

OUTSIDE LEARNING FOR VALLEY CERF

# Exploring Options for Economic Competitiveness and Resilience, Equity, and Climate Action in the Central San Joaquin Valley

**Summary: Economic Frameworks and Industry Clusters**

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December 2023

Prepared for CVCF for internal use only in support of Valley CERF





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## Acknowledgments

This report was funded by the Central Valley Community Foundation with resources through the State of California's Community Economic Resilience Fund. We are grateful to them and to all our funders, who make it possible for Urban to advance its mission.

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We thank each of the 34 people who gave us their time and expertise on these economic frameworks and industries. We also thank members of the four Valley CERF High Road Transition Collaboratives and staff at the Central Valley Community Foundation for their review.

# Introduction

In 2022, California's Governor's Office of Planning and Research (OPR), Office of Business and Economic Development (GO-Biz), and the California Labor Workforce Development Agency (LWDA) launched the \$600 million Community Economic Resilience Fund (CERF). The aim of CERF is to support the development of new plans and strategies to advance competitive and resilient economies that center equity and climate action in each of the state's 13 regions. To achieve CERF's desired outcomes for long-term economic resilience in the transition to a carbon-neutral economy across California, regional backbone organizations are being funded to convene and engage diverse stakeholders in a highly participatory planning process. The Central Valley Community Foundation (CVCF) is leading the effort for the Central San Joaquin Valley CERF (Valley CERF), in partnership with three local conveners – the Office of Community and Economic Development (OECD) at Fresno State, United Way Fresno and Madera Counties, and the Workforce Investment Board (WIB) of Tulare County - and a coalition of more than 100 organizations in the region's four counties of Fresno, Kings, Madera, and Tulare.

Effective planning efforts must be grounded in evidence, including for strategies to advance economic competitiveness and resilience, equity, and climate action. The Urban Institute (Urban) has been contracted by CVCF to support Valley CERF with some of the evidence it needs to consider to achieve CERF's desired outcomes. As part of this work, Urban gathered information on several proven and promising economic frameworks and industry clusters that are relevant to CERF's goal of simultaneously advancing economic competitiveness and resilience, equity, and climate action, and that are relevant to the context in the Valley CERF region. We summarize our findings by introducing the economic frameworks and industry clusters analyzed, and exploring alignments and distinctions within their key features and benefits, key policies and other levers that help advance them, and opportunities and considerations for Valley CERF. We also explore interplays across the economic frameworks and industry clusters. The economic frameworks explored are local, triple bottom line, cooperative, circular, fair trade, and doughnut; and the industry clusters explored are clean energy, responsible food systems, "one water" management, and circular manufacturing. Each is described in more detail in the CERF Outside Learning Report; full references and citations for this summary are available in the CERF Outside Learning Report.

To assess the evidence base for each of the industry clusters and economic frameworks, Urban conducted a review of peer-reviewed and practitioner literature for relevant publications, especially those that spoke to implementation and outcomes. To expand on the literature, Urban conducted 34 interviews with experts and movement leaders, each with deep knowledge of at least one of the economic clusters and industries; experts and leaders were representatives from local, regional, and national scale efforts, as well as from the government, non-profit, and private sectors. Urban also gathered evidence on the current size of the clean energy, food, water, and manufacturing industries in the region.

The CERF Outside Learning Report on economic frameworks and industry clusters is intended to be used in combination with the Regional Plan Part 1, which includes a Baseline Assessment of the Valley CERF region, a Climate and Environmental Analysis, and a SWOT analysis. While the Regional Plan Part 1 provides insights to the context in the region as it is now, this summary and the CERF Outside Learning Report explores possibilities for the future that the HRTCs can incorporate into their thinking. The combination of all findings is intended to inform the Valley CERF coalition's High Road Economy Transition Plan and Road Map, which will contain the coalition's recommendations to the state of California for the strategic investments the region is prioritizing to advance climate-forward industries, diversify regional economies, and ensure equitable access to high quality jobs. This summary and the CERF Outside Learning Report may also be of use to the state's CERF program partners in evaluating the recommendations in Valley CERF's High Road Economy Transition Plan and Road Map for funding in the Implementation Phase.

## Economic Frameworks

An economic framework is a type of social system focused on production, distribution, and exchange of goods and services. Values and principles inform the policies that create and perpetuate the economic framework – and thus the social system – and drive behavior. Capitalism is the dominant economic framework in the US and around the world, but there are many other economic frameworks that co-exist with capitalism, each of which vary in how prominent and established they are. In our CERF Outside Learning Report, we explore six proven and promising economic frameworks: local, triple bottom line, cooperative, circular, fair trade, and Doughnut. These six economic frameworks, each in their own ways, and so to varying degrees, aim to balance the wellbeing of people and the planet with economic health and resilience. Table 1 provides a summary overview of the six economic frameworks analyzed.

The goals of CERF reflect this desired balance, which itself aligns with a growing movement among economists, practitioners, and advocates centered around advancing one or more of these economic frameworks as an effective strategy to achieve the interdependent and necessary outcomes of economic health and resilience, equity and justice, and climate action. The movement is responding to several drivers, including rising inequalities<sup>1</sup> across measures such as income and wealth,<sup>2</sup> as well as the current and projected impacts of climate change,<sup>3</sup> all of which are also acute and pervasive challenges in the Central San Joaquin Valley (CVCF 2023).

TABLE 1

## Overview of Economic Frameworks

Framework	Definition	Key Elements	Key Benefits
<b>Local Economies</b>	Local economies are those that transform the policies, programs and initiatives, and other aspects of the economic ecosystem to reflect the key principle that what is created in and by the community should be more for the benefit of the community than for the benefit of external actors.	<ul style="list-style-type: none"> <li>▪ Centering locally owned businesses</li> <li>▪ Business development more than business attraction</li> <li>▪ Local ownership of the supply chain</li> <li>▪ Economic democracy</li> </ul>	<ul style="list-style-type: none"> <li>▪ Local multiplier effect</li> <li>▪ Improved socioeconomic outcomes for workers</li> <li>▪ Economic and job stability</li> <li>▪ Preserve local character and identity</li> <li>▪ Environmental benefits</li> <li>▪ Community empowerment and wellbeing</li> <li>▪ Support under-resourced entrepreneurs</li> </ul>
<b>Triple Bottom Line Economies</b>	The triple bottom line (TBL) economic framework guides thinking and doing by defining and measuring success along equally weighted metrics of people, planet, and prosperity. The TBL framework is used for planning, decision-making, and accountability, and can be applied at a variety of scales – from that of an individual to a business to a government to an entire economy.	<ul style="list-style-type: none"> <li>▪ Move from a growth mindset to a development mindset</li> <li>▪ Adopt a 'whole systems' approach</li> <li>▪ Broad stakeholder collaboration</li> <li>▪ Reporting and credible certification</li> </ul>	<ul style="list-style-type: none"> <li>▪ Quality jobs and career pathways</li> <li>▪ Strong 'return on investment'</li> <li>▪ Environmental benefits and green operations</li> <li>▪ Community well-being</li> <li>▪ Accountability and transparency</li> </ul>
<b>Cooperative Economies</b>	The Cooperative Economy, sometimes used interchangeably with the Solidarity Economy, is often exemplified by cooperatively owned businesses, which are people-centered enterprises jointly owned and democratically controlled by and for their members. The Cooperative, or Solidarity, Economy is an umbrella term for economic initiatives and programs based on mutuality and cooperation instead of self-interest and competition.	<ul style="list-style-type: none"> <li>▪ Voluntary and open membership</li> <li>▪ Democratic member control</li> <li>▪ Member economic participation</li> <li>▪ Autonomy and independence</li> <li>▪ Education, training, and information</li> <li>▪ Cooperation among cooperatives</li> <li>▪ Concern for community</li> </ul>	<ul style="list-style-type: none"> <li>▪ Jobs and job security</li> <li>▪ Business performance</li> <li>▪ Local economic prosperity</li> <li>▪ Environmental sustainability</li> <li>▪ Improved racial and gender equity</li> <li>▪ Community development</li> <li>▪ Worker empowerment and well-being</li> </ul>

