Texas Chemical Council

The business of chemistry is elemental to modern life.

1 H 1.008 Hydrogen																	2 He 4.002602 Helium
3 Li 6.94 Lithium	4 Be 9.0121831 Beryllium											5 B 10.81 Boron	6 C 12.011 Carbon	7 N 14.007 Nitrogen	8 O 15.999 Oxygen	9 F 18.998403163 Fluorine	10 Ne 20.1797 Neon
11 Na 22.98976928 Sodium	12 Mg 24.305 Magnesium											13 Al 26.9815385 Aluminium	14 Si 28.085 Silicon	15 P 30.973761998 Phosphorus	16 S 32.06 Sulfur	17 Cl 35.45 Chlorine	18 Ar 39.948 Argon
19 K 39.0983 Potassium	20 Ca 40.078 Calcium	21 Sc 44.955908 Scandium	22 Ti 47.867 Titanium	23 V 50.9415 Vanadium	24 Cr 51.9961 Chromium	25 Mn 54.938044 Manganese	26 Fe 55.845 Iron	27 Co 58.933194 Cobalt	28 Ni 58.6934 Nickel	29 Cu 63.546 Copper	30 Zn 65.38 Zinc	31 Ga 69.723 Gallium	32 Ge 72.630 Germanium	33 As 74.921595 Arsenic	34 Se 78.971 Selenium	35 Br 79.904 Bromine	36 Kr 83.798 Krypton
37 Rb 85.4678 Rubidium	38 Sr 87.62 Strontium	39 Y 88.90584 Yttrium	40 Zr 91.224 Zirconium	41 Nb 92.90637 Niobium	42 Mo 95.95 Molybdenum	43 Tc 98 Technetium	44 Ru 101.07 Ruthenium	45 Rh 102.90550 Rhodium	46 Pd 106.42 Palladium	47 Ag 107.8682 Silver	48 Cd 112.414 Cadmium	49 In 114.818 Indium	50 Sn 118.710 Tin	51 Sb 121.760 Antimony	52 Te 127.60 Tellurium	53 I 126.90447 Iodine	54 Xe 131.293 Xenon
55 Cs 132.90545196 Caesium	56 Ba 137.327 Barium	57/71	72 Hf 178.49 Hafnium	73 Ta 180.94788 Tantalum	74 W 183.84 Tungsten	75 Re 186.207 Rhenium	76 Os 190.23 Osmium	77 Ir 192.217 Iridium	78 Pt 195.084 Platinum	79 Au 196.966569 Gold	80 Hg 200.592 Mercury	81 Tl 204.38 Thallium	82 Pb 207.2 Lead	83 Bi 208.98040 Bismuth	84 Po 209 Polonium	85 At 210 Astatine	86 Rn 222 Radon
87 Fr 223 Francium	88 Ra 226 Radium	89/103	104 Rf 267 Rutherfordium	105 Db 268 Dubnium	106 Sg 269 Seaborgium	107 Bh 270 Bohrium	108 Hs 269 Hassium	109 Mt 278 Meitnerium	110 Ds 281 Darmstadtium	111 Rg 281 Roentgenium	112 Cn 285 Copernicium	113 Uut 286 Ununtrium	114 Fl 289 Flerovium	115 Uup 289 Ununpentium	116 Lv 293 Livermorium	117 Uus 294 Ununseptium	118 Uuo 294 Ununoctium

Lanthanide Series	57 La 138.90547 Lanthanum	58 Ce 140.116 Cerium	59 Pr 140.90766 Praseodymium	60 Nd 144.242 Neodymium	61 Pm 145 Promethium	62 Sm 150.36 Samarium	63 Eu 151.964 Europium	64 Gd 157.25 Gadolinium	65 Tb 158.92535 Terbium	66 Dy 162.500 Dysprosium	67 Ho 164.93033 Holmium	68 Er 167.259 Erbium	69 Tm 168.93422 Thulium	70 Yb 173.054 Ytterbium	71 Lu 174.9668 Lutetium
Actinide Series	89 Ac 227 Actinium	90 Th 232.0377 Thorium	91 Pa 231.03588 Protactinium	92 U 238.02891 Uranium	93 Np 237 Neptunium	94 Pu 244 Plutonium	95 Am 243 Americium	96 Cm 247 Curium	97 Bk 247 Berkelium	98 Cf 251 Californium	99 Es 252 Einsteinium	100 Fm 257 Fermium	101 Md 258 Mendelevium	102 No 259 Nobelium	103 Lr 266 Lawrencium

