

## Advancing the Bioeconomy in Texas: A Strategic Approach for Regional Rural Economic Development (Final July 7, 2020)

### INTRODUCTION

The ATIP Foundation, affiliated with the US Department of Agriculture, is engaged in advancing the bioeconomy in Texas. We are doing so on a regional basis, utilizing a replicable model developed by the Foundation, premised on the industry-cluster model developed by Michael Porter at Harvard University in the mid-1980s. Our Model is further premised on input gleaned from eight national forums hosted by the Foundation in 2016–2017, in partnership with the federal Biomass Research & Development (BR&D)<sup>1</sup> Board, co-chaired by the US Departments of Agriculture & Energy.

We have engaged local, regional and state leaders from six sectors we identified as primary stakeholders; all vital to the success of our Initiatives. They include (1) economic & workforce development; (2) academia; (3) municipal, county, regional and state elected & appointed officials; (4) financial services; (5) business & industry; and (6) the supply chain, from biomass source to end users.

In essence, this document describes what we are doing to ensure that the essential infrastructure; the knowledge, awareness, and understanding; and the relationships have been developed throughout an economic region with the primary stakeholder sectors that can support companies as primary producers of products and services derived from biomass.

The Foundation, in a manner of speaking, is “preparing the soil for the successful planting and eventual harvest of a crop.”

### GOAL: ESTABLISH / ENHANCE THE FOUNDATION FOR INDUSTRY CLUSTERS

Although we often talk about economic development and growing the economy, there is little discussion and/or understanding of "who does what by when" in order to achieve the goal of economic development. Cities and states frequently cite their creation of jobs through "industry recruitment," which does not represent the development of a "sustainable economy" or a "sustainable industry cluster."

The fundamental premise for the growth of a sustainable economy is the creation, development and growth of the industry sectors that are or could become wealth generators within an economic region. This requires the understanding that only three fundamental things happen in an economic region; (1) wealth is generated; (2) wealth is recirculated within the same region; or (3) wealth generated within the region migrates to other economic regions.

As an example, an anaerobic digester converts organic waste streams to generate energy and high-carbon solids that can be processed and sold as additives for everything from paints and plastics to fertilizer. It essentially generates wealth, as the energy & solids produced sell for more than the cost of production. But where does that wealth go? A portion recirculates in the region through the salaries, wages, and taxes paid. But the company also purchases parts, components, supplies and services from literally hundreds of companies we will call "suppliers & service providers." To the extent they are in the region, that wealth also recirculates. To the extent they are not, the wealth is migrating immediately. Therefore, development of the "supplier/service

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<sup>1</sup> The Biomass R&D Board consists of representatives from the U.S. Department of Energy, U.S. Department of Agriculture, U.S. Department of the Interior, U.S. Department of Defense, U.S. Department of Transportation, the National Science Foundation, the Environmental Protection Agency, and the Executive Office of the President of the United States.

provider network" tailored to that particular industry sector is critical to the development of a sustainable economy.

Next, all sectors are dependent upon five key "economic foundations" if the sector is to become sustainable. They are:

**1. Regulatory Structure:** municipal, county, state and federal regulations all play a role, based on whether they support or inhibit the growth of a sector. In an economic region, municipal, county and state regulations must be assessed in terms of their impact on a targeted industry sector. This requires the support of local and state governments. Incentives may also be created by the municipality, county, state, and/or federal entities to counter perceived regulatory burdens.

**2. Infrastructure:** all economic activities are based on the ability to move people, product, and information into and out of a specific region in a rapid, efficient, and cost-effective manner. Therefore, assessing the region's infrastructure is a critical component. This requires the support of local and state governments.

**3. Access to Capital:** all sectors require ready access to capital sources, germane to their sector. Therefore, an assessment of a region's access to capital that is supportive of the targeted industry sector is important. This requires the participation of the financial services sector.

**4. Access to Technology:** every sector has a need for technology and the research supporting the technology. This is a critical role for both the federal lab system and academia, relative to (1) creating market awareness of the research outcomes and patented discoveries; (2) translating the research outcomes and patents in ways that enable the financial sectors' ability to assess risk and therefore provide the necessary capital for development; and (3) assisting industry's ability to understand the research outcomes and patented technologies in order to utilize them for commercial use in the market.

**5. Access to a Trained Workforce:** every sector has a need for a workforce with the specific competencies, skills, training and knowledge critical to the industry sector. This requires the alignment of public education, higher education, and the publicly funded workforce system to both understand and then support the demand arising from occupational sectors of business and industry.

## PRIMARY ELEMENTS

The model is guided by six significant, relevant, overarching elements that were universally expressed and supported by participants in all eight national forums ATIP, in partnership with the BR&D Board, conducted in 2016 – 2017, relative to specific issues and recommendations to be addressed by the broad stakeholder community.

The six elements are as follows:

**1. Finance:** stated as the ability to successfully finance the growth of the bioeconomy, focused on (1) public funding and (2) general access to capital. Regarding public funding, availability of government loan guarantees was cited, based on the lack of public knowledge, awareness, or understanding of the process required. Also, forum participants suggested that federal agencies should consider funding more small-scale demonstration projects, rather than fewer largescale ones; incentivizing public private partnerships; and providing a level playing field for bioenergy investments and allocations, comparable to those of fossil fuel and nuclear energy.