<b>Circular Economy</b>	A Circular Economy is generally understood to be a model of production and consumption in which waste is reduced to a minimum and materials are recycled whenever possible, in contrast to the traditional “linear” economy, where resources are extracted to produce goods that are subsequently consumed and then discarded.	<ul style="list-style-type: none"> <li>▪ Eliminate waste and pollution</li> <li>▪ Circulate products and materials (at their highest value)</li> <li>▪ Regenerate nature</li> </ul>	<ul style="list-style-type: none"> <li>▪ Economic development</li> <li>▪ Jobs</li> <li>▪ Innovation and economic competitiveness</li> <li>▪ Greater customer interaction and loyalty</li> <li>▪ Reductions in greenhouse gases and other emissions</li> <li>▪ Reductions in material use</li> <li>▪ Protect biodiversity</li> </ul>
<b>Fair Trade</b>	Fair trade is movement aimed at improving the lives of workers by ensuring fair wages, dependable contracts, safe working conditions, reinvestments into communities, and environmentally responsible practices.	<ul style="list-style-type: none"> <li>▪ Prices that support the livelihood of producers</li> <li>▪ Premiums and community reinvestment</li> <li>▪ Environmentally responsible practices</li> <li>▪ Yearly contracts and access to credit</li> <li>▪ Worker protections and prohibition of forced labor</li> </ul>	<ul style="list-style-type: none"> <li>▪ Living wages and safe working environments</li> <li>▪ Producer and community wellbeing</li> <li>▪ Resilience and stability in fluctuating markets</li> <li>▪ Environmental protection</li> <li>▪ Mitigating and planning for climate change</li> <li>▪ Economic democracy</li> <li>▪ Accountability and transparency throughout the supply chain</li> </ul>
<b>Doughnut Economy</b>	The Doughnut Economics framework was developed in 2012 by economist Kate Raworth to incorporate social and ecological goals, which tend to be ignored by mainstream economic models. Doughnut Economics aims to meet the needs of all people within the means of the planet.	<ul style="list-style-type: none"> <li>▪ Ecological sustainability and regeneration</li> <li>▪ Social equity and redistribution</li> <li>▪ Cooperation and interdependence</li> </ul>	<ul style="list-style-type: none"> <li>▪ Economic sustainability and resilience</li> <li>▪ Addressing climate change and healing ecological systems</li> <li>▪ Health and healthy environments</li> <li>▪ Social equity</li> </ul>

Source: Urban Institute analysis.

## Elements

While the key elements for each economic framework are distinct and vary in the degree to which they balance the wellbeing of people and the planet with economic health, there are common themes across all six.

- *Mutually reinforcing pillars:* Evidence, referenced in the CERF Outside Learning Report, shows that the relationship between economic health and resilience, equity, and ecological health is strongly mutually reinforcing, not mutually exclusive. This mutually reinforcing relationship, which can be seen from the business scale to the community scale to a global scale, is assumed across the six economic frameworks. Despite this embedded assumption, not every framework explicitly names this relationship or gives equal weight to all three pillars in its approach. For example, local focuses heavily on the economy and circular is critiqued for leaving out an explicit focus on equity, while triple bottom line and Doughnut are explicitly framed around the interdependence of people, planet, and prosperity.
- *Interdependent Relationships:* Several of the economic frameworks prominently feature self-reliant but interdependent communities, including through practices like cooperation and fair trade, as a balance if not an alternative to the concentrated power of multi-national and global companies.
- *Redefining success from growth to development:* How success is defined – and measured – matters for driving behavior. Many of the economic frameworks implicitly or explicitly redefine success around economic development instead of growth. The dominant narrative is that economic growth is the most desirable goal, be that represented by a business' bottom line, a city's total population or total number of jobs, or a nation's gross domestic product (GDP). Critics of economic growth as the ultimate measure stress that narrowly focusing on growth not only ignores other important measures, such as equity and ecological health, but also often incentivizes exploitative and extractive behavior (Raworth 2017). Economic development, however, which can be inclusive of growth, focuses on improving well-being and quality of life. Of note, while a shift to prioritizing economic development over economic growth better enables equitable and ecologically sound outcomes, it does not inherently result in such.
- *Healing and repair:* Several of the economic frameworks implicitly or explicitly acknowledge the degree of harms to people and planet - including rising inequalities as well as the current and projected impacts of climate change – that the framework seeks to address. Several, including circular and Doughnut, also take the position that, because of the degree of harms, it's not sufficient to simply 'move forward better;' these frameworks explicitly call for healing and repair, using terms like redistribution and regeneration to refer to the corrective actions needed to rebalance things like wealth and power as well as ecological systems and planetary health.
- *Systems change:* While the six economic frameworks vary in their scale and scalability, each aims for systems change in policy and/or practice; some - notably triple bottom line and Doughnut - explicitly aim for wholesale systems change to address the scale and urgency of the economic, equity, and climate crises.



- *Role of public and private sectors:* While each economic framework differs in how it approaches the role of the public and private sectors, each requires the leadership and active participation of both. None speak explicitly to the role of the non-profit sector or philanthropy, although each necessarily play an important role in systems change.
- *Transparency, accountability, and learning:* In addition to redefining success to include economic health and resilience, equity, and ecological health, and developing standards and metrics to measure progress towards each, several of the economic frameworks explicitly call for transparency practices in support of internal and external accountability. When measuring and reporting are used well – not punitively – they can support trust and a learning culture in which the work is seen as an ongoing practice, such that progress is regularly assessed and corrective actions are taken as needed to improve outcomes.

## Benefits

The body of evidence exploring causal and corollary benefits for each economic framework varies in breadth and depth as well as proof versus promise. This is perhaps related to the variance in how prominent and established each is. While each can be found to varying degrees around the globe, including in the US, we did not find any examples of where any of these were the dominant economic framework. Additionally, perhaps due to the variance in how well each framework balances the wellbeing of people and the planet with economic health, the balance of the evidence across all three pillars varies. However, there are common proven and promising benefits for economic competitiveness and resilience, climate action and environment, and equity:

- *Economic competitiveness and resilience*
  - Jobs and job quality: Each of the economic frameworks implicitly or explicitly centers local independent businesses, which are often—although not necessarily—smaller businesses. Small businesses have accounted for two thirds of every job added since 1997 and recovered faster since the acute shock of the COVID-19 pandemic.<sup>4</sup> Because of the focus on local businesses, it can be expected that the majority of these jobs are local jobs. Importantly, while number of jobs matters, so does the quality of jobs. All frameworks, although to varying degrees, demonstrated proven and promised benefits related to fair wages and other aspects of job quality.
  - High returns on investments: Each of the economic frameworks focuses on economic improvements. To varying degrees, they demonstrate significant economic returns related to the local multiplier effect which captures direct, indirect, and induced economic activity; as well as cost savings, profits, talent retention, and other aspects of overall business, project, and economic performance.
  - Stability and sustainability: A thematic proven and promising outcome of the economic frameworks relates to economic stability and sustainability for the worker, business, community, and economy. Investments in diverse local business communities (both by ownership and sector), the well-being of employees and communities, local and ethical

supply chains, and ecological health, result in more economic stability for workers, businesses, and economies—including through regular market volatility and acute shocks—and a stronger likelihood of thriving over the long term.

