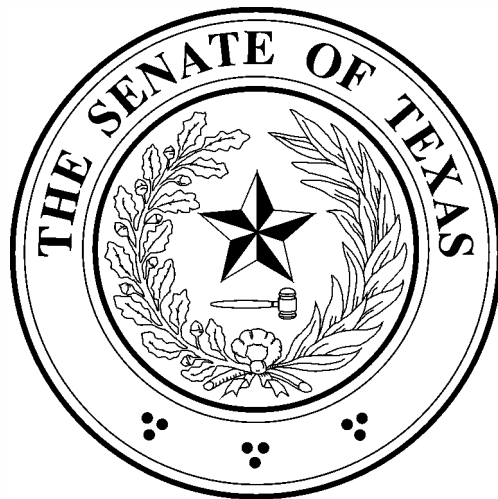

**SENATE COMMITTEE ON
BUSINESS AND COMMERCE**

**Interim Report to the
88th Legislature**





Senate Committee on Business & Commerce
January 9, 2023

The Honorable Dan Patrick
Lieutenant Governor
Members of the Texas Senate
PO Box 12068
Austin, Texas 78711

Dear Governor Patrick:

In response to your interim charges assigned to the Senate Committee on Business & Commerce, this report contains the recommendations of the committee. We appreciate your leadership and the opportunity to inform legislation to be proposed in the 88th Legislative Session that may address issues of utmost importance to the state.

Respectfully submitted,

Handwritten signature of Senator Charles Schwertner in black ink.

Senator Charles Schwertner, Chairman

Handwritten signature of Senator Robert Nichols in black ink.

Senator Robert Nichols, Vice-Chair

Handwritten signature of Senator Brandon Creighton in black ink.

Senator Brandon Creighton

Handwritten signature of Senator Lois Kolkhorst in black ink.

Senator Lois Kolkhorst

Handwritten signature of Senator Angela Paxton in black ink.

Senator Angela Paxton

Handwritten signature of Senator Donna Campbell in black ink.

Senator Donna Campbell

Handwritten signature of Senator Nathan Johnson in blue ink.

Senator Nathan Johnson

Handwritten signature of Senator José Menéndez in black ink.

Senator José Menéndez

Handwritten signature of Senator John Whitmire in black ink.

Senator John Whitmire

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SENATE BUSINESS AND COMMERCE INTERIM CHARGES

The Senate Committee on Business and Commerce was charged with six interim charges by the Lieutenant Governor. The Committee held interim hearings on the following charges:

1. **Broadband and Telecommunications:** Study broadband and other telecommunications related issues impacting Texans, including:

- Monitoring the implementation of House Bill 5 and House Bill 1505, 87th Legislature; discuss anticipated federal infrastructure funding dedicated to broadband initiatives;
- Reviewing the Texas Universal Service Fund and reporting what, if any, changes should be made through a review of both the fund's contributions and disbursements, as well as the impact of technology on the long-term stability of the Texas Universal Service Fund; and;
- Monitoring the implementation of House Bill 2911, 87th Legislature, relating to next generation 9-1-1 service and the establishment of a next generation 9-1-1 service fund.

2. **Supply Chains:** Examine the causes and impacts of recent supply chain disruptions on the Texas economy and individual industries. Study the factors that weaken links in the supply chain and the extent the pandemic has exposed those vulnerabilities. Recommend actions to strengthen the supply chain in Texas and mitigate disruptions in the future.

3. **Blockchain and Virtual Currencies:** Study current state and federal regulations surrounding blockchain and virtual currencies. Examine how these technologies impact industries such as banking, business, and electricity. Make recommendations to protect consumers while encouraging innovation. Monitor the implementation of House Bill 1576 and House Bill 4474, 87th Legislature.

4. **Electricity:** Assess the electricity market in Texas. Study issues impacting the Texas electric grid, including weather preparedness, transmission planning, maintenance scheduling, and the natural gas supply chain. Study the consequences of increased electric vehicle usage and charging on the generation, transmission and distribution, and retail sectors of Electric Reliability Council of Texas (ERCOT) and evaluate their potential impact on increased electric demand and reliability of the grid. Evaluate potential benefits of real-time transparency of the intrastate gas market with respect to the functions of ERCOT and the Texas Energy Reliability Council. Examine the growth of renewable energy generation in the state and evaluate its impact on grid reliability. Make recommendations to strengthen the reliability of the grid, and meet the future generation needs of ERCOT through new and existing dispatchable generation. Assess plans to expeditiously add new dispatchable generation. Monitor the implementation of Senate Bill 2 and Senate Bill 3, 87th Legislature.

5. **Cybersecurity:** : Review current state and federal laws regarding cybersecurity protections and requirements for local governments, state agencies, and critical industries of our state. Make recommendations for legislation to improve resilience and protection against cybersecurity attacks and ensure the privacy protection of the citizens of Texas.

6. **State Workforce:** Study where state employees are located and the benefits and drawbacks of remote working. Evaluate the impact of the potential growth of remote work and proximity of employees to their place of employment on traffic studies over the next 10 years. Study and make recommendations for establishing uniform statewide standards for remote work. Study possible implications and standards for statewide recruitment and employment of remote state employees from all parts of the state.

SENATE COMMITTEE ON BUSINESS AND COMMERCE INTERIM HEARINGS

May 18, 2022, *Senate Chamber*

The Committee took invited and public testimony on Charge Nos. 2, 5, and 6.

June 29, 2022, *Senate Chamber*

The Committee took invited and public testimony on Charge Nos. 1 and 4.

November 17, 2022, *E1.012*

The Committee took invited and public testimony on Charge Nos. 3 and 4.

INTERIM CHARGE DISCUSSIONS AND RECOMMENDATIONS

CHARGE NO. 1

Broadband and Telecommunications: Study broadband and other telecommunications related issues impacting Texans, including:

- Monitoring the implementation of House Bill 5 and House Bill 1505, 87th Legislature; discuss anticipated federal infrastructure funding dedicated to broadband initiatives;
- Reviewing the Texas Universal Service Fund and reporting what, if any, changes should be made through a review of both the fund's contributions and disbursements, as well as the impact of technology on the long-term stability of the Texas Universal Service Fund; and;
- Monitoring the implementation of House Bill 2911, 87th Legislature, relating to next generation 9-1-1 service and the establishment of a next generation 9-1-1 service fund.

Testimony

The Senate Business & Commerce Committee held a hearing on June 29, 2022, dividing the charge amongst the three subtopics, and heard testimony from witnesses.

Background

Broadband

Broadband expansion has long been a topic of discussion in the state, especially given the ever-growing "digital divide" as technology has advanced in recent years. The U.S. Census Bureau's American Community Survey (2019) estimated that Texas fell behind the national average of households with broadband access on any type of device - 81.9 percent compared to 82.7 percent.¹ In a society where access to education, medical care, and many economic opportunities rely on access to the Internet, Texans are falling behind. As such, the Legislature took action last session to close these gaps during an opportune time while the Federal Communications Commission (FCC) began to update their access mapping methodology to provide a more accurate view of household connections across the nation. These federal maps will provide more granular data and transparency. The state's maps will likely mirror the federal maps, but if not, a challenge process provides an opportunity to review and revise for accuracy.

In the 87th Regular Session, Texas passed HB 5 to set the framework for broadband expansion in the state. Specifically, the bill established the Broadband Development Office (BDO) within the Comptroller of Public Accounts which is tasked with the following: developing a state broadband plan, statewide availability map, and federally-compliant grant program, conducting outreach and digital literacy programs, and making recommendations regarding areas eligible for funding. This structure, in combination with \$5 million in general revenue appropriated for its purposes, enabled Texas to start the process. Later in 2021, the state further appropriated \$500.5 million in Coronavirus Capital Projects Fund (CPF) from the federal American Rescue Plan Act (ARPA) through Senate Bill 8 (87-3) administered by the U.S. Treasury. This was allocated on top of forthcoming funds from the Infrastructure Investment and Jobs Act (IIJA.) The IIJA, administered by the National Telecommunications and Information

¹ Texas Comptroller of Public Accounts, *TexIndex*, <https://comptroller.texas.gov/economy/texindex/texindex.php?metric=shareofHouseholdswithBroadbandInternetSubscriptions2018>

Administration, will distribute funds in accordance with multiple programs, the major two being the Broadband Equity, Access, and Deployment Program (BEAD) which will disburse \$42.5 billion nationwide and Digital Equity Programs which will disburse \$2.7 billion nationwide. BEAD, will provide states with at least \$100 million in planning dollars. The latest estimates of Texas's full allocation are anywhere from \$1 to \$4 billion - the final amount depends on the new FCC maps.

Each of these funding sources will have varying requirements. Furthermore, the requirements will differ from those pertaining to expenditures tied to CPF. Robust planning that builds on the state's existing broadband plan as required by BEAD intends to ensure the state meets all of the varying requirements for participant procurement and program administration². Such planning should include information regarding the federal agencies with which the state must work for the different tranches and programs. Earlier this year, the NTIA released the Notice of Funding Opportunity (NOFO) for this program for the planning grant funds. While helpful in developing the state's grant plan, there are some requirements included in the guidance that have proven to be areas of concern; primarily, the definition of broadband as it pertains to different modalities and standard speeds, and project priorities. On June 21, 2022, Comptroller Hegar directed a statement to NTIA outlining the state's concerns regarding these conflicts in hopes that the agency will work with Texas, as well as many other states with similar concerns, as the program rolls out³.

The next step the state must take to receive and disburse these funds is to submit a five-year action plan to NTIA no later than 270 days after receipt of initial planning funds. After the release of the FCC's new maps and NTIA receives states' plans, they will issue a Notice of Available Amounts for each state by the end of 2022 or early 2023. Throughout 2023, states will then submit proposals, challenge available amounts, and move forward with their grant administration and subgrantee selections. If all is done in accordance with NTIA guidance and expectations, they will release 20 percent of the state's funding in anticipation of the final proposal and disbursement of funds in 2024-2025. As for the Digital Equity programs under IJA, states are now developing their plans and will begin implementation by mid-2024.

In developing the five-year action plan, private sector stakeholders have provided insight on questions relating to how the state may choose to handle grant administration, project selection, and ongoing maintenance and technical assistance for broadband projects. A significant outstanding question in dealing with this effort is the long-term sustainability of these projects. The state's broadband plan specifically notes local governments' concerns surrounding maintenance and technical assistance and how this may be addressed by public-private partnerships. One proposed solution brought forth by stakeholders is the creation of an ongoing maintenance and operations fund, paid for by state dollars. Those opposed to this idea contend private companies who receive funding for capital costs should themselves be responsible for ongoing cost of operations.

Some stakeholders chose to further emphasize implementing such partnerships in favor of government-owned networks, which have long been a point of contention in the state. Federal guidance places emphasis on price transparency and public disclosure of rates, suggesting ongoing subsidies to promote broadband adoption similar to a USF model; however, this could discourage private investment in

² Texas Comptroller of Public Accounts - Broadband Development Office, *Texas Broadband Plan 2022*, <https://comptroller.texas.gov/programs/broadband/plan.php>

³ Texas Comptroller of Public Accounts, *Statement to NTIA - June 21, 2022*, <https://comptroller.texas.gov/about/media-center/news/20220621-texas-comptroller-glenn-hegar-statement-on-new-broadband-grant-rules-released-by-national-telecommunications-and-information-administration-1655759740516>

maintenance. Another issue of note is right-of-way access. In order to build out their service, providers are often required to access both public and private rights-of-way; but access must be requested and approved by the entity under whose jurisdiction it falls. Stakeholders have suggested streamlining the permitting process to request right-of-way access or creating a standard to follow where none exists locally. In bolstering this process, it may also provide for an opportunity to better map out existing infrastructure. Multiple stakeholders from rural areas assert that our state's forthcoming maps and project prioritization should somehow account for customer density revenues, speeds, and consistency or reliability of service to better understand regional needs. In many cases, these smaller providers are already established and trusted in the community - larger companies should not have projects funded to overbuild.

HB 1505 established the Texas Broadband Pole Replacement Program to be administered by the Public Utility Commission. The intent of the program is to create a standardized, transparent framework for the affixture of a pole attachment by a broadband provider to a pole owned and controlled by an electric cooperative, including an application process and contracts, procedures related to make-ready activities and attachment specifications, and cost sharing of pole modifications and replacements. This legislation was funded at \$75 million as part of the total \$500.5 million appropriated through Senate Bill 8. However, BDO recently received information from U.S. Treasury indicating that this may not be considered an allowable use. Texas must consider how to best proceed in a manner that, no matter how the state choose to respond or reallocate funds, ensures it remains possible to meet expenditure deadlines.

Both HB 5 and HB 1505 were drafted and passed with knowledge that the aforementioned federal funding and associated guidance were imminent, but without any detail of how it might be structured. BDO continues to work through areas where state law conflicts with federal guidance and may uncover issues that require further state action in concert with the Committee's interim studies. To date, the two primary areas of concern relate to the defined standard download and upload speeds and qualifying technologies. In House Bill 5, the state chose to define these minimum speeds as 25 Mbps download/3 Mbps upload, matching IJJA requirements, but defer to the Federal Communications Commission (FCC) should they choose to increase these as many stakeholders have urged for years. To further complicate matters, the minimums are defined differently in different federal programs - projects utilizing CPF funds must establish connections at 100/100. In drafting last session's legislation, the state also intentionally chose to take a 'technology neutral' stance, meaning that one modality should not be prioritized over the other in order to grant flexibility in future expansion projects; however, there is ongoing conversation about some federal programs prioritizing fiber. As such, the intent behind this charge is not only to monitor the implementation of landmark legislation passed last session, but to identify what steps the Legislature may take to ensure thoughtful, appropriate implementation of broadband expansion efforts and begin to explore how ongoing maintenance may be designed. In addition, as reiterated throughout witness testimony to the Senate Business and Commerce Committee, ensuring the success of broadband expansion in the state requires the BDO having the resources it needs to administer such an expansion and landmark funding program.