1 The business of chemistry is vital to our everyday lives.

The Texas chemical industry manufactures countless products that improve the quality of life for billions of people around the world. Chemical manufacturers across the Lone Star State transform natural gas and other mineral resources into the building blocks for essential products that sustain and improve our quality of life.

Our industry provides the raw materials that help keep us safe, healthy, clean, comfortable, mobile, and connected. The products of chemistry make our lives better in immeasurable ways.

The chemical industry supplies innovative materials that are responsible for:

- Clean drinking water and fresher food
- Medical supplies and medicines
- Modern transportation
- Computers, smartphones, and the satellites that connect them
- Personal care and cosmetic products
- Performance fabrics
- Wind turbines, solar panels, and batteries for renewable energy

More than 95% of all manufactured goods are touched by chemistry. In fact, nearly all goods and services we enjoy as part of our day-to-day lives would not exist without chemicals. The chemical industry is essential to the functioning of our society and economy, and its innovations are the key to a brighter future.

The business of chemistry is not only committed to making the world a better place with what we make, but also how we do it. We are committed to safety, sustainability, and giving back to our communities. We do well by doing good.

Chemistry is all around us. The industry harnesses chemistry to improve our quality of life through products that make us safer, healthier, and happier.

We all benefit from the innovations of chemistry.

2 Contributions of the Texas Chemical Industry

INVESTMENT

The business of chemistry has called Texas home for more than 100 years and is a major economic engine for our state. Texas chemical manufacturing facilities are capital-intensive and represent a combined investment of more than $150 billion in facility assets across the state. The industry invests $6 billion each year in capital improvements to keep manufacturing facilities efficient and globally competitive.

TEXAS CHEMICAL INDUSTRY INVESTMENT*

$85 Billion announced investment	**500,000** Texas jobs
$2.3 Billion State tax revenue	**92** new chemical industry projects due to shale gas

Since 2010, the chemical industry has announced over 90 new projects and expansions across Texas with $85 billion in new capital investment. This new investment has boosted the Texas economy and has created thousands of new permanent jobs and tens of thousands of construction and service industry jobs resulting from industry investment.

JOBS

The chemical industry employs more than 500,000 Texans. Industry workers enjoy excellent benefits and quality health care. The average industry salary is over $120,000 per year, nearly 50% higher than the state average manufacturing salary. These Texas jobs generate more than $9.6 billion in annual earnings.

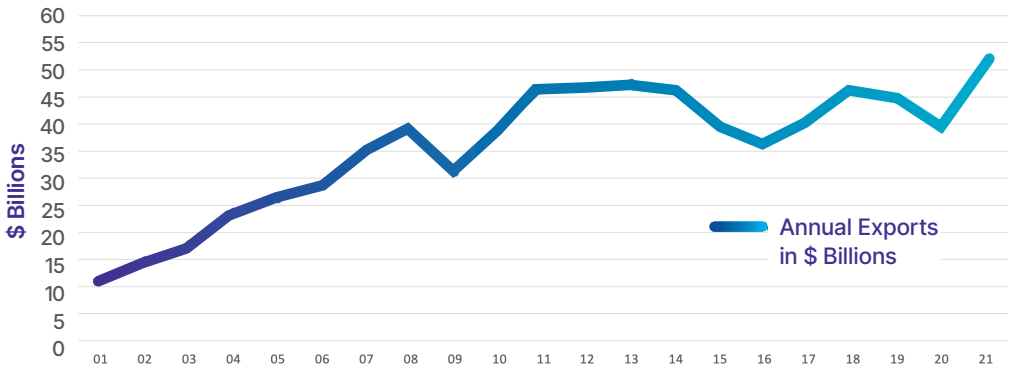
Each direct chemical industry job generates an additional six indirect jobs, including contractors, suppliers, service providers, and other industry related jobs.