- Placemaking and ownership of place: The character and identity of a place is heavily intertwined with its business community. Each of the economic frameworks, in their own ways, acknowledges this relationship, and demonstrates the community and economic development benefits of empowering people—as residents, employees, owners—to shape their place.
- *Climate action and environment*: As previously discussed, nearly all of the economic frameworks explicitly embed principles related to climate action and environmental health, both in terms of minimizing further ecological harms and repairing the harms that have already been done. These embedded values, and the practices that stem from them, result in a suite of proven and promising benefits related to reduced greenhouse emissions; energy efficiency and water conservation; reduced pollution and waste; improved air, water, and soil quality; adaptation to the impacts of climate change; and ecological restoration.
- *Equity*
  - Improved socioeconomic conditions for workers and in communities: Quality jobs, such as the ones that these economic frameworks support, pay fair wages; provide other compensation like paid time off, healthcare, and retirement benefits; provide safe working conditions; offer fair schedules and other aspects of job security; and more. These are all important elements of upward mobility, as are other benefits of the frameworks, such as environmental quality and economic inclusion.<sup>5</sup>
  - Economic democracy: Participation in economic decision-making—be that through community and economic development planning and implementation, cooperative ownership of a business, or the opportunity to unionize—supports economic democracy, which is a benefit seen across several of the six economic frameworks explored.
  - Improved outcomes for underrepresented business owners: With intentional efforts and investments, the promise of improved outcomes for underrepresented business owners is shared across several of the economic frameworks.

## Policy and Other Levers

As previously noted, the values and principles of an economic framework are reflected in its policies, which create and perpetuate the system and drive behavior. Public policy takes the form of legislation, local ordinances, administrative rulemaking, and other actions taken by public institutions. Examples of legislative policy could include a state senate bill to increase minimum wage, or a city council ordinance to ban single-use plastics. Examples of administrative policy could include procurement guidelines or regulations related to air or water quality. Examples of other actions could include comprehensive planning, budget allocations, or code enforcement. As previously noted, each of the six economic

frameworks aims for systems change; in the economic ecosystem, which includes the public and private sectors, this demands a mix of policy and programmatic levers. As previously noted, each of these economic frameworks currently co-exists with the dominant capitalist economic framework, and may be more or less prominent within different communities throughout the world. Based on the evidence of when one or more have taken hold, we found some common policies and other levers. For example:

- *Planning:* Local and regional plans, especially those meant to be comprehensive, can provide an important north star, codifying priorities and goals and guiding activities in a place for many years. This makes them critical tools for establishing goals, strategies, actions, metrics, and benchmarks that serve economic health and resilience, equity, and climate action; and for engaging stakeholders in the shared work. Further, plans—whether they are economic development plans, land use plans, climate action plans, or otherwise— that consider economic development, equity, and ecological health can help guide efforts to align public policies, programs, budgets, and other actions. The more strategic alignment, the easier progress towards economic health, equity, and climate action can be.
- *Procurement and other financial incentives:* ‘Raising the floor, such as by mandating new minimums for socially and environmental responsible standards in business practices can drive behavior change in all corners of the private sector. Financial incentives can also help drive behavior change, rewarding desired behavior, such with as tax credits and grants, or deterring undesired behavior, such as with fees or fines. For prospective government contractors, procurement preferences create strong rewarding incentives. Government spending is inevitable, and their spending power is substantive. Procurement policies, such as those that focus on best value instead of lowest bid, offer a powerful tool for governments to attract diverse, local, ethical, and environmentally responsible prospective contractors. Through procurement policies such as best value contracting, governments can also model for anchor institutions and other actors this way of building a supply chain, and help lead a ‘race to the top.’
- *Business Development:* Just as with procurement and other financial incentives, business development is one of many important parts of a supportive economic ecosystem. All businesses, regardless of their size, stage, or industry, can benefit from capital, training and technical assistance, peer support, and other business development supports. This is especially true for smaller businesses and women- and minority-owned businesses that face unique barriers. Evidence shows that investing in business development results in significant returns. For example, every federal dollar invested in Small Business Development Centers (SBDCs) generated \$1.66 in federal revenue and \$3.64 in state revenues.<sup>6</sup>
- *Backbone Organizations:* Fostering and resourcing backbone organizations that provide training and technical assistance, peer support, and other business development services is another key part of a supportive economic ecosystem. Backbone organizations could be business service organizations providing either generalized business support or focused support for particular types of businesses (start-ups, cooperatives, triple bottom line, women- or minority-owned, industry- or

sector-specific, etc.).

- *Narrative Change:* As previously noted, an economic framework is a type of social system focused on production, distribution, and exchange of goods and services. Values and principles inform the policies that create and perpetuate the economic framework—and thus the social system—and drive behavior. Thus, shifting public discourse about what the goals of an economy should be, how we measure success towards those goals, and what actions are needed to ensure positive outcomes for people, planet, and prosperity is another key lever. For example, “local first” campaigns have been successful in increasing year-to-year sales for independent businesses when compared to places that don’t have such campaigns.<sup>7</sup>

## Opportunities and Considerations for the Valley CERF Region

As described in the Regional Plan Part 1 (CVCF 2023), across almost all socioeconomic measures evaluated, there are disparities between the people who live in the Central San Joaquin Valley and those who live in the rest of California. There are further disparities between the people living in the region’s disinvested areas and those who live in the rest of the Central San Joaquin Valley. Getting more granular on certain measures, the disparities become wider for people living on Tribal Land. Further, the Central San Joaquin Valley currently experiences several compounding impacts of climate change, including hotter temperatures, droughts, wildfires, and extreme precipitation events, all of which are expected to continue, and which disproportionately impact the region’s lowest income communities and communities of color, who are the majority of residents in the region. Without intervention, these socioeconomic and climate trends can be expected to continue, if not worsen.

Significant shifts in policy and practice are required to change course, move past the status quo, and achieve CERF’s desired goals of economic competitiveness and resilience, equity, and climate action and environmental health. Highlighted opportunities to advance one or more of the economic frameworks—wholesale or in parts—with policy and practice in the Central San Joaquin Valley are outlined in the CERF Outside Learning Report. Thematically, the opportunities, include:

- *Comprehensive planning:* As previously noted, local and regional plans provide an important north star. They can codify priorities and goals and guide activities in a place for many years, which makes them critical tools for advancing a competitive and resilient, equitable, and climate-forward economy, including establishing goals, strategies, actions, metrics, and benchmarks to support progress. As explored in Valley CERF’s Regional Plan Part 1 (CVCF 2023), the region and the state have a variety of plans, ranging from community and economic development, to land use and transportation, to climate action. However, none of these plans spoke to all three CERF pillars of economic competitiveness and resilience, equity, and climate action.

Valley CERF is a significant planning process that offers the opportunity to develop a plan that strategically aligns all three pillars. Uniquely, Valley CERF has been catalyzed and is being enabled by the state of California, with the ultimate deliverable of the planning phase being a High Road Economy Transition Plan and Road Map, which will be followed by implementation investments from the state. Thus, the coalition has the opportunity to use this state-supported planning

process to think past the status quo and develop a road map that incorporates one or more economic frameworks—wholesale or in parts—that best position the region to achieve its goals for a competitive and resilient, equitable, and climate-forward economy.

- *Cross-sector engagement and coalition-building:* Ownership of the planning process supports ownership of the implementation process. The broader and more diverse the supportive base is for a plan, the more likely its implementation—be that through programmatic efforts, policy efforts, or both—will be successful. As described in the Regional Plan Part 1 (CVCF 2023), Valley CERF was designed for diverse stakeholder representation, including labor and worker voice; business voice and economic development; education and workforce development; local government; Tribes; environment and environmental justice; and community voice. Valley CERF's democratic governance structure is supporting a process in which every member has a voice in decision-making and can inform a plan that reflects their needs and priorities. Thus, Valley CERF has the opportunity to not only develop a robust stakeholder-led plan, but also to continue to engage as a unified coalition in support of the plan's implementation.
- *Municipal government action:* Municipal governments - individually and collectively - play a critical role in creating the conditions for any economic ecosystem. The municipal governments in the Valley CERF region have the opportunity to be “model employers,” showcasing desirable behaviors that support equitable and climate-forward economies through all aspects of their operations, including through their contracts and purchasing. Additionally, through policy, direct investments, and other levers, they can influence the growth of industries and innovation; further, what industries they prioritize and what innovations they help spur can set the tone for an economy. Further, the region's municipal governments can demonstrate their commitment to diverse, local, independent, and socially and environmentally responsible businesses through their business development and business attraction efforts—and how they balance the two—among other things.

