of 80,000 truck drivers nationally, with potential for that shortfall to double by 2030.¹⁷² This claim echoes its 2015 claim that there was a shortage of 50,000 truck drivers and that the shortage could increase to 175,000 by 2024.¹⁷³ The U.S. Bureau of Labor Statistics (BLS) stated that, as of July 2021, there were 33,000 unfulfilled truck driver positions compared to pre-COVID-19 levels.¹⁷⁴

Government response to the pandemic disrupted the economy in countless ways, including federal action that made it more lucrative for people to claim unemployment benefits rather than work. But aside from the pandemic's effects, there appear to be factors that are contributing to an insufficient supply of truck drivers. A considerable amount of evidence points to difficult working conditions and low pay as key reasons for the shortfall.

Nationwide, median pay for tractor-trailer truck drivers in 2021 was about \$23 an hour.¹⁷⁵ In Texas, the annual compensation for a truck driver is about \$48,000.¹⁷⁶ For reference, a 2016 article in *Money* stated that the average trucker's compensation in 1980, adjusted for inflation to 2016 dollars, was more than \$110,000.¹⁷⁷ As the Comptroller notes, many truckers work as independent contractors and are paid by the mile, so congestion or waiting for shippers to unload and/or load their trucks is unpaid time.¹⁷⁸ The job can entail long hours, the stress of driving, time away from home, pressure on personal relationships, and various health challenges (such as difficulty obtaining healthy food).

Amid claims of a trucker shortage, a 2019 BLS paper entitled "Is the U.S. Labor Market for Truck Drivers Broken?" examined that same question. The paper noted that annual turnover rates in the trucking industry tend to be quite high.¹⁷⁹ However, the paper also noted that there was a "tight" labor market, and that "employment in the occupation has been resilient, and nominal annual wages have persistently exceeded those of other blue-collar jobs with similar human capital requirements."¹⁸⁰ The paper concluded that, despite claims by industry stakeholders of chronic truck driver shortages, "the market for truck drivers works about as well as that for other blue-collar occupations, and that, broadly speaking, we should expect that if wages rise when the labor market for truck drivers is too tight, the potential for any long-term shortages will be ameliorated."¹⁸¹ Some companies have evidently come to the same conclusion. Wal-Mart, for example, boosted its pay for its long-haul drivers earlier this year, increasing starting salaries to up to \$110,000.¹⁸²

The state's ability to alleviate any truck driver shortage pales in comparison to what trucking companies can do. The good news is that demand for commercial drivers licenses (CDLs) is soaring. The Comptroller notes that the state has over 100 CDL schools, including community colleges such as San Jacinto College in Pasadena.¹⁸³ Enrollment in this school's program increased by 250 percent from the Fall 2020 to Fall

2021.¹⁸⁴ Unfortunately, the school must cap each class size at 12 students, because only 12 trucks are available. Buying more trucks for class instruction is currently very difficult because supply chain problems have reduced the number of trucks on the market, and there is fierce competition for them. Last June, the Texarkana College Professional Driving Academy reported having to turn away applicants for its CDL classes due to soaring interest, although again the number of vehicles available for training effectively capped how many students it could accept.¹⁸⁵

More CDL holders in the pipeline can only help. In January 2022, the FMCSA announced the creation of a pilot program to permit CDL holders aged 18-20 to operate in interstate commerce under strict conditions.¹⁸⁶ Texas permits CDL holders to be 18, but outside of this pilot program, federal law prohibits them from interstate operation.

There are some indications that the demand for trucking may be easing, whether due to supply chain recovery or a slowing economy. An article in the Harvard Business Review in May 2022 stated that demand for freight services began to decline in March of that year.¹⁸⁷ Consistent with that observation, *The Wall Street Journal* has reported declining demand for freight services in April,¹⁸⁸ July,¹⁸⁹ and August.¹⁹⁰

In short, the scarcity for truck drivers appears to be a problem that is easing in the short term, as the economy slows, the supply chain recovers, applicants for CDLs soar, and salaries for drivers increase. In the long term, the solution to a truck driver shortage should be left to the private sector. The private sector will likely address it through a combination of hiring more truck drivers and developing self-driving trucks (on the latter point, see the discussion in Section E below).

1. Policy Recommendations

Policy Recommendation #1: The state should limit its involvement to ensuring that community colleges that wish to add a CDL curriculum are able to do so. If a truck driver shortage persists, the state could consider increasing appropriations to community colleges with CDL programs so that they can purchase more trucks for training and expand their class sizes. However, as TCCRI has noted before, community colleges have seen skyrocketing property tax collections over the last decade in the face of sometimes stagnant enrollment. Therefore, the presumption should be that they can absorb the costs of expanding CDL programs.