Regarding general access to capital, the high risks perceived by private sector investors was based on inconsistency in federal incentives, the general lack of off-take agreements, and broadly stated, a lack of understanding of the bioeconomy.

**2. Public Education & Awareness:** stated as the need for clear, understandable definitions for the "bioeconomy" and "sustainability"; and a robust, orchestrated public educational awareness campaign, inclusive of thoughtful articulation of the value proposition of the bioeconomy, and "Case for Support", relative to why it makes both business and economic sense.

**3. Public Policy:** stated as the need to create a level playing field for the bioeconomy, with long term, stable government incentives and tax credits that are competitive and comparative with other energy programs. Also, regulatory requirements and controls, in general, and in particular by EPA, are viewed as overly burdensome, especially to small & medium sized businesses.

**4. Supply Chain:** stated as the need to ensure the supply chain logistics/capacity/capabilities are in place, to support the movement of biomass material from the source of harvest to final production/processing facilities, and then to market. As a specific example, one recommendation was that more biomass accumulators (biomass depots) are needed to reduce distance from farm/forest to processing facilities. This also reduces cost and aligns with the recommendation to fund more small models/projects rather than fewer large models/projects.

**5. Workforce:** stated as the need to engage the US Departments of Education & Labor, to ensure the publicly funded workforce system is aware of and focused on the development of the workforce needed to support the growth of the bioeconomy. Recommendations include building the talent pipeline; addressing the lack of technical training; the need to create early awareness (by the 8th grade) of opportunities; and addressing the lack of training opportunities and options in rural areas.

**6. Federal Resources:** stated as a general lack of public awareness, and a request for federal support of regional collaboration. In terms of awareness, there was a general lack of knowledge of the research and resources available through and from the federal agencies. Outside of academia, most participants were unaware of patent license agreements (PLAs), cooperative research and development agreements (CRADAs), the scope of federal research, and technical assistance and support, such as loan guarantees.

In terms of collaboration, participants stressed the need for economic growth to be seen, perceived and approached on a regional basis, since, generally speaking, regional economies do not follow geographic or political boundaries. They viewed federal agency collaboration at a regional level, in partnership with academia, the private sector, and the broader stakeholder community, as a critical component necessary to grow the bioeconomy.

## ENGAGING THE PRIMARY STAKEHOLDERS

The eight forums conducted in 2016–2017 provided evidence that six critical stakeholder groups must be engaged to ensure success in utilizing federal research outcomes to stimulate economic growth and development. Leadership for each of those six sectors was identified and recruited by the ATIP Foundation prior to the launch of Advancing the Bioeconomy in Texas.

Those stakeholders continue to provide the leadership to ensure the model actively engages thought and opinion leaders in each of the six sectors.

This section describes the Sector Stakeholders we have engaged in Texas, who have assisted us in documenting the roles each sector must play, for this to become a replicable model for regional economic development.

### 1. Workforce & Economic Development

State leadership is provided by (1) the Texas Department of Agriculture, Rural Development; (2) The Governor's Office of Economic Development; and (3) Texas Labor Commissioner Julian Alvarez.

Regional leadership is provided by the North Central Texas Council of Governments, and the North Central Texas Workforce Board, that has adopted the agribusiness sector as one of their targeted industry sectors. As such, they are utilizing the initiative to develop a strategic plan to ensure that training is available to support the workforce needs of this emergent sector.

## 2. Academia

Academic support is provided and led by Universities within the regions. In Texas, Tarleton State University (an affiliate of Texas A&M), serves the region and has brought their academic research component to the table. They are conducting significant research on biochar and on applied environmental research.

Additional leadership is provided by Ranger and Weatherford Colleges, defining the role Community Colleges can play.

## 3. Government

Leadership for Municipal, County, Regional and State Elected & Appointed Officials is provided by the cities of Mineral Wells, Stephenville, Granbury, and Weatherford. They are engaging other city, county, regional and state officials, ensuring municipal, county and state governments are involved in the Initiative.

## 4. Financial Services

Leadership for the investment community was initially provided by Robert Strong, former Executive Vice President of Mutual of Omaha Bank in north central Texas. They were one of the few financial institutions to participate in the eight regional forums in 2016–2017. As a result of his participation, Robert extensively researched USDA’s role as an agribusiness lender, and utilized his knowledge and experience to engage other financial institutions. Leadership is currently provided by Kayla Hons, Vice President, Community National Board & Trust, in Mineral Wells.

## 5. Business & Industry

We have engaged business and industry, primarily working through local employer led industry and trade associations, and chambers of commerce. Regional leadership is provided by the Mineral Wells Chamber of Commerce; Mineral Wells Industrial Foundation; the Granbury Chamber of Commerce; and the Stephenville and Weatherford Economic Development Corporations.

They play an essential role in helping identify and assemble the suppliers and service providers necessary to support the wealth recirculation within a region, and the later stages of the supply chain.