Through policy, direct investments, and other levers, the region's municipal governments—individually and collectively—can also influence how the private sector behaves. This could include setting minimum standards for local wages and other labor regulations that align with local costs of living and needs of worker in the region; it could also include encouraging behaviors—like clean energy retrofits, water conservation, or regenerative agriculture—through financial or other incentives. Further, through their business support services, municipal governments in the Valley CERF region can also provide training, technical assistance, and other assistance—directly, and indirectly through partnerships with local backbone organizations—that not only help the region's diverse local businesses strengthen standard operations, but also incorporate socially and environmentally responsible practices that meet or exceed the minimum requirements set by the government. Because CERF is state funded, and because the Valley CERF coalition includes local government leaders, Valley CERF is uniquely positioned to engage California state government as well as local governments in the region on how they can support the implementation of the High Road Economy Transition Plan and Road Map through both policy and practice.

- Private sector action:* Due to its size and scale, the private sector also holds significant power in advancing economic health and resilience, equity, and climate action. Ensuring that all businesses—regardless of size, scale, or sector—are operating in socially, environmentally, and economically responsible ways is a key strategy to advancing CERF goals, which can be achieved with municipal government actions, including those described above. And, there are other opportunities for Valley CERF to continue to engage the region’s business community on how it can be part of the solution and advance CERF goals. A growing number of business leaders are recognizing that their responsibility as business leaders extends past their bottom line, and that when they embed socially and environmentally responsible practices—regardless of their business’ size or sector—they tend to do better. These business leaders are taking action—within their own businesses as well as by using their business voice to engage other businesses and to demand systems change. For example, since B Lab (a global nonprofit network working to ensure all businesses benefit all people, communities, and the planet) launched their rigorous international standards and certification for B Corps in 2006, nearly 7,800 businesses across the globe, including national and multi-national brands, have become certified.<sup>8</sup> And, business networks, such as the international B Team, are mobilizing socially and environmentally responsible businesses to engage more businesses in embedding responsible practices and advocating for policies that advance equity and climate action, including through business standards.<sup>9</sup> Valley CERF can engage these types of business leaders in the region to help mobilize other business leaders in the region.
- Community empowerment:* As described in the Regional Plan Part 1 (CVCF 2023), the socioeconomic and environmental conditions in the Valley CERF region are impacting real people in real ways, with disproportionate burdens on people of color and people with low incomes. Robust efforts to ensure the voice of the people informs decisions are not only an essential component of any equitable process—from planning to implementation—but lead to better and more sustainable outcomes.<sup>10</sup> Beyond a ‘top down’ community engagement strategy, there is continued opportunity for Valley CERF to build the civic capacity of communities so they can meaningfully engage and sustain their engagement.

While the opportunities for Valley CERF to reshape the status quo through one or more of these economic frameworks—wholesale or in parts—are plentiful, there are also several considerations, including:

- Size and scale of approach:* As described, while the six economic frameworks have thematic ties, they vary in scale and scalability as well as prevalence and adoption, and each offer varying degrees of proven versus promised benefits aligned with CERF goals. This invites the Valley CERF coalition to consider its desired approach: whether the aim is for a broad range of impacts across sectors and stakeholders, or a narrow range of impacts for specific sectors and stakeholders; which framework or frameworks—or aspects of them—are most salient for the region; whether planning efforts will focus on one framework or blend principles and features of several; and what the collective appetite is for adopting proven versus innovative approaches. Regardless, Valley CERF will likely need to take a phased approach to implementation, which benefits significantly from a just transition framework.<sup>11</sup>

- *Overcoming inertia of status quo:* While there is likely alignment within and beyond the Valley CERF coalition that the outcomes resulting from the status quo are not desirable, sustainable, or compatible with CERF goals, the degree of policy and practice needed to change it may be overwhelming to some; further, change itself is often met with resistance—the status quo, however imperfect or challenging, is known, whereas what is on the other side of change, however promising or desirable, is unknown. However, friction can be constructive if it's used as an opportunity to find greater understanding, if not invite new partnership. This invites the Valley CERF coalition to consider the likelihood of resistance in its strategy, and thus how it wants to leverage the evidence, the Valley CERF process, and the coalition itself to meet that resistance.
- *Structural barriers:* The structural inequities—including at the individual, business, community, and regional scales—that are reflected in the Regional Plan Part 1, and that the Valley CERF coalition is seeking to address with the High Road Economy Transition Plan and Road Map, are the result of structural barriers, including those related to discriminatory practices in housing, education, banking, healthcare, and land use and zoning, among others. Overcoming these barriers will likely require significant efforts in both policy and practice, locally and regionally, as well as investments in building the capacity of community members to lead the way. This invites the Valley CERF coalition to consider in its phased approach what structural barriers to focus on and what strategies will be used to address them, including policy advocacy and resourcing communities to lead.

Given the socioeconomic disparities in the Central San Joaquin Valley as well as the compounding impacts of climate change in the region, significant shifts in policy and practice will be needed if the region is to achieve CERF's goals of economic competitiveness and resilience, equity, and climate action and environmental health. The economic frameworks described offer a menu of possibilities for what those policy and practice solutions could be, which Valley CERF has the opportunity to choose from and incorporate into its High Road Economy Transition Plan and Road Map. As Valley CERF plans implementation, it will need to consider several big questions related to its approach and barriers it may face in the process.

## Industry Clusters

The Oxford English Dictionary defines an industry as a particular form or sector of productive work, trade, or manufacture, which could include products and services.<sup>12</sup> An industry cluster is a regional concentration of related industries.<sup>13</sup> The network of economic relationships can create a competitive advantage for the related firms in a particular region. This advantage can be an enticement for other businesses in those industries to develop or relocate to a region. In our CERF Outside Learning Report, we explore four proven and promising industry clusters: clean energy, responsible food systems, one-water resource management, and circular manufacturing. These four industry clusters, each in their own ways, and so to varying degrees, show proof and promise in advancing the wellbeing of people and the planet as well as economic health and resilience. Table 2 provides a summary overview of the four industry clusters analyzed.



These four industry clusters were selected based on several factors related to regional context, including current prevalence and market trends, policy trends, climate trends, aligned federal and state investments, and compatibility with CERF goals. For example, each has a presence in the Valley CERF region; helps to meet basic human needs; is positioned to support diverse locally owned businesses and quality local jobs that provide family-supporting wages; can help reduce GHG emissions, pollution, and waste that are harmful to air, water, soil, and public health; and are reflected federal and state policy priorities and investments.

Of note, our research to date points to the necessity of layering one or more of the six economic frameworks explored—wholesale or in parts—with an industry cluster approach. For example, while the energy, food, water, and manufacturing industries are prevalent in the region, the socioeconomic disparities and environmental challenges described in the Regional Plan Part 1 persist. Thus, our analysis goes past *which* industry clusters may be relevant, and explores what the evidence shows related to *how* these industry clusters could better align with CERF goals, hence the focus on clean energy, responsible food systems, One Water resource management, and circular manufacturing.



