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Clean Air Task Force Report, An Exploration of Options and Opportunities for the San Joaquin Valleyâ€™s Clean Energy Future

Additional submitted attachment is included below.

June 17, 2024

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RE: Docket No. 23-SB-100 – Clean Air Task Force Report, *An Exploration of Options and Opportunities for the San Joaquin Valley's Clean Energy Future*

Dear Commissioners and Staff,

Clean Air Task Force (CATF) appreciates the CEC's leadership in coordinating the cross-agency collaboration that is crucial to developing the SB 100 report. We value the ongoing opportunities to engage throughout this process and appreciate staff efforts to consider stakeholder feedback.

CATF is a global nonprofit organization working to safeguard against the worst impacts of climate change by catalyzing the rapid development and deployment of low-carbon energy and other climate-protecting technologies..

In April 2024, CATF published a report titled *An Exploration of Options and Opportunities for the San Joaquin Valley's Clean Energy Future*.[1] The report evaluates what a clean energy future might look like for California's San Joaquin Valley and resulted in a useful template for local engagement amid the clean energy transition. This report is the culmination of a year-long effort led by CATF to engage local leaders on what a clean energy future might look like for the San Joaquin Valley.

The eight-county region is in a unique position to benefit from the clean energy transition given its existing industry, land, skilled workforce, and clean energy resources. The transition also presents an opportunity to address some of the significant challenges the Valley faces, including water constraints, transitioning agricultural land, pollution, and socio-economic disparities. Key findings from the report underscore the potential for clean energy to stimulate the Valley's economy, create diverse job opportunities, and ensure equitable distribution of benefits across the region. Throughout the development of this report, the project team regularly engaged with the CEC staff.

With the CEC looking to incorporate additional analysis, such as non-energy impacts, at a more granular level, local data will be required. Following our engagement with local communities through this project, we found clear value in collaborative community discussions and decision-making to gather local input, particularly in discussions between technical experts from state agencies and local leaders. A great example of this was engagement from the CA Department of Conservation in developing a geospatial land use tool that was informed by conversations with local leaders and incorporated data modeling from our effort. Engaging with communities from the start can help ensure that local concerns, constraints, and cultural resources are considered in planning efforts. We strongly recommend robust local engagement, discussion, analysis, and deliberation with local communities that are informed by technical analysis. We hope that the findings of our report in the San Joaquin Valley can serve as an example and template for meaningful community engagement, which is crucial in order to elevate local priorities as the state plans for the clean energy future.

1 Clean Air Task Force. (2024). An Exploration of Options and Opportunities for the San Joaquin Valley's Clean Energy Future. https://www.catf.us/resource/exploration-options-opportunities-san-joaquin-valley-clean-energy-future/

We would be happy to engage in further discussions or briefings about this report as useful. Thank you again for the opportunity to provide comments during this process. We look forward to continuing our engagement as the SB 100 report continues to develop.

Sincerely,

Ashley Arax, Senior California Policy Manager
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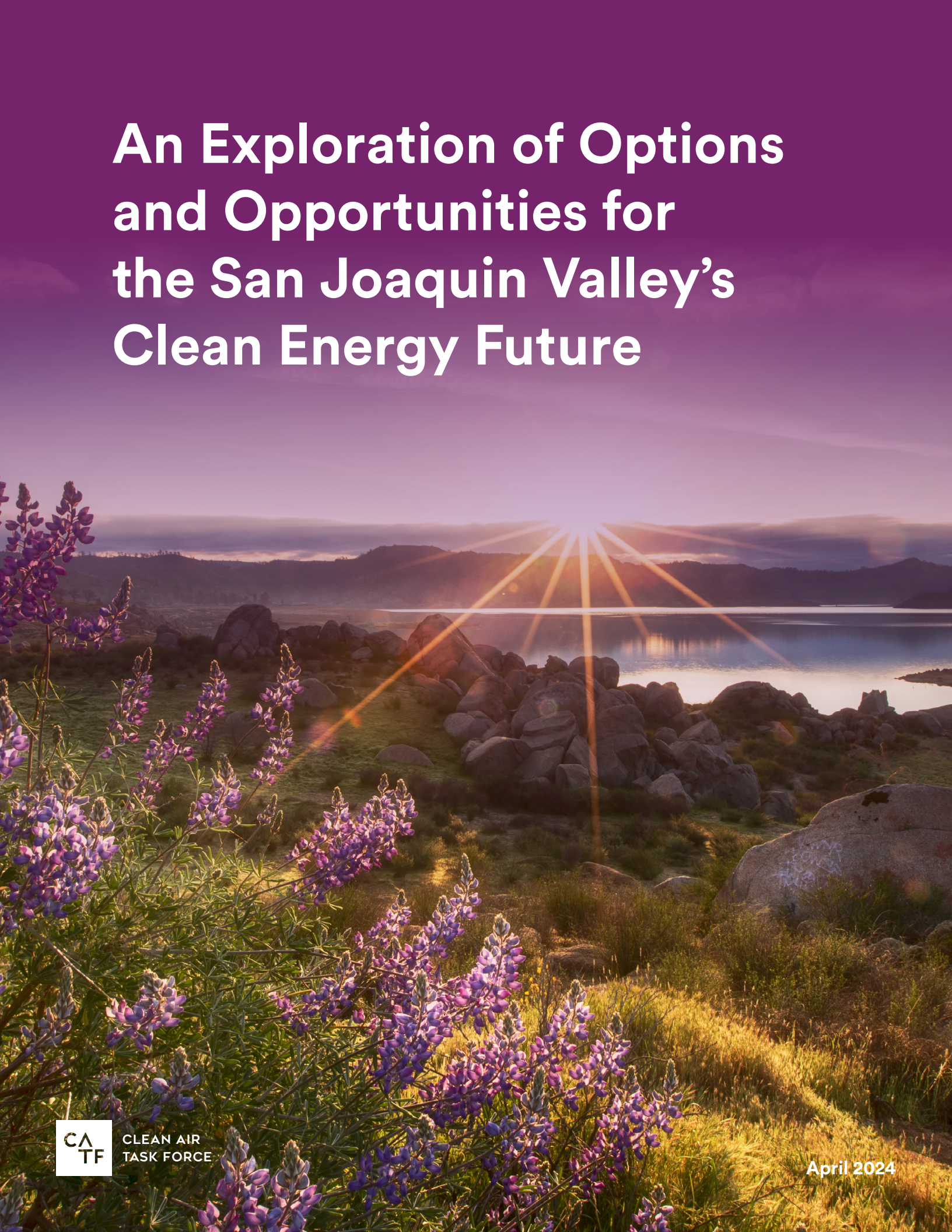
An Exploration of Options and Opportunities for the San Joaquin Valley's Clean Energy Future