The business of chemistry provides half a million jobs in Texas.

EXPORTS

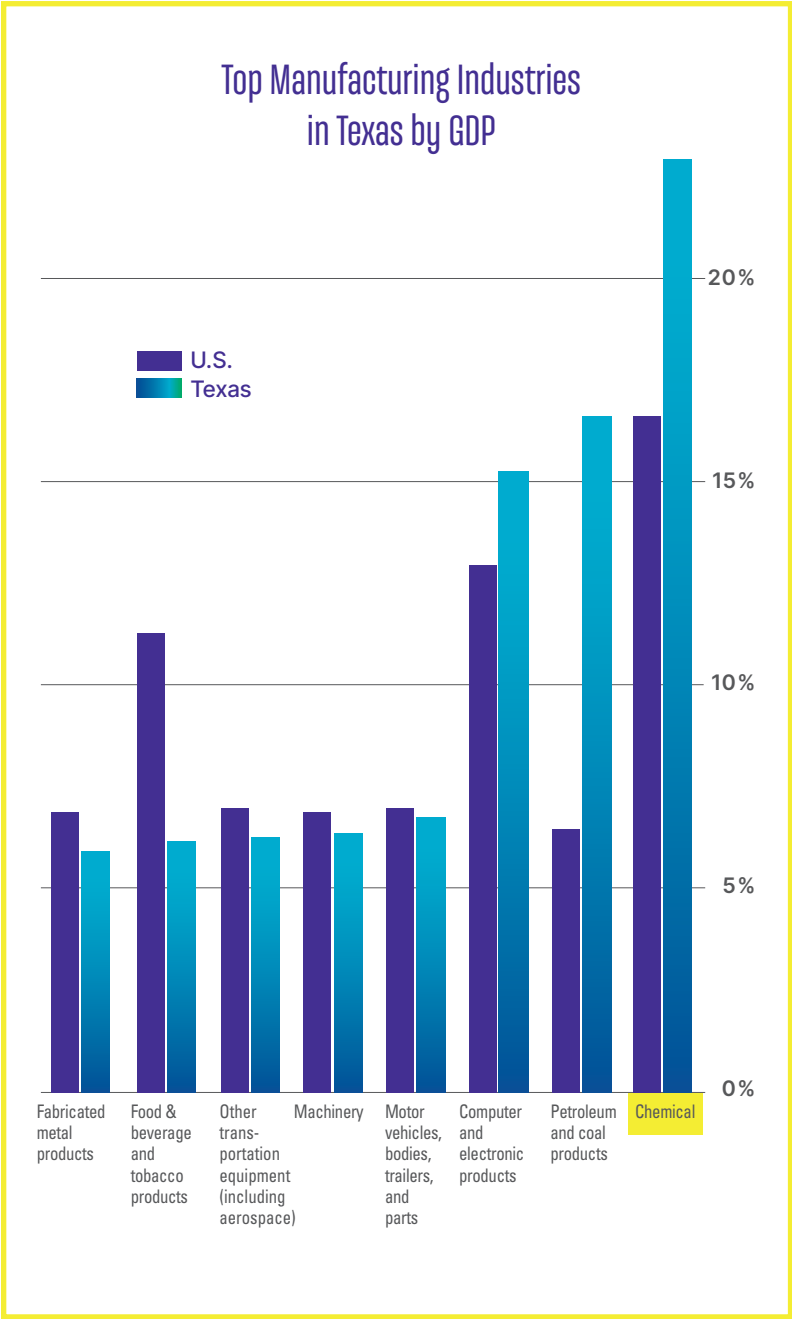
Chemicals are among the top exports for the state of Texas with over $50 billion in export production in 2021. Texas is the number one exporter of chemistry products in the United States, accounting for over 40% of the nation's petrochemical production.