## 6. Supply Chain

The local and state offices of both USDA Rural Development and the Agricultural Extension Service, and the Texas Dairyman’s Association are actively engaged. This has included feature presentations and engagement from the USDA NRCS National Animal Manure and Nutrient Management Team. They all have and will continue to provide the leadership to engage farmers and ranchers, as well as the early stages of the supply chain in the Initiative.

## **UTILIZING FEDERAL RESOURCES**

A primary component of our plan is to engage federal agencies in the process, and to create the awareness, knowledge, and capabilities of local communities and organizations to take advantage of their federal resources. Those resources include, but are certainly not limited to, research outcomes, market assessment, and federal patented technology discoveries, as well as funding.

This section describes the federal agencies, with whom we have relationships, that have resources available to support our work. Please note that the US Department of Agriculture has an International Division, with offices and staff located around the globe. Their primary purpose is to assist other countries in developing their food supplies. This includes the growth of the bioeconomy.

#### DEPARTMENT OF AGRICULTURE (USDA)

USDA is and has been our primary partner since ATIP was incorporated in 2011, at the request of Catherine Woteki, then Undersecretary and Chief Scientist at USDA. USDA is second only to Department of Defense in size and programs. USDA's 29 agencies and offices are grouped within eight Mission Areas (<https://www.usda.gov/our-agency/about-usda/mission-areas>) as follows. We provide a brief description of some of those agencies, especially those with whom we regularly engage or are highly relevant to our current initiative, and we encourage you to look at the specific agency websites accessible at <https://www.usda.gov/our-agency/agencies>.

##### **1. Farm Production and Conservation**

###### **a. Farm Service Agency (FSA; <https://www.fsa.usda.gov/> )**

The Farm Service Agency implements agricultural policy, administers credit and loan programs, and manages conservation, commodity, disaster and farm marketing programs through a national network of offices.

###### **b. Natural Resources Conservation Service (NRCS; <https://www.nrcs.usda.gov/> )**

NRCS provides leadership in a partnership effort to help people conserve, maintain and improve our natural resources and environment.

###### **c. Risk Management Agency (RMA; <http://www.rma.usda.gov/> )**

RMA helps to ensure that farmers have the financial tools necessary to manage their agricultural risks. RMA provides coverage through the Federal Crop Insurance Corporation, which promotes national welfare by improving the economic stability of agriculture.

##### **2. Food, Nutrition and Consumer Services**

###### **a. Food and Nutrition Service (FNS; <https://www.fns.usda.gov/> )**

Our mission is to increase food security and reduce hunger by providing children and low-income people access to food, a healthful diet and nutrition education in a way that supports American agriculture and inspires public confidence.

##### **3. Food Safety**

Food Safety ensures that the Nation's commercial supply of meat, poultry, and egg products is safe, wholesome, and properly labeled, and packaged. This mission area also plays a key role in the President's Council on Food Safety and has been instrumental in coordinating a national food safety strategic plan among various partner agencies including the Department of Health and Human Services and the Environmental Protection Agency.

###### **a. Food Safety and Inspection Service (FSIS; <https://www.fsis.usda.gov/wps/portal/fsis/home> )**

FSIS Mission Statement: Protecting the public's health by ensuring the safety of meat, poultry, and processed egg products. FSIS Vision Statement: Everyone's food is safe.

##### **4. Marketing and Regulatory Programs**

Marketing and Regulatory Programs facilitate domestic and international marketing of U.S. agricultural products and ensures the health and care of animals and plants. MRP agencies are active participants in setting national and international standards.

a. **Agricultural Marketing Service** (AMS; (<https://www.ams.usda.gov/> )

AMS facilitates the strategic marketing of agricultural products in domestic and international markets while ensuring fair trading practices and promoting a competitive and efficient marketplace. AMS constantly works to develop new marketing services to increase customer satisfaction.

b. **Animal and Plant Health Inspection Service** (APHIS; <https://www.aphis.usda.gov/aphis/home>)

The Animal and Plant Health Inspection Service is a multi-faceted Agency with a broad mission area that includes protecting and promoting U.S. agricultural health, regulating genetically engineered organisms, administering the Animal Welfare Act and carrying out wildlife damage management activities. These efforts support the overall mission of USDA, which is to protect and promote food, agriculture, natural resources and related issues.

**5. Natural Resources and Environment**

a. **Forest Service** (FS; <https://www.fs.fed.us/> )

FS sustains the health, diversity and productivity of the Nation's forests and grasslands to meet the needs of present and future generations.