Texas Universal Service Fund (TUSF)

In 1987, the Texas Legislature established a Universal Service Fund (TUSF) mechanism⁴. The current rules concerning universal service in place at the Public Utility Commission of Texas complement the

⁴ Chapter 56, Texas Public Utility Regulatory Act

federal universal service rules and are appropriate for the changes in the telecommunications industry toward a competitive market. The federal Telecommunications Act of 1996 expanded the traditional definition of universal service - affordable, nationwide telephone service to include, among other things, rural health care providers and eligible schools and libraries.

After deregulation, the TUSF was established to provide support for companies serving customers in low-density, high-cost regions where it would be otherwise unaffordable to build and maintain the infrastructure to serve those customers. The state was broken into geographic regions based on the incumbent local exchange carrier (ILEC) that existed in the area. In areas where an ILEC receives USF support, competitive local exchange carriers (CLEC) can also apply to be an Eligible Telecommunications Provider (ETP) and receive USF support.

The Texas Universal Service Fund (TUSF) is financed by an assessment of all taxable telecommunications receipts on Texas' telecommunications providers reporting taxable telecommunications receipts under Chapter 151 of the Texas Tax Code. Telecommunications providers are allowed to pass the costs of the TUSF through to residential and business customers on their monthly bills. Currently, the TUSF funding sources include wireline, wireless, certain interexchange carriers (IXC), and paging. It does not include assessments on Voice over Internet (VoIP) or cable.

Funding Challenges

As technology changes, the TUSF has struggled to maintain the necessary funding levels to support its programs. In March 2019, PUC staff determined the USF was falling short by \$5 million to \$7 million per month and made a recommendation that "an increase in the assessment rate is appropriate to allow for funding of expenditures through August 2021⁵." To that end, PUC staff made a recommendation to the Commission to raise the USF assessment from 3.3 percent to 6.4 percent to prevent the USF from depleting its fund balance in June 2020. This increased assessment would help close the gap created by a shift from traditional landline phones to internet-based phones, which cut into company billings and the related tax proceeds. Ultimately, the PUC Commissioners opted not to adopt staff recommendations, given the timing of the COVID-19 pandemic and ongoing concerns over the fund's appropriateness.

Meanwhile, in September 2020, major carriers decided to recalculate what percentage of customer services was actually dedicated to voice versus data. Because the TUSF assessment is specific to voice and not data, this significantly reduced the amount these companies paid into the fund, which further complicated the fund's solvency issues.

The federal government operates its own USF and many Texas providers receive funding from both the state and federal government. Beginning in 2011, the federal government began planning to reduce and eventually phase out funding for a number of its USF programs and instead focus on broadband expansion to cover high-cost areas. However, the state has a provision in statute⁶ that requires the Texas USF to make up for any lapse in federal dollars, which has further diluted the available Texas USF dollars since the FCC finally began reducing funding in 2022.

The combination of these factors led to funding shortfall and required the PUC to reduce the disbursement amount provided to each TUSF recipient.

⁵ Project 50796, Filing 15. *Review of TUSF Rate*. Public Utility Commission.

⁶ Section 56.025 (c), Public Utility Regulatory Act

Legal Challenges & Resulting Public Utilities Commission Action

As a result of a reduction in TUSF disbursements, USF providers filed a series of lawsuits against the PUC. In July 2022, the Texas Third Court of Appeals ruled against the PUC in two separate cases^{7, 8} stating that the agency had acted outside its legal authority by failing to maintain the solvency of the TUSF, by implementing a hierarchy of funding among TUSF programs and by failing to fully pay all disbursements required by the Public Utility Regulatory Act and the Commission's existing TUSF orders. In specific, the court found that while the PUC has the legal authority to determine the means by which it funds the TUSF, it does not have the ability to underfund it and therefore fail to meet its obligations to providers. Following the court rulings, the PUC opted to temporarily increase the TUSF assessment amount from 3.3 percent to 24 percent in order to backfill the amount owed to providers and maintain the fund moving forward. While the Commission has indicated plans to reduce the assessment at some point in the future, it has not indicated the timeframe of when this change will occur.

Long Term Solutions

Aside from raising the assessment, stakeholders have offered a number of different solutions for fixing the fund, but to date, none of these solutions have been implemented.

The USF was created to provide a subsidy to telecommunications companies providing services in high-cost areas of the state where no business case exists to build or otherwise maintain networks. However, concerns have been raised that there are areas of the state that may have been considered rural or underserved at the time when the USF was instituted but have now seen enough population growth to sustain competitive networks and should no longer be USF areas. To address these concerns, interested parties have sought to redefine what constitutes a high-cost, rural or underserved area. While the PUC currently has the authority to make these changes, the proposed definitions have not been able to properly capture the appropriate areas of the state.

As a means to address the fund's solvency, the Legislature passed HB 2667⁹ during the 87th Legislative Session. The bill proposed adding VoIP lines to the assessment pool and took steps to define who could receive USF dollars. However, this definition only eliminated 10 exchanges. Citing concerns over the impact of new assessments, Governor Abbott vetoed the bill¹⁰.

NextGen9-1-1

Background

The statewide deployment of next generation 9-1-1 service will replace the existing narrowband, circuit switched 9-1-1 system, using modern software to enable transmission of data currently not supported by the legacy 9-1-1 system. NextGen9-1-1 supports Text-to-9-1-1, geolocation mapping to locate within feet of a caller, and the ability to transmit rich data like images and videos to emergency responders. House Bill 2911 establishes a target date of September 1, 2025¹¹ for full statewide NextGen9-1-1 service. The current analog 9-1-1 system only supports voice calls, and relies on physical infrastructure that is outdated

⁷ *Tex. Tel. Ass'n v. Pub. Util. Comm'n of Tex.*, No. 03-21-00294-CV (Tex. App. Jun. 30, 2022)

⁸ *Pub. Util. Comm'n of Tex. v. AMA Commc'ns*, No. 03-21-00597-CV (Tex. App. Aug. 10, 2022)

⁹ HB 2667, 87th Texas Legislative Session

¹⁰ HB 2667 Veto Statement, Governor Greg Abbott, Issued June 18, 2021.

¹¹ Health and Safety Code § 771.059

and susceptible to failure in cases like high-volume call load or power outages during a natural disaster. House Bill 2911 addresses the need to operate 9-1-1 service using the more reliable, interoperable, and automatically responsive system. The Commission on State Emergency Communications (CSEC) is the authority overseeing the transition to statewide NextGen9-1-1 Service.

9-1-1 Service in Texas

9-1-1 emergency service is provided by an overlapping network of entities that work in partnership and consist of two key groups: The first are the Regional Planning Commissions, also known as Councils of Government (COGs), which are the groups of counties that voluntarily participate in the State 9-1-1 Service Program, run by the Commission on State Emergency Communications (CSEC). The Regional Planning Commissions cover 75 percent of Texas counties but serve just 18 percent of the state's population. The second group are the Emergency Communications Districts (ECDs) and Municipal Emergency Communications Districts (MECDs), which are the 57 independent districts that provide 9-1-1 service to the rest of the state and the Emergency Communications Districts primarily cover urban areas of the state.

9-1-1 service in Texas is funded by fees assessed on landline and wireless telephone line subscriptions in the state. 9-1-1 Service Fees are remitted to the Texas Comptroller into dedicated accounts, and funds are appropriated to CSEC through the biennial appropriation process for use by participating RPCs in accordance with approved regional plans and statutory formulas.

House Bill 2911, 87th Legislative Session

House Bill 2911 directed the state to implement a new and modernized 9-1-1 service system called Next Generation 9-1-1 (NextGen9-1-1). Because Texas' emergency service is coordinated through several entities on both state and local levels, the task of moving the state away from the existing system (dependent on physical networks) to a new system that is primarily internet-dependent requires methodical coordination efforts and significant funding to fully convert the state. Thus, HB 2911 widens CSEC's mandate by charging the Commission to organize and oversee that all 9-1-1 entities successfully replace their emergency service technology.

HB 2911 also created the NextGen 9-1-1 Service Fund within General Revenue-Dedicated Account No. 0195 and appropriated \$150M in Coronavirus State and Local Fiscal Recovery Funds (CSFRF) for use by all 9-1-1 service entities to replace the legacy emergency service system with Next Generation 9-1-1 service.¹² The funds in the NextGen account must be spent by December 31, 2024 and the fund is set to eventually expire on September 1, 2025¹³.

The benefits attributable to NextGen9-1-1 are only accessible if the entire state is operating the same system at the same time. The timely and coordinated implementation is necessary to fully retire the old system and make sure no area of the state is left out of access to NextGen9-1-1.

In April 2022, the Office of the Governor designated CSEC as the administrator and recipient of the grant funds. The OOG also designated the RPCs, ECDs, and MECDs as subrecipients and thus must submit applications to and organize efforts with CSEC in order to ultimately be reimbursed by the federally

¹² Health and Safety Code § 771.0713(b)

¹³Health and Safety Code § 771.0713(g)

funded grant. CSEC work closely with the entities to provide support and expertise as needed, especially given the complexities of navigating the federal grant system.

The NextGen9-1-1 deployment process requires significant capital investment in new equipment, software and database services, and de-commissioning existing infrastructure to complete the transition and ongoing funding structures to ensure long-term maintenance. All 9-1-1 entities will require sufficient staffing and long-term revenue sources to support implementation of NextGen9-1-1. Several emergency communications districts, especially smaller entities, have raised concerns about the implementation timelines, the availability of future funds to support increased operation expenses, and ability to hire experienced staffers to support the transition to the technical and specialized systems¹⁴.

In addition, the 9-1-1 Service Program (Account No. 5050)¹⁵ also faces significant long term funding challenges. The 9-1-1 Service Program Account generates funds to support statewide 9-1-1 service through fees collected on wireless and landline service lines in Texas. Currently, wireless usage far exceeds landline use: CSEC reports in 2021 that 84.2 percent of 9-1-1 calls were made on wireless phones, versus 33 percent in 2002¹⁶. However, the current wireless fee rate, is insufficient to support the long-term fund balance. With no changes, the State 9-1-1 Service Program Fund will become insolvent after FY 2024 and be completely depleted by FY 2027¹⁷. The Commission was required in Rider 9 of the agency's bill pattern in the General Appropriations Act to submit options for methods to maintain the fund balance and provide a predictable source of revenue to support statewide 9-1-1 service.

Conclusion and Recommendations

Broadband

Texas has an incredible opportunity to take advantage of an unprecedented amount of federal funds to ultimately close the digital divide in the state through robust broadband expansion. The Legislature can help the state build upon the groundwork laid by House Bill 5 in the following ways:

- Determine any legislative action necessary to address conflicts between state law and federal guidance.
- Ensure the Broadband Development Office has the necessary staffing and resources to manage the administration of federal grant dollars.
- Determine options to replace the federal dollars previously allocated to HB 1505 (87R).

Texas Universal Service Fund

In order to address both the short and long-term viability of the Texas Universal Service Fund, the Committee recommends the Legislature consider the following changes:

- Evaluate the appropriateness of qualifying eligible providers based on density.

¹⁴ *NextGen9-1-1 Charge: Hearing Before the S. Comm. on Business and Commerce, 87th Interim (Tex. 2022)*(written testimony of Chip VanSteenberg, Montgomery County Emergency Communication District).

¹⁵ Health and Safety Code § 771.0711(b)

¹⁶Commission on State Emergency Communications. (2022). *Agency Strategic Plan Fiscal Years 2023-2027*. <https://csec.app.box.com/s/fyy3a3o1b8z9ho0jonyxla9veytsfdg>

¹⁷ Commission on State Emergency Communications. (2022). *Plan For Continued Funding of Statewide 9-1-1 Services*. <https://csec.app.box.com/s/a3fpgw1cf4irb922yneun2e7mbu8ad5y>

- Conduct a holistic study of the fund to evaluate ways to increase transparency, determine eligibility requirements, and identify long-term funding options.
- Consider the appropriateness of maintaining the federal make-whole provision.
- Establish a workgroup between the Broadband Development Office and Public Utility Commission to coordinate broadband infrastructure development in USF-covered areas.

NextGen9-1-1

The transition to NextGen9-1-1 requires the ongoing and intensive coordination between CSEC and all Texas 9-1-1 entities, and the Legislature may consider the following recommendations.

- Consider amending the date by which the NextGen9-1-1 allocated funds must be spent to August 31, 2025, instead of December 31, 2024, in order to better align the spend deadline with the target implementation deadline for statewide NextGen9-1-1 deployment.
- Consider extending the target date for implementing NextGen9-1-1 and the expiration of the Next Generation 9-1-1 Service Fund past Sept. 1, 2025, allowing the Commission to create a second phase timeline to ensure that all 9-1-1 entities implement NextGen9-1-1 in a timely fashion and most importantly that none of the funds dedicated to deployment are left unspent should the grant subrecipients face any delays outside of their control including supply chain issues. Without a timeline extension, CSEC advises that some allotted funds risk being unspent by the target deadline.
- Consider options included in the Rider 9 plan to support the long-term fund balance of GR-D Account 5050, 9-1-1 Service Fees, in order to accomplish the Commission's mission of providing Texans with reliable emergency communication service.