CLEAN AIR TASK FORCE

April 2024

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Acknowledgements

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Special thanks to the following Community Benefits Work Group members: Marybeth Benton, The Nature Conservancy; Keith Bergthold, Regenerate California Innovation; Keith Ford, State Center Federation of Teachers; Emily Leslie, Montara Mountain Energy; Natalie Manitius, Clean Air Task Force; Felipe Perez, City of Firebaugh; Jose Antonio Ramirez, Community Development, Inc.; Erick Serrato, Merced County; Michael Washam, Tulare County Resource Management Agency; Terry Watt, Terrell Watt Planning; Darcy Wheeles, ArkSpring Consulting; Annabel Williams, Clean Air Task Force.

Forward

California's landmark climate laws like SB100, which requires all of the state's retail electricity be met with zero-carbon resources by 2045, will ensure a healthy, livable future for all. Achieving this will require significant investment into clean energy industries, a massive buildout of infrastructure, and support and leadership from community leaders. Over the past year, local San Joaquin Valley (SJV) leaders, supported by state agencies, have undertaken an initial clean energy visioning process for the region. This process has demonstrated the value of proactive, collaborative, and informed decision-making processes, and inspired continued commitment to collaboration between local and state clean energy planning.

The SJV region has high resource potential and multiple pathways to support a clean energy future. The Valley is well suited to be a key player in the clean energy transition given its existing industrial base, rich land resources, skilled labor, multiple academic institutions, access to major transportation routes, and existing transmission infrastructure, alongside solar and other renewable energy and fuel potential. Clean energy brings new opportunities, not only by the direct value and jobs it creates, but also through its potential to attract other supply chain and manufacturing sectors, which can create sustained economic activity for the region. The engagement process undertaken through this facilitated visioning process allowed local leaders to evaluate trade-offs and determine what opportunities are most aligned with local long-term goals and in harmony with broader state climate objectives. It has brought more community leaders to the table, strengthened relationships, and activated local enthusiasm for a clean energy future that delivers economic benefit to the region.

The undersigned, including local leaders and state representatives, believe that this locally led approach has the potential to accelerate much needed job creation and community benefits in the Valley, facilitate clean energy deployments, and help locals make complex land use decisions that will shape valley communities for generations. This project has also developed an effective model for continued planning and engagement of impacted communities in the SJV and for other California regions to explore clean energy opportunities through facilitated local/regional conversations supported by data and expertise from a range of contributors, as needed.

We recognize the importance of continued collaboration to effectively vet, refine, and implement this clean energy vision. Key to this endeavor will be continued state support for:

- More detailed planning, including the completion of the Jobs First plans,
- The development of locally determined community benefit agreements and/or frameworks,
- Workforce training needs assessment and training initiatives, and
- Federal, state, philanthropic, and private investments in project implementation.

This effort has provided a solid foundation for future collaboration. By working together, we can ensure that clean energy development in the SJV region creates community prosperity while contributing significantly to statewide climate goals and informs important analyses such as the Jobs First initiative and the state's SB 100 planning. It is essential that we maintain this level of cooperation to make substantial progress in achieving our shared local and state objectives.

We are committed to working closely together to realize the full potential of clean energy as a catalyst for lasting benefits and prosperity in our communities.

Ashley Swearengin, *Executive Director, Central Valley Community Foundation*
David Teasdale, *Executive Director, Customized and Corporate Training, 21st Century Energy Center, Kern Community College District*
Michael Washam, *ACE Associate Director, Tulare County Resource Management Agency*

Executive Summary

California's San Joaquin Valley ("SJV" or "the Valley") is in a unique position to benefit from the clean energy transition and related state and federal policy support. Beyond spurring investments in clean electricity and fuel production, funding made available to support the clean energy transition can also be used to create a cleaner local environment, improve community welfare, and create new economic opportunities for industry and communities. The Valley can catalyze regional clean energy economic development and investment by leveraging its existing industrial base, rich land resources, skilled workforce, multiple academic institutions, access to major transportation routes, and existing transmission infrastructure, alongside solar, wind, and other clean energy potential.