**TABLE 2**  
**Overview of Industry Clusters**

Industry Cluster	Definition	Key Elements	Key Benefits
<b>Clean energy</b>	Encompasses energy that comes from zero emission and renewable sources that, when used, do not pollute the atmosphere, as well as energy efficiency measures that save energy. Includes 4 different employment sectors: renewable energy, energy efficiency, storage and grid modernization, and clean vehicles.	<ul style="list-style-type: none"> <li>■ Renewability</li> <li>■ Energy Efficiency</li> <li>■ Resilience</li> </ul>	<ul style="list-style-type: none"> <li>■ Jobs and quality jobs</li> <li>■ Economic opportunities for small businesses</li> <li>■ Emissions reductions</li> <li>■ Air and water quality protections</li> <li>■ Climate resilience</li> </ul>
<b>Responsible food systems</b>	A responsible food system involves embedding socially and environmentally responsible practices throughout the food supply and value chain which includes producing food in a sustainable and regenerative way; improving resource efficiency in food processing; reducing emissions in food distribution; strengthening markets for wholesalers, retail, and hospitality establishments; and repurposing byproducts and excess.	<ul style="list-style-type: none"> <li>■ Regenerative, sustainable, and waste-reducing practices</li> <li>■ Strong local and ethical supply chains, value chains, and markets</li> <li>■ Accessible health-promoting products</li> <li>■ Fair working conditions</li> </ul>	<ul style="list-style-type: none"> <li>■ A healthy and resilient food economy</li> <li>■ Competitive products that support steady revenues and job growth</li> <li>■ Reduced greenhouse gas emissions</li> <li>■ Lower vulnerability to habitat loss and drought</li> <li>■ More disaster-prepared communities</li> <li>■ Fair distribution of earnings</li> <li>■ Health-supporting food, working conditions, and environments</li> <li>■ Shared ownership opportunities for workers, farmers, and communities</li> </ul>
<b>One Water resource management</b>	One Water Management is an integrated approach to water resources management informed by the fact that all water—including drinking water, wastewater, stormwater, groundwater, and surface water—is part of one water cycle, which itself is impacted by land use.	<ul style="list-style-type: none"> <li>■ Integrated management of water resources including drinking water, wastewater, and stormwater</li> <li>■ Sustainably managed water that meets long-term needs</li> <li>■ Inclusive water management that ensures affordability for all</li> </ul>	<ul style="list-style-type: none"> <li>■ Stable business operations and cost savings</li> <li>■ Jobs and quality jobs</li> <li>■ Increased water conservation and drought resilience</li> <li>■ Reduced water pollution</li> <li>■ Reduced risk of severe wildfire</li> <li>■ Affordable water rates for vulnerable populations</li> <li>■ Community ownership in planning and governance</li> </ul>
<b>Circular manufacturing</b>	Circular manufacturing is an alternative to the linear manufacturing model of “take-make-use-dispose;” businesses reuse materials, components, and other inputs to manufacture new products instead of extracting virgin resources from nature.	<ul style="list-style-type: none"> <li>■ Use renewable and recoverable inputs</li> <li>■ Design products for re-use</li> <li>■ Recover excess and manufacturing byproducts</li> <li>■ Reduce waste</li> </ul>	<ul style="list-style-type: none"> <li>■ Reduced costs and increased profits</li> <li>■ Increased supply chain stability</li> <li>■ Jobs</li> <li>■ Competitive products</li> <li>■ Reduced emissions</li> <li>■ Reduced resources use</li> <li>■ Reduced biodiversity loss</li> </ul>

Source: Urban Institute analysis.

## Clean Energy

Clean energy encompasses energy that comes from zero emission and renewable sources that, when used, do not pollute the atmosphere, as well as energy efficiency measures that save energy, and can be broken down into four different employment sectors: renewable energy, energy efficiency, storage and grid modernization, and clean vehicles (E2 2023). The industry cluster could include public and private actors that provide related products and services, as well as academic, non-profit, and workforce partners.

Historic investments in clean energy are being made at the global, national, and regional scales, driven by the need to mitigate further climate change and build energy infrastructure resilience in the face of current climate change. In the US, the Infrastructure Investment and Jobs Act and the Inflation Reduction Act invest hundreds of billions of dollars into clean energy,<sup>14 15</sup> positioning the US to remain a “global leader in clean energy technology, manufacturing, and innovation.”<sup>16</sup> These funds are available to states and localities. California’s efforts are also driving significant investments in clean energy. For example, in 2018, California passed the 100 Percent Clean Energy Act, which established state goals to source 60% of their electricity from clean energy by 2030, and 100% by 2045.<sup>17</sup> And, in November 2022, the California Air Resources Board (CARB) released its updated proposal to take “unprecedented steps to drastically slash pollution and accelerate the transition to clean energy.” The governor’s website posits that “no economy in the world, much less the soon-to-be 4th largest, has put forth such a comprehensive roadmap to reach carbon neutrality.”<sup>18</sup>

Strong policy and substantive investments are important catalysts for the growth of a clean energy industry cluster; other factors are needed as well, such as relevant assets. The Central San Joaquin Valley is already a player in the clean energy industry, and so has relevant knowledge and assets that position it well for a continued integral role in moving forward in the state’s plans to reach carbon neutrality by 2045. For example, an October 2023 presentation to Valley CERF stakeholders by the Nature Conservancy, citing CEC Land Use Screens and CPUC Integrated Resource Plan (R-20-05-003) Portfolios and Modeling Assumptions for the 2023-2024 Transmission Planning Process, noted that although the San Joaquin Valley represents 10 percent of the total land area in California, it currently hosts 25 percent of the state’s solar capacity; and that 25 percent of new solar resources needed by 2035 to meet state goals are mapped to the San Joaquin Valley.<sup>19</sup> This points to the significant solar potential of the region, where there are upwards of 470,000 acres of “least conflict” land for solar projects (Pearce 2016) and an average of 3,200 hours of sunlight annually.<sup>20</sup> For the region’s active farmland, agrivoltaics, a promising new practice of using the same land for both solar panels and agriculture, including by farming underneath or between rows of solar panels, could be considered.<sup>21</sup> The large presence of agriculture in the Central San Joaquin Valley also points to an opportunity to invest in producing and distributing biomass energy, fueled by agriculture waste including animal manure and wood and other plant material,<sup>22</sup> as well as strategies and technologies that help to minimize its negative environmental impacts.<sup>23</sup>

Evidence shows proof that clean energy contributes to positive economic and climate and environmental outcomes, and promise that it can support equity outcomes. For example:

- On the economic side, the clean energy industry is seeing steady growth globally, nationally, and in California, and has shown signs of economic resilience (DOE 2023). With the necessary and accelerating shift from fossil fuel-based energy towards clean energy, this growth is expected to continue, leading to increasing job opportunities within the clean energy industry cluster, including for people with a variety of technical and educational backgrounds. Most clean energy jobs in the region are with smaller businesses,<sup>24</sup> underscoring that small and local businesses can be both key beneficiaries of and key contributors to the growth of a clean energy industry cluster.
- Primary environmental benefits of clean energy relate to reduced greenhouse gas emissions (GHG), air and water quality, and climate resilience. The science is clear that GHG emissions are the primary driver of climate change and that reducing GHG emissions, including through the adoption of clean energy, mitigates further climate change.<sup>25</sup> Switching from fossil fuels to clean energy also reduces air pollution caused by burning fossil fuels; further, because coal mining and natural gas extraction rely on water for cooling and pollute nearby water sources,<sup>26</sup> switching to clean energy can protect air and water quality. Additionally, clean energy investments include a focus on increasing the resilience of electricity generation, transmission, and storage in the face of a changing climate.
- The equity benefits of a clean energy industry cluster are more promising than proven. Efforts are needed to ensure a just transition, including that clean energy and its related technologies are affordable and equitably accessible to low-income households, lesser resourced businesses, and lower capacity municipalities; that quality jobs and business opportunities resulting from clean energy investments are equitably accessible to a diverse workforce and diverse business owners; and that current employees in the fossil fuel industry are supported in their transition to new work.