CHARGE NO. 2

Supply Chains: Examine the causes and impacts of recent supply chain disruptions on the Texas economy and individual industries. Study the factors that weaken links in the supply chain and the extent the pandemic has exposed those vulnerabilities. Recommend actions to strengthen the supply chain in Texas and mitigate disruptions in the future.

Testimony

The Senate Business & Commerce Committee held a hearing on May 18, 2022 and heard testimony from the witnesses.

Background

While Texas plays an integral role in the global supply chain as the ninth largest economy in the world and our share of exports accounting for 20 percent of the country's total¹⁸, we are also uniquely sensitive to disruptions. Over the last three years alone, there have been a multitude of challenges that resulted in sharp increases in demand met with simultaneous decreases in supply - further exacerbated by labor shortages. Although many issues can be traced back to the COVID-19 pandemic, through further study, there are many private business decisions made prior to the pandemic that inadvertently impacted the global supply chain. Of those, the most notable are outsourcing, offshoring, and strategies that may compromise resilience such as maintaining lean inventories. These decisions were made with no inclination of challenges to come. In addition, there is ongoing conversation as to what changes in consumer behavior are short-term or long-term and whether potential solutions are only needed in the immediate future rather than an ongoing basis. Texas, and the United States as a whole, is not alone in grappling with the effects of all of these factors combined, and the opportunity to discover what solutions may be available is welcomed by the state.

Recently, the Texas Comptroller for Public Accounts conducted a *Good For Texas Tour* to evaluate the supply chain challenges facing various sectors important to the Texas economy, including semiconductors, chemical manufacturing, rare earths, and food¹⁹.

While each industry faces its own challenges, many are similarly impacted by trade disputes, geopolitical tensions, geophysical events, and cyberattacks. To combat these issues, there are renewed targeted efforts to increase domestic production, onshore operations, and regionalize and diversify supplier bases. Rare earth elements (REE) face some unique restrictions by way of federal environmental regulations as well as reliance on foreign countries to process raw materials, which in turn further impacts industries down the line. These materials are involved in a highly segmented supply chain of their own, from sourcing, to processing, all the way to product manufacturing. REEs are used in a variety of high-tech components that are ultimately used in consumer electronics, military operations, and renewable energy technology. There is currently no domestic supply for these materials, but plans to establish an operation in Texas are underway. Beginning in 2023, USA Rare Earth is set to both mine and process REE on 950 acres of state land at the Round Top deposit in Sierra Blanca. The company estimates that this project is likely to yield

¹⁸ Written Testimony, Texas Comptroller of Public Accounts (on file with the committee)

¹⁹ Texas Comptroller of Public Accounts, *Good For Texas Tour: Supply Chains*, <https://comptroller.texas.gov/about/media-center/media-kit/good-for-texas/supply-chains/>

16 of the 17 REEs, produce roughly \$400 million in economic impact (not including an additional \$200 million from magnet production) and bring up to 195 direct, full-time permanent jobs to the state²⁰.

As it is commonly known, demand for goods increased while production capacity lowered and logistics capacity stagnated. To mitigate future issues, there is a need for increased transparency and resiliency in supply chains, but also the need for innovative solutions in the trucking industry and automation to fill less desirable jobs²¹. Consideration should also be given to the environmental impacts of larger scale production due to onshoring and reshoring overall, especially in terms of adhering to federal regulatory rules.

The state has taken proactive measures from a transportation and logistics perspective to alleviate chokepoints in the supply chain. One way this has been accomplished is through the Texas Department of Transportation's Texas Ports Advisory Committee. Texas ports are privately owned and operated, which limits the state's ability to assist, which is why the public-private stakeholder engagement process is essential. Having a privately-owned port system in the state provides Texas ports with increased flexibility compared to ports in other states. While other areas have struggled to accept increased capacity, more suppliers have been redirecting shipments to Texas as the port system has been able to adapt more efficiently to the ongoing supply chain issues.

One of the most significant supply chain issues was brought to light during the hearing related to labor shortages. Stakeholders noted that even if all disruptions were addressed, products cannot make their way to any destination along the supply chain without a workforce to move them. To mitigate this issue, some industry leaders, such as Sysco, have dedicated resources to maintaining their trucking fleet through the development of an internal trucking academy and reevaluating the type of long-haul trips employees take to advance a better work-life balance²². Workforce concerns were echoed across a wide variety of industries, including semiconductors and manufacturing industries, especially as more companies look to onshore operations. According to these stakeholders, investing in workforce training and apprenticeships to full positions across a spectrum of education and skill levels is essential to alleviating this issue in the future.

Conclusion and Recommendations

While this is a global issue, the Committee recognizes the importance of examining it in a localized manner to determine any steps the State of Texas can take to address it. As such, it is recommended that the Legislature consider the following:

- Structure of existing, or any potential new, economic incentives for onshoring, reshoring, and regionalizing supply chains.
- State contributions to workforce initiatives related to public education, higher education, and those available for private businesses; and
- Support the onshoring of facilities through strengthening the Texas electric grid and support probusiness regulatory environment.

²⁰ Texas Comptroller of Public Accounts, *Rare Earth Elements Supply Chain*,

<https://comptroller.texas.gov/economy/economic-data/supply-chain/2021/rare-earth.php>

²¹ Written Testimony, Dr. Edward Anderson, University of Texas (on file with committee)

²² Senate Business and Commerce Committee Hearing, May 18, 2022

CHARGE NO. 3

Blockchain and Virtual Currencies: Study current state and federal regulations surrounding blockchain and virtual currencies. Examine how these technologies impact industries such as banking, business, and electricity. Make recommendations to protect consumers while encouraging innovation. Monitor the implementation of House Bill 1576 and House Bill 4474, 87th Legislature.

Testimony

The Senate Business & Commerce Committee held a hearing on September 29, 2022 and heard testimony from witnesses.

Background

Blockchain technology and virtual currencies continue to pose challenges to state and federal regulators: The high rate of public adoption and un-tested market conditions evolve faster than regulators can react to best protect the public while ensuring policies do not hinder technological innovation. The following sections will provide an overview of Blockchain and Virtual Currencies, the state of Texas' regulatory approach and recommendations for possible legislative solutions.

Blockchains 101

Simply put, a blockchain is a type of database that is decentralized and distributed across a network of computers where additions to the blockchain are cryptographically linked, forming a chain of blocks that comprise the whole of the blockchain. Blockchain technology is a kind of distributed ledger technology (DLT) but the cryptographic way information is linked together distinguishes blockchains from other distributed ledgers²³. Blockchains should be understood as an evolution of existing technology. Blockchains have a huge range of applications, and one of the most well-known uses are cryptocurrencies.

Cryptocurrency 101

Cryptocurrency generally refers to digital coins created, transmitted through and maintained on a blockchain. The term 'crypto' refers to the nature of blockchains, which cryptographically link new blocks together (i.e., make an addition to the ledger)²⁴. The most well-known cryptocurrency is Bitcoin, which is a helpful way of distinguishing the difference between blockchains and cryptocurrencies. Bitcoin is the virtual currency created on the Bitcoin Blockchain. If a blockchain is like an ecosystem, cryptocurrency is like a species of coin native to that blockchain ecosystem²⁵. Bitcoin (BTC) the cryptocurrency is native to the Bitcoin Blockchain. Another example is the Ether Blockchain (the ecosystem) and Eth (the cryptocurrency).

²³ Texas Blockchain Council and Chamber of Digital Commerce. (December 2020). *Legislator's Toolkit for Blockchain technology Texas Edition*. <https://texasblockchaincouncil.org/legislators-toolkit-for-blockchain-technology>

²⁴ Texas Work Group on Blockchain Matters 2022 Report. (November 2022) <https://portal.bcwg.texas.gov/General-Documents/Texas-Work-Group-on-Blockchain-Matters-Report/wbtp-2m5k>

²⁵ Meshulam, Deborah R., and Michael Fluhr. "Introduction to Blockchain-Based Assets." *Cryptocurrency and Digital Asset Regulation: A Practical Guide for Counsel*, American Bar Association, Tort Trial and Insurance Practice Section, Chicago, IL, 2022, pp. 3–4.

Unique Risks: Volatile Market Exposure

The rise in popularity of virtual currency has not translated to increased market stability and the fluctuations in the value of cryptocurrencies have exposed consumers to significant losses in investments. During the period dubbed 'Crypto Winter' starting in May 2022, the cryptocurrencies lost roughly \$2 trillion in value²⁶, wiping out life savings and triggering the collapse of major crypto lenders, exchanges, and investment funds. This period of volatility erased many customers' asset values in part due to risky business practices including overleveraging, co-mingling customer funds without proper disclosure, and in some cases illegal activity. The cryptocurrency crash also revealed the extent to which other cryptocurrency-based businesses were intertwined, thus magnifying the effects of each subsequent firm that collapsed²⁷.

House Bill 1576 by 87th Legislative Session

House Bill 1576 (87R)²⁸ created the Texas Work Group on Blockchain Matters (Work Group) and charged the workgroup to study the blockchain industry and present a report with recommendations to the Legislature designed to grow the presence of the blockchain industry in the state. The Work Group consisted of 16 members appointed by the Governor, Lieutenant Governor, and the Speaker of the House to develop a master plan to support the growth of blockchain industries in Texas. The Texas Work Group on Blockchain Matters Report²⁹ provides 21 policy recommendations which are broken down into eight subgroups. The sub-group subject areas are: (1) Commercial Contracts, (2) Digital Identity, (3) Decentralized Autonomous Organizations (“DAOs”), (4) Education, (5) Energy, (6) Finance, (7) Government, and (8) Official Record Keeping Systems.

One of the report sub-groups that the Senate Business and Commerce Committee focused on was the Commercial Contracts subgroup which examined and provided recommendations based upon Texas' current legal framework for transactions involving blockchain technology and the recognition of property rights for digital assets, like cryptocurrency (i.e. a digital asset maintained on a blockchain)³⁰. The Commercial Contracts report section considers changes to address existing gaps in statute which currently do not provide clear property rights to cryptocurrencies and certain digital assets, like Non-Fungible Tokens. Currently, Texas law does not say how the owner of certain blockchain-based digital assets can use the asset for the purpose of securing a loan with a lender³¹.

House Bill 4474 by 87th Legislative Session

House Bill 4474 (87R)³² represented a significant change by giving 'virtual currency' legal recognition in Texas Business & Commerce Code and amended Texas' Uniform Commercial Code (UCC) relating to transactions involving virtual currency³³. HB 4474 was designed to be a placeholder for amendments to

²⁶ <https://www.cnn.com/2022/07/14/why-the-2022-crypto-winter-is-unlike-previous-bear-markets.html>

²⁷ <https://www.washingtonpost.com/business/2022/07/06/voyager-bankruptcy-three-arrows/>

²⁸ Tex. H.B. 1576, 87th Leg. (2021). <https://capitol.texas.gov/tlodocs/87R/billtext/pdf/HB01576F.pdf#navpanes=0>

²⁹ Texas Work Group on Blockchain Matters 2022 Report. (November 2022) <https://portal.bcwg.texas.gov/General-Documents/Texas-Work-Group-on-Blockchain-Matters-Report/wbtp-2m5k>

³⁰ *Blockchain and Virtual Currencies Charge: Hearing Before the S. Comm. on Business and Commerce, 87th Interim (Tex. 2022)*(written testimony of Patrick Hatfield, Locke Lord LLP).

³¹ *Id.*

³² Tex. H.B. 4474, 87th Leg. (2021). <https://capitol.texas.gov/tlodocs/87R/billtext/pdf/HB04474F.pdf#navpanes=0>

³³ Business and Commerce Code § 12.

Uniform Commercial Code that were expected to be published after the 87th session³⁴. The now-published new UCC Article 12 and amended Article 9 deal with property rights and transactions and provide needed clarity for property rights involving certain digital assets.

State Banking Regulations

Texas Department of Banking's primary mission is to regulate the state's banking industry and financial services industry³⁵; in total the Texas Department of Banking charters and oversees 213 banks with \$420 billion in assets. The agency also licenses and regulates 198 money service businesses, such as Western Union, PayPal, and MoneyGram³⁶. The introduction of virtual currencies into the financial industry presents a question as how to categorize and regulate digital assets, like cryptocurrency, that in many cases, lack intrinsic value but nevertheless can be purchased with money and have value to the holder of the virtual currency.

Regulated Activity: Money Service Businesses (MSBs) and Money Transmission Licenses

Businesses engaging in money transmission services or currency exchange trigger a requirement to obtain a money transmission license in Texas³⁷. To constitute money transmission, the activity must involve a third-party receiving money or monetary value and promising to make the money available at a later time³⁸. Determining whether a transaction involving cryptocurrency triggers money transmission licensing requirements depends on whether the cryptocurrency should be defined as 'money' or having 'monetary value'³⁹. Cryptocurrency is not considered 'currency' as defined in the Texas Money Services Act because currently, a unit of cryptocurrency or virtual currency is not 'money', unless the virtual currency is issued by a government as legal tender⁴⁰. However, some cryptocurrency businesses like crypto-exchange Binance and Coinbase conduct money transmission and require licensure as those businesses engage in activity that involves (1) the receipt fiat currency a buyer; (2) the promise to hold the money until the transaction is settled; and (3) the release the funds to a seller at the agreed upon time.