Exports of Chemical Products TEXAS



Source: U.S. Dept. of Commerce International Trade Administration www.tse.export.gov; Federal Reserve Bank of Dallas www.dallasfed.org/research.cfm

*Source: American Chemical Council



TAX IMPACT

The chemical industry in Texas pays more than $2 billion annually in state and local taxes. As a capital-intensive industry, chemical manufacturers pay a large share of property taxes. Together with the oil and gas industry, our industries make up a quarter of all state taxes paid by businesses.

CHEMICAL INDUSTRY TAXES

Estimate of FY 2022 State and Local Taxes	
Franchise	$121 Million
Property	$1.5 Billion
Sales	$724 Million
Total	**$2.3 Billion**

Source: Texas Comptroller; Tax & Fiscal Consulting

The business of chemistry provides high-wage jobs, a vital tax base, and is a cornerstone of many Texas communities.

COMMUNITY

Chemical manufacturers and their employees are committed to their communities—the places we live, work, and play. Our member companies give back by supporting local schools and colleges, funding scholarships, sponsoring youth sports organizations, partnering with local charities, and promoting clean-up and recycling programs.

Industry employees volunteer countless hours in their communities—serving as firefighters and paramedics, judging science fairs, organizing charity events, and mentoring students. Many industry employees serve on school boards, city councils, and other elected positions.

During hurricanes and natural disasters, our chemical companies and their employees have come to the aid of their communities, providing generators and supplies to those in need, chlorine to ensure a safe drinking water supply, as well as assistance to local government, emergency responders, and state and federal emergency management officials.

Chemical manufacturers rise to the occasion when our nation and communities face challenges. Many chemical manufacturing plants retooled to manufacture personal protective equipment (PPE) and disinfectants in response to the COVID-19 pandemic. During Winter Storm Uri, chemical companies drastically reduced their energy consumption and some even provided supplemental power to support our state's electric grid, helping avoid catastrophic grid failure.

The business of chemistry does well by doing good.

TEXAS SHALE ECONOMY

The chemical industry has deep roots in the Lone Star State. Since the 1920s, the business of chemistry has been a major economic engine for our state. The shale economy provides an abundant and affordable supply of natural gas from Texas shale deposits. With an abundant supply of shale gas, Texas has experienced a manufacturing renaissance providing a globally competitive advantage for Texas manufacturing. This translates to billions of dollars in new investment, increased exports, and tens of thousands of new jobs.

Access to domestic shale gas that can fuel our economy for a century is the most important energy development in over 50 years. Reliable and competitively priced supplies of natural gas are essential to chemical industry growth in Texas. In addition to being used to generate electric power, natural gas is the primary feedstock used to manufacture thousands of products Americans use every day. Natural gas is to the chemistry industry what flour is to a bakery.

As the chemical industry goes, so goes the manufacturing sector. We are the foundation of American manufacturing and a major economic engine for Texas and the U.S. 96% of all manufactured goods are touched by the business of chemistry. Many industries rely on chemicals and plastics including auto makers, aerospace, construction, textiles, paper and pulp, as well as sports and recreation.

The chemical industry is proud to be a part of the manufacturing revitalization in Texas. With over $150 billion in manufacturing investment, chemistry is the second largest manufacturing sector in the state. Texas chemical manufacturing accounts for 40% of all U.S. production; the largest chemical manufacturing state in the country.