D. Natural Gas Fueling Stations

Over the last decade, compressed natural gas (CNG) and liquified natural gas (LNG) have emerged as commercially viable alternatives to diesel fuel in the trucking industry. Each type of fuel has its advantages and disadvantages, as illustrated by the table below:

Table 1: Comparison of Diesel and Natural Gas Alternative Fuels

	Diesel	CNG	LNG
Cost	Lower upfront costs for trucks, but higher fuel costs at today's prices	Higher upfront costs for trucks, but cheaper fuel	Higher upfront costs for trucks, but cheaper fuel
Fuel Storage Capacity	Requires the least	Requires the most	Requires more than diesel
Driving Range when Fully Fueled	Longest	Shortest	Less than diesel
Time needed for a re-fueling stop	Short	Takes considerable time	Short
Emissions	Releases emissions, but emissions reduction technology continues to improve	Produces considerably less emissions than diesel	Produces considerably less emissions than diesel

Sources:¹⁹¹

As the table indicates, CNG and LNG differ in important ways from the diesel fuel that traditionally has fueled large trucks. The cost of a gallon of diesel currently exceeds the cost of the diesel gallon-equivalent (DGE) of each of CNG and LNG. For the period from April 1-15, 2022, the U.S. Department of Energy (DOE) reports that diesel cost \$5.06 per gallon, whereas a DGE of CNG and a DGE of LNG cost \$2.59 and \$3.16 respectively. This price discrepancy existed before Russia's invasion of Ukraine, although it was much smaller; in January 2022, diesel cost \$3.62 per gallon, whereas a DGE of CNG and a DGE of LNG cost \$2.49 and \$3.02, respectively.¹⁹²

As long as diesel is considerably more expensive than CNG or LNG, trucking companies may consider converting their fleets to CNG and/or LNG. There is a possibility that a large price discrepancy will persist; CNG and LNG are usually cheaper than diesel.¹⁹³ Moreover, CNG and LNG prices are less volatile than that of diesel. As the DOE noted in a January 2022 report, "Historically, the prices of CNG, LNG and propane have been much more stable, with minimal up and down swings in price, when compared to gasoline or diesel."¹⁹⁴

Although the upfront costs of natural gas-fueled trucks are greater than their diesel-fueled counterparts, the former can still be superior investments for trucking companies due to the much greater costs of diesel. A 2013 news article reported that the "recovery" period for natural gas-fueled vehicles could be as short as two years.¹⁹⁵ A 2016 study by the DOE placed made a much higher estimate, about 10 to 14 years.¹⁹⁶ These estimates, however, have to be taken with caution because different trucking companies make different assumptions about fuel costs and annual miles driven. In any case, if trucking companies wish to use natural gas-fueled trucks, they need not purchase such trucks. Instead, they can purchase conversion kits to make their diesel trucks able to run on natural gas.

At least in the past, the state in the natural gas fuel context has faced the challenge of what one then-Railroad Commissioner in 2014 described as a "chicken or egg" problem.¹⁹⁷ That is, building natural gas fuel stations depends on the number of natural gas vehicles on the road, but people may be reluctant to buy natural gas vehicles if there are not enough natural gas fuel stations.

It is unclear whether the state's supply chain is suffering from a shortage of natural gas fueling stations. Today there are just over 100 compressed natural gas (CNG) fueling stations in the state (67 public and 35 private) and just 15 liquified natural gas (LNG) fueling stations (11 public, 4 private).^{198 199} But these stations are not uniformly distributed throughout the state. LNG stations are relatively common in the Dallas-Fort Worth (DFW) area. CNG stations are relatively common in Houston and DFW, and Austin to a lesser but still considerable extent.²⁰⁰

What is clear is that the state has subsidized the building of alternative fueling stations. Under the Texas Emissions Reduction Plan (TERP),²⁰¹ the Texas Commission on Environmental Quality (TCEQ) dispenses grants under the Alternative Fueling Facilities Program (AFFP). These grants are utilized by businesses constructing fueling stations using alternative fuels, including natural gas and electricity, in certain parts of Texas (much of the eastern half of the state, and the large metropolitan regions within it). As of May 2022, there was \$12 million available for grants under the AFFP,²⁰² although all of the funds have now been awarded.²⁰³ TCEQ also disburses grants to trucking companies seeking to upgrade or replace diesel vehicles with alternative-fueled vehicles: \$16 million in 2022.²⁰⁴

There are some hints that the trucking industry is conflicted in its views on the future of natural gas. In 2022, a CEO of a transportation and energy consulting firm opined that natural gas was becoming a more viable option in long-haul interstate trucking due to engine improvements. While that bodes well for the short or mid-term future of natural gas vehicles, he also stated that: "The big picture: there's no question we're moving more and more into the electrification of transportation...Fundamentally, my hypothesis is that we'll probably get there sometime in the next two to three decades."²⁰⁵ Paul Rosa, an executive at a truck leasing company, expressed similar thoughts in a 2021 interview, indicating that he viewed CNG as a logical and environmentally-friendly bridge from the trucking industry's diesel past to its electric future.²⁰⁶

These nuanced views make it difficult to gauge the state's need for more natural gas fueling stations. Some factors indicate that natural gas trucks will become more popular. Obviously, lower fuel costs are a consideration. But as more companies adopt policies supporting lower emissions, demand for natural gas fuels will likely rise. On the other hand, the upfront costs of natural gas-fueled trucks remain considerable, and their long-term utility is not entirely certain, especially given the possibility of electric trucks in the future.

E. Reducing Crossing Times at the Texas-Mexico Border

The Texas-Mexico border has 28 vehicle border crossings. In addition, there is a border crossing in Santa Tereas, New Mexico that is within the El Paso Metropolitan Planning Organization's (MPO) planning area boundary. Fourteen of these border crossings can process commercial motor vehicles (CMVs).²⁰⁷ Notably, while over half of the border crossing locations can process passenger motor vehicles for more than 20 hours a day, not a single one can process commercial motor vehicles for that period of time.²⁰⁸ A

trucker entering the United States must pass through Customs and Border Protections as well as Texas Department of Public Safety (DPS) checkpoints.