## Responsible Food System

The food system broadly—which can manifest as a food industry cluster at a local or regional scale—includes food production (agriculture), food processing (manufacturing), food distribution, food wholesale and retail, food hospitality businesses such as restaurants, and food waste and recovery operations. Our food system is a large contributor to climate change<sup>27</sup> and is at significant risk from climate change;<sup>28</sup> and often, as seen in the Valley CERF region, workers are paid poorly and work in challenging conditions (Economy League 2019). A responsible food system aims to respond to that by embedding socially and environmentally responsible practices throughout the system, which includes regenerative, sustainable, waste-reducing practices; strong local and ethical supply chains, value chains, and markets; accessible and affordable health-promoting products; and fair wages and working conditions. Effectively, a responsible food system takes the dominant one and embeds principles from across the six economic frameworks in order to achieve positive and sustainable outcomes for people, the planet, and the economy.

While we did not find examples of comprehensively responsible food industry clusters, there are strong global, national, and regional trends showing uptake of aspects of responsible food systems—which, again, can manifest as responsible food industry clusters at a local or regional scale. At a global scale, the United Nations established as one of the Sustainable Development Goals to end hunger, achieve food security, improve nutrition, and improve sustainable agriculture;<sup>29</sup> and in 2021, they hosted a Food Systems Summit, which convened stakeholders from across the globe in science, business, policy, healthcare and academia, as well as farmers, indigenous people, youth organizations, consumer groups, environmental activists, and others on developing tangible food systems transformation strategies.<sup>30</sup> In the US, the same year as the summit, the Biden-Harris Administration announced a commitment to build sustainable and resilient food systems, stating that more than \$10 billion will be invested in food systems transformation over the course of several years.<sup>31</sup> Additionally, across the US, examples can be found within local food industry clusters of efforts that focus on regenerative, sustainable, waste-reducing practices (White House 2022; Baker et al. 2019; EPA 2023); strong and ethical local supply chains, value chains, and markets (Tropp and Moraghan 2017; Dumont et al. 2017); policy changes;<sup>32</sup> accessible healthy food<sup>33 34</sup> (Biehl et al. 2017); and fairer pay and working conditions.<sup>35 36 37</sup> As noted in the CERF Outside Learning Report, these and other examples can be found across California.<sup>38</sup> The Valley CERF region, which has a strong agriculture industry, is also showing movement towards elements of a responsible food industry cluster. For example, Fresno DRIVE's Farms.Food.Future initiative (F3) supports climate-smart agrifood technology and local markets.<sup>39</sup>

According to 2021 data from the Employment Development Department and 2021 data from the US Census Bureau, the food industry cluster in the Valley CERF region supports an estimated 215,000 jobs across more than 6,000 establishments.<sup>40 41</sup> Agriculture in particular is a key driver of the regional economy and an important contributor to the nation's food supply; but it faces an uncertain future in light of climate change and related water shortages,<sup>42</sup> which will have an impact on the rest of the region's food-related economy. The combination of the size and scale of the current food industry cluster in the Central San Joaquin Valley, its relationship to climate change, the current poor job quality it supports, and federal funding create significant need and opportunity for the Valley CERF region to adopt, if not lead on, advancing a responsible food industry cluster as a strategy to progress towards a competitive and resilient economy centered around equity and climate action.

Evidence shows proof that a responsible food system contributes to positive economic and climate and environmental outcomes, and a mix of proof and promise that it contributes to equity outcomes. For example:

- On the economic side, when the supply chain is localized, ethical, and environmentally responsible if not regenerative, it is better able to withstand market volatility and recover from shocks (see the Local and Fair Trade chapters in the CERF Outside Learning Report for more information). It's also responsive to consumer demand for sustainable, fresh, and healthy products, and increased interest in supporting local businesses (Economy League 2019).<sup>43</sup> Regenerative agricultural practices can also increase yields, as well as reduce producers' vulnerabilities to drought and related crop loss, which benefit profitability (GAFF 2021; Misra

2014).<sup>44</sup> Additionally, most food industry jobs in the region are with smaller businesses, underscoring that small businesses can be both key beneficiaries of and key contributors to the growth of a responsible food industry cluster.

- Primary environmental benefits of a responsible food industry cluster relate to reduced greenhouse gas emissions (GHG), improved soil and water quality, and climate resilience. GHG are contributing to climate change; agricultural emissions are primarily methane, a GHG nearly 30 times more potent than carbon dioxide.<sup>45</sup> Regenerative agriculture practices not only support increased carbon sequestration, but also reduced methane emissions (Gunders 2012).<sup>46</sup> Regenerative agricultural practices are also aimed at cultivating healthy and productive soils, minimizing toxic agricultural runoff as well as erosion, which reduces pollution to water sources,<sup>47</sup> and boosting climate resilience.<sup>48</sup> Further, reducing food waste and diverting it from landfills is one of the most impactful climate action solutions.<sup>49</sup>
- The equity benefits of responsible food systems are a mix of proven and promising. For example, a responsible food system aims to equitably distribute earnings and ensure family sustaining wages (Economy League 2019); this practice, as well as practices related to safe and healthy working conditions, are most prevalent in—although not limited to—fair trade and cooperative examples (see the Fair Trade and Cooperative chapters of the CERF Outside Learning Report for more information). Programs that direct healthy foods to underserved neighborhoods support access to vegetable and fruit-rich diets not only support food access and food security, but also equitable public health outcomes.

Food policy is the backbone of our food system; it plays a critical role in how the various aspects of the food system affect the environment, people, and animals. Policymakers at federal, state, and local levels have significant power to decide everything from what is grown, how its grown, how much food costs, what food is accessible to which communities, how transparent food labels need to be, how much workers in the food system get paid, and what to do with excess food.<sup>50</sup> Examples of these policies include the federal omnibus Farm Bill (now anticipated in 2024); California’s laws that aim to reduce organic waste in landfills by 75% by 2025,<sup>51</sup> increase the minimum wage and other protections for fast food workers,<sup>52</sup> and protect the welfare of farmed animals;<sup>53</sup> and local procurement policies that prioritize a local, ethical, and environmentally responsible food supply chain.

## One Water Resource Management

One Water resource management is a proactive and integrated approach to water resources management informed by the fact that all water—including drinking water, wastewater, stormwater, groundwater, and surface water—is part of one water cycle, which itself is impacted by land use. One Water’s differs from the currently dominant way of managing water in *how* it approaches water: One Water takes a proactive, holistic, watershed-scale approach, whereas the currently dominant way tends to silo each element of the water system from the others and focus within municipal limits. The

industry cluster would include public and private actors that provide products and services related to planning and administration, land use and siting, engineering and design, materials and supply chain, building and construction, operations and maintenance, and monitoring and testing, among other activities; as well as academic, non-profit, and workforce partners.

While we did not find examples of regions fully implementing comprehensive One Water resource management plans, there are global, national, and regional trends showing uptake of One Water principles and aspects of the approach—which, again, can manifest as an industry cluster at a local or regional scale. Globally, One Water terminology is not widely used, however key principles are present. For example, several UN Sustainable Development Goals, such as 6 (Ensure Access to Water and Sanitation for All) and 9 (Build Resilient Infrastructure), align with One Water principles.<sup>54</sup> Additionally, commitments to and implementation of nature-based solutions for water management are also on the rise globally, including across the US. In the US, the US Water Alliance, a national membership organization established in 2008, is seen as a leader in promoting One Water; in 2022, its annual One Water Summit had representation from 263 US cities.<sup>55</sup> The US Environmental Protection Agency (EPA) is also promoting a One Water approach.<sup>56</sup> And, IJA includes more than \$50 billion for water infrastructure.<sup>57</sup>

In California, several cities, such as Los Angeles and Monterey, have developed One Water Management plans and implementing elements of those plans. Additionally, grants through California's Integrated Regional Water Management (IRWM) programs have been available since 2002 and support One Water-related efforts across California.<sup>58</sup> The Sustainable Groundwater Management Act of 2014 (SGMA) has increased uptake of IRWM grants because it mandated the formation of Groundwater Sustainability Agencies and Groundwater Sustainability Plans for basins or sub-basins that are designated as high priority.<sup>59</sup> Several of these priority areas are in the Valley CERF region, for example, the Kings Groundwater Basin which spans parts Fresno, Kings, and Tulare counties (Kings Basin Water Authority 2018).