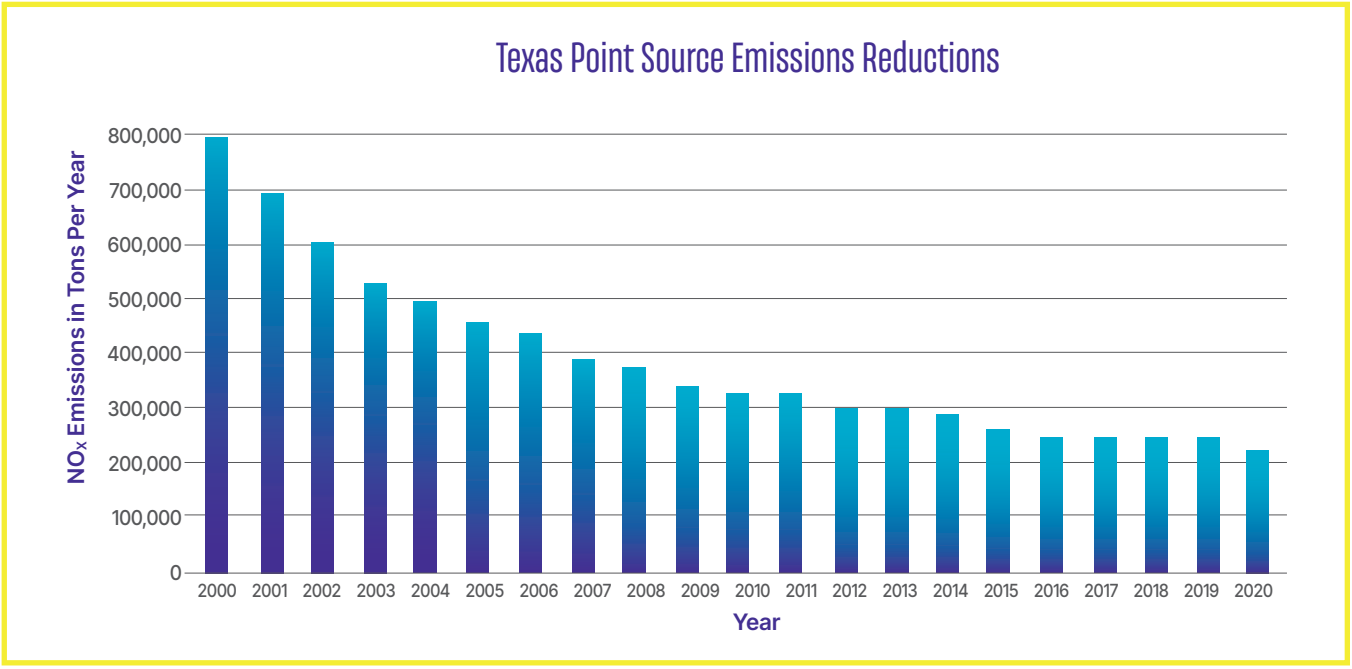
Texas chemical manufacturing accounts for over 40% of total U.S. chemical production.

ENVIRONMENTAL STEWARDSHIP

The chemical industry is a proven steward of our environment. Our industry employs the finest chemical and environmental engineers to ensure that manufacturing facilities run efficiently and safely, while complying with all federal and state environmental laws.

Our industry is a world leader in emissions reductions. Since 2001, chemical manufacturers in the Houston area alone have invested over $10 billion to reduce nitrogen dioxide (NO_x) emissions by more than 80%. The industry also invests in pollution control equipment for prevention, treatment, recycling, and disposal.

Mobile sources (cars & trucks) account for the vast majority of NO_x emissions, which is the primary precursor to ozone formation. TCC supports the Texas Emissions Reduction Plan (TERP), which administers incentive programs to significantly reduce NO_x emissions from fleet vehicles, buses, construction equipment, and other on and off-road mobile sources. To date, the state has invested $1.4 billion in TERP programs, effectively reducing NO_x emissions by approximately 500,000 tons.



SUSTAINABILITY

The chemical industry is strongly committed to sustainability. Our industry has established a goal of eliminating plastic waste by 2050. This ambitious endeavor will require consumer education, increased recycling, clean-up efforts to reduce existing plastic waste, and advanced recycling, which converts single-use plastics into new manufacturing feedstocks.

Chemistry is the science behind sustainability. The business of chemistry makes renewable energy a reality by creating photovoltaic cells to generate solar power, lightweight blades to generate wind power, and battery technologies to store electricity that power our electric cars, computers, and cell phones. In the foreseeable future, the business of chemistry will be essential in the transition to a greener economy.