A few statistics highlight the enormous importance of Texas-Mexico trade for each region’s economy. Between 1994 and 2019, the value of annual trade through the Texas-Mexico border quadrupled to more than \$450 billion.²⁰⁹ This figure represents approximately 68 percent of the value of annual trade between Mexico and the United States.²¹⁰

In 2019, 51 cents of every one dollar in U.S.-Mexico trade was carried across the Texas-Mexico border by commercial vehicles (e.g., tractor trailer trucks).²¹¹ Also in 2019, the value of goods traded between Texas and Mexico was four times higher than the value of goods traded between Texas and China.²¹² Cross-border trade involves goods of all types: plastics, food, petroleum, among others.²¹³ As TxDOT notes, the three largest categories of goods traded by value are technology goods, motor vehicles, and manufacturing. Production of these goods generates high-paying jobs and is subject to intense competition from manufacturers in Asia.²¹⁴

Given the magnitude of Texas-Mexico trade, it is in the state’s interest to ensure that crossing the border is as seamless as possible. Unfortunately, in its 2021 Texas-Mexico Border Transportation Master Plan, TxDOT stated that, delays in crossing the border are the top-cited issue by stakeholders “due to continued growth in the movement of people and goods, operational efficiency issues (i.e., staffing shortages), and capacity constraints.”²¹⁵ The crossing time²¹⁶ is generally longer for traffic entering the U.S. than it is for southbound crossings.²¹⁷ Of course, crossing times crossing the border are effectively a cost to the carriers and producers; as TxDOT acknowledges, these costs are ultimately passed on to consumers.²¹⁸

Commercial motor vehicle traffic over the border is expected to nearly triple by 2050, with a projected 12.35 million commercial motor vehicles crossing the border in 2050.²¹⁹ Similar dramatic growth is expected for non-commercial traffic. The table below illustrates the 2019 average and 90th percentile²²⁰ crossing times wait time for inbound commercial motor vehicles, and the projected average and 90th percentile crossing times in 2050 assuming no action is taken:

Table 2: 2019 Average and 90th Percentile Crossing Times, and 2050 Projections (for inbound traffic)

Crossing Location	Average Crossing Time (in minutes)	90 th Percentile Crossing Time (in minutes)	2050 Projected Average Crossing Time (in minutes)	2050 Projected 90 th Percentile Crossing Time (in minutes)
<i>World Trade Bridge (Laredo)</i>	30	53	527	877
<i>Ysleta-Zaragoza (El Paso)</i>	56	104	451	838
<i>Pharr-Reynosa (Pharr)</i>	60	131	849	1080
<i>Camino Real (Eagle Pass)</i>	8	11	572	786
<i>Del Rio-Ciudad Acuna (Del Rio)</i>	24	41	579	992

<i>Santa Teresa/San Jeronimo (El Paso/Santa Teresa, NM)</i>	23	36	444	694
<i>Bridge of the Americas (El Paso)</i>	44	81	284	522
<i>Laredo-Columbia (Laredo)</i>	16	24	354	531
<i>Veterans International Bridge (Brownsville)</i>	19	32	231	930
<i>Presidio (Presidio)</i>	26	51	26	51
<i>Roma-Ciudad Miguel Aleman (Roma)</i>	22	38	22	38
<i>Rio Grande City-Camargo (Rio Grande)</i>	22	58	153	409
<i>Progreso (Progreso)</i>	16	37	163	378
<i>Free Trade Bridge (Los Indios)</i>	32	54	216	365

Source²²¹

As the table illustrates, crossing times for commercial vehicles will become impractical at the vast majority of locations by 2050 if no improvements are made. The economic loss from the projected 2050 crossing times would be staggering. In 2019, delays at the border for just the northbound movement of commercial goods alone totaled 1.6 million hours, resulting in a \$1.1 billion blow to U.S. gross domestic product (GDP).²²² TxDOT estimates that by 2050 border delays could decrease U.S. GDP by \$75 billion.²²³

The factors that contribute to the delays that truckers experience in crossing the border are largely due to lack of capacity and under-staffing, whether by Customs and Border Protection (CBP) or the Texas Department of Public Safety (DPS). Conversations with private sector stakeholders in the past have suggested that delays could best be resolved by measures such as having more inspection bays, lanes, and staff at the crossing points, and consolidating federal and state inspections into one inspection.²²⁴

Both the federal and state governments have made strides in modernizing the border crossing process. The federal government allows commercial truck drivers to apply for a Free and Secure Trade (FAST) pass, which allows for expedited processing at the border.²²⁵ A FAST pass is valid for five years and costs only \$50.²²⁶ The Texas A&M Transportation Institute oversees the Border Crossing Information System (BCIS), which provides the public with real-time expected crossing times for northbound traffic at seven border crossings,²²⁷ including those for FAST passholders.²²⁸

But despite these strides, the basic problem- a lack of capacity and staffing- remains prevalent. The state is somewhat constrained in the actions it can take, because the federal government is responsible for hiring CBP personnel.

1. Policy Recommendations

Policy Recommendation #1: The Legislature should instruct TxDOT to undertake feasibility studies regarding the expansion and/or upgrade of existing border crossing stations that process commercial motor vehicles.

Policy Recommendation #2: The Legislature should instruct TxDOT to study the logistics of constructing new roads, including roads funded through public-private partnerships, that would encourage northbound commercial vehicles to alter their typical routes so that they pass through under-utilized border stations.