**6. Research, Education and Economics**

Dedicated to the creation of a safe, sustainable, competitive U.S. food and fiber system, as well as strong communities, families, and youth through integrated research, analysis, and education.

a. **Agricultural Research Service** (ARS; <https://www.ars.usda.gov/> )

ARS is USDA's principal in-house (intramural) research agency. Their job is finding solutions to agricultural problems that affect Americans every day from field to table. Here are a few numbers to illustrate the scope of ARS:

- 660 research projects within 15 National Programs
- 2,000 scientists and post docs
- 6,000 other employees
- 90+ research locations, including overseas laboratories
- \$1.4 billion fiscal year budget

**Note on relevant Foundation expertise.** Dr. Rick Brenner, Director of the ATIP Foundation (2013- present), served as a scientist and Research Leader in ARS (1982-2001), and as the Assistant Administrator for Technology Transfer (2004 – 2012), representing the Secretary of Agriculture on issues pertaining to management of intellectual property arising from USDA research, and with delegated authority for licensing inventions developed through intramural research from any of the USDA agencies. He was the Agency Representative to the Federal Laboratory Consortium for Technology Transfer for USDA, the Interagency Working Group for Technology Transfer convened by the Department of Commerce, and also represented USDA on the White House (WH) Innovation and Entrepreneurship working group, the WH Startup America task force, and the WH Task Force for Advancing Regional Innovation Clusters.

b. **Economic Research Service** (ERS; [www.ers.usda.gov/about-ers](http://www.ers.usda.gov/about-ers) )

The mission of USDA's Economic Research Service is to anticipate trends and emerging issues in agriculture, food, the environment, and rural America and to conduct high-quality, objective economic research to inform and enhance public and private decision making. ERS shapes its research program and products to serve those



who routinely make or influence public policy and program decisions. Key clientele includes White House and USDA policy officials; the U.S. Congress; program administrators/managers; other Federal agencies; State and local government officials; and organizations, including farm and industry groups. ERS research provides context for and informs the decisions that affect the agricultural sector, which in turn benefits everyone with efficient stewardship of our agricultural resources and the economic prosperity of the sector.

**c. National Agricultural Statistics Service (NASS; <https://www.nass.usda.gov/index.php> )**

The USDA's National Agricultural Statistics Service (NASS) conducts hundreds of surveys every year and prepares reports covering virtually every aspect of U.S. agriculture. Production and supplies of food and fiber, prices paid and received by farmers, farm labor and wages, farm finances, chemical use, and changes in the demographics of U.S. producers are only a few examples.

NASS is committed to providing timely, accurate, and useful statistics in service to U.S. agriculture. To uphold our continuing commitment, NASS will:

- Report the facts on American agriculture, facts needed by people working in and depending upon U.S. agriculture.
- Provide objective and unbiased statistics on a preannounced schedule that is fair and impartial to all market participants.
- Conduct the Census of Agriculture every five years, providing the only source of consistent, comparable, and detailed agricultural data for every county in America.
- Serve the needs of our data users and customers at a local level through our network of State field offices and our cooperative relationship with universities and State Departments of Agriculture.
- Safeguard the privacy of farmers, ranchers, and other data providers, with a guarantee that confidentiality and data security continue to be our top priorities.

**d. National Institute of Food and Agriculture (NIFA; <https://nifa.usda.gov/> )**

NIFA's mission is to invest in and advance agricultural research, education, and extension to solve societal challenges. NIFA's investments in transformative science directly support the long-term prosperity and global preeminence of U.S. agriculture. NIFA is the principal extramural research agency working principally through competitive grants to Land Grant institutions (1862 Land-grant institutions), Historically Black Colleges and Universities (HBCU; 1890 Land-grant institutions), Native American tribally-controlled colleges and universities (1994 Land-grant institutions) and other federal agencies conducting activities in the agriculture sector. NIFA collaborates with leading scientists, policymakers, experts, and educators in organizations throughout the world to find innovative solutions to the most pressing local and global problems. Some of their website-stated activities:

- Scientific progress made through discovery and application;
- Advances the competitiveness of American agriculture;
- Bolsters the U.S. economy;
- Enhances the safety of the nation's food supply;
- Improves the nutrition and well-being of American citizens;
- Sustains natural resources and the environment;
- Builds energy independence

**7. Rural Development (RD; <https://www.rd.usda.gov/> )**

RD helps rural areas to develop and grow by offering Federal assistance that improves quality of life. RD targets communities in need and then empowers them with financial and technical resources.

**a. Rural Business-Cooperative Service (RBS; <https://www.rd.usda.gov/about-rd/agencies/rural-business-cooperative-service> )**

RBS offers programs to help businesses grow as well as job training for people living in rural areas. These programs help provide the capital, training, education and entrepreneurial skills that can help people living in rural areas start and grow businesses or find jobs in agricultural markets and in the bio-based economy. According to their website, “[their] programs help provide the capital, training, education and entrepreneurial skills that can help those living in rural areas start and grow businesses or find jobs in agricultural markets and in the bio-based economy. USDA and our public and private partners are connecting rural residents to the global economy by:

- Supporting business growth and development.
- Assisting with creating wealth and supporting rural America.
- Improving the effectiveness of programs serving cooperatives
- Creating and keeping jobs through recreation as well as restoring, conserving and managing rural America’s natural resources.
- Bringing fast internet to more homes and businesses.

**b. Rural Utilities Service (RUS; <https://www.rd.usda.gov/about-rd/agencies/rural-utilities-service> )**

USDA’s Rural Utilities Service (RUS) provides much-needed infrastructure or infrastructure improvements to rural communities. These include water and waste treatment, electric power and telecommunications services. All of these services help to expand economic opportunities and improve the quality of life for rural residents.