Chemistry is the science behind sustainability.

SAFETY

Safety has long been a core value of the business of chemistry. You are five times safer working in a chemical plant than other manufacturing jobs. This statistic is rooted in rigorous safety procedures and best practices at manufacturing sites.

Each year, the Texas Chemical Council (TCC) recognizes facilities with exemplary safety performance and community outreach.

You are five times safer working in a chemical plant than in any other type of manufacturing job.

SITE SECURITY

Texas chemical manufacturers are committed to chemical facility security. U.S. chemical facilities have implemented comprehensive, multi-layered security programs, developed by safety and security experts and comply with the U.S. Department of Homeland Security Chemical Facility Anti-Terrorism Standards (CFATS). These standards ensure site security, transportation safety, and cyber security. Manufacturing facilities conduct vulnerability assessments, develop emergency response plans, and conduct coordinated drills with federal, state, and local regulatory agencies and emergency responders.

Aerosol Duster Air Conditioning Anesthesia Antibacterial Wipes Antiseptic Artificial limbs Auto Paint Awnings Baby Bottles Balloons Bandages Bath Tissue Batteries Bean Bag Chairs Bed Bumpers Bed Linens Bed Pans Bed Railings Biohazard Disposal Containers Blood Pressure Gauges Body Wash Boots Bottles Briefcases Buckets Cabinet and Drawer Pulls Cable Wires Cameras Canes Caps Carpet Carpet Backing Castors Cell Phones Ceramic Vases Cereal Boxes Chairs Chairs Chocolate Bars Clean Water Cleaning Supplies Clipboards Clocks Clorox® Wipes Coffee Filters Computers Concrete Briefcases Containers Coolers Cosmetics Crayons Diapers Disinfectants Duct Tape Dustpans Ear Thermometers Emergency Medical Equipment Exam Tables Eyeglasses Fertilizer Fire Extinguishers Flag Poles Concrete Flags Food & Drink Packaging Garden Sprayers Gloves Growth Charts Hair Gel Hand Sanitizer Hand Soap Handicap Guard Rails Herbicides Hosiery Hospital Carts IV Bags Ketchup Kevlar® Laundry Detergent Legos® Light Fixtures Lip Balm Lipstick Lotion M&M's® Magazine Racks Matchbox® Cars Mattresses Medical Equipment Mirrors Monitors Motor Oil Mud Flaps Name Badges Newspaper No Calorie Sweetener Orthopedic Shoes Over-the-Counter Medications Pacifiers Paint Paper Paper Napkins Paper Towels Peanuts Pens Planters Playground Flooring Posters Post-it® Notes Prescription Medications PVC Pipe Racks Rakes Reflective Paint Refrigerator Coolants Safety Glasses Sandwich Bags Seatbelts Security Cameras Shampoo Shatterproof Glass Shaving Cream Sheet Flooring Shelving Shower Curtains Shower Stalls Sign Covers Signage Sneakers Soap Soap Dispensers Soap Sterile Packaging Soda Bottles Squeeze Balls Stainless Steel Tables Stethoscopes Stoppers Stretcher Rails Sutures Swing Sets Syringes Tables Tape Telephones Thermal Blankets Tire Sealer Tires Toilet Cleaner Tablets Toothbrushes Toothpaste Towels Toys Tubing Umbrellas Upholstery Utensils Videotapes Vinyl Blinds Vinyl Tile Flooring Vinyl-backed Mats Walkers Wall Protection Wallpaper Wash Basins Washcloths Wastebaskets Water Hoses Wheelbarrows Window Cleaner Windows Wristwatches X-rays

The chemical industry is essential to our society and the key to a brighter future.

3 Competitiveness Issues

The mission of the Texas Chemical Council (TCC) is to maintain a globally competitive environment for the chemical industry in Texas in a manner that is positive for the state and its citizens. TCC's active participation in the Texas legislative process is critical to that endeavor. TCC's legislative priorities represent our efforts to ensure that legislators and the citizens of Texas understand the essential role that chemistry plays in our everyday lives.