Policy Recommendation #3: The state should conduct an outreach program to educate all motor vehicle operators of the various passes allowing for expedited passing at the border (FAST, SENTRI, READY). All routine crossers of the border who are eligible to apply should be encouraged to do so.

Policy Recommendation #4: The state should collaborate with the federal government to increase staff at border crossing locations, as well as the hours of operation. If commercial motor vehicles could be processed at least 20 hours a day, and seven days a week, many truckers could presumably adjust their driving schedules to ensure they reach the border during low-traffic periods. Although the federal government generally controls CBP personnel, some exceptions have been made. For example, the city of El Paso has previously entered into a pilot program with the federal government in which it paid the overtime costs of CBP personnel to staff lanes at the border crossing station at peak hours.²²⁹

Policy Recommendation #5: The state should examine all sources of available funding for the upgrade or expansion of border crossing stations. The 2021 Texas Mexico Border Transportation Master Plan lists several federal financing options, such as TIFIA (the Transportation Infrastructure Finance and Innovation Act) loans.

Policy Recommendation #6: The state should engage with stakeholders to determine the feasibility of a public-private partnership (P3) constructing an additional border crossing station, perhaps one that would be reserved for commercial vehicles only. P3s have been used to improve infrastructure at the border. For example, in 2019 a P3 added a pavement expansion that decreased crossing times for commercial vehicles. Impressively, the project was completed in just 15 months.²³⁰ At the end of 2021, U.S. Senator John Cornyn helped pass a bill into law that will extend the Donation Acceptance Program. The press release states that “The program allows for public-private partnerships at U.S. Ports of Entry and allows U.S. Customs and Border Protection (CBP) to accept donations of property and technology to more efficiently secure the border and process trade.”²³¹

F. Regulatory Obstacles to Developing Autonomous Technologies that Will Improve Trucking Safety and Efficiency

In 2017, the Texas Legislature passed Senate Bill 2205 (85R; Sen. Hancock) into law. This bill permitted automated motor vehicles to operate in the state, regardless of whether a person is inside the vehicle or whether the vehicle is being used for a commercial purpose. An automated vehicle must comply with federal law, be equipped with a recording device installed by the manufacturer, and its owner must carry liability insurance in the amounts required by state law for human drivers. Additionally, SB 2205

preempted local governments from regulating automated vehicles. In 2021, the Legislature made a sensible follow-up change to state law with House Bill 3026 (87R, Rep. Canales) and exempted vehicles designed to be operated exclusively by an automated driving system for all trips from usual safety regulations.

Texas' encouragement of innovation and its sensible regulation have paid dividends. A June 2022 *Reuters* article reported that several companies, including Aurora Innovation and TuSimple, plan to make use of automated trucks (with no human present) on Texas highways at some point in 2023.²³² As one company's state policy manager stated in explaining the affinity the industry has for Texas, "There are other states that have really great ports or connections, but they don't have the same regulatory environment that Texas has."²³³

The article notes that the state has attracted autonomous driving technology companies, but quotes critics who express safety concerns about driverless vehicles. However, as the article acknowledges, there is no known instance of an automated vehicle crashing in Texas.

The only potential threat of over-regulation at this time is from the federal government. Officials with the FMSCA stated in June that federal regulations on automated heavy trucks could be issued as early as late 2022.²³⁴ To date, however, the federal government has signaled its desire to work with private sector stakeholders.²³⁵ For example, in May 2019, the FMSCA solicited comments on automated commercial vehicles, inviting commenters to opine on questions such as how hours-of-service regulations should apply to humans riding inside a fully automated truck. As long as automated vehicles prove to be safer than human drivers- as they should- onerous regulation at the federal level is unlikely.

G. Seaport Development

The state's 20 seaports are a vital cog in the Texas Miracle. Despite this reality, many Texans fail to recognize the magnitude of the state's port system. A few facts highlight the critical importance of the state's ports to its economy:

- In 2021, \$207 billion in exports left Texas ports and \$101 billion in imports came through these ports.²³⁶ The combined \$308 billion value of those exports and imports represented about 15 percent of Texas' gross state product in 2021.²³⁷ Moreover, that 15 percent figure understates the true contribution of ports to Texas' economy because it does not reflect the number of businesses and jobs that would not exist in Texas if the state lacked the ability to handle large quantities of imports and exports.
- In 2020, Texas was the top state in the country in terms of the tonnage of exports, with the Port of Houston being the top port in the entire country.²³⁸
- Six of the country's top 20 ports by tonnage, and 11 of the top 100, are located in Texas.²³⁹

The state's port system can be divided into three components: (1) its waterways or channels; (2) its port facilities, which include equipment such as docks and mechanized equipment; and (3) the infrastructure that connects the ports to the wider state, such as pipelines, roadways, and railroad tracks. Any problem in one of the three components will affect the other two components.

Of the state's 20 seaports, 11 are deep-draft,²⁴⁰ meaning they have a depth of at least 30 feet and can accommodate larger ships (although even deep-draft ports sometimes need to be expanded to accommodate the largest ships). The remainder are shallow-draft ports,²⁴¹ which serve smaller vessels. The distinction between deep-draft and shallow-draft is critical because shipping companies obtain economies of scale by using larger ships.²⁴² The distinction has taken on ever greater importance since 2016, when the Panama Canal was expanded to allow larger ships to pass through.²⁴³ The most efficient shipping route between Asia and Texas entails passing through the Panama Canal.²⁴⁴ As a result of the expansion, there will be more large ships arriving to Texas ports, and this traffic will flow to the deep-draft ports. Thus, a large number of port projects in the future will consist of upgrading port facilities and increasing the depth of port channels to accommodate the much larger ships coming through the Panama Canal.