Crypto-exchange businesses requiring licensure as a Money Service Business (MSB) must meet minimum requirements to demonstrate financial ability to fulfill their obligations to their customers, including maintaining minimum net worth requirements and demonstrating financial security⁴¹. Additionally, all MSBs must also comply with federal laws, including compliance with Bank Secrecy Act/Anti-Money Laundering provisions (BSA/AML) and Know-Your-Customer (KYC) requirements, just as traditional financial institutions are required.

Future Banking Policies - Money Transmission Modernization Act

³⁴ *Blockchain and Virtual Currencies Charge: Hearing Before the S. Comm. on Business and Commerce, 87th Interim (Tex. 2022)* (Personal Statement by William Henning, Professor of Law at the Texas A&M University School of Law, a Member of the Texas Working Group on Blockchain Matters).

³⁵ *Blockchain and Virtual Currencies Charge: Hearing Before the S. Comm. on Business and Commerce, 87th Interim (Tex. 2022)*(written testimony of Commissioner Charles G. Cooper, Texas Department of Banking).

³⁶ *Id.*

³⁷ Texas Finance Code §151

³⁸ Texas Finance Code §151.301(b)(4)

³⁹ Texas Department of Banking (Rev. April 2019) *Supervisory Memorandum - 1037*.

<https://www.dob.texas.gov/public/uploads/files/consumer-information/sm1037.pdf>

⁴⁰ *Id.*

⁴¹ Texas Finance Code §151.302- §151.309

Because Texas Money Services Act regulating MSBs was passed in 2005, the current statute does not capture the changing landscape of money transmission businesses. In addition, these standards were modeled after nationally-proposed standards, but that were ultimately not adopted uniformly across all states. In order to promote a more harmonious treatment of money transmission activity across different state jurisdictions, the Conference of State Bank Supervisors (CSBS) published in September 2021 an updated model law for state adoption to clarify the treatment of money service businesses called the Money Transmission Modernization Act (MTMA)⁴². The model law gives states flexibility to modify the Act to best fit their state statutes while enacting a consistent set of requirements to ensure comparable treatment of Money Service Businesses across all 50-states.

State Securities Regulations

Whether activity involving virtual currency triggers application of both state and federal securities regulation depends on whether the investment product meets the long-held set of criteria known as the Howey Test⁴³. *Howey* holds that a scheme constitutes a security if there is: (1) an investment (2) in a common enterprise (3) with the expectation of profits (4) based on the efforts of others. The enforcement of the state's securities laws is overseen by Texas State Securities Board (TSSB), the agency charged with overseeing the registration of securities and licensing all agents involved in selling securities in the state as outlined in the Texas Securities Act.

Regulated Securities Activity

The Texas Securities Act⁴⁴ requires that any security sold in the state be registered with the TSSB and that the agent or seller of a security be also a registered agent. The TSSB has been a leader in identifying and protecting Texans from illegal and risky cryptocurrency investment schemes by unregistered agents or sellers. In 2017, TSSB became the first state securities regulator⁴⁵ to take enforcement action against a cryptocurrency firm, USI-Tech Limited⁴⁶. Since the Board began monitoring cryptocurrency-based security transactions, the agency has investigated and entered enforcement action against some of the largest industry players, including FTX US⁴⁷ BlockFi Lending LLC, Voyager Digital LLC and Celsius Network, Inc⁴⁸.

Federal Laws and Regulations

The Currency and Foreign Transactions Reporting Act of 1970, most known as the Bank Secrecy Act (BSA)⁴⁹ is the set of federal regulations that establish requirements for U.S. financial institutions. The collective framework of anti-money laundering measures required by the Bank Secrecy act are often

⁴² *Blockchain and Virtual Currencies Charge: Hearing Before the S. Comm. on Business and Commerce, 87th Interim (Tex. 2022)*(written testimony of Commissioner Charles G. Cooper, Texas Department of Banking).

⁴³The four-prong *Howey* test was established by the 1946 Supreme Court decision in the case of the Securities and Exchange Commission v. W. J. Howey Co.

⁴⁴ Texas Government Code §§ 4001.001-4008.105

⁴⁵ *Blockchain and Virtual Currencies Charge: Hearing Before the S. Comm. on Business and Commerce, 87th Interim (Tex. 2022)*(written testimony of Commissioner Travis J. Iles, Texas State Securities Board).

⁴⁶ <https://www.ssb.texas.gov/news-publications/bitcoin-promoter-usi-tech-hit-emergency-order>

⁴⁷ <https://www.coindesk.com/policy/2022/11/29/sam-bankman-fried-called-to-ftx-hearing-by-texas-securities-regulator/>

⁴⁸ <https://www.coindesk.com/policy/2021/09/17/texas-securities-regulator-adds-celsius-to-its-crypto-lending-crosshairs/>

⁴⁹ 31 U.S.C. §5311 et seq.

referred to as BSA/AML compliance. Bank Secrecy Act requires a wide range of AML measures, including reporting daily cash transactions that exceed \$10,000 daily. The Bank Secrecy Act requires Money Service Businesses (MSBs) to follow Anti-Money Laundering procedures⁵⁰, just as traditional financial institutions are required.

Conclusion and Recommendations

- Consider and enact the proposed 2022 Amendments to the UCC dealing with technological changes, including a new Article 12 and amendments to Article 9, as recommended by the Texas Work Group on Blockchain Matters.
- Establish an innovation center within Department of Information Resources (“DIR”); and direct DIR to develop a decision model to assist agencies in deciding if blockchain technology is appropriate for infrastructure consideration.
- Consider and enact the 2021 model law published by the Conference of State Bank Supervisors (CSBS) called the Money Transmission Modernization Act (MTMA). The model law seeks to establish a common baseline of regulatory standards to be used across the country for money transmitters, making it easier for companies to operate across state lines, enable efficient cooperation among states to work together in licensing and supervision of money transmitters, and strengthen consumer protection through enhanced prudential standards and disclosure requirements.

⁵⁰ 31 U.S.C. §§ 5318(a)(2) and 5318(h); 31 C.F.R. § 1022.210.

CHARGE NO. 4

Electricity: Assess the electricity market in Texas. Study issues impacting the Texas electric grid, including weather preparedness, transmission planning, maintenance scheduling, and the natural gas supply chain. Study the consequences of increased electric vehicle usage and charging on the generation, transmission and distribution, and retail sectors of Electric Reliability Council of Texas (ERCOT) and evaluate their potential impact on increased electric demand and reliability of the grid. Evaluate potential benefits of real-time transparency of the intrastate gas market with respect to the functions of ERCOT and the Texas Energy Reliability Council. Examine the growth of renewable energy generation in the state and evaluate its impact on grid reliability. Make recommendations to strengthen the reliability of the grid, and meet the future generation needs of ERCOT through new and existing dispatchable generation. Assess plans to expeditiously add new dispatchable generation. Monitor the implementation of Senate Bill 2 and Senate Bill 3, 87th Legislature.

Testimony

The Senate Business & Commerce Committee brought this charge up for discussion at both the June 29, 2022 and November 17, 2022 hearings and heard testimony witnesses.

Background

In 2021, the Legislature passed SB 3(87R)⁵¹ to substantively reform the Texas power grid in the aftermath of a series of major winter storms that left many Texans without power for several days. These changes included requiring the weatherization of critical power generation, natural gas, and electrical transmission infrastructure; instituting an emergency alert system to notify Texans about extended power outages; and reforming the electric market to increase generation capacity and improve the reliability of the state's power grid.

Since last session, the Public Utility Commission (PUC), Electric Reliability Council of Texas (ERCOT), the Railroad Commission of Texas (RRC), and other entities and stakeholders have worked together to make significant improvements to the oversight, management, and coordination of the Texas electric grid. The results of these efforts have positioned the state to respond to weather emergencies and other events more effectively than before. However, there is still work to be done to ensure the Texas electric grid is prepared to meet the energy demands of the future. As such, the Senate Business and Commerce Committee (Committee) held two hearings to discuss several key issues, beginning with a discussion on the efforts undertaken by regulatory agencies to implement new weatherization requirements. Recognizing the vital link between natural gas production and pipelines to power generation, the Committee also reviewed ways to increase transparency and improve functionality between these industries.

The Committee also evaluated different proposed solutions to managing the impacts of intermittent generation resources on grid reliability to determine the best option to incentivizing new dispatchable generation while maintaining and strengthening our existing fleet. Finally, the Committee studied ways to improve transmission planning and resiliency, as well as gained insight into how to plan for emerging

⁵¹ [SB 3 \(87R\)](https://capitol.texas.gov), capitol.texas.gov, Retrieved May 31, 2022.

challenges to the transmission system from future demands brought on by large flexible loads and electric vehicles.

Weatherization and Critical Designation Rules

Many of the power generation and natural gas-specific issues experienced during Winter Storm Uri were a symptom of operational problems. For example, during Winter Storm Uri, power was shut off to key natural gas facilities because they were not registered as critical load serving electric generation, which impacted the natural gas supply to these facilities and further compounded the ongoing power emergency. In response, the Legislature took action to correct these issues by requiring new weatherization requirements for both natural gas operators and natural gas generators. It also formalized the Texas Energy Reliability Council (TERC) and established Texas Electricity Supply Chain Security and Mapping Committee to identify what pieces of the natural gas supply chain are directly tied to electric generation and requiring these facilities to be designated as critical as a means to avoid service interruptions to natural gas and power generation facilities during a future energy emergency.

Public Utility Commission Weatherization Rules

The PUC adopted its Phase I weatherization rules in October 2021⁵². By breaking the weatherization rules into two phases, the PUC was able to quickly adopt standards ahead of this past winter while continuing to develop more robust rules for Phase II. Phase I requirements required generators to implement winter weather readiness recommendations identified in the 2012 Quanta Technology Report on Extreme Weather Preparedness Best Practices (2012 Quanta Report) and to fix any issues that arose from winter weather conditions during the 2020-2021 winter weather season. The rules also required Transmission and Distribution Utilities (TDUs) to implement key recommendations contained in the 2011 Report on Outages and Curtailments During the 2011 Southwest Cold Weather Event, jointly prepared by the FERC and NERC, and to fix any issues that arose during the 2020-2021 winter weather season.

Phase II rules included a more comprehensive, year-round set of standards informed by the weather study conducted by ERCOT in consultation with the Office of the Texas State Climatologist⁵³. The rules also adopted specific temperature standards for ten geographically distinct areas of the state and establishes minimum and maximum temperatures at which owners of electric generation and transmission entities need to prepare their facilities to be able to operate. These temperature standards go into effect in 2023.

Railroad Commission of Texas Weatherization Rules

SB 3 directed the Railroad Commission to adopt weatherization rules within six months of the natural gas supply chain map being published. The Commission adopted these rules in August 2022. To develop these rules, the Commission contracted with two outside firms to advise on the best practices and standards that should be included within the rules. The rules will work in conjunction with the critical designation rules previously adopted by the Commission⁵⁴.

Natural Gas Supply Chain Transparency

⁵² Project 51840. *Electric Weather Preparedness Standards - Phase I*.

⁵³ Project 53401. *Electric Weather Preparedness Standards - Phase II*.

⁵⁴ 16 Tex. Admin. Code § 3.66 (2022).

Overview of Railroad Commission of Texas Gas Pipeline Regulations

Chapter 121 of the Utilities Code and Chapters 101 through 105 the Gas Utility Regulatory Act provide the Railroad Commission (Commission) the ability to regulate transportation rates. The Railroad Commission has interpreted these two codes to limit this ability to Local Distribution Company (LDC) services outside the city gates. This interpretation is based on the "negotiated rates" provision included in Section 104.003(b), Gas Utility Regulatory Act, that allows pipelines and their customers to negotiate gas transportation rates⁵⁵.

Under this provision, pipelines are able to negotiate rates with customers, provided the rates that are offered are "just and reasonable." A rate is considered "just and reasonable" if neither the gas utility or customer had an unfair advantage in negotiating the contract; the rate is substantially similar as the rate between gas utilities and other "similarly" positioned customers; or competition does not exist with another pipeline company, gas supplier, or other energy source⁵⁶.

Pipelines typically include a notation on every tariff filed with the Commission stating the filed tariff meets this standard. The Commission has determined that the "just and reasonable" standard only applies when there is a contract in place. Ostensibly, these provisions apply to agreements with affiliates, but beyond a rule requiring pipelines to keep separate books for affiliate agreements, there is a limited amount of oversight on these arrangements.

There are no agency resources dedicated to providing oversight of contractual commercial activity such as tariffs, rates, or capacity transactions. It is the Commission's position that the agency has limited oversight authority of contracts between shippers and transporters, including breach of contract disputes arising from force majeure claims, as these matters are more appropriately settled in the Texas court system⁵⁷.

The Commission oversees contracts through a complaint-driven process, and only steps in if there is an allegation that a contract is unreasonable, discriminatory, or when there has been a potential overcharge⁵⁸. In the event the Commission determines a contract is in violation of statute, the agency maintains it only has the authority to provide relief prospectively instead of retroactively.