Our priorities for the 88th Legislature span a variety of issues, including taxes, civil justice reform, transportation and infrastructure, energy, workforce development, environmental stewardship, and site security and emergency management.

TAXES

TCC supports a broad-based tax system that is equitable for all taxpayers and encourages the state to remain competitive.

Texas has the sixth highest property tax rate in the United States on industrial property, making property tax policy an important priority for capital-intensive industries. TCC supports uniformity and transparency in the property tax appraisal process. TCC supports property tax relief that benefits all taxpayers through rate compression or uniform appraisal relief that benefits homeowners and businesses alike.

TCC supports tax incentives by local taxing authorities to attract new and expanding business investment and job creation in their communities. Because of Texas' high property tax rate, economic incentives are necessary to attract capital-intensive businesses and keep Texas competitive with other states.

TCC also supports a franchise tax credit for property taxes paid on inventories.

CIVIL JUSTICE

TCC supports a fair and balanced civil justice system in Texas that fosters a strong and vibrant business climate. TCC opposes legislation that allows for frivolous lawsuit abuse.

TCC supports private industry's ability to self-determine business and hiring decisions based on free market principals and opposes government intervention into day-to-day operations.

TRANSPORTATION & INFRASTRUCTURE

As Texas continues to grow, transportation infrastructure is vital to meet the needs of businesses and motorists. TCC supports transportation and infrastructure projects to ensure the safe and efficient transportation of products on Texas roadways, waterways, by rail, or pipe.

We support federal funding to widen and deepen our Texas ports to accommodate the efficient movement of cargo in and out of our ports to keep our ports globally competitive.

WORKFORCE & EDUCATION

The Texas chemical industry, which supports over 500,000 Texas jobs, creates a high demand for skilled workers to build, operate, and maintain large-scale manufacturing facilities. It is important that Texas maintain a pipeline of educated and skilled workers to meet the workforce demands of Texas employers.

TCC members work closely with local school districts, colleges, and universities to develop curriculum and provide resources to prepare our youth for high paying career opportunities in our industry.

TCC supports the transition of community college funding from an allocation-based formula to an outcomes-based formula. TCC works closely with community colleges in industrial communities to ensure curriculum to prepare students to meet requirements and earn certifications needed to secure quality industry jobs.

ENERGY

The business of chemistry uses natural gas as both a feedstock and for electric generation. Our industry is dependent on a competitively priced and diverse energy supply. TCC supports the production of sustainable energy sources, including natural gas, nuclear, and renewables.

After Winter Storm Uri in 2021, the Legislature and the Public Utility Commission (PUC) have considered changes to the existing Electricity Reliability Council of Texas (ERCOT) electricity market design. The long-term reliability of the ERCOT grid is critical to the operations of our industry and the safety of our employees. We support market design proposals that contain real reliability improvements and enhanced dispatchable generation at affordable rates for all consumers.

TCC supports the conservation of energy sources where feasible and balancing environmental concerns with energy production and usage, specifically with regard to the construction of energy efficient, high performance commercial buildings, and residential homes. TCC supports policies that utilize high performance products that achieve greater energy efficiency and meet performance-based building standards, rather than prescriptive building programs not supported by science.

TCC supports incentives to bolster industry investment for carbon capture technologies and opportunities for permanent carbon sequestration in Texas.

ENVIRONMENT

Air Quality

TCC supports science-based, cost-efficient technology controls designed to comply with all air quality standards required by the Federal and Texas Clean Air Acts. TCC strongly supports efforts to achieve further emissions reductions from federally-preempted mobile sources. TCC continues to support funding for programs aimed at reducing mobile source emissions, such as the Texas Emissions Reduction Program (TERP). TERP is the only state tool to reduce NO_x emissions in non-attainment areas and helping our state comply with federal ozone standards. Without TERP, Texas is at risk of the Environmental Protection Agency taking control of emission reduction programs.