In 2001 (Senate Bill 1282, 77R), the Legislature created the committee that today is known as the Port Authority Advisory Committee (PAAC), which is governed by Chapter 55 of the Transportation Code. The PAAC has nine members; of these nine, six represent their respective Texas port, one is from the Port of Houston Authority, and one is appointed by each of the Speaker of the House and the Lieutenant Governor. TxDOT describes the PAAC as "provid[ing] a forum for the exchange of information between the [Texas Transportation] commission, TxDOT, and representatives of the port industry in Texas."²⁴⁵

Before December 1 of each even-numbered year, the PAAC must submit a report- the Port Mission Plan (PMP)- with suggested improvements to the state's ports. To select these improvement projects, the PAAC solicits suggestions from the state's ports, and a panel of engineers ranks the strategic value of these suggested improvements. Ultimately, the PAAC makes recommendations based on several factors, including the projected economic impact, operational impact (e.g., faster cargo movement), and enhancement of connections to other aspects of the state's supply chain.

H. The Challenge of Funding Texas' Ports

Unlike some states such as Georgia and Florida, Texas does not direct significant state revenue to ports. Statute currently provides for two port-specific funds: the port access account fund (Section 55.005, Transportation Code) and the ship channel improvement revolving Fund (SCIRF) (Section 56.002, Transportation Code). The Texas Transportation Commission is authorized to lend money from the SCIRF to ports for federally-authorized projects that would deepen or widen a ship channel and have been approved by Congress, with the loans carrying low-interest and having flexible repayment terms. Since its creation by Senate Bill 28 (85R, Sen. Creighton), however, the SCIRF has never been appropriated funds.

In its interim report to the 88th Legislature, the House Committee on Transportation detailed how the Legislature over the last few sessions, with one key exception, has consistently declined to provide funding for Texas’s seaports.²⁴⁶ That exception relates to riders in the biennial budget for “port access improvements,” which have totaled over \$140 million since 2015. While this funding has helped make necessary improvements to port connectivity, it relates only to the roadways surrounding the state’s ports. As noted above, port connectivity is a key component of the port system, but the other two components have not received the funding they need.

As a 2021 multi-state study on port financing by the Texas A&M Transportation Institute stated, “There is a wide range in the level of ongoing funding support provided to port authorities by state governments. They range from Florida, which has the most active and structured program, to several states [e.g., Texas] that provide little or no ongoing direct support.”²⁴⁷ However, the state does permit ports to make use of tax reinvestment zones (TRZs), a form of tax increment financing. As of 2021, four ports created TRZs, but none have since 2013.²⁴⁸ Moreover, it appears that these four ports have yet to fund any major projects with TRZ revenue.²⁴⁹ The Texas Mobility Fund, which issues bonds for transportation projects that are secured by future revenues, has been able to disburse funds to ports since a constitutional amendment was approved by voters in 2014. It has funded a number of port projects since then, but they are relatively minor in terms of cost, with the funds for a given project rarely exceeding \$5 million.²⁵⁰

Given the modest state investment in ports, the burden of financing is shouldered primarily by private parties, local funding, and federal funding. The Comptroller noted in a 2018 report that “The state’s largest ports typically receive about half their funding from public sources (federal grants and local bond issues) and half from user fees; smaller ports often depend on tax subsidies as well.”²⁵¹ It is unclear whether the current financing model is viable going forward. The House Committee on Transportation remarks:

The reality is that Texas ports are falling behind on basic infrastructure improvements, yet they are in serious competition with ports in other states that are financially supported by their respective state governments... The Port of Port Arthur has struggled with many of the same funding woes as many other Texas ports have while being ranked 15th in national tonnage in the entire United States. To raise revenue in the past for aging infrastructure, the Port of Port Arthur has had to pass bonds on the backs of local taxpayers—an already economically distressed population. The area has 55,000 residents, a flat population growth, a median home value of \$68,700, a median household income of \$37,794, and a poverty rate of 26.7%. These residents are propping up an economic engine for the rest of the state and country to benefit (emphasis added).

Recommendations of the PMP for 2024-2025

The PMP to the 88th Legislature addresses the 2024-2025 biennium and contains the following three sub-reports.

- 1) The Port Capital Investment Report (PCIR). This sub-report listed 49 projects and two studies, the total cost of which is \$1.67 billion.²⁵² The PAAC requests \$150 million in funding from the state during the 2024-2025 biennium for these projects.²⁵³ An example of a proposed project in the PCIR is the deepening of three berths at Port Arthur that will match the increased depth of the port channel that is achieved through an earlier project.²⁵⁴ This will allow larger ships and heavier cargos to make use of the port.