The Valley CERF region has a range of factors that point to the need and opportunity to invest in a One Water management approach—and the industry cluster that would support it—including: federal acknowledgement of One Water, prioritization of One Water principles, and supportive water infrastructure funding; water policy drivers in California and supportive funding for integrated regional water management; the large presence of agriculture, manufacturing, and other heavily water-dependent industries; the Valley CERF region's unique water challenges and climate forecasts; and the Valley CERF coalition itself, which includes representation from relevant business and industry groups, environmental groups, and local governments from across the region.

The evidence on the benefits of One Water is the strongest around positive climate and environmental outcomes; more research is needed on benefits related to economic outcomes, but there is promise; and as with clean energy and responsible food, currently, equity outcomes are mostly promised, but can be achieved with intention. For example:

- Safe, affordable, and reliable water is an existential need for all people and all businesses, and foundational to all economic activity. Thus, the economic benefits are many, but include stable business operations, significant cost savings for private sector as well the public sector—and thus the ratepayer; and a variety of often-well-paying occupations for people with a variety of educational backgrounds and that range from the field to the office to water treatment facilities. Further, few Valley CERF businesses that are in sectors relevant to a One Water industry cluster have more than 20 employees,<sup>60</sup> highlighting the opportunity for small and local businesses in the region to benefit from and contribute to One Water investments.
- The natural water cycle supports healthy balanced ecosystems. Our built environment has significantly disrupted the natural water cycle, impairing water sources and ecosystems. One Water aims to approach water management in line with the natural water cycle to support a sustainable water future. Thus, the anticipated environmental benefits of a One Water approach are vast, and include improved water quality, water conservation, drought resilience, and reduced risk of severe wildfires. For example, nature-based water infrastructure can reduce toxic agricultural runoff and polluted stormwater and sewage overflows from contaminating water sources. Water conservation and watershed restoration partnerships can support community resilience, including during droughts and other severe weather events. Further, natural land management strategies can serve as source water protection, flood protection, and help minimize wildfire risks.
- Equity is a pillar of One Water management, and includes ensuring safe water is available—and affordable—to all. Affordability is often supported indirectly by keeping rates low through the adoption of cost-saving One Water management practices, as well as more directly with rate assistance for low-income customers. It also includes building communities' capacity to partner in water management planning and governance to ensure community voice in oversight of increasingly scarce water resources. However, efforts will be needed to ensure equitable outcomes for the range of stakeholders water impacts.

Water policy and related investments aligned with One Water management principles are foundational to advancing an industry cluster. Significant public and private investments are often driven by the need to meet federal, state, and local water policy, such as regulatory standards. However, across the US, these investments have not kept pace with the scale of water infrastructure needs.<sup>61</sup> And, while the funding allocated in IJA represents a significant federal commitment to safeguarding and expanding access to clean and safe, states and localities remain the primary funders of water infrastructure.<sup>62</sup>

## **Circular Manufacturing**

Prevailing practices of manufacturing use a range of machinery and other equipment, technology, human labor, or chemical or biological processes to produce goods from raw materials or components for use and consumption;<sup>63</sup> and are resource-intensive and polluting, and a significant contributor to



GHG emissions.<sup>64</sup> The manufacturing industry is vast, and consists of business that make products ranging from food and beverage products, building and furniture products, and clothing and shoes, to electronics, appliances, vehicles, and machinery—including that which makes other machinery. Circular manufacturing is an alternative to the currently dominant linear manufacturing model of ‘take-make-use-dispose;’ circular manufacturing applies the principles of circularity (see the Circular chapter of the CERF Outside Learning Report for more information) to manufacturing, such as minimizing the use of raw materials and maximizing the use of recovered materials as inputs; minimizing the use of energy and water in production; minimizing waste and pollution during production; and recovering and repurposing byproducts and excess materials that result from the production process.

Circular manufacturing models are being explored globally, in the United States, and in California. In Europe, regulators have established rules for the EU for improving the designs of certain products, and creating requirements around product durability, reusability, upgradability, reparability, carbon and environmental footprints, among other product characteristics. Manufacturing sectors in Europe are pursuing circularity, including cement, plastics, wood products, textiles, and agriculture (CEM Bureau 2016; Selvan et al. 2023). And consumers across the globe are showing preferences for circular products over non-circular products (Shikha et al. 2021; Boyer et al. 2021). In the US, agencies across the federal government, including the Environmental Protection Agency (EPA), the Advanced Material and Manufacturing Technologies Office under the Department of Energy (DOE), and the Department of Agriculture’s National Institute of Food and Agriculture, and demonstrating support for circular manufacturing, including through funding for recycling infrastructure and the manufacturing of products made from renewable biological materials.<sup>65 66 67 68</sup> In the private sector, sustainability and supply chain resilience are noted as top priorities among US manufacturers;<sup>69</sup> some are already investing in making the transition.<sup>70</sup> California has passed several laws that support aspects of circular manufacturing, including the Electronic Waste Recycling Act, the Plastic Pollution Prevention and Packaging Producer Responsibility Act, and the Right-to-Repair Act.<sup>71 72 73</sup> In the San Joaquin Central Valley, businesses practicing circular manufacturing principles are present, including in biomanufacturing<sup>74</sup> and glass.<sup>75</sup>

The Valley CERF region has a broad range of factors that point to the need and opportunity to invest in a circular manufacturing cluster, including the size and scale of the current manufacturing industry in the region, interest in and need expressed from leaders in the manufacturing industry, federal and state legislation and funding, and consumer trends. Further, the products that are manufactured in the Valley CERF region are vast, but include food and beverages, machinery, cement, plastics, wood products, glass, and textiles, among others,<sup>76</sup> all of which lend themselves well to circular practices. Additionally, the region is home to more than 1700 relevant retail, repair, and maintenance businesses supporting nearly 19,000 employees that could further support a circular manufacturing industry cluster; establishments in the waste industry are also seen to play an important role.<sup>77</sup>

Evidence shows proof and promise that circular manufacturing contributes to positive economic, climate and environmental, and equity outcomes, all of which align with CERF goals (see the economic



frameworks chapter in the CERF Outside Learning Report for more information on the benefits of Circular). For example:

- On the economic side, key benefits relate to reduced costs, increased profits, increased supply chain stability, competitive products, increased economic activity, and jobs. Circular manufacturing can reduce material costs for companies. In addition, selling excess materials and byproducts as an input for other manufacturing supply chains can not only reduce waste removal costs but also capture byproduct values, thus generating more profits for manufacturers. Recirculating materials can also reduce import dependency, vulnerability to price volatility, and risks from shipping bottlenecks or other supply chain disruptions, as well as create new markets that support new jobs and support a market edge.
- Direct and indirect climate and environmental benefits of circular manufacturing relate to reduced greenhouse gas emissions; reduced air and water pollution; reduced energy and water use; reduced extraction of raw materials; and reduced land use, habitat loss, biodiversity loss, and ecosystem disruptions.
- Benefits related to equity are not embedded, and so need explicit commitment and effort. Direct benefits can include increased focus on job quality and worker safety, and indirect benefits can include reduced waste to landfills, especially to those in disadvantaged communities, and subsequent inequitable exposure to toxic leaching and emissions.