**c. Rural Housing Service (RHS; <https://www.rd.usda.gov/about-rd/agencies/rural-housing-service> )**

USDA’s Rural Housing Service offers a variety of programs to build or improve housing and essential community facilities in rural areas. We offer loans, grants and loan guarantees for single- and multi-family housing, childcare centers, fire and police stations, hospitals, libraries, nursing homes, schools, first responder vehicles and equipment, housing for farm laborers and much more. We also provide technical assistance loans and grants in partnership with non-profit organizations, Indian tribes, state and federal government agencies, and local communities.

**Note on relevant Foundation expertise.** Todd Campbell of Clean Economy Works LLC, who serves Of Counsel to the ATIP Foundation, formerly served as Chief of Staff for the mission area and Senior Advisor to the Secretary of Agriculture Office for energy and bioeconomy issues at the U.S. Department of Agriculture and has deep knowledge of surrounding regulatory issues and the financial and technical assistance programs available to assist in industry development.

**8. Trade and Foreign Agricultural Affairs**

**a. Foreign Agricultural Service (FAS; <https://www.fas.usda.gov/> )**

FAS works to improve foreign market access for U.S. products. This USDA agency operates programs designed to build new markets and improve the competitive position of U.S. agriculture in the global marketplace. In addition to its Washington, D.C. staff, FAS has a global network of 93 offices covering 171 countries. These



offices are staffed by agricultural attachés and locally hired agricultural experts who are the eyes, ears, and voice for U.S. agriculture around the world. FAS staff identify problems, provide practical solutions, and work to advance opportunities for U.S. agriculture and support U.S. foreign policy around the globe.

**b. Codex Alimentarius Commission ( <https://www.usda.gov/codex> )**

The U.S. Codex Office (USCO), housed in USDA's Trade and Foreign Agricultural Affairs, acts as the national focal point for the U.S. Codex Program. Its mission is to engage stakeholders in the development and advancement of science-based food standards for the benefit of the United States and the worldwide community. USCO manages the planning, policy development, support, and coordination for U.S. involvement in Codex, and develops strategies to accomplish U.S. objectives. Established by the United Nations Food and Agriculture Organization (FAO) and the World Health Organization (WHO) in 1963, the Codex Alimentarius, or "Food Code," is the preeminent international food standards-setting body that protects the health of consumers and ensure fair practices in the food trade through the establishment of voluntary international standards, guidelines, and codes of practices. U.S. Codex Program.

The U.S. Codex Program is an interagency partnership that engages stakeholders in advancing science-based food standards to protect the health of consumers and ensure fair practices in the food trade.

Several federal agencies participate in the U.S. Codex Program through providing senior staff and executive delegates to represent the United States on many Codex committees, and the United States also chairs some committees. These Delegates to Codex committees (PDF, 352 KB) are primarily employed by regulatory agencies that set U.S. domestic food standards. Other U.S. agency officials participate in vital policy, coordination, and information dissemination activities relevant to their agency missions and interests.

**DEPARTMENT OF ENERGY (DOE)**

DOE is Co-Chair of the Biomass Research & Development Board (RB&D). They were also involved in the five national forums ATIP convened in 2016, and the three national forums ATIP convened in 2017.

Conner Prochaska is the Chief Commercialization Officer for DOE and is our primary contact. He is fully briefed on ATIP, our development of a model for rural economic development, and has expressed strong interest in remaining involved with our work.

DOE also represents a potential source of funds, particularly relevant to your energy production.

**ENVIRONMENTAL PROTECTION AGENCY (EPA)**

The Texas Commission on Environmental Quality interfaces directly with EPA on our behalf, and in turn, can act on behalf of EPA with our business prospects in support of environmental issues and permits.

**DEPARTMENT OF LABOR (DOL)**

**Note on relevant Foundation expertise.** Wes Jurey, CEO and President of the ATIP Foundation, has worked closely with DOL since 1990, having served on a number of DOL Boards, Councils, and Commissions, inclusive of serving as Chairman of the Texas Workforce System from 2008-2017. As our business prospects expand, DOL has significant resources at the federal, state and local levels to assist local workforce needs, inclusive of new hires and incumbent workers.

**DEPARTMENT OF HOUSING & URBAN DEVELOPMENT (HUD)**

Wes has also worked closely with HUD since 1990, at the federal level and with their multi-state Regional Offices. HUD is the source of the Innovation Zones and is also the Agency that funds Economic Development

Initiative (EDI) Grants. Our current primary contact is Regenia Hawkins, the Regional Director for a multi-State region inclusive of Texas.

## ENGAGING STATE AGENCIES & ORGANIZATIONS

### TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ)

TCEQ regulates air, water, and waste. Andy Gardner, the Agency Ombudsman, is our primary point of contact to begin the process of applying for all necessary permits for Texas. Also, he will interface with EPA on our behalf.

Andy explained that some permits take up to one year to approve. He basically stated that biomass/biochar companies need four permits; (1) Air (all businesses in Texas are required); (2) Waste, ( recycling included); (3) Water, (to include clean and waste water); and (4) Specific, regarding gas storage.