- 2) The Ship Channel Improvement Report (SCIR). This sub-report focuses exclusively on the improvement of port waterways, such as creating greater depth in waterways to allow for larger ships. The U.S. Army Corp of Engineers oversees these waterways, but ports are responsible for funding a portion of improvements. Channel improvements are quite expensive; the SCIR lists 8 non-federal projects with a cost of almost \$1 billion, two feasibility studies with a cost of \$220 million, and eight federally-authorized projects with a local cost of \$1.47 billion (and a federal cost of \$2.19 billion). Notably, these last eight projects would be eligible for loans from the SCIRF if the SCIRF were ever funded. A key problem with SCIR projects is that the federal funding process is facing a tremendous backlog: the congressional authorization process and the subsequent appropriations process can take decades, which has led to a \$108 billion backlog for federal water resources projects nationwide.²⁵⁵

- 3) Port Connectivity Report (PCR). This sub-report focuses on projects, mainly improving roadways, that facilitate the movement of goods to a port facility. Most of these projects are relatively minor on a per-project cost basis, but add up to a very significant total: 142 projects costing a total of \$4.34 billion.²⁵⁶ As the 2022-2023 PMP noted, funding for improvements to roads near ports is challenging because the improvements do not fall under TxDOT's traditional processes and funding sources (e.g., these roads are not highways).²⁵⁷ Senate Bill 1 (87R), the General Appropriations Bill, continued the trend in recent years of appropriating proceeds from the Texas Mobility Fund- \$40 million over the 2022-23 biennium- for improving connectivity to Texas ports.²⁵⁸

The PCR focuses on roadway improvements for the most part, but it should be emphasized that port connectivity challenges go well beyond that. For example, railroads play a key role in moving freight from many ports in Texas. The Port of Houston has attempted to keep up with surging demand by adding additional rail,²⁵⁹ but the challenge remains. At least one private company is attempting to fill that void, but the cost makes purely private sector solutions difficult.²⁶⁰ As TxDOT stated in its updated *2019 Rail Plan*, "The Port of Houston noted that the State lacks a program to invest in the rail network and called for improved decision making for transportation investments."²⁶¹

The PMP makes the point that "Resiliency of the Texas maritime system is often overlooked until emergencies and disasters, like global health concerns or hurricanes and floods, occur."²⁶² But it opens with a blunt statement on the need for more funding for ports: "Despite the strong position

of the maritime industry in Texas, the single greatest challenge common to all Texas ports is the need for additional funding for capital improvements.”²⁶³

The PMP requests funding of \$150 million in the PCIR, \$400 million in the SCIR, and no appropriation for the PCR²⁶⁴: a total appropriation of \$550 million. In contrast, the PMP for 2022-2023 requested \$130 million for the PCIR and \$2.06 billion for the SCIR, although the Texas Transportation Commission in its legislative appropriations request to the 87th Legislature ultimately asked for \$130 million and \$330 million, respectively. (The failure to ask for funding for the PCR is perhaps attributable to the budgetary riders the Legislature has approved in recent years, which typically set aside \$20 million annually for TxDOT to improve port connectivity.)

The Texas Ports Association (TPA), an interest group advocating for the state’s ports, requested \$1 billion for the PCIR and \$750 million for the SCIRF for the 2024-25 biennium. The House Committee on Transportation recommended the same levels of funding in its interim report.²⁶⁵ These requests are considerably more than those made in the PMP. If the Legislature determines that greater state funding of ports is sensible in light of the port system’s importance to the state economy, it may wish to use the PMP’s requests as a floor and the TPA’s requests as a ceiling.

1. *Policy Recommendations*

Policy Recommendation #1: The Legislature should examine the reasons for the failure of ports to make use of TRZs. While TRZs may not be able to single-handedly solve the funding challenges for ports, they are a useful tool. The creation of only four TRZs by ports since doing so became possible, and the relative inactivity of those four TRZs, suggests that ports are not making use of all the tools at their disposal.

Policy Recommendation #2: The Legislature should consider making appropriations for port capital investments and to the Ship Channel Improvement Revolving Fund and Loan Program (SCIRF). For port capital investments, an amount in the broad range of \$150 million to \$1 billion would be advisable, and an amount of \$400 million to \$750 million to fund the SCIRF would be appropriate.

VII. Plastic Litter

Plastic litter is a growing problem around the globe, and Texas' experience is no exception. Plastic has three characteristics that collectively make it a particularly concerning type of litter. First, plastic litter is particularly damaging to marine life. Animals in the ocean may become ensnared in plastic litter, or they may ingest it, which can lead to starvation.²⁶⁶ Second, the "lifespan" of plastic is long- longer than that of humans; in a landfill, the estimated time for plastic to decompose is between 100 and 400 years,²⁶⁷ although that period may be shortened if the plastic has significant exposure to sunlight. Third, plastic is produced in huge quantities- in 2018, plastic accounted for almost 36 million tons of municipal solid waste (i.e., trash collected by municipalities) disposed of by Americans.²⁶⁸ And this vast quantity of plastic trash does not include plastic litter. Even if only a small percentage of produced plastics are littered, that can still mean millions of tons of plastic litter are dumped throughout the country each year, and that plastic litter will remain in the environment for years or even centuries until it is picked up.