Third-Party Marketers

Gas utilities in Texas are allowed to offer bundled services that include both gas supply and transportation services. At times, the gas supply contract is executed by a third party marketing company that is an affiliate company of the pipeline company. In this case, the Commission contends its oversight authority extends only to gas utilities and not to gas rates set by the terms of a contract executed by the third party marketer, even if the marketing company is an affiliate of the pipeline. Rather, the Commission states it only has authority over gas rates over gas that is owned and resold by the pipeline company on the basis that third-party marketing companies are not gas utilities⁵⁹. However, concerns have been raised that in actuality, some affiliated third-party marketers control a pipeline's commercial and operational decisions regarding open capacity for shippers. It has been suggested this relationship gives pipeline companies and

⁵⁵ Texas Utility Code, Section 104.003(b).

⁵⁶ Texas Utility Code, Section 104.003(b).

⁵⁷ Christian, Wayne. Letter to Senate Business and Commerce Committee. March 21, 2022. (on file with committee).

⁵⁸ Texas Utility Code, Section 104.003(a) and (c).

⁵⁹ *Railroad Commission of Texas vs. City of Austin*, 524 S.W.2d 262, 280-81 (Texas 1975).

their affiliates access to information no other market participant has in cases where the pipeline and/or its affiliate holds both the supply and transportation contracts.

Fuel Supply: Upstream to Midstream/Downstream

The fuel supply contract is the contract for the actual molecules of natural gas. For the purposes of commercial uses, the contract starts wellhead with the producer either selling their supply directly to an end user, a pipeline company, or a marketing affiliate of the pipeline company. Gas is then sent through a Gathering line to a Gathering and Processing facility. This facility is connected to one or more transmission lines. Once the gas is processed, it is either put into storage, sent to a pooling area, or shipped to end users.

An end user or 'shipper', such as a power generator, will enter into a gas supply contract with the entity that owns the title of the gas, whether that is the producer, marketer, or pipeline company. Supplies are purchased on the daily physical spot market, monthly spot market, or via long-term contracts. In the event a force majeure notice is issued on the firm supply contract, a shipper would be required to purchase gas on the spot market unless there is a duty to mitigate in the contract, which is not a standard term for intrastate contracts.

Transportation: Midstream to Downstream

An end user, or the shipper, contracts with a pipeline company for the amount of capacity it needs to ship its gas supply. In basic terms, there are two main categories of transportation contracts: firm or interruptible. Firm capacity is based on a shipper agreeing to purchase a specific amount of capacity that is sourced from certain receipt points and delivered at certain delivery points. Firm shippers pay a reservation fee for the capacity for which they have contracted. This fee "reserves" their right to use this capacity with the highest scheduling priority of all transportation transactions.

However, intrastate firm transportation contracts can have any number of variations on the terms and conditions of the contract, the tariff assessed to the shipper, allowable minimums and maximums, operational flow order provisions, imbalance fees, and force majeure clauses. Tariffs, which include delivery information and other contract terms, are filed with the Railroad Commission, but provide little public information that would allow for more market transparency⁶⁰.

To utilize reserved capacity, a shipper will make a nomination to transport gas within the terms of the contract before one of the four daily deadlines for nominations. Among other things, nominations include the requested receipt and delivery point, the quantity to be transported, the upstream party providing the gas and the downstream party receiving the gas. All nominations received by the pipeline operator must be compared to available capacity. If the nominated quantities exceed the available transportation capacity in the pipeline, reductions are made to the nominations until they match the available capacity. If a shipper uses more or less than the amount of gas it has nominated, it can be assessed an imbalance fee.

Importantly, capacity and supply have separate contracts, but because these contracts work in tandem with each other, a disruption to either the supply or transportation system can have implications on the other. For example, if there is a weather-related drop in production, this limitation on supply can result in the issuance of an operational flow order or force majeure. Stakeholders have suggested the best way to

⁶⁰ Customer and delivery point information contained in negotiated rate tariffs has been deemed confidential information by the Texas Office of Attorney General. Texas Attorney General ORD-552 (1990).

mitigate these type of issues is to also contract for storage space, which can result in a high cost to generators.

Ratable Service vs. "Just-in-Time" Generator Needs

Generally, firm transportation service provided by the pipelines on a 24-hour flow basis and is generally a “ratable” service, meaning steady hourly flow rates through the day with only minor variations allowed. From the pipeline perspective, ratability is important to its ability to balance supply and demand on its pipelines. Meanwhile, as the electricity market becomes more and more reactive to the intermittency of renewables, the needs of generators can fluctuate significantly during the 24 hour day, which makes it more conducive for generators to operate on a 'just-in-time' fuel delivery model.

The need for predictability on the part of pipelines, juxtaposed against the need to react to market variabilities on the part of generators, have created challenges for both industries. This fundamental mismatch between generator and pipeline needs, and the implications on transportation contracts, is a major barrier to the long-term reliability of the Texas grid, especially as electric market moves toward adding more quick fired, fast-ramping natural gas units to balance intermittent resources.

Market Design

While Texas has some of the most competitive electricity prices in the country, the events of Winter Storm Uri highlighted the need to rebalance the market to incentivize greater reliability through additional availability of dispatchable power generation. To that end, SB 3 directed the PUC to establish a reliability standard for the Electric Reliability Council of Texas (ERCOT) market and use this standard to develop and procure a new ancillary or reliability services in order to ensure enough dispatchable generation to meet this goal.⁶¹ In addition, the bill also directed the PUC "to modify the design, procurement, and cost allocation of ancillary services for the region in a manner consistent with cost-causation principles and on a nondiscriminatory basis⁶²."

To achieve these objectives, the PUC began holding work sessions in Fall 2021 with market participants in order to discuss various changes to the ERCOT market design. The PUC took action to make changes to the ERCOT market in two phases. Phase I, adopted in late 2021, included a number of key changes to ERCOT operations and ancillary services, many of which had previously been proposed. The most significant of these changes included shifting the Operating Resource Demand Curve to compensate dispatchable resources before times of scarcity, implementing the ERCOT Contingency Reserve Service (ECRS), and establishing a new Firm Fuel Ancillary Service⁶³.

In December 2021, the PUC approved its Phase II Market Design Blueprint to identify potential options for new changes to the ERCOT market in line with the following principals⁶⁴:

- Ensure adequate supply of electricity at all times, especially during periods of high demand;
- Incentivize construction of on-demand electricity generation resources; and
- Keeps costs low through a competitive retail electric market.

⁶¹ Section 18, SB 3 (87R).

⁶² Section 14, SB 3 (87R).

⁶³ Project 52373 at 333. *Review of the Wholesale Market Design*. retrieved February 16, 2022.

⁶⁴ Project 52373 at 336. *Approval of Blueprint for Wholesale Electric Market Design and Directives to ERCOT*. retrieved January 13, 2022.

In June 2022, the PUC awarded a request for proposal to Energy and Environmental Economics, Inc. (E3) to study options for market design adopted by the PUC in its Phase II blueprint⁶⁵. E3 issued its report to the PUC in November 2022. This report included an evaluation of the Phase II blueprint proposals, as well as a new Performance Credit Mechanism (PCM) proposal. Because the PCM was not included in the initial blueprint, the PUC voted to open a request for comment on the Performance Credit Mechanism option at its November 10, 2022 Open Meeting to solicit feedback from stakeholders on the feasibility of this option⁶⁶.

As part of this interim charge, the Senate Business and Commerce Committee also reviewed the E3 report, hearing from various stakeholders, the PUC, and ERCOT about the report's merits as well as raising questions about E3's data and analysis⁶⁷. Concerns raised during the hearing centered around the assumptions used by E3 in its evaluation of the various proposals. In particular questions were raised concerning the E3 report's conclusion that the current ERCOT structure, combined with the continued penetration of renewable generation resources, would result in a loss of 11 gigawatts of dispatchable generation resources due to retirements by 2030 - a number which many stakeholders and the ERCOT Independent Market Monitor (IMM) felt was greatly overstated. Additionally, the Committee raised questions on whether or not the preferred options recommended by E3 and the PUC, including the Forward Reliability Market (FRM) and Performance Credit Mechanism (PCM) options, align with the directives in SB 3. Given the administrative complexities and lengthy timeframes associated with implementing either option, the Committee also questioned the impact either proposal could have on short term investments in the ERCOT market⁶⁸.

Meanwhile, the ERCOT Independent Market Monitor (IMM) also questioned the report's analysis of the impact the changes made previously by the PUC to the Operating Reserve Demand Curve, which the IMM identified as having increased real-time revenues in ERCOT by over \$1.7 billion in 2022⁶⁹. Because ORDC revenues are only paid to resources that are performing during tight conditions, the majority of these revenues are paid to dispatchable resources. In the IMM's estimation, Phase I changes, including the ORDC, coupled with a new ancillary service product that values resources that can be deployed to provide reliability when operating conditions depart from expected conditions, would be enough to incentivize new dispatchable generation within an energy-only market construct⁷⁰.

Transmission Overview

The ERCOT transmission system connects over 52,700 miles of transmission lines and 1,030 generation units throughout the majority of the state of Texas⁷¹. A Transmission and Distribution Service Provider

⁶⁵Energy And Environmental Economics, Inc. (E3). November 2022. *Assessment Of Market Reform Options to Enhance Reliability of the ERCOT System*.

⁶⁶ Project 54335. *Review of Market Reform Assessment Produced by Energy and Environmental Economics, Inc. (E3)*. retrieved November 11, 2022.

⁶⁷ Senate Business and Commerce Committee Hearing, November 17, 2022.

⁶⁸ Letter to the Public Utility Commissioners, November 30, 2022. *on file with Senate Business and Commerce Committee*.

⁶⁹ Project 54335 at 64. *Review of Market Reform Assessment Produced by Energy and Environmental Economics, Inc. (E3)*. retrieved December 15, 2022.

⁷⁰ Project 52373 at 6-7. *Review of the Wholesale Electric Market Design*.

⁷¹ ERCOT, "About ERCOT," 2022, accessed online November 15, 2022, <https://www.ercot.com/about>.

(TDSPs), or Transmission and Distribution Utility (TDUs), is the utility company that owns and operates the infrastructure needed to transmit and deliver electricity to customers through either transmission or distribution level service. Transmission lines in Texas are considered power lines carrying 60 kilovolts (kV) or more, while distribution lines carry less than 60 kV⁷². TDUs are regulated by the Public Utility Commission of Texas (PUC) and are required to provide non-discriminatory access to the grid.

Transmission Cost Allocation:

In ERCOT, customers pay for all electric transmission facilities. Generators typically do not pay for any transmission costs as consumer-funded interconnections and upgrades act as an incentive to do business in ERCOT.

Twice per year, Texas TDUs submit a filing with the PUC to update their tariffs to account for the changing costs of transmission. These costs are then passed -through to consumers by their REPs or utility. Outside of ERCOT, wholesale transmission service rates are set by the Federal Electric Reliability Council (FERC)⁷³.

Transmission Planning Overview:

ERCOT's transmission planning process typically spans a six-year planning horizon, with years one through five representing the near-term and year six representing the long-term. ERCOT collaborates with various utilities at Regional Planning Group meetings to develop its annual Regional Transmission Plan Report, which identifies region-wide transmission needs and potential deficiencies over a six-year period. For a new transmission project to be built, it must first be approved by the RPG and included in the Regional Transmission Plan Report. Any entity or individual can submit a project for consideration and approval through the process outlined under ERCOT Nodal Protocol 3.11.4.

In addition, ERCOT also performs a long-term planning assessment to determine future infrastructure needs over a 10 to 15 year planning horizon. ERCOT publishes its findings biannually in its *Long-Term System Assessment* (LTSA). The report specifically focuses on extra high-voltage system needs, defined as 345-kV. This report helps to guide the projects included in the Regional Transmission Plan Report, but focuses more on various scenarios that may impact the electric grid in the future, such as greater adoption of electric vehicles.

Currently, transmission projects are evaluated based on *reliability need* and *economic benefit*.

- **Reliability Needs:** These are projects that are required to reliably serve load (as per NERC standards and ERCOT protocols). Reliability projects resolve situations where there are no possible generation alternatives to reliably serve load. In certain instances, ERCOT can prioritize and expedite critically necessary reliability projects.
 - The most recent example of a critically essential project is the 350-mile Rio Grande Valley Transmission Reliability Project⁷⁴, which is a joint project between AEP Texas, Electric

⁷² 16 Texas Administrative Code, Title 16, Part 2, Chapter 25, Subchapter A, Sections 25.5(31) and 25.5(138) (Public Utility Commission of Texas, Definitions).

⁷³ 16 U.S. Code Section 824t(a); FERC, “Formula Rates in Electric Transmission Proceedings: Key Concepts and How to Participate,” July 5, 2022, accessed online November 2, 2022, <https://www.ferc.gov/formula-rates-electric-transmission-proceedings-key-concepts-and-howparticipate>.

⁷⁴ Rickerson, W. (2021, December 9-10). *Item 20: Lower Rio Grande Valley (LRGV) System Enhancement Regional Planning Group Project* [PowerPoint Presentation]. ERCOT Board Meeting.

Transmission Texas and South Texas Electric Cooperative. The project was expedited by ERCOT because it qualified as a critical to overall system reliability. It is anticipated it will be completed by 2026 and will cost \$1.28 billion. Without the project moving forward, ERCOT found it would be in violation of several key NERC and FERC reliability planning metrics.

- **Economic Benefit:** ERCOT currently evaluates projects based on production cost savings (fuel costs and other variable costs). Economic projects resolve situations where there are possible generation solutions, but only from higher-cost units.