It is well known that the region faces many challenges including constrained water resources, transitioning agricultural lands, and air and water pollution. Moreover, the impacts of years of intense agricultural and industrial development have been disproportionate, resulting in a large population of systematically disadvantaged communities.[1] However, clean energy investments—including those that support technology deployment, manufacturing, and innovation—can help address the SJV's current and historic challenges, promote economic and job growth, and generate additional community benefits. A collaborative, integrated approach to planning for a clean energy future can guide clean energy investments that result in meaningful and transformative change for the region.

Over the course of a year, Clean Air Task Force (CATF) and its project team engaged local governments, community leaders, subject matter experts, and state agencies to explore what a clean energy future might look like in the region. Through multiple knowledge-sharing sessions, and supported by detailed quantitative modeling from RAND Corporation (RAND), Valley leaders together explored the options and opportunities of various clean energy pathways, called 'portfolios'. The assembled local leaders drafted the following vision statement for how clean energy investments can contribute to the region:

The SJV will leverage clean energy investments to authentically engage impacted communities, create a dynamic and inclusive economy that elevates local talent and enduring community benefits, generates high-road jobs, cultivates innovation, supports federal and state decarbonization efforts, and accelerates achievement of the region's sustainability goals.

To inform decision-making, RAND developed a toolkit that allowed local leaders to create, develop, and evaluate clean energy deployment portfolios, each with their own clean energy resources mix, and related anticipated environmental and economic impacts. A preliminary analysis of potential deployment portfolios identified technologies and industry opportunities that may best align with local workforce, environmental, and economic goals. **The modeling affirmed that the Valley can be a key contributor to state energy needs. With ample land and sufficient water resources for energy generation and fuel production, as well as the potential to host manufacturing and related services, there are many pathways the Valley can take.**

Across the portfolios RAND analyzed, the findings demonstrated that clean energy can help reduce air pollution, stimulate significant new economic activity, and create high-wage jobs.[2] Although the exact number and quality of jobs varies by portfolio and by technology, each shows the potential for

1 Public Policy Institute of California. (2023). *Solar Energy and Groundwater in the San Joaquin Valley.* https://www.ppic.org/publication/solar-energy-and-groundwater-in-the-san-joaquin-valley/#:~:text=The%20Current%20Solar%20Landscape&text=As%20of%202019%2C%20there%20were,in%20the%20last%20five%20years

2 "A high-road economy supports businesses that compete on the basis of the quality of their products and services by investing in their workforces; these businesses pay the wages and benefits necessary to attract and retain skilled workers, who in turn perform high-quality work"; California Workforce Development Board. (2020). *Putting California on the High Road: A jobs and climate action plan for 2030.* https://laborcenter.berkeley.edu/wp-content/uploads/2020/09/Putting-California-on-the-High-Road.pdf

thousands of jobs annually. Technologies that produce fuels, like hydrogen, create more jobs than solar per kWh, and more of those jobs are permanent. Yet, utility-scale solar remains a significant job creator given the scale of buildout potential in the Valley. RAND's job projections are a lower bound of what is possible. If SJV leaders successfully attract more clean energy supply chain jobs, numbers could be higher.

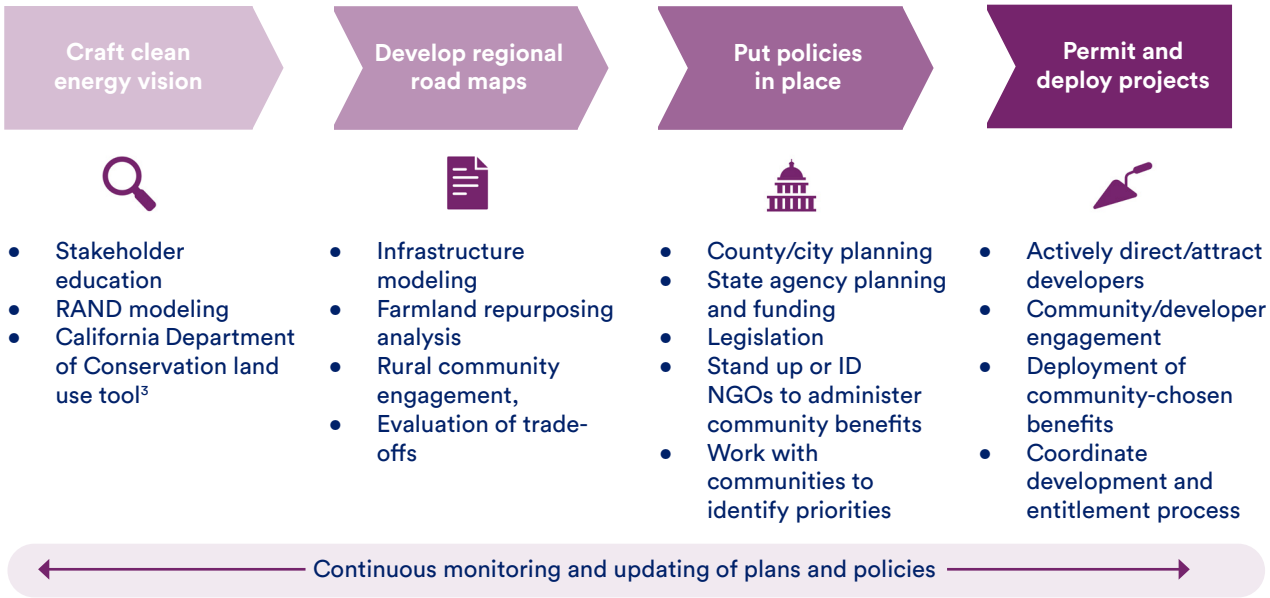
The industry is looking for communities that are ready to open the doors for clean energy. By making timely, coordinated, and informed decisions, the Valley can maximize this potential economic opportunity. RAND modeling provided some important initial guidance for SJV leaders:

- Implementing a diverse mix of clean energy projects in the near term will help keep options open in future years.
- Moving slowly will likely close off future options as first-mover advantages are lost. Delaying the build-out now, but accelerating it in the future may not be able to make up for lost time.
- Making efforts now to attract manufacturing and adjacent services to support local and national climate-friendly infrastructure will allow the region to reap the maximum economic benefits.

Community benefits remained a central thread throughout convenings and knowledge-sharing sessions. As a part of this effort, leaders developed a set of principles to guide community benefits in a way that puts decision-making on funds made available for community investment from negotiated project agreements into the hands of locals. A coordinated approach to community benefits is one key pillar needed to ensure that local economic opportunities are maximized. Community benefit agreements are a central priority to Valley leaders as a way to enhance project benefits, mitigate negative impacts, and streamline development. Turning these principles into an actionable framework will be a necessary next step.

The work done so far is just the beginning. A region-wide clean energy transition roadmap—developed by local leaders and informed by additional analysis of opportunities and trade-offs for land use, workforce, manufacturing, and industry—is necessary to achieve a clean energy future in line with the vision statement and objectives (see Figure ES-1 below). Implementation will require additional vetting of possible clean energy futures, expanded community engagement, united political support, clearly articulated expectations for developers, development of innovative policy and financing mechanisms, and strong coordination between the Valley and with state agencies such as the California Energy Commission (CEC), and the Department of Conservation, and the California Independent System Operator (CAISO). With the right information on how the clean energy transition can help meet local objectives and goals, local leaders can make decisions that will best shape local outcomes.

Figure ES-1: Pathway to Achieving the SJV's Clean Energy Future



3 The Department of Conservation's (DOC) Land Use Tool is a new tool the department is developing to support land use decisions and develop multi-use/multi-benefit scenarios. It is not yet available online as of the publishing of this report.

Summary of Report Recommendations

The recommendations detailed in the report and summarized below identify actions that local, state, and commercial entities could take to achieve the ambitions of the SJV and create a supportive environment for the clean energy transition. These recommendations do not reflect a consensus among all that participated in the year-long process, but instead encompass a wide range of actions that participants considered critical to the pathway forward.

Figure ES-2: Summary of Recommendations

COMBINED LOCAL AND STATE ACTION

- Continue investing in structured conversations with state and local representatives to explore and lay the groundwork for expedited clean energy development that meets local and state goals and objectives.
- Include key state and federal representatives who can work in service of and help facilitate the local or regional clean energy conversations.

STATE ACTION

- Replicate locally led and state supported clean energy planning outside the SJV.
- Align state energy infrastructure planning processes with local planning processes, priorities, and interests.
- Provide technical assistance to regions and local communities.
- Fund a clean energy workforce analysis for the SJV.
- Embrace bioenergy projects that can efficiently use existing local biomass resources.
- Reduce bureaucratic barriers to efficient and cost effective clean energy generation, transmission, and clean energy manufacturing.
- Conduct a gap analysis and dedicate workforce training funds and programs to communities actively embracing clean energy development.

LOCAL ACTION

- Quickly coordinate clean energy planning and strategy across the region.
- Leverage this work to develop clean energy implementation roadmaps.
- Conduct a comprehensive analysis of clean energy supply chain and manufacturing opportunities.
- Align local policy with clean energy strategies to facilitate deployment.
- Develop an economic development strategy, including incentive programs, to attract clean energy companies.
- Develop and implement a robust community benefits framework.

COMMERCIAL ACTION

- Proactively engage with communities to align needs and expectations.

Introduction

To meet zero-carbon emissions targets, support growing electricity demand, and curb the worst impacts of climate change, the United States will need to double or triple its clean electricity supply in the next few decades.[4] California is a global leader in climate and clean energy policy, with ambitious targets to achieve 100 percent zero-carbon electricity sales[5] and economy-wide net-zero greenhouse gas emissions by 2045.[6] A successful clean energy transition for California and the nation is crucial for creating a livable future.