Water

TCC supports water policies that ensure a sustainable water supply to meet the current and future needs of all Texans and advocates for the protection of existing water rights and usage. TCC supports the responsible development of innovative technologies, such as aquifer storage and recovery projects and brackish and seawater desalination facilities. TCC opposes any inequitable water usage fees to fund water programs for the state. TCC also opposes any efforts to reallocate existing water rights or mandates to curtail water use in a manner inconsistent with current law.

Regulation & Enforcement

TCC opposes legislation that places additional regulatory requirements on the business of chemistry without appropriate scientific research and cost-benefit analysis to justify new regulations. TCC supports a risk-based enforcement

approach that focuses regulatory enforcement resources on violations that pose the greatest threat to the public and the environment.

Advanced Recycling

Advanced recycling utilizes emerging technologies to recycle a wide variety of plastics into raw materials and feedstocks that can be remade into new plastic products. In 2019, the Texas Legislature established a framework for advanced recycling operations in Texas by defining recyclable post-consumer polymers as recyclable feedstocks rather than solid waste. TCC supports updates in Texas law that reflect and support the use of new and emerging advanced recycling technologies.

COASTAL SPINE – PROTECTING PEOPLE AND PROPERTY

TCC supports a coastal barrier, or "Coastal Spine", to protect the Texas Gulf Coast from storm surge associated with hurricanes and major weather events. TCC supports state matching funds needed to secure federal funding for the design and construction of a Texas Coastal Spine.

4 Historic Texas Roots... Essential to Our Future

The discovery of oil at Spindletop near Beaumont launched the petroleum and petrochemical age in Texas.

The business of chemistry in Texas began in a significant way at the onset of World War II. Large scale integrated factories were built to convert raw materials, such as refined crude oil, natural gas and even sea water and salt into critical products necessary for the war effort, including magnesium for airplanes, synthetic rubber for tires and nylon for parachutes.

Rapid expansion of the chemical industry followed World War II as production turned to the post-war consumer age fueled by innovations in chemistry and science creating thousands of new consumer products benefiting modern society. By the 1960s, the chemical industry was established as a key economic engine for the Texas economy and remains so today. Our industry provides hundreds of thousands of high paying jobs, contributes over $2 billion in annual tax-base, and manufactures over 70,000 products used in our homes, our cars, the clothes we wear, the food we eat, healthcare products and medicines we use, sports and recreation, and many other consumer products that improve our quality of life on a daily basis. In short, we live longer, safer, cleaner, smarter, happier, and more comfortable lives because of the thousands of products and materials manufactured by the business of chemistry throughout our great state and across the globe.

The business of chemistry uses scientific innovation to improve the quality of life for people around the world.

Spindletop was discovered in 1901. The discovery of oil in Texas helped to launch chemical manufacturing in the state.

TEXAS CHEMICAL COUNCIL

Texas Chemical Council

The Texas Chemical Council is a statewide trade association of chemistry technology manufacturers in Texas. Our member companies produce vital products for our way of life, fulfill educational and quality-of-life needs, and provide employment and career opportunities for over 75,000 Texans at more than 200 manufacturing and research facilities across the state. Their combined economic activity sustains over 500,000 Texas jobs.

Organized in 1953, TCC was the nation's first state trade association to represent the chemical industry. The primary concern then was to present a unified position on new taxes proposed on the industry. As the business of chemistry grew in size and importance to Texas, TCC expanded its representation of industry in many other important areas such as environmental protection, health and safety issues, civil justice reform and energy policy.

www.texaschemistry.org

acit

Association of Chemical Industry of Texas

The Association of Chemical Industry of Texas (ACIT) was founded in 1983 and has become a strong industry voice to protect and preserve the business of chemistry in Texas.

ACIT is composed of more than 400 companies that share a symbiotic relationship with the Texas chemistry industry. The association represents both large and small businesses, including chemical manufacturers, formulators, distributors, contractors, suppliers, and service companies.

Combined, these companies represent one of the state's most important economic engines. ACIT unites entire communities that are dependent on a strong and vibrant chemical industry in Texas.

www.acit.org

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