Prior to the passage of SB 1281 (87R)⁷⁵ last session, ERCOT evaluated projects based on production cost savings (fuel costs and other variable costs). Economic projects resolve situations where there are possible generation solutions, but only from higher-cost units. SB 1281 enabled ERCOT to utilize a congestion cost savings test to measure the consumer benefit of a transmission project.

Cost of Transmission Congestion

Congestion costs occur when more power is flowing over a transmission line than it is able to carry, resulting in the line becoming overloaded. When this arises, ERCOT will shift generation to higher-cost generators in locations without congestion restraints to serve load. This results in consumers paying higher costs in certain areas, which is reflected in the nodal price.

According to the ERCOT Independent Market Monitor, the cost of congestion in ERCOT's real-time market in 2021 was \$2.1 billion, up 46% from 2020. The majority of this amount was a result of Winter Storm Uri. Other factors leading to the increase included higher gas prices and generic transmission constraints (GTCs).

As defined in the ERCOT Nodal Protocols, a GTC is a transmission constraint made up of one or more grouped transmission elements that is used to constrain flow between geographic areas of ERCOT for the purpose of managing stability, voltage, and other constraints that cannot otherwise be modeled directly in ERCOT's power flow and contingency analysis applications.

A GTC is a mechanism ERCOT uses to place limits on generation output so that transmission lines do not exceed their capacity. An example of a GTC is a limit placed on wind generation from West Texas exported to the rest of the state. ERCOT has seen an increase in stability constraints in recent years, particularly in West Texas and South Texas due to the prevalence of inverter-based resources such as wind, solar, and energy storage, which has led to an overall increase in the number of GTCs. According to the IMM, this increase has resulted in congestion costs growing from \$190 million in 2020 to \$400 million in 2021.

While the cost of GTCs can be detrimental to consumers, it is important to note that reducing the number of GTCs can actually have a negative impact on overall reliability. This is because thermal generation benefits from GTCs because they limit the amount of renewables that are available in the market and therefore allows these resources to generate revenue.

Interested parties have proposed authorizing a second Competitive Renewable Energy Zones (CREZ) program in order to alleviate congestion in areas with existing or proposed renewable generation

https://www.ercot.com/files/docs/2021/12/02/20_Lower_Rio_Grande_Valley_System_Enhancement_Regional_Planning_Group_Project.pdf

⁷⁵ Senate Bill 1281, Regular Session, 87th Texas Legislature, 2021 (effective September 1, 2021).

resources that lack corresponding high-capacity transmission infrastructure to connect this generation to centers of use. In testimony to the Senate Business and Commerce Committee, ERCOT notes that more and more generation is being built further from load centers, necessitating more transmission⁷⁶. However, concerns have been raised about the potential transmission infrastructure costs to consumers, and whether or not the Legislature should consider more prudent ways to incentivize better project siting decisions on behalf of developers, such as limiting the amount of capital costs that can be socialized to ratepayers.

ERCOT 4-Coincident Peak (4CP) Program

In order to avoid high transmission costs, some qualifying commercial entities, such as large industrials receiving transmission level service, participate in ERCOT's 4CP program. The 4CP is a tariff set by the PUC each year based on a customer's integrated 15 minute kW (or kVA) demands at the time of the month when ERCOT hits its peak during the months of June, July, August, and September⁷⁷. These entities minimize their exposure to high 4CP costs by taking actions such as changing scheduled maintenance periods, coordinating shift changes, turning off or reducing non-critical loads, or shutting down altogether. If a facility has cogeneration onsite, the facility may also choose to utilize that resource and send power back to the grid as a means to lower transmission costs.

According to the ERCOT Independent Market Monitor (IMM), consideration should be given to whether or not the 4CP program continues to meet its purpose of allocating transmission costs to the main cause of transmission build⁷⁸. To address these changes, the IMM suggests the consideration of moving to a monthly, or 12-CP, calculation.

Electric Vehicle Planning

Texas currently has the third most registrations of electric vehicles (EVs) in the country, with 80,900 registered EVs as of 2021⁷⁹. While today this number represents approximately one percent of registered vehicles, this number is expected to grow exponentially in line with national trends. According to the Edison Electric Institute, the stock of EVs (i.e., the number of EVs on U.S. roads) is projected to reach 26.4 million in 2030, up from 2.4 million at the end of 2021. This is more than 10 percent of the 259 million vehicles (cars and light trucks) expected to be on U.S. roads in 2030.

On the state level, ERCOT estimates that under current economic trends, including projected demand and fuel prices, Texas will reach 885,000 EVs on the roadway in 2029⁸⁰. Meanwhile, ERCOT also included an analysis of the impact of EVs in its most recent Long-Term System Assessment (LTSA), which looks at the future conditions of the ERCOT system up to 15 years in advance using different scenarios⁸¹. While ERCOT's Current Trends scenario would see this number increasing to 3.6 million cars and light-duty trucks by 2037, ERCOT estimates this number could be as high as 5.2 million by 2037 under the Demand

⁷⁶Senate Business and Commerce Committee Hearing, November 17, 2022.

⁷⁷ 16 Tex. Admin. Code §25.192. Transmission Service Rates;
<http://www.puc.texas.gov/agency/ruleslaws/subrules/electric/25.192/25.192.pdf>

⁷⁸ Potomac Economics (May 2022). *2021 State of Market Report for the ERCOT Electricity Markets*. Independent Market Monitor for ERCOT. <https://www.potomaceconomics.com/wp-content/uploads/2022/05/2021-State-of-the-Market-Report.pdf>

⁷⁹ United States Department of Energy. (n.d.). *Texas Transportation Data for Alternative Fuels and Vehicles*.
<https://afdc.energy.gov/states/tx>

⁸⁰ Senate Business and Commerce Committee Hearing, November 17, 2022.

⁸¹ ERCOT System Planning: 2022 Long-term System Assessment for the ERCOT Region, December 2022.
<https://www.ercot.com/gridinfo/planning>

Side Evolution scenario, especially given the availability of new federal tax subsidies included in the 2022 Inflation Reduction Act. Serving this level of EV adoption will necessitate an influx of charging infrastructure. From a grid perspective, this equates to significant planning challenges from both a transmission infrastructure and load demand perspective.

One of the biggest barriers to adoption of electric vehicles is lack of charging infrastructure available for travel outside of cities and along interstates. To address this issue, the 2021 Federal Infrastructure Investment & Jobs Acts (IIJA) created a \$5 billion National Electric Vehicle Infrastructure (NEVI) Formula Program, as well as a \$2.5 billion Discretionary Grant Program to establish a network of 500,000 Electric Vehicle (EV) chargers throughout the country by 2030. Of these dollars, Texas will receive \$408 million in NEVI funding between FY 2022-2026, which is specifically targeted to building charging stations every 50-70 miles along interstates in Texas⁸².

The Texas Department of Transportation (TxDOT) will award IIJA funding to private entities through a competitive grant process in line with the agency's EV infrastructure plan as required under federal rules⁸³. In developing this plan, TxDOT collaborated with ERCOT and industry stakeholders to identify the potential impact of deploying the charging stations funded under this program on the grid. As identified in the report, the max energy consumption of the plan's proposed EV charging network is estimated to be 666.7MW. While this number will likely have a minimal impact on the grid, it does not include charging infrastructure funded by private entities. Most notably, TxDOT identified the greatest challenges would be in installing charging stations in rural areas that lack the updated transmission infrastructure necessary to service these stations.

Future Impacts on ERCOT Grid

According to ERCOT's most recent LTSA, the assumed increase in electric vehicles by 2037, combined with the increase of solar generation, is expected to have a significant impact on when scarcity hours are most likely to occur. While these hours are predicted to mostly occur during the summer in 2027, almost all of these hours are predicted to occur in the winter by 2037⁸⁴. Meanwhile, ERCOT also anticipates the scarcity hours shifting later in the day to the hour ending 7:00pm to the hour ending 1:00am by 2037, in large part due to electric vehicle charging, which is expected to have a peak charging demand of over 9,300MW at midnight by 2037.

Currently, 80 percent of EVs are charged at home. The unintended consequences of this is that many EV users have the tendency to charge their vehicles upon returning home, which typically coincides with the grid's daily peak demand. Households are located on distribution-level feeders, which have a greater potential to get overloaded very quickly if there are several cars charging at the same time. One way to mitigate this problem is through managed charging programs where customers are incentivized through electricity pricing or other mechanisms to charge at off-peak times. A number of utilities are currently operating pilots to explore consumer willingness to adopt such a program. Meanwhile, creating more visibility for ERCOT into the distribution level transmission system could allow for a better

⁸² TxDOT. (March 22, 2022). *Texas Electric Vehicle Planning*. <https://www.txdot.gov/projects/projects-studies/statewide/texas-electric-vehicle-planning-03-22-22.html>

⁸³ TxDOT. (July 8, 2022). *Texas Electric Vehicle Infrastructure Plan*. <https://ftp.txdot.gov/pub/txdot/get-involved/statewide/EV%20Charging%20Plan/TexasElectricVehicleChargingPlan.pdf>

⁸⁴ ERCOT System Planning: 2022 Long-term System Assessment for the ERCOT Region, December 2022. <https://www.ercot.com/gridinfo/planning>

understanding of the impact on electric vehicle charging on the grid, especially in terms of forecasting system demand.

Battery storage can also play a key role in smoothing out load profiles, especially in rural areas where the impacts of EV chargers are more acute. The battery would be able to charge during off-peak times and the stored power could then be leveraged later to prevent high demand charges. However, some stakeholders, including charging companies, have expressed reservations about battery usage for several key reasons, including difficulty in the ability to scale in size; commercially available space to locate the battery; and battery cost.

Long-term, studies are being conducted to determine the value of vehicle-to-grid (V2G) charging for large fleets using customer-sited batteries to store and sell energy to the grid while charging fleet vehicles to reduce peak-consumption costs. This technology is currently being tested on school bus fleets nationally. In Texas, Toyota and Oncor recently announced a pilot program to test V2G charging to determine the impact of this type of emerging technology on the grid⁸⁵.

Cost of Charging Station Infrastructure

Utilities across the country have taken steps to become a player in the EV space beyond system planning by owning and operating charging stations, providing incentives for businesses and residential customers to install charging stations, or offering "make-ready" programs.

In Minnesota, for example, Xcel Energy recently filed a plan with the state's PUC to build 730 fast-charging stations for \$300 million, the cost of which would be socialized across all ratepayers over the next four years. Under the plan, Xcel would operate the stations and serve as the power provider. In other states with similar proposals moving forward, the utilities operating these stations are utilizing a specialized rate, which is not available to operators of privately-owned stations. New York has invested \$601 million in a "make-ready" program where utilities build the EV infrastructure beyond the meter and a private entity manages ongoing operations. This type of program is becoming more widely adopted and in most cases allow for the utility to recoup costs through rate recovery.

In a recent rate filing at the PUC, Entergy Texas included a rider request for rate recovery to build electric vehicle charging stations, raising the question of whether a vertically integrated utility should be allowed to own electric vehicle charging facilities or other transportation electrification equipment⁸⁶.

Large Flexible Loads

The Texas electricity market's low prices, lucrative demand response programs, interconnection process, and ability to obtain transmission at little to no cost make the state an attractive location for the digital services and cryptocurrency industries to continue to grow in Texas⁸⁷. Beginning in 2021, ERCOT began to see a significant increase in the number of interconnection requests for facilities associated with these industries, such as data centers and Bitcoin mining facilities. In testimony to the Senate Business and

⁸⁵ Toyota News Release. *Toyota Announces Collaboration with Oncor to Accelerate EV Charging Ecosystem*. December 15, 2022.

⁸⁶ Entergy Texas, Inc. Statement of Intent and Application. July 1, 2022. Public Utility Commission Docket Number 53719. https://interchange.puc.texas.gov/Documents/53719_3_1219367.PDF

⁸⁷ Texas Comptroller of Public Accounts (2021). *Cryptocurrency in Texas: Opportunities and Challenges in Mining Digital Coins*. <https://comptroller.texas.gov/economy/fiscal-notes/2022/aug/crypto-tx.php>

Commerce Committee, ERCOT noted there are approximately 1500 megawatts of facilities considered to be large flexible load in operation, with an additional request for up to 37 gigawatts in the ERCOT interconnection queue, the majority of which is related to cryptocurrency mining operations⁸⁸. While it is unlikely all of these applications will come to fruition, serving even a portion of this load will require substantial transmission planning and construction resources.

Unlike a traditional manufacturing or industrial facility, the operational facilities of these industry segments have unique attributes that create associated challenges for ERCOT from a planning and reliability perspective. For example, the number of megawatts required for operations, combined with the speed at which these facilities are needing to interconnect to the grid, has created significant challenges; transmission systems cannot make the necessary updates in time to serve this load. In addition, the flexibility and speed at which these facilities can turn on or off also creates the need for greater control from a reliability standpoint.

Despite these challenges, advocates stress the value these types of facilities can provide to the grid. For example, in testimony to the Committee, Lancium, an energy technology company located in the Woodlands, highlighted its ability to provide grid stability services by instantaneously ramping up or down customer facilities at the direction of ERCOT⁸⁹. Because bitcoin miners are 'location agnostic' they can often locate in areas where there is stranded or excess generation⁹⁰.

Because power costs are the largest ongoing expense for these high-capacity facilities, loads like cryptocurrency miners are naturally incentivized to turn down or go offline during times of peak demand. For example, Bitcoin mining and hosting company Riot Blockchain reported making \$9.5 million in power credits in July 2022 from curtailing load at its facility in Rockdale, TX, which was significantly more than the company made in its actual mining operations⁹¹.