Developing a decarbonized energy system will require replacing unabated fossil-fueled electricity generation with clean electricity resources including solar, wind, carbon capture, geothermal, bioenergy, and hydroelectric power; electrifying the transportation sector with zero-emission vehicles; using clean fuels like hydrogen and biogas; integrating short and long-duration energy storage into the grid; building thousands of miles of electric transmission infrastructure; and making energy efficiency improvements.[7]

Although strong progress is already being made, there is still a long way to go to meet emission reduction targets and decarbonize the grid. The most recent California Air Resources Board (CARB) Scoping Plan estimates the state must build four times the solar and wind capacity of today between 2022 and 2045.[8]

The national economy is undergoing a rapid transformation, driven by new technology innovation, ambitious policy targets, and massive federal financial support for clean energy and manufacturing. Recent federal legislation, including the Inflation Reduction Act and the bipartisan Infrastructure Investment and Jobs Act, has already kick-started an industrial renaissance in the U.S. by increasing demand for zero-carbon resources.

Funding from the State of California, including the Jobs First economic development planning processes,[9] provides additional investment opportunities to align clean energy objectives with state and local goals. Beyond bringing new clean resources to the grid, these investments can be used to create a cleaner environment, improve community welfare, and build new economic opportunities for industry and communities. Proactive communities will stand the greatest chance of prospering while also laying the groundwork to ensure that benefits are captured and felt locally.

California's San Joaquin Valley ("SJV" or "the Valley" – see Figure 1) is in a unique position to benefit from state and federal policies and funding that are fueling the clean energy transition given its existing industry, land, skilled workforce, and clean energy resources. For example, statewide analyses have found that the Valley has the resource potential available to build a significant portion of the solar and wind infrastructure needed to achieve state goals.[10]

4 E. Larsen, C. Greig, J.Jenkins, et al. (2021). *Net-Zero America: Potential Pathways, Infrastructure, and Impacts, Final Report Summary,* Princeton University, Princeton, NJ. https://netzeroamerica.princeton.edu/the-report

5 California Renewables Portfolio Standard Program: emissions of greenhouse gases, California Senate Bill 100 (2017-2018) (SB 100). https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201720180SB100

6 California Executive Order B-55-18 to Achieve Carbon Neutrality. (2018). https://archive.gov.ca.gov/archive/gov39/wp-content/uploads/2018/09/9.10.18-Executive-Order.pdf

7 California Air Resources Board. (2022). 2022 Scoping Plan for Achieving Carbon Neutrality. pg 199. https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp-es.pdf

8 California Air Resources Board. (2022). 2022 Scoping Plan for Achieving Carbon Neutrality. pg 199. https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp-es.pdf

9 Roth, S., & Megerian, C. (2021). *Biden wants to create clean energy jobs. Here's what they might look like.* https://www.latimes.com/politics/story/2021-08-12/biden-jobs-climate-balancing-act

10 California Energy Commission, California Public Utilities Commission, & California Air Resources Board. (2021). *2021 SB 100 Joint Agency Report.* https://www.energy.ca.gov/news/2021-03/california-releases-report-charting-path-100-percent-clean-electricity

Figure 1: The Eight-County San Joaquin Valley Region

At the same time, the region faces many challenges including constrained water resources, transitioning agricultural land, and heavy air and water pollution. Moreover, the impacts of years of intense agricultural and industrial development have been disproportionate, resulting in a large population of systematically disadvantaged communities.[11] The Valley's agriculture and oil industries—two of its historic economic pillars—are in flux: prolonged overuse of resources and diminished water availability will require approximately 500,000 acres of farmland to be fallowed[12] to ensure sustainable water management while changes in the oil industry will likely mean oil production continues to fall from its 1985 peak.[13] Clean energy investments—including those that support technology deployment, manufacturing, and innovation—promote economic and job growth that can achieve a variety of community benefits to address the SJV's historic and current challenges. Proactive planning, community engagement, and coordination between local, regional, and state efforts can help expedite and unlock local and regional clean energy benefits.

Clean Energy is Happening in the SJV: Westlands Solar Park[14,15,16]

The Westlands Solar Park, located in Western Fresno and Kings counties, is the largest solar plant in California and one of the largest in the world. The project is a landmark partnership between Golden State Clean Energy LLC (GSCE) and Westlands Water District, who are working together on land permitting, environmental reviews, and transmission corridors. Seven solar facilities are currently built or in development, with the solar park aiming to eventually build 12. Once complete, the phased project will collectively supply more than 2GW of power across 21,000 acres of land. However, Westlands Solar Park has the potential to one day supply up to 30GW of total renewable energy, as GSCE has amassed 185,000 acres of land from Westlands Water District and private landowners to evaluate for further development. The initial project began in 2016 with 1,170 MW of current power production. Continued stages of solar development will take place throughout the decade and will create up to 800 local jobs at peak construction.

**This is an example of clean energy activity in the Valley; CATF is not endorsing any particular project.*

11 Public Policy Institute of California. (2022). *Solar Energy and Groundwater in the San Joaquin Valley.* https://www.ppic.org/publication/solar-energy-and-groundwater-in-the-san-joaquin-valley/#:~:text=The%20Current%20Solar%20Landscape&text=As%20of%202019%2C%20there%20were,in%20the%20last%20five%20years

12 Public policy Institute of California. (2023). *Managing Water and Farmland Transitions in the San Joaquin Valley.* https://www.ppic.org/publication/managing-water-and-farmland-transitions-in-the-san-joaquin-valley/

13 U.S. Energy Information Administration. (2024). *California Field Production of Crude Oil.* https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=mcrfpca2&f=a