TCEQ contacts will provide all the necessary information on the permits.

The following is a list of primary permits needed:

#### **Stormwater**

**Construction:** The TCEQ construction stormwater general permit is for construction sites that disturb more than one acre of land. Small construction sites have to develop a Stormwater Pollution Prevention plan ([template](#) and [instructions](#)). Large construction sites have to submit a Notice of Intent application. The [TCEQ has a webpage that goes over the different requirements for large and small construction sites.](#)

**Industrial:** This stormwater permit is for certain industrial facilities. To obtain coverage a business will first need to determine their **Standard Industrial Classification (SIC)** code using the [OSHA webpage](#). Once determined, if the SIC is on [this list](#), the business will need to obtain coverage by submitting a Notice of Intent through the State of Texas Environmental Electronic Reporting System (STEERS). More information on stormwater can be found on our [Assistance Tools webpage](#).

#### **Wastewater**

**Reuse:** The TCEQ has a reclaimed water reuse permit. One can find information on this permit [on our website](#) and in TX rules ([30 Texas Administrative Code \(TAC\) 210 Subchapter E](#)). Industrial reclaimed water can be authorized on two levels. These levels are classified according to the process of how they are generated and whether they will be used on-site or off-site. More information on Level 1 and Level 2 industrial reuse water can be found [here](#). A producer of Level I industrial reclaimed water is authorized to use the water on-site [without notification](#) or approval by the TCEQ. TCEQ must provide a [written approval](#) before a company can reuse Level I water off-site, as well as before the reuse of Level II water. Use Form [TCEQ-20094](#) to apply for reuse of industrial reclaimed water. The business must [sample](#) Level II water to certify its applicability as reclaimed water.

**Industrial wastewater permit:** If an business operation discharges wastewater to a surface water body it is required to obtain an industrial wastewater permit. More information on that can be found [here](#). Alternatively, authorization can be obtained from the City to discharge wastewater to the City's sanitary sewer, as part of their pretreatment program.

#### **Waste**

One type of registration and/or permit not listed on the guidance document is a Municipal Solid Waste (MSW) Liquid Waste Processing facility. More information on that type of authorization can be found [here](#). Chandra Yadav (512/239-6727) and Daniela Ortiz De Montellano (512/239-2210) are the MSW contacts for processing. They will want a description of the wastes a biomass operation accepts and how it will process them. They will

also want to know the final product and any wastes that are generated from the biomass operation processes to help determine which authorization is needed.

### **Air**

This TCEQ [guidance document](#) describes some different air permits that could apply to a biogas facility. Here's some general information explaining their [air permitting](#). The TCEQ has a website for [permits by rule](#) and [standard permits](#).

### **Concentrated Animal Feeding Operation (CAFO)**

Some dairies based on their size are required to get a [general permit from the TCEQ](#). In that permit (TXG920000), the dairies are required to keep records showing the date the manure is removed from the CAFO; name and address of the recipient; and the approximate amount, in wet tons, dry tons, or cubic yards, of manure or sludge or gallons of wastewater or slurry removed from the CAFO. The permittee must make the most recent nutrient analysis of the manure, sludge, and wastewater available to any hauler and then if manure, sludge, or wastewater is being removed by a custom hauler or commercial composter then the records can be updated monthly in accordance with a normal billing cycle.

### **TEXAS DEPARTMENT OF AGRICULTURE (TDA)**

The ATIP Foundation's contacts at the Texas Department of Agriculture are:

(1) Roxana Newton, Sr Director, Trade & Business Development; (2) Patrick Dudley, Coordinator for Agriculture Commodity Boards and Producer Relations; and (3) Mindy Fryer, Grants Specialist.

It's worth noting Roxana was with the Governor's Office of Economic Development before she went to Agriculture. She is essentially in charge of Rural Development for Texas. Also, Sid Miller, Agency Commissioner, is from Stephenville.

All are fully briefed on the Foundation's Model and prospective technology providers; they have indicated strong interest and support. They offer assistance through a number of programs managed by Mindy Fryer.

Notable among them:

- Texas Agriculture Finance Authority, linked to the state Comptroller's office.
- Agriculture Loan Guarantee Program
- State Trade Expansion Grant \$10k
- Agriculture Start Up Assistance

The following provides more detailed information on available assistance:

Texas Agricultural Finance Authority ([TAFE](#)): TAFE manages several programs including the [Agricultural Loan Guarantee](#) (ALG) Program and [Young Farmer Grant](#) (YFG). The ALG provides financial assistance, in the form of guarantees, to agricultural-related business and farm & ranch operations. The maximum guarantee is \$500,000. The YFG is a grant opportunity that aims to grow and support Texas agriculture, impact the community and provide financial assistance. It is a matching grant available to individuals aged 18-46 and are (or will be) engaged in creating or expanding agriculture in Texas. The next application deadline is October 10th.

[International Marketing](#): The International Team is a great resource for any business and/or producer that is interested in exporting. They have developed great working relationships with [SUSTA](#) (Southern United States Trade Association). The team can also help determine the most feasible international markets and navigate the available programs and opportunities. SUSTA has two primary programs - the Cost Share Program and Global

Events Program. The 50% Cost Share program, reimburses small businesses for eligible marketing expenses to promote their products in foreign markets. The Global Events Program provides small businesses with the opportunity to meet foreign buyers at trade missions, both domestically and internationally.