It is clear that many Texans do in fact improperly dispose of their plastic waste. A 2019 survey found that plastics comprised 25 percent of the items of "visible litter" (i.e., litter that is square inches or larger) in the state, and 28 percent of "micro litter" (i.e., litter smaller than two square inches).²⁶⁹ And there is some evidence the share of litter comprised by plastic is growing; according to the Texas Litter Database compiled by the nonprofit organization Keep Texas Beautiful, 66 percent of identifiable litter that was collected in Texas from February 2020 to December 2022 consisted of plastic items.²⁷⁰ Furthermore, much of the plastic that Texans do throw away is placed in trash, rather than recycled. Polyethylene terephthalate (PET) is one of the most common plastics and is used in materials such as water bottles. It is classified as "#1" in the prevailing resin classification system used in recycling. A 2021 study conducted at the direction of the Texas Commission on Environmental Quality (TCEQ) estimated that Texas had just a 9.1 percent recycling rate of PET.²⁷¹ That same study found that the total amount of plastic that was recycled (in tons) actually declined from 2013, which was attributable in part to some foreign counties restricting their imports of plastic waste and to some plastics becoming lighter over time.²⁷²

Littered plastic is an example of a negative externality: plastic is a valuable good that is produced by manufacturers, but it adversely affects society when it is littered. However, the cost of plastic litter is not reflected in the price of plastic. Neither manufacturers nor consumers bear the cost of plastic litter; rather, society as a whole bears the cost. That cost is impossible to quantify. The Texas Department of Transportation spent more than \$50 million on litter cleanup in 2021,²⁷³ although what portion of that was attributable to plastic litter is unknown. In addition, municipalities incur costs due to litter; a 2017 study found that nine Texas cities- Austin, Corpus Christi, El Paso, Fort Worth, Houston, Laredo, Lufkin, Midland, and San Antonio- spend a combined \$50 million on combatting littering each year. These funds are spent primarily by government bodies, but the \$50 million figure includes spending by non-governmental organizations as well (spending by private businesses and the value of volunteer labor are not included in the \$50 million figure).²⁷⁴



The challenge for the state’s policymakers is how best to encourage the recycling of plastics in a manner that is consistent with the conservative principles of free enterprise and limited government. Given the difficulty of law enforcement catching litterers in the act, it is unlikely that increasing the state’s existing penalties for littering would result in a significant reduction in littering. In addition, the prospect of heavy fines or even jail time for littering would raise serious questions about whether the punishment was commensurate with the offense.

“Bottle bills” are a possible solution. Under these laws, consumers are charged a small deposit by a retailer for the purchase of certain plastic items and then have the option of returning those items to the retailer or to a third party to obtain a refund of the deposit.²⁷⁵ The retailer or third party then distributes the returned plastic items to processors for recycling and reuse. Currently, ten states have enacted bottle bills into law.²⁷⁶

Advocates of bottle bills argue that they encourage recycling.²⁷⁷ There may be merit to that claim; a 2021 study by consultancy firm Eunomia found that eight of the top ten recycling states in terms of CCPM (“common containers and packaging materials”) had bottle deposit bills in effect.²⁷⁸ Proving causality, however, is difficult. It may be the case that that high relative environmental awareness in some states causes them both to enact bottle bills and to recycle at relatively high rates. What is clear, however, is that a bottle bill imposes costs- a user fee of sorts- on consumers who do not take government-approved steps regarding return of the relevant items, whether they are plastic or other material. One striking example of the magnitude of this user fee: as of April 2022, California had accumulated \$600 million in unrefunded deposits that were paid by consumers pursuant to that state’s existing bottle bill provision.²⁷⁹ A preferable approach should always be to encourage private industry to adopt such measures itself and on its own terms.

It is important to emphasize that there are encouraging developments in the efforts to fight plastic pollution, without government mandates. For example, in June 2021, a study in the *Journal of the American Chemical Society* announced the creation of a plastic that degrades in about a week in the presence of sunlight and oxygen.²⁸⁰ In April 2022, researchers at the University of Texas at Austin announced that they had developed an enzyme variant that can degrade plastic in days or even hours.²⁸¹ It may take years for these advances to become commercially feasible. But the fact that these developments are on the horizon suggests that in the future, plastic pollution may no longer be a problem so intractable that government action is the only recourse.

Bottle bills have been filed in Texas in the last decade, such as Senate Bill 1450, and its companion House Bill 2425, in 2015 (84R; Ellis and Rodriguez, E., respectively); none of these bills passed. A more intriguing bill, Senate Bill 2308 (86R; Taylor), would have required the Comptroller to study the feasibility of retailers collecting a fee from consumers who purchase certain plastic items, such as single-use cups and single-use bags. The fee would be remitted from the retailers to the Comptroller. Consumers could obtain a refund of the fees by returning the plastic items to designated rebate centers, with the rebate centers being reimbursed by the Comptroller. What distinguished the study in SB 2308

from the typical bottle bill proposal was that the Comptroller would use unclaimed refundable fees paid by consumers to pay processors of recycled plastic material. This subsidy would encourage the private sector to continue its efforts to make the re-use of plastic materials more commercially feasible.

Although SB 2308 did not pass, a more ambitious and detailed version of the bill was filed as Senate Bill 1276 (87R; Taylor | Companion: House Bill 4022; Morrison) the following legislative session. This bill would have assessed (subject to certain exceptions) a one-cent fee on the sale of various plastic items: beverage containers, single-use cups, single-use bags, film, and packaging (e.g., bags holding frozen vegetables). Consumers could obtain a rebate equal to 25 cents per pound of returned plastic. The party that processes and sells plastic to recyclers would receive a handling fee from the Comptroller. This handling fee would be set at 60 cents per pound of plastic in urban areas and 90 cents in rural areas; the discrepancy reflects the greater costs (such as transportation costs) that processors in rural areas must bear. The Comptroller would be authorized to adjust the handling fee as advisable. The excess revenue would be used by the state to disburse grants for several purposes, including litter abatement and enforcement of anti-littering laws by counties, construction of rebate centers, the development of a marketing plan to increase the use of recycled plastic in manufacturing, and flood prevention, mitigation, and recovery. Like SB 2308, SB 1276 did not pass into law.