14 ABC 30 Action News. (2022). *Westlands Solar Park in Lemoore helping provide energy throughout CA.* https://abc30.com/11530827/

15 Westlands Solar Park. http://www.westlandssolarpark.com/

16 California created the Community Economic Resilience Fund (CERF) to promote economic recovery from COVID-19 disruptions and invested $5 million in each of 13 regions in the golden state. Each region is developing a Jobs First plan that outlines strategies to create more diverse local economies and high-quality, accessible jobs. For more information: https://opr.ca.gov/economic-development/

Clean Air Task Force (CATF)[17] recognized the opportunity in front of the Valley and, in partnership with RAND Corporation (RAND),[18] led structured conversations, paired with a detailed modeling analysis, to help local leaders in the eight-county region explore options and opportunities of their clean energy future. Pairing structured conversations with analysis ('deliberation and analysis') helps the Valley determine for itself what the clean energy opportunity is, shaped by the state's climate goals, but ultimately designed to bring broad prosperity and lasting benefits. This report is guided by the clean energy vision statement and objectives created by deeply engaged local leaders, community representatives, and state officials that place climate-friendly economic opportunities at their core. The report sets the stage for future stakeholder discussions to further evaluate trade-offs and develop more detailed plans that ensure clean energy is in line with local objectives and brings lasting benefits.

Clean Energy is Happening in the SJV: West Coast Biofuel - McFarland Produce Plant[19]

California currently imports the majority of its biodiesel, but a proposed plant offers the potential to increase the local production and use of biodiesel within the state. West Coast Biofuel is converting an idle produce plant in McFarland, Kern County, into a biodiesel and renewable fuels production plant that could also assist in the supply of renewable electricity, biomethane, and hydrogen. The plant will employ 20 people and provide 230 million gallons of biofuel per year by turning waste oils into fuel. The biofuel will primarily go to the commercial transportation industry and help provide fuel for agriculture, aviation, trucks, etc. West Coast Biofuels has also secured a contract with the University of Southern California Department of Public Works to deliver renewable diesel for generating 16MW of renewable power.

**This is an example of clean energy activity in the Valley; CATF is not endorsing any particular project.*

17 CATF is a global nonprofit focused on building momentum for zero carbon solutions based on scientific evidence, intellectual integrity, and pragmatism. For more information: https://www.catf.us/

18 RAND is a California-based nonprofit, nonpartisan research organization that helps improve policy and decision-making through research and analysis. For more information: https://www.rand.org/

19 Cox, John. (2022). *Renewable Fuel Production Heats Up in Kern.* Bakersfield. https://www.bakersfield.com/news/renewable-fuel-production-heats-up-in-kern/article_d98de8e0-7561-11ec-b08a-6392a4c10175.html

What the Clean Energy Transition Can Bring to the SJV

To achieve its long-term socio-economic goals, the SJV needs a solid tax base and an equitable distribution of good jobs. A clean, low-carbon economy includes industrial development and the SJV is not shying away from pursuing these new industries. Clean energy opportunities, if approached and implemented thoughtfully, can provide positive, transformative benefits for the Valley and address longstanding and more recent regional social and economic challenges.

There are a range of clean energy technologies that can be deployed in the Valley, as presented in Figure 2 below and Appendix A. Those technologies and industry opportunities that capture value and benefits locally will be most appealing to the region. Valley leaders are laying the groundwork for long-term community investments that will bring a variety of career opportunities and high-road jobs[20] —including entry-level, union, research and development, academic, and C-suite positions—as well as sustained investments in local communities. These community investments could create direct employment and community benefits on a project-by-project basis, but could also lead to additional jobs and economic activity that are created or attracted by clean energy development such as supportive industry and increased spending at local businesses. The SJV has a once in a lifetime opportunity to reshape its economic base, deliver prosperity to Valley communities, and address the effects of a changing climate that disproportionately impact the Valley.[21]

Figure 2: Clean Energy Technologies

Carbon Capture

Utility Scale Solar/Wind

Microgrids

Energy Storage

Clean Tech Manufacturing

Hydrogen Production

Bioenergy

Electric Vehicles

20 "A high-road economy supports businesses that compete on the basis of the quality of their products and services by investing in their workforces; these businesses pay the wages and benefits necessary to attract and retain skilled workers, who in turn perform high-quality work"; California Workforce Development Board. (2020). *Putting California on the High Road: A jobs and climate action plan for 2030.* https://laborcenter.berkeley.edu/wp-content/uploads/2020/09/Putting-California-on-the-High-Road.pdf

21 Fernandez-Bou, A., Ortiz-Partida, J. Pablo., Pells, C., Classen-Rodriguez, L., Espinoza, V., Rodríguez-Flore, J., & Medellín-Azuara, J. (2021). *Regional Report for the San Joaquin Valley Region on Impacts of Climate Change.* California Natural Resources Agency. Publication number: SUM-CCCA4-2021-003. https://www.energy.ca.gov/sites/default/files/2022-01/CA4_CCA_SJ_Region_Eng_ada.pdf

Engagement, Workshops, and Process

Throughout 2023 and early 2024, CATF and its project team engaged leaders of local communities to explore what a clean energy future might look like in the region. Through multiple knowledge-sharing sessions, and supported by detailed quantitative modeling from RAND, Valley leaders together explored the options and opportunities from various clean energy pathways, called 'portfolios'. CATF brought together academics, local elected officials, community development departments, community organizers, community foundations, and state agencies to participate in this work (see Figure 3). A first step in this process was to define a clean energy vision statement and a set of objectives to ground broader engagement, visioning, portfolio building, and eventual implementation. This process began with four virtual meetings where CATF convened local leaders to discuss clean energy technology options, explore how clean energy investments could support local community goals, and listen to the local and regional leaders to better understand their needs and interests.