The [State Trade Expansion Program](#) (STEP) is managed by TDA. It aims to increase the number of small businesses that are exporting. It provides a stipend to help cover eligible export-related expenses.

Texas Workforce Commission's [Skills Development Fund Program](#) provides customized training for Texas businesses. The training can be offered by TEEX or the public community or technical college.

The Community Development Financial Institution (CDFIs) primarily focus on small businesses and their loan amounts are relatively small. However, they may be a fit for a few of the businesses that start as a result of this initiative. TDA has partnered with three CDFIs in the past and all three are also SBA lenders:

[PeopleFund](#)

[LiftFund](#)

[BCL of Texas](#)

#### GOVERNORS OFFICE OF ECONOMIC DEVELOPMENT

The ATIP Foundation's contacts at the Governor's Office of Economic Development are:

(1) Larry McManus; (2) Michael Treyger, Deputy Director, Business Development; (3) Joe McGruder, Industry Specialist; (4) Lauren Vay, Marketing & Communications Specialist; and (5) Annie Calandruccio, Project Coordinator.

They are fully briefed on the Foundation's work with USDA to build replicable models for rural economic development.

At the appropriate time, they can work directly with any business to assist locating/expanding into Texas.

#### Texas Association of Manufacturers (TAM)

Primary contact at TAM is Tony Bennett, CEO. TAMs members include most of the primary manufacturers in Texas. They also have a strong political influence in the state, particularly with the State Legislature. This can be helpful if advocating for regulatory and/or policy change.

#### Texas Economic Development Council (TEDC)

Primary contact is Carlton Schwab, CEO, for engaging all the local economic development corporations (EDCs) and can be helpful in engaging the EDCs in other regions of the state.

### **CREATING REGIONAL CAPACITY**

This section describes the specific work we are doing to establish regional capacity for the growth and sustainability of the Bioeconomy Sector, and to ensure the Region's Stakeholders are knowledgeable and supportive. Primary regional Stakeholders include municipalities, county governments, and employer led organizations, to include Chambers of Commerce and Economic Development Corporations (EDCs).

#### **Regional Steering Committee**

The ATIP Foundation has established "Regional Steering Committees" in the regions we work in, comprised of persons representing the six "stakeholder" sectors. The Steering Committee's role/purpose includes providing (1) thought leadership; (2) the support needed to create the educational awareness necessary to the

stakeholders understanding; (3) the assessment of the status of the region’s supplier/service provider network; (4) the assessment of the five "economic foundations;" (5) a catalyst for research translation; and (6) assistance in developing a shared data base of the applicable resources within the Region, to include biomass.

The Steering committees provide the thought leadership to encourage the establishment of a sustainable industry cluster, focused on the Bioeconomy, within the region; a holistic view of “regional sustainable economic development,” and an interest in the economic measure and well-being of the region, ensuring that any project becomes economically viable.

**Administrative Leadership:**

The ATIP Foundation provides the administrative leadership for the Model, working closely with Chambers of Commerce, Economic Development Corporations (EDCs), City & County Governments, and education and workforce development, as well as producers and commodity groups, within the region.

The Regional Strategic Work Plan for each region, led by ATIP in partnership with the EDCs, consists of 5 primary tasks:

1. Identify, analyze, and compile information and data regarding biomass business opportunities (i.e. biomass feedstocks, suppliers & service providers, supply chain networks, providers, access to capital, workforce training, etc.)
2. Identify, train, and provide technical assistance to local economic development organizations
3. Assist in the creation of new rural businesses related to advancing the bioeconomy;
4. Conduct local community and multi-county economic development planning; and
5. Establish and/or enhance the capabilities within economic regions of centers for training, technology and trade, regarding the bioeconomy.

**TEXAS REGIONAL PARTNERS**

Economic Development Corporations (EDCs)

- Stephenville Economic Development Authority, Mineral Wells Chamber of Commerce, Granbury Chamber of Commerce, Weatherford, Parker County Economic Development

Cities

- Granbury, Mineral Wells, Stephenville, Weatherford

Counties

- Erath, Hood, Palo Pinto, Parker

**ESTABLISHING & MAINTAINING RESOURCE SUPPORT**

This section describes, in general terms, the resources that have been compiled by ATIP in each region. Those resources, including extensive data, are available to assist our regional partners and business prospects, in the establishment of business facilities within the states/regions we serve.

The Content includes:

**Biomass Inventory:**

We have compiled an extensive and comprehensive geospatial database (ArcGIS Pro) of various biomass feedstocks in TX. Some specific examples follow:

- For TX, Manure production for all concentrated animal feeding operations (CAFOs) and Animal Feeding Operations (AFOs) is calculated. These data are expressed in animals per farm (by type; beef, dairy,

swine, laying hens, sheep, horses), dry tons of manure per year per farm, and most importantly Daily Tons per farm at 90% moisture. There are 163 farms in this database in the 11 county area of northcentral TX; most are in two counties.