## Policy and Other Levers to Advance Industry Clusters

Strong—and enforced—policy and substantive investments are the primary drivers for clean energy, responsible food, One Water, and circular manufacturing industry clusters. For clean energy, One Water, and circular manufacturing, the region can leverage the current mix of relevant federal and California policies and investments; although clean energy has the most funding available by far. California has policies that support aspects of a responsible food system, but on the federal side, much rests on the upcoming Farm Bill.

For all four industry clusters, local and regional policies, investments, initiatives, and incentives will also be necessary, especially if local economic benefits and equity goals are to be achieved. While there are unique levers for each, several cross-cutting levers are summarized below:

- Leverage the regionality and broad stakeholder diversity of the Valley CERF coalition and its relationship with the state to secure federal and state grants and other funding to support expanded research, planning, and implementation efforts for the industry cluster(s) in the Central San Joaquin Valley.
- Increase activation of the private sector in the region through a combination of regulations, grants, fees, contracting preferences, and creative financing to implement or otherwise support uptake of products, services, and practices aligned with the principles of the industry

cluster(s). These activators can be paired with technical assistance to support the private sector with implementation.

- Invest in technical assistance and other business development strategies—with a focus on underrepresented business owners, such as entrepreneurs of color, women, and LBGQ/GNCT people—to strengthen existing businesses and develop new businesses that are well-positioned to respond to growing demand for products, services, and technologies related to the industry cluster(s).
- Strengthen existing or develop new backbone organization(s) that can provide the technical assistance, business development, and other business support services, as well as an Industry Partnership(s)<sup>78</sup> or similar effort, which can engage relevant government, private sector, academic, workforce, anchor institutions, and other stakeholders in a coordinated effort to advance the cluster(s) in the region.
- Strengthen existing and develop new workforce development and career pathways programs, with a focus on workers of color and other minoritized groups, to help meet increased demand and support the diversification of the industry clusters' workforce as well as equitable access to the jobs that the industry cluster(s) promises to support.
- Strengthen existing and develop new programs—and the capacity of provider organizations - that provide financial and other support to low-income residents and businesses in low-income communities to adopt renewable energy; implement energy efficiency and water conservation technologies and other related measures; access healthy local foods, minimize food waste, and compost; among other actions.
- Support shared ownership of clean energy, the food system, water, and manufacturing, such as community solar and microgrids; community-owned grocery stores; and farmer- and worker-owned cooperatives.
- Invest in broadband and other digital infrastructure, which are important enabling conditions for certain energy efficiency, responsible food, One Water, and circular measures.

## Interplays Between and Across Economic Frameworks and Industry Clusters

As described in the Regional Plan Part 1 (CVCF 2023), the Valley CERF region experiences several interdependent and compounding economic, social, and environmental challenges, all of which are disproportionately experienced by the region's low-income communities and communities of color, who make up a significant proportion of the region's population. Structural and interconnected challenges and disparities, such as those in the Valley CERF region, are best addressed with structural and interconnected solutions. CERF's explicit goals for economic competitiveness and resilience, equity, and climate action, especially when contextualized with other actions taken by the state's leadership,

appear to acknowledge that continuing with 'business as usual' is no longer an option. Thus, the opportunity CERF poses for the Central San Joaquin Valley—a region that plays a critical role in a state that itself is a strong part of the global economy—is to pair one or more of the economic frameworks (wholesale or in parts) and one or more of the industry clusters presented to accelerate and expand action across the public and private sectors. Indeed, the full extent of the economic, equity, and climate and environmental goals outlined in CERF cannot not be broadly met in the region—nor for any of the industry clusters presented—without the adoption of principles from the economic frameworks presented. This section introduces some of the many interplays across and between the economic frameworks and industry clusters:

- Each of the economic frameworks interact and overlap with each other in a variety of ways and to differing degrees, but also vary in the degree to which they balance the three CERF pillars. This invites Valley CERF to see the principles of each of the six economic frameworks as a menu to learn from and apply in place. For example, the principles of the cooperative economy espouse local ownership, local and ethical sourcing, and economic democracy, which correlate strongly to principles espoused in the local, triple bottom line, and fair trade economic frameworks. In another example, the principles of the triple bottom line economy espouse a whole system approach and orientation towards economic development instead of growth, with equal weight on positive outcomes for the economy as well as for people and planet, which has alignments with how a Doughnut economy is framed. Practices aligned with circular, cooperative, and fair trade economies offer strategies to advance goals outlined in the triple bottom line and Doughnut economic frameworks.
- Each of the industry clusters also interact, overlap, and amplify each other in a variety of ways and to differing degrees. While the industry clusters are not dependent on each other, their complementary nature invites Valley CERF to explore ways to strengthen one cluster with another. For example, responsible food systems and circular manufacturing both put attention on limiting—and responsibly managing—the excess and byproducts that result from production. As discussed in the report, organic agricultural excess and byproducts can be inputs in circular manufacturing. These excesses and byproducts can also support a clean energy industry cluster. In another example, One Water puts significant attention on the land-water relationship, which is also present in responsible food systems, particularly in the context of regenerative agriculture.
- The economic frameworks and industry clusters are mutually beneficial, reinforcing the importance of pairing them in the Valley CERF region. For example, triple bottom line, circular, and fair trade economic principles are inherent elements of a responsible food system. Reciprocally, triple bottom line, cooperatively owned, and Fairtrade certified businesses have prevalence in the food industry. Further, some of the benefits promised in the industry clusters are not possible without the principles of one or more economic frameworks. For example, while clean energy, One Water, and circular manufacturing all offer proven and promising benefits for global- to local-scale climate action and environmental health, the extent of their promise for economic and equity outcomes—such as benefitting a diverse local

workforce, diverse local businesses, and environmental justice—will not be fully achieved without embedding principles from one or more of the six economic frameworks. Further, while industry clusters can focus on providing products and services locally, exporting them, or a mix, the success of any industry cluster is dependent on a robust local network of varied but related businesses; the more businesses in this network that are locally owned, the more local economic benefit can be expected.

- The economic frameworks and industries each acknowledge—and benefit from—regionality and a cooperative relationship between urban and rural areas. For example, local is often defined by a distance radius instead of geographic or political boundaries because—as seen clearly in energy, food, water, and manufacturing—the source is often necessarily at some distance from the end consumer. For a finer point, it would be challenging for Fresno, an urbanized area, to manage its land uses in such a way that would enable sufficient space for all of its necessary energy, food, water, and consumables to be produced within city limits. Further, expanding any of these industries into a robust industry cluster also demands a regional approach. For example, One Water inherently demands a collaborative approach that responds to the watershed, not city or county lines, and thus needs upstream and downstream partners in planning and implementation. Further, with a clear watershed-wide strategy supported by meaningful investments, companies providing products (such as native plant nurseries and land care materials suppliers; manufacturers and/or distributors of pipes and pipe fittings, aggregate, filtration devices and other technologies, and equipment for facilities and in the field) and services (such as land planning, surveying, engineering, design, construction, operations and maintenance, monitoring and testing services) can all cluster with the water utility, local workforce development providers, and colleges and universities, to meet the needs of both public and private customers and other stakeholders.

The interactions and overlaps between the economic frameworks and industry clusters, as well as the mix of aligned proven and promising benefits and complimentary policies and other levers, invite Valley CERF to consider which economic frameworks or principles support the kind of regional transformation it is aiming for; which industry cluster or clusters have the strongest potential given CERF goals and regional context; how to best pair the economic frameworks or principles with an industry cluster or clusters; what scale and degree of systems change it is aiming for; and what the collective appetite is for adopting proven versus innovative approaches.

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