Following these initial discussions, CATF, with support and modeling from RAND,[22] convened a series of three half-day workshops between September 2023 and February 2024 to engage a broader group of leaders and develop initial portfolios for a clean energy future in the Valley. The workshops employed a 'deliberation with analysis' approach where RAND and the CATF team iteratively worked with SJV leaders to identify and refine their clean energy objectives, options, and possible opportunities using progressively more refined data and analysis. RAND modeling allowed local leaders to inform and evaluate various clean energy deployment portfolios and their anticipated environmental and economic impacts. A preliminary analysis of potential deployment portfolios identified technologies and industry opportunities that may best align with local workforce, environmental, and economic goals.

Figure 3: Participating SJV Leaders

- **Local Government Leaders:** County officials, resource management agencies, county supervisors, city officials (mayors, city managers, economic planners, irrigation districts)
- **Local Community Leaders:** Community foundation representatives, local environmental justice representatives, economic development corporations, resource conservation district, labor councils, community-based organizations, trade associations
- **Subject Matter Experts:** Industry experts, academic researchers, think tanks
- **State Agencies:** California Department of Conservation, California Energy Commission, California Governor's Office of Business and Economic Development (GO-BIZ), California Natural Resources Agency

22 The RAND-developed SJV Clean Energy Portfolio Toolkit provided high level information about land, water, jobs, and other outcomes from clean energy development between now and 2045. It is not a spatial tool and did not model where agricultural land would transition, evaluate land repurposing opportunities, or address the important job transition activities that will be needed for both oil and gas and agricultural jobs in the Valley.

SJV Clean Energy Vision Statement and Objectives

The clean energy vision statement and objectives detailed below put the economic development opportunities of the clean energy transition at its core while ensuring authentic community engagement and lasting environmental and social benefits. Valley leaders have taken ownership of this effort and are continuing to push forward a thoughtful, self-determined, and coordinated approach to clean energy planning.

SJV Clean Energy Vision Statement

The SJV will leverage clean energy investments to authentically engage impacted communities, create a dynamic and inclusive economy that elevates local talent and enduring community benefits, generates high-road jobs, cultivates innovation, supports federal and state decarbonization efforts, and accelerates achievement of the region's sustainability goals.

SJV Clean Energy Objectives

Objectives		Potential Outcomes
Equity	Help those who least benefit from the current economy	• Advance diversity, equity, inclusion, and accessibility • Embed environmental justice & Justice40[23] principles • Create local wealth • Construct an economy that benefits everyone in some way
High Road Jobs	Create quality jobs that stay in the Valley	• Ensure sustainable, long-term jobs with investment in workforce and professional development and training programs • Create quality jobs that provide a living wage and benefits, such as health care and retirement
Wealth Creation	Attract business and investment to the Valley	• Increase the number of entrepreneurs and business headquarters in the Valley • Attract private investment and Intellectual capital • Invest in workforce development and training so local residents can access high-road jobs
Health	Result in cleaner environments	• Projects result in cleaner air, with the reduction of local fossil fuel consumption, and cleaner water • Consider including additional recreational facilities in negotiated community benefits
Builds Upon Existing Assets	Complement existing SJV industries and build upon existing infrastructure	• Complement ongoing local initiatives and infrastructure projects in both industrialized and rural communities (civil, physical, educational, etc.)

23 The Justice40 initiative, "the Federal government has made it a goal that 40 percent of the overall benefits of certain Federal climate, clean energy, affordable and sustainable housing, and other investments flow to disadvantaged communities that are marginalized by underinvestment and overburdened by pollution." See: https://www.whitehouse.gov/environmentaljustice/justice40/

SJV Clean Energy Portfolio Toolkit & Common Themes

Achieving this vision of clean energy development in the SJV can follow different pathways depending on the variety and amount of clean energy technologies and related supply chain opportunities developed over time. Demonstrating potential clean energy deployment portfolios and their associated environmental, social, and economic impacts can help inform leaders and decision-makers of what pathways best align with the region's long-term goals. Leaders also need analysis and modeling to better understand how to take advantage of state and federal incentives, funding, and grant programs.

RAND worked with Valley leaders through an iterative process to develop the SJV Clean Energy Portfolio Toolkit, which consists of:

- A spreadsheet-based Portfolio Design Tool to help stakeholders create portfolios of clean energy buildout over time in the SJV,
- A mathematical Portfolio Evaluation Model to evaluate each portfolio along a variety of key metrics, and
- A Portfolio Explorer that provides interactive visualizations of the model results.