- EPA Foodwaste estimates for 11 county area includes 9 correctional facilities, 230 educational institutions, 71 food manufacturers and processors, 308 food wholesale and retailers, 11 healthcare industry, 143 hospitality industry, 924 restaurants and food services.
- Municipal solid wastes data include landfills, biomass processing facilities (composters), and municipal wastewater sewage sludge. In some cases, we have the fate of the sludge (i.e., transfer to another processing facility, or direct to landfill). The dataset is extensive, providing type of facility (composting, disposal, EMSW conversion, in-vessel digestion, and transfer/processing), and an extensive list of wastes accepted for each of the facilities.

#### Infrastructure – Supply Chain:

Also georeferenced in each CAFO map is the infrastructure, including roads and streets, electric transmission lines, railways, and natural gas pipelines.

#### Suppliers, Service Providers:

This list (georeferenced) is critically important for identifying and contacting those businesses that either participate or can participate in advancing the bioeconomy. The lists include all local utility providers (gas, electric, wastewater, fiber, internet, phone); financial institutions and whether they participate in either SBA or USDA loan guarantee programs; waste haulers (ag residues, general wastes, sanitation), trucking and transport companies, workforce training institutions, elected city / county officials, and especially important --- all Economic Development organizations in each region. This database usually lists specific persons and phone numbers to contact for more information.

#### Workforce Development Resources

- **Local Workforce Boards**  
The North Central Texas workforce board has adopted agribusiness as a demand occupation. This means they can allocate funding specifically in support of employment needs, as well as those of suppliers and service providers. Significant funding is available to support new worker training as well as incumbent worker training.
- **Independent School Districts**  
The Mineral Wells & Stephenville Independent School Districts are utilizing National Industry Recognized Certifications as the basis of the training they are providing in the areas of logistics, manufacturing, and production, in their Career & Technical Education Programs.
- **Community Colleges**  
Weatherford and Ranger Colleges have also aligned their course offerings to support agribusiness workforce needs.
- **Universities**  
Tarleton State University, located in Stephenville, is doing extensive research in the use of biomass. They also manage the Texas A&M AgriLife Research Center, and the related Texas Institute for Applied Environmental Research.
- **Unmanned & Autonomous Training Academy**



We have worked with numerous partners to establish Texas UASWERX; which now operates an Unmanned & Autonomous (UAS) Systems Test Center & Training Academy at the Mineral Wells Regional Airport. Given the rapid growth and acceleration of UAS across virtually all Industry Sectors, the Center fills a unique niche in fostering the necessary workforce for precision agriculture. The Training includes the first and still only US Department of Labor Certified Registered Apprenticeship Program.

#### Public Policy

[In process of characterization.]

#### Capital

The ATIP Foundation has extensive contacts with the investment community (private sector) as well as a number of federal, state, and local resources of capital. Federal resources include close interactions with USDA Rural Development Business and Industry Loan Program (loan guarantee); Intermediary Relending Program; Biorefinery, Renewable Chemical, and Biobased Product Manufacturing Assistance Program (9003); Rural Energy for America Program / Renewable Energy & Energy Efficiency; Rural Business Development Enterprise and Opportunity Grants, and others. The Foundation also can provide specific information on the SBA Loan Guarantee programs across all states, including those that specialize in small, micro, and macro lending.,

#### Technology

The ATIP Foundation has specialized experience in accessing technologies as well as in facilitating opportunities to jointly research and develop technologies through the federal laboratory system. Dr. Brenner served for over 10 years as the USDA Representative to the Federal Laboratory Consortium for Technology Transfer (<https://federallabs.org/>), and in that capacity, had one counterpart from each of the cabinet-level agencies in the Federal government. For example, Dr. Brenner had sole delegated authority from the Secretary of Agriculture to license any technology (patent) from any research agency of USDA. His counterparts had similar authority in their respective agencies (e.g., Department of Defense (DoD), Environmental Protection Agency (EPA), Department of Energy (DOE), Department of Transportation (DOT), Health and Human Services, (HHS), NASA, Department of Commerce (DOC), Department of the Interior (DOI). Currently, Dr. Brenner personally knows eight of these representatives. Thus, the ATIP Foundation can engage specific representatives in each federal department and agency to identify technologies (patents, plant varieties) available for licensing through Patent License Agreements (PLA) by private sector companies and nonprofit entities; these licenses may be non-exclusive (licensed by several companies), or exclusive (licensed to 1 company only for the term of the patent).

Similarly, the Foundation can serve as intermediary to companies in assisting them to enter into specific Cooperative Research and Development Agreements (CRADAs) in all federal agencies. CRADAs are a unique way for corporations to access the 900+ federal laboratories across the U.S. CRADAs offer companies a way to jointly execute exclusive research projects aimed at creating new technologies (patentable inventions). In exchange for sharing part of the research costs, the corporation is guaranteed an exclusive license to any and all inventions arising from the joint research. CRADA policies to vary slightly among federal agencies, and the Foundation is positioned to navigate that, and to locate specific federal scientists to partner with corporations on addressable research problems.