Given unique attributes of cryptocurrency mining loads and the impact on the grid, ERCOT issued a directive in March 2022 requiring additional information from large-scale load seeking to interconnect to the ERCOT grid⁹². As part of this process, TDUs were required to submit studies on the impact of these loads to ERCOT prior to bringing these facilities online. In conjunction with ERCOT staff directives to TDUs, the ERCOT Board voted to form the **Large Flexible Load Task Force (LFLTF)** to bring stakeholders together to discuss long-term solutions for integrating large scale loads into the grid⁹³.

The LFLTF's discussions focused on several key areas including, how to better incorporate existing and future large flexible loads in ERCOT planning studies; defining interruptible vs. firm loads; determining the suitability for loads to register as controllable load resources (CLRs); and consideration of a modified

⁸⁸ Senate Business and Commerce Committee Hearing, November 17, 2022.

⁸⁹ Written Testimony, Mike McNamara, Founder and Chief Executive Officer, Lancium. Submitted in response to Senate Business and Commerce Committee, November 17, 2022. (on file with the committee)

⁹⁰ Texas Workgroup on Blockchain Matters Report (2022). <https://portal.bcwg.texas.gov/General-Documents/Texas-Work-Group-on-Blockchain-Matters-Report/wbtp-2m5k>

⁹¹ Riot Blockchain News Release. *Riot Produces 318 Bitcoin in July 2022 While Contributing to Power Grid Stability in Texas and Further Strengthening Financial Position, Generating Estimated Power Credits of \$9.5 Million*. August 3, 2022.

⁹² ERCOT, March 25, 2022. *Interim Large Load Interconnection Process (W-A032522-01)*. https://www.ercot.com/services/comm/mkt_notices/detail?id=fc84b65f-72fe-4704-9974-b52974cdb81e

⁹³ ERCOT, Large Flexible Load Task Force Committee, 2022. <https://www.ercot.com/committees/tac/lfltf>

transmission interconnection process to better align with the construction timelines of large flexible load facilities.

As a result of the task force's work, ERCOT recently announced a voluntary curtailment program beginning January 1, 2023⁹⁴. Under the new program, ERCOT will provide participating loads with a directive to curtail consumption during periods of low Physical Responsive Capability (PRC)⁹⁵. While this change is a first step in addressing the grid reliability concerns with LFLs, ERCOT stated in the market notice it intends to continue its development of a permanent regulatory framework in the future. As part of this framework, interested parties have suggested providing ERCOT with greater ability to mandate LFLs to reduce consumption when necessary. This could be achieved by requiring LFLs to register as a controllable load resource or an interruptible load resource⁹⁶. Currently, participation in equivalent demand response programs are voluntary.

In addition, concerns have also been raised about the volatility of the cryptocurrency industry, especially given that the cost of new transmission to serve these loads is socialized across ratepayers. Like all transmission-level customers, LFLs only have to put down a security deposit, which is then paid back. LFLs also heavily participate in the 4CP process and pay very little overall for transmission. As mentioned previously, large flexible load facilities can be built quickly and require a significant investment in transmission. By the same token, however, these facilities can shutdown just as quickly, raising the potential of leaving stranded transmission costs. It is also unclear whether mining operations incent new generation to be built as is the case when a new manufacturing or industrial facility is constructed. Theoretically, the high level of electricity demanded by mining operations should send the market signals to build new power supplies. However, there is little data to determine whether mining operators have the type of long-term contracts with electricity providers to incentivize new investment.

Conclusion and Recommendations

Natural Gas Supply Chain

The events of February 2021 brought to light the inexorable link between the state's natural gas pipeline and power generation systems. While the changes made during last session, including requiring facilities to designate as critical and formulizing the Texas Energy Reliability Council, have made significant improvements to the coordination and communication efforts of state regulators and industry stakeholders, there is more work to be done to improve reliability of gas-fired power plants. To this end, the Committee recommends consideration of the following actions:

- Continue to encourage more collaboration between industries, including ways to construct a contracting scheme that accounts for the unique needs of gas-fired generators in a competitively balanced manner;
- Consider extending similar provisions included in HB 3273 (2007) which eliminated certain confidentiality clauses between producers and gathering pipelines;

⁹⁴ ERCOT News Release. *ERCOT Creates Voluntary Curtailment Program for Large Flexible Customers During Peak Demand*. December 6, 2022.

⁹⁵ ERCOT, December 6, 2022. *Notice of Interim Voluntary Curtailment Program for Large Flexible Loads (M-A120622-01)*. https://www.ercot.com/services/comm/mkt_notices/M-A120622-01

⁹⁶ Senate Business and Commerce Committee Hearing, November 17, 2022.

- Evaluate the need for more oversight and regulatory authority of pipeline affiliates and third party marketing companies; and
- Support efforts at the PUC to implement a Phase II Firm Fuel Ancillary Service to compensate for offsite firm fuel resources while ensuring proper oversight and transparency into Firm Fuel contracts.

Market Design

As the PUC and ERCOT continue their implementation of the Phase I Market Design changes, as well as their deliberation of the Phase II Market Design proposals, the Committee recommends taking the following actions:

- Direct the PUC to set a reliability standard for the ERCOT region in line with SB 3;
- Ensure that any changes to the ERCOT market design reflect the allocated costs based on the principles of cost-causation, including the consideration of firming requirements on intermittent resources and penalties for nonperformance; and
- Consider the value in incentivizing new dispatchable generation resources through alternative solutions such as a low-interest loan program or creation of an ancillary service product targeted towards new quick starting natural gas units. Ensure any market design changes protect the integrity of the competitive retail market.

Transmission Planning

In order to better plan for the future needs of Texas and increase the resiliency of the transmission system, the Committee recommends the consideration of the following items:

- Evaluate the benefits of providing ERCOT with more visibility into the distribution system, including as a means to create more opportunities for demand response programs on the distribution-level;
- Consider limiting the amount of capital costs passed on to consumers for generation resources in order to incentivize better siting decisions closer to centers of load;
- Review options for increasing resiliency in the transmission system in a manner that does not over burden ratepayers;
- Review the 4 Coincidental Peak program to determine whether any changes are necessary;
- Consider requiring large flexible loads to register as interruptible or controllable load resources;
- Direct ERCOT to form an electric vehicle planning task force to prepare for the impact of electric vehicle charging on the electric grid; and
- Consider the appropriateness of regulated utilities owning or operating electric vehicle charging stations.

CHARGE NO. 5

Cybersecurity: Review current state and federal laws regarding cybersecurity protections and requirements for local governments, state agencies, and critical industries of our state. Make recommendations for legislation to improve resilience and protection against cybersecurity attacks and ensure the privacy protection of the citizens of Texas.

Testimony

The Senate Business & Commerce Committee held a hearing on May 18, 2022 and heard testimony from the witnesses.

Background

During the past several session, the Texas Legislature has taken significant steps to enhance cybersecurity protections at state agencies and institutions. In 2017, the Legislature passed HB 8, known as the Texas Cybersecurity Act, to protect sensitive and confidential data and strengthen the cybersecurity readiness at state agencies and institutions⁹⁷. The bill requires agencies to develop and implement specific data and cybersecurity procedures and strategies, as well as report breaches to Department of Information Resources (DIR) within 48 hours. Prior to HB 8, state agencies were only required to have general data security policies in place and had no reporting requirements. HB 9⁹⁸, the Texas Cybercrime Act, passed in conjunction with HB 8 to create a modern legal framework for law enforcement to investigate cybercrimes.

In 2019, the Legislature built on the reforms included in HB 8 with the passage of SB 64⁹⁹, which required agencies to take more proactive steps to protect against cyber attacks. The bill also enhanced agency reporting requirements following an event and directed DIR to submit a biennial cybersecurity needs report.

DIR Cybersecurity Overview¹⁰⁰

The Department of Information Resources (DIR) is the state entity responsible for the state's cybersecurity rules and policies. However, Texas agencies follow a federated model, meaning each agency is responsible for their own IT operations and security of their systems. DIR helps support and coordinate with agencies through a variety of programs, security services, and technology support services. Agencies can also outsource a significant portion of their IT needs, especially cybersecurity needs, to DIR for an annual cost. These services include legacy systems modernization, shared technology services, technology planning, and information security services.

DIR also established the Texas Cybersecurity Council as a means to increase collaboration between private industry and public sector organizations. The Council focuses on developing strategies to protect critical infrastructure and sensitive information, as well as evaluating mitigation and response best practices. To help assist agencies, DIR developed the Texas Cybersecurity Framework (TCF) in

⁹⁷ HB 8, 85th Texas Legislature (2017).

⁹⁸ HB 9, 85th Texas Legislature (2017).

⁹⁹ SB 64, 86th Texas Legislature (2019).

¹⁰⁰ Written Testimony, Department of Information Resources. Submitted in response to Senate Business and Commerce Committee, May 18, 2022. (on file with the committee)

collaboration with other government entities and the private sector to identify and manage cybersecurity risk at agencies in a cost-effective way. The framework was developed to align with the National Institute of Standards and Technology (NIST) guidelines and is divided into five concurrent and continuous functions: Identify, Protect, Detect, Respond, and Recover. The TCF is intended to help an organization better understand, manage, and reduce its cybersecurity risks using 42 total security control objectives. To assess the cybersecurity health of various entities, DIR determines the maturity, or degree of implementation, of the security control objectives.

Cybersecurity Insurance

Cybersecurity insurance, or cyber liability insurance, is an emerging insurance product that has grown in popularity over the past several years. According to the National Association of Insurance Commissioners (NAIC), the number of cyberinsurance policies in the market place increased by 21.3 percent from 2019 to 2020¹⁰¹. Cybersecurity policies can change from one month to the next, given the dynamic and fluctuating nature of the associated cyber risks. Unlike well established insurance plans, underwriters of cybersecurity insurance policies have limited data to formulate risk models to determine insurance policy coverages, rates and premiums.

State Office of Risk Management Cybersecurity Insurance Overview¹⁰²

The State Office of Risk Management sponsors a number of insurance lines, essentially acting as a pass through between insurance companies and state agencies. This allows the state to utilize its bargaining power to purchase plans to meet the needs of the state in a more affordable manner. SORM also works with agencies that purchase insurance lines to conduct frontend training, assessments, and mitigation planning to avoid claims from arising in the first place.

Recently, SORM and DIR have begun looking into the state sponsoring a cybersecurity insurance line. According to SORM, about 30 state agencies currently purchase some form of cyberinsurance. However, SORM has also noted that most market policies are focused on providing coverage for addressing third-party concerns after an event, such as crisis communication services, customer credit rehabilitation, and credit monitoring services. However, the type of policy needed by the state is a first-party policy to help address the direct costs incurred by a breach.

While this type of policy is not readily available in the market, SORM has the ability to develop a statewide master insurance program for Network Security and Privacy Liability insurance coverage. Should SORM sponsor a cyberinsurance line, the agency could partner with DIR to develop frontend best practice policies similar to what is currently done by SORM on all other lines.

In addition to the appropriateness of the standard market plan, there are concerns that these plans contain provisions that limit an agency from coordinating with DIR or other state entities following an event. These policies may also prevent agencies from utilizing state resources to help with the post-event resolution, which could provide a more cost-effective alternative to an insurer's preferred vendor.

¹⁰¹ National Association of Insurance Commissioners. *Report on the Cybersecurity Insurance Market*. October 20, 2021. https://content.naic.org/sites/default/files/index-cmte-c-Cyber_Supplement_2020_Report.pdf

¹⁰² Written Testimony, State Office of Risk Management. Submitted in response to Senate Business and Commerce Committee, May 18, 2022. (on file with the committee)

Finally, many of the standard market policies include coverage for paying cyber extortion demands or payments, which some industry stakeholders suggest could encourage more ransomware attacks on government entities. Recently, North Carolina passed legislation preventing state entities from paying ransom on cyber events.

Texas Department of Insurance Overview

In response to several major data breaches involving large insurance companies, the US Department of Treasury directed states to adopt uniform data security regulations for insurance companies or it would direct federal regulators and Congress to step in. As a result of this directive, the National Association of Insurance Commissioners (NAIC) proposed an Insurance Data Security Model Law¹⁰³. The model requires insurers and other entities licensed by the department of insurance to develop, implement and maintain an information security program, investigate any cybersecurity events and notify the state insurance commissioner of such events. To date, 22 states and Washington, DC have adopted a version of this law.

ERCOT Cybersecurity Overview

ERCOT has a highly sophisticated cybersecurity operation with multiple layers of redundancies and based on the National Institute of Standards and Technology (NIST) Cybersecurity Framework, which is considered best in class. ERCOT also complies with all NERC requirements as well. ERCOT regularly collaborates with other grids, state and federal law enforcement and security partners, federal agencies, and national cybersecurity labs both on a strategic and real-time information sharing level.

From a grid management standpoint, ERCOT takes a proactive approach to managing market participants. While NERC requires certain qualifying utilities to meet cybersecurity standards, the vast majority do not meet the NERC thresholds. However, ERCOT has extended several protocols, including breach reporting requirements, to all market participants.

Critical Infrastructure Protection Working Group (CIPWG)

The ERCOT Critical Infrastructure Working Group (CIPWG) serves as a vehicle to facilitate and enable ERCOT entities to secure their critical assets, achieve compliance with relevant security standards, and maintain their compliance. The CIPWG will likewise apprise members of the ERCOT Reliability and Operations Subcommittee (ROS) on matters being considered by NERC CIPC or CIP standards approved by FERC which require regional action. These meetings typically include 70-80 stakeholders at the open portion and 25-30 stakeholders in closed session, all of whom are required to sign a NDA.