SB 1276 was an intriguing bill and a creative effort to spur greater recycling of plastics, thereby reducing plastic litter. However, its provisions raise at least two concerns. First, a new user fee imposed by the government is difficult to distinguish from a new tax. Texans understandably expect their legislators to reject new taxes and focus on fiscal responsibility.

Second, the economic incentive provided to consumers in SB 1276 was perhaps not sufficient to truly encourage recycling. There are roughly 45 (empty) 500- milliliter plastic water bottles in a pound. These bottles are a common plastic item and fall under the provision of the bill. To obtain one dollar in rebates, a person would have to return approximately 180 plastic water bottles of that size to a rebate center. Assuming the person purchased these water bottles, he or she would still end up paying approximately a net total of \$0.80 in user fees even after taking into account the rebate. In other words, this person would receive only a partial rebate of the user fees he or she paid. More importantly, a great many people would likely view a dollar as inadequate compensation for storing 180 bottles, loading the bottles into a car, and driving to a rebate center.

If the 88th Legislature considers a bill intended to address plastic pollution and increase recycling, it could benefit by considering the following guidelines:

- 1) Focus on how best to encourage the private sector and consumers to address the problem of plastic pollution.
- 2) Do not punish plastic makers or attempt to reduce plastic production. Plastics are used in an innumerable number of products, including bags, bottles, utensils, containers, wrappers, packaging, and medical devices, just to name just a few. Irrespective of how some people litter

plastic products, it is clear that businesses and consumers value the versatility and usefulness of plastics. Some proposals, such as the federal Break Free from Plastic Pollution Act of 2021, are heavy-handed attempts to combat the popularity of plastic. That bill would have, among other things, banned single-use plastic utensils, and imposed a three-year moratorium on the opening or expansion of certain plastics-producing facilities.²⁸²

- 3) Do not authorize new taxes or divert state tax revenue. Two exceptions to this rule could apply: first, a new tax might be defensible if corresponding tax cuts were made elsewhere; that is, the bill could be revenue-neutral.

Second, as pointed out in TCCRI's concurrent *Budget and Taxation Task Force Report*, a number of general revenue-dedicated accounts have accumulated surplus balances that carry over from one session to the next rather than being spent on their intended purpose. A projected balance of \$140 million in one of these funds, the Solid Waste Disposal Fees fund, was used to certify the 2022-2023 state budget.

This fund was created by Chapter 361 of the Health & Safety Code, which aims to "safeguard the health, welfare, and physical property of the people and to protect the environment by controlling the management of solid waste."²⁸³ TCEQ raises revenue by imposing a fee on solid waste that is disposed of in the state. For example, landfill operators must pay a fee of 94 cents per ton of waste.²⁸⁴ Under statute, the revenue from these fees is bifurcated; two-thirds is directed to "municipal solid waste permitting programs, enforcement programs, and site remediation programs, and to pay for activities that will enhance the state's solid waste management program."²⁸⁵ The remaining third is dedicated to the Solid Waste Disposal Fees fund to finance "local and regional solid waste projects consistent with regional plans approved by [TCEQ]."²⁸⁶

Revenue in dedicated accounts should be spent in a manner that furthers the goal(s) for which the revenue was raised. In this case, reducing plastic litter and/or increasing the recycling of plastics would further the general goal of protecting the environment from waste and garbage. Thus, using a portion of the Solid Waste Disposal Fees fund to attain those goals would be a defensible use of those funds. Of course, if state funds were used, the state (perhaps through the Comptroller's office) should have oversight on how those funds are spent.

- 4) Articulate clear and realistically attainable goals so that the effectiveness of the legislation's provisions can be measured.
- 5) Ensure that consumers haven an adequate financial incentive to recycle; people respond to economic incentives.
- 6) Encourage the expansion of "away from home" collections facilities for plastics. On this point, the above-mentioned 2021 study conducted for TCEQ remarked:

PET bottles are consumer items and are generated at home, at work, and in public spaces. Good data on the proportions of where PET bottles are generated is not available; however, some have opined approximately equal amounts are generated at home versus away from home. Waste sort data from California suggests that as much as 70 percent may be generated away from home; however, it is not clear if this result is skewed by the state's bottle bill. **A key observation is that a robust collection infrastructure for plastic bottles away from home must exist if PET bottles are to be recycled at high rates.** Currently the ability to recycle PET bottles at work and public spaces in Texas is low and as a result large quantities of PET bottles are disposed rather than collected for recycling when they are generated away from home (bold emphasis added).²⁸⁷

- 7) Finally, be aware of the potential for future federal legislation to impose a bottle bill-type program on Texas. The Break Free from Plastic Pollution Act of 2021, which could serve as a template for future federal legislation, excluded from its scope those states that already have bottle bills in place. Thus, if the Legislature enacts a bottle bill, it should draft its provisions with a view to qualifying for the exclusion from federal preemption. Even if the Legislature decides against enacting a bottle bill provision in any plastics- or recycling-related legislation, it might nevertheless consider a "trigger" clause for a bottle bill. Under such a provision, the Legislature could provide that a bottle bill provision takes effect only if and when the federal government passes a bottle bill. This could ensure that Texas retains, to the greatest extent possible, control over its affairs and the revenue raised within its borders.

1. *Policy Recommendation*

Texas should consider legislation that encourages the plastic industry to develop a market-based approach to combat plastic litter and increase the recycling of plastics, provided that this legislation adheres to the seven principles discussed above.

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