Texas Grid Security Council

Established by SB 475 (86R)¹⁰⁴, the Texas Grid Security Council makes recommendations regarding education programs to promote grid security and the development of a grid security workforce as well as grid security best practices, preparations for events that threaten the grid and amendments to state

¹⁰³ National Association of Insurance Commissioners. *Insurance Data Security Model Law*. <https://content.naic.org/sites/default/files/inline-files/MDL-668.pdf>

¹⁰⁴ SB 475, 86th Texas Legislature.

emergency plans. The Council is headed by the Chair of the PUC, ERCOT President, and Governor's office representative.

Cybersecurity Risk Information Sharing Program (CRISP)

ERCOT works with the Department of Energy to participate in CRISP, which is a public-private partnership, co-funded by DOE and industry and managed by the Electricity Information Sharing and Analysis Center (E-ISAC). The purpose of CRISP is to collaborate with energy sector partners to facilitate the timely bi-directional sharing of unclassified and classified threat information and to develop situational awareness tools that enhance the sector's ability to identify, prioritize, and coordinate the protection of critical infrastructure and key resources.

Public Utility Commission Texas Cybersecurity Monitor Program

In 2019, the Texas Legislature passed SB 936¹⁰⁵, which directed the Public Utility Commission of Texas (PUC) and ERCOT to contract with an entity to act as the PUC's cybersecurity monitor. The cybersecurity monitor is tasked with managing a cybersecurity outreach program, communicating emerging threats and best business practices, reviewing cybersecurity self-assessments, researching and developing best business practices for cybersecurity, and reporting to the PUC on cybersecurity preparedness. In addition to monitored utilities, non-ERCOT utilities may elect to participate in the Texas Cybersecurity Monitor Program. The fee for a non-ERCOT utility to participate in the Texas Cybersecurity Monitor Program for the 2022 calendar year is \$4,046.00. It is important to note this program is completely voluntary. According to the PUC, there are 58 out of 140 eligible utilities that participate in the program. Of those 58, 28 utilities submitted a self-assessment for review by the Cyber Monitor.

The PUC also has begun holding cybersecurity "Tabletop Exercises" with utilities through a pilot program funded by the Department of Energy. The program will be expanded this year to a three day conference in conjunction with ERCOT with both exercises and experts to provide best practices to utilities. The PUC also holds quarterly meetings between stakeholders and the cybermonitor to share information and provide guidance over emerging threats.

In response to this charge, ERCOT and the PUC identified several areas of concern related to cybersecurity:

- Non-NERC regulated market participants - Smaller operators, such as smaller municipal utilities and electric cooperatives, are often the least sophisticated when it comes to cybersecurity protocols, but there are really no state mandated requirements beyond breach reporting requirements. While most of these entities interface with the actual grid through a QSE that tends to have better cybersecurity hygiene, their potential risks to customers should still be considered.
 - Both the PUC through its Cybermonitoring program and the Department of Homeland Security have free cyber assessment tools that organizations can utilize to identify how they can better protect their organizations. However, they are voluntarily programs. Of the 140 organizations eligible to participate in the program, 28 have completed a self-assessment for review.
- Natural Gas Supply Chain - While many of the major requirements and cyber initiatives on the utilities industry are driven by the federal NERC regulations, there is no similar mechanism for the oil

¹⁰⁵ SB 936, 86th Texas Legislature.

and gas sector. Given the interdependence of both systems, the federal government is looking at potentially expanding NERC and DOE regulations to include the natural gas supply chain.

- Global Conflict - While the Russian War in Ukraine raised concerns about the threat of cyberattacks from Russia, the majority of foreign cyberattacks are coming from China and have only increased significantly since February 2022.
- Supply Chain (Technology) - This area of concern gained more prominence following the Solarwinds attack. While NERC requires regulated entities step up oversight of the vendor supply chain, some software vendors push back on complying with requirements, while some companies are better at managing contracts than others. This is similar to a problem DIR faces on the state agency level. ERCOT is extremely proactive in working with counterparts and market participants to disseminate information on software patches, but not every market participant is required to follow the same standards as NERC entities.
- Supply Chain (Physical Assets) - Many parts of a grid unit, especially wind and solar resources, are supplied from China, which can pose a risk when that piece of equipment is maintained or can be remote operated by the manufacturer or a manufacturer's subsidiary.

Conclusion and Recommendations

Over the course of several sessions, the Legislature has taken decisive actions to become a leader in cybersecurity best practices. However, as technology and global threats continue to evolve, so must the state. As such, the Committee recommends the Legislature continue to support a proactive approach to cybersecurity management in the following ways:

- Prevent governmental entities from paying ransomware in order to reduce the incentive for nefarious actors to target public domains.
- Prevent governmental entities from entering into contracts that would prohibit or limit information sharing with DIR or requiring agencies from utilizing specific vendors for remediation.
- Support efforts by the State Office of Risk Management and Department of Information Resources to collaborate on a state-sponsored cybersecurity insurance line.
- Support the modernization and hardening of state agency information technology systems.
- Encourage state agencies to partner with private industry as a means to foster information sharing about potential threats and best practices. Ensure regulated entities who engage with the state maintain strong cybersecurity protections.

CHARGE NO. 6

State Workforce: Study where state employees are located and the benefits and drawbacks of remote working. Evaluate the impact of the potential growth of remote work and proximity of employees to their place of employment on traffic studies over the next 10 years. Study and make recommendations for establishing uniform statewide standards for remote work. Study possible implications and standards for statewide recruitment and employment of remote state employees from all parts of the state.

Testimony

The Senate Business & Commerce Committee held a hearing on May 18, 2022 and heard testimony from the witnesses.

Background

Texas, alongside the entire nation, continues to contend with the consequences of the recent years' unprecedented events and challenges that have resulted in an ever-changing landscape for both employees and employers across the public and private sector. A growing number of workers chose to leave the workforce entirely, find other opportunities, or begin working from home. At its peak in April 2020, the unemployment rate reached 14.7 percent; although, it has since leveled out to 3.8 percent as of February 2022¹⁰⁶. Throughout both extremes the nation's economy has experienced since 2020, the issues that remain pertain to workplace behaviors. Employers were required to find ways to ensure employee satisfaction and simultaneously guarantee protection of their health and safety - primarily through the offering of remote work and salary increases. To this day, over half (59 percent) of U.S. workers are working from home all or most of the time¹⁰⁷. What was once a necessity is now left to individual preference and whether companies chose to reopen their office doors. However, in considering flexible work models as a means to improve recruitment and retention, the state should keep a few ancillary issues in mind: availability of technology and equipment, connectivity, and cybersecurity. Working from locations outside of the office require consistent and secure Internet access, which may not be feasible in some areas. Broadband expansion will eventually assist, but short-term solutions should be explored.

Historically, jobs within the state may not enjoy as many similar flexibilities and face salary constraints in comparison to the private sector. While the state offers an attractive benefits package, it is no longer significantly competitive. When considering total compensation of state employees, the average value is reported to be \$78,146 (\$50,090 in average annual salary and \$27,556 in average annual benefits)¹⁰⁸. If potential employees can now receive similar benefits in the private sector combined with a higher salary, Texas stands to lose out on many qualified candidates. This presents a unique challenge when it comes to recruiting for technical positions in high demand. In the same vein, the Capitol region has become much less affordable. Without offering a competitive salary, many state employees can no longer afford to live close to work. These challenges present an opportunity to explore methods of recruiting statewide - specifically in areas where the cost of living compared to salaries does not lead to candidates self-

¹⁰⁶ Bureau of Labor Statistics, *Monthly Labor Review - July 2022*, <https://www.bls.gov/opub/mlr/2022/article/the-great-resignation-in-perspective.htm>

¹⁰⁷ Pew Research Center, *COVID-19 Pandemic Continues To Reshape Work in America*, <https://www.pewresearch.org/social-trends/2022/02/16/covid-19-pandemic-continues-to-reshape-work-in-america/>

¹⁰⁸ State Auditor's Office, *Report No. 22-705: A Report on State Employee Benefits as a Percentage of Total Compensation for Fiscal Year 2021 - June 2022*, <https://sao.texas.gov/Reports/Main/22-705.pdf>

selecting out of job opportunities. In turn, these efforts could be a means of economic development for other regions of the state.

In taking a comprehensive look at the state's workforce and the increased adoption of work-from-home employment models, the state may develop innovative ways to recruit and retain employees across all state and local government, as well as ensure the state of Texas continues to be a highly sought after place to work. The Committee intended to examine the issue in a holistic manner by providing an overview, considering impacts on employees' quality of life, and hearing the perspective of state agencies and how they have adapted.

The State Auditor's Office provided an overview of state employee demographics and satisfaction through the lens of their Fiscal Year 2021 FTE Report¹⁰⁹ and Employee Turnover Report¹¹⁰. To provide more context to the decrease of 2,162.6 FTEs compared to the average in fiscal year 2020, it was reported that the fiscal year 2021 statewide turnover rate had risen to 21.5 percent. Of those separations, 78.2 percent were voluntary - a significant increase of 20.4 percent from fiscal year 2020. The top three reasons that employees reported in exit surveys for leaving state employment during fiscal year 2021 were retirement, better pay/benefits, and poor working conditions/environment. SAO also provided testimony surrounding their work on the State Position Classification Plan.

The Texas A&M Transportation Institute provided insight into how remote work models impact traffic congestion, specifically for state employees in the Capitol Metropolitan Statistical Area (MSA) given their high concentration in the region. While their 2014 study¹¹¹ undoubtedly demonstrates that state employees greatly contribute to congestion in the area, they propose a few solutions agencies may pursue to alleviate some of the issues: Travel Demand Management (TDM) plans, ridematching, and telework. By reducing time on the road or stuck in traffic, this may increase satisfaction and retention for state employees and be less of a barrier to recruitment.

Both the real estate and apartment industries provide feedback on the rising costs of living in the Austin area, further reiterating the notion that state employees are facing many factors that may lead them to seek out other opportunities. While the market is now normalizing to a degree, the median sales price was up 30.8 percent to \$450,000 by the end of 2021. The combination of increased prices and increased competition led to properties being on the market an average of 25 days less than 2020¹¹². Similarly, Austin's rental market has continued to outpace other MSAs across the state, even surpassing the U.S. average of \$1,600 monthly. Additionally, the gap between Austin and other MSAs continues to widen, making it far more expensive to live in the Capitol region than anywhere else in the state¹¹³.

Currently, several state agencies including the Texas Health & Human Services Commission (HHSC) and Texas Workforce Commission (TWC) allow agency employees to utilize telework and remote work, and have found for the right category of employee, these strategies can increase employee satisfaction without compromising work quality and outcomes. These models are also considered a useful recruitment and

¹⁰⁹ State Auditor's Office, *Report No. 22-703: A Summary Report on Full-time Equivalent State Employees for Fiscal Year 2021 - March 2022*, <https://sao.texas.gov/Reports/Main/22-703.pdf>

¹¹⁰ State Auditor's Office, *Report No. 22-702: An Annual Report on Classified Employee Turnover for Fiscal Year 2021 - March 2022*, <https://sao.texas.gov/Reports/Main/22-702.pdf?>

¹¹¹ Texas A&M Transportation Institute, *Austin State Agency Congestion Footprint - April 2015*, <https://static.tti.tamu.edu/tti.tamu.edu/documents/PRC-14-32-F.pdf>

¹¹² Written Testimony, Brandy Guthrie, Texas REALTORS Association (on file with the committee)

¹¹³ Written Testimony, Sam Tenenbaum, Cushman Wakefield, (on file with the committee)

retention tool as many applicants are seeking this flexibility when seeking new opportunities. Agencies recognize that they are not only competing with the private sector for talent, but other states^{114,115}. While the intent of the charge was to gain knowledge about how agencies put these policies into place, it was also suggested to explore how to standardize telework and remote work processes. Agencies currently appreciate the flexibility provided in how they implement telework and remote work. Each agency has a different population of employees and different activities that would make creating statewide standards difficult.

Conclusion and Recommendations

Information gathered suggest the need to improve recruitment and retention amongst agencies to ensure the State remains a competitive employer. This includes, but is not limited to, building out strong telework and remote work programs as appropriate. It is imperative that the state strikes the appropriate balance of affording flexibilities while simultaneously ensuring all objectives and metrics are met within the workplace. The Committee recommends the Legislature consider the following:

- Feasibility of tying telework and remote work eligibility to job classification;
- Required approval requirements and/or written agreements for managers and their team members;
- State investment in proper equipment allowing maintenance of cybersecurity requirements for offsite locations;
- Economic incentives for rent or purchase of state buildings either relocating or establishing new locations outside of Austin, easing the cost of living burden on employees and providing for economic development outside of the Capitol region;
- Bolster information gathering by SAO and agencies through their audits, exit surveys, and State Employee Engagement (SEE) surveys to better inform these efforts and obtain accurate comparison to the private sector; and
- Create more internship opportunities for agencies that lead to full-time positions, as well as any other potential pipelines to state employment.

¹¹⁴ Written Testimony, Cecile Erwin Young, Executive Commissioner at Texas Health & Human Services Commission (on file with committee)

¹¹⁵ Written Testimony, Ed Serna, Executive Commissioner at Texas Workforce Commission (on file with committee)