For this effort, a portfolio is a collection of clean energy technologies that are projected to be built in the SJV between now and 2045 that run through the RAND model. Each portfolio includes feedstocks (e.g., wind, solar, agriculture and forest waste), which can be converted into energy (e.g., electricity, hydrogen, biomethane, or sustainable aviation fuel), and employed for various end uses (e.g., power grid, vehicle fuels). Each portfolio was evaluated for land impacted, water consumed, jobs created, emissions avoided, and other characteristics. The toolkit takes into account the SJV's existing resources including land, infrastructure, and industries, and is tailored to the goals of the Valley. It draws upon findings and underlying data from studies such as Lawrence Livermore's "Getting to Neutral,"[24] the Nature Conservancy's "Power of Place-West,"[25] the National Renewable Energy Laboratory's "Resource Assessment for Hydrogen Production,"[26] and many others. The toolkit provides a non-spatial assessment of portfolios and can be used in conjunction with the Department of Conservation's Land Use Tool which has detailed spatial data of the region to translate high-level portfolios into more detailed spatially informed proposals. The toolkit is an invaluable resource for coordinated decision-making and planning for the Valley's future.

RAND modeled a range of portfolios to provide baselines around current and planned projects, bookends of maximum feasible buildout potential and benchmarks against state planning efforts like CARB's Scoping Plan. RAND also solicited user-defined portfolios which allowed SJV leaders to develop their own potential energy mixes. A description of the portfolios evaluated is available in RAND's technical report along with more detailed documentation of data and methodology.[27] Following the development and modeling of portfolios, RAND conducted an additional evaluation of workforce annual job additions from created portfolios to estimate direct, indirect, and induced jobs by energy type.[28] Additional analysis demonstrated how many direct jobs would be temporary or permanent, and whether they would be high or low wage.

The toolkit demonstrates, across all portfolios, that the clean energy transition will yield benefits for the Valley, establishing a solid economic foundation for further job growth. The findings are discussed in more detail below.

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24 Baker, S., Stolaroff, J., Peridas, G., Pang, S., Goldstein, H., Lucci, F., Li, W., Slessarev, E., Pett-Ridge, J., Ryerson, J., Wagoner, J., Kirkendall, W., Aines, R., Sanchez, D., Cabiyo, B., Baker, J., McCoy, S., Uden, S., Runnebaum, R., Wilcox, J., Psarras, P., Pilorgé, H., McQueen, H., Maynard, D., McCormick, C. (2020). *Getting to Neutral: Options for Negative Carbon Emissions in California.* Lawrence Livermore National Laboratory. LLNL-TR-796100. https://www.osti.gov/biblio/1597217

25 The Nature Conservancy. (2022). *Power of Place-West*. https://www.nature.org/content/dam/tnc/nature/en/documents/TNC_Power-of-Place-WEST-Executive_Summary_WEB-9.2.22.pdf

26 Connelly, E., Penev, M., Milbrandt, A., Roberts, B., Gilroy, N., Melaina, M. (2020). *Resource Assessment for Hydrogen Production*. Golden, CO. National Renewable Energy Laboratory. NREL/TP-5400-77198. https://www.nrel.gov/docs/fy20osti/77198.pdf

27 Kalra, Nidhi, Robert J. Lempert, Hye Min Park, Javier Rojas, Greg Wright, Tobias Sytsma, and Weilong Kong, *Informing Clean Energy Planning in California's San Joaquin Valley*, RAND Corporation, RR-A3115-1, 2024. https://www.rand.org/pubs/research_reports/RRA3115-1.html

28 Indirect jobs are those that are created to support an industry (goods and services- e.g., safety or grid component equipment manufacturing jobs). Induced jobs are created by additional individual spending by those with direct and indirect jobs (e.g., restaurant staff).

Common Themes from RAND Portfolio Development and Modeling

RAND's modeling analysis demonstrates several themes that are consistent across the evaluated portfolios:

Resource Potential

- **The Valley can be a key contributor to the state's goals based on resource potential and existing statewide energy planning** (e.g., CARB's Scoping Plan, CEC's Integrated Energy Policy Report (IEPR), and SB100 land use planning, etc.). The Valley has a significant share of the state's land suitable for solar installation and of the state's agriculture and forest biomass and biogas resources. Given the current projects planned for the region and the scale of the state's clean energy ambitions, the Valley could meet or even exceed its contributions to California's decarbonization goals on a per-capita or GDP basis.

- **Land and water do not constrain clean energy development in the SJV, but should be used wisely.** Even with exclusions in place to protect the most sensitive lands from solar development,[29] enough electricity could be generated on the remaining land to, in theory, serve all households in California and Texas combined.[30] The amount of water required for portfolios is small compared to other existing uses.

  For example, the anticipated annual water consumption for the portfolio in line with CARB's Scoping Plan is on par with water usage for 1,000 acres of almonds, or roughly .07% of the state's current almond producing lands. However, as a perpetually water stressed resource, using any water for energy production may require displacing it from other activities.[31] Although not constraints, both land and water should be thoughtfully used. Coordinated land use and resource planning across the region will be needed to make informed decisions regarding the various clean energy portfolio pathways to determine which options support the Valley's other priorities, such as habitat conservation and agricultural land retirements. The California Department of Conservation (DOC) is developing a Land Use Tool that will be able to help SJV further refine its planning and decide where to focus clean energy development.

- **While the Valley's greatest resource potential is solar, other technologies will play a valuable role in diversifying the Valley's economic drivers and making best use of existing resources and infrastructure.** Solar is the Valley's greatest potential source of electricity by a factor of 10 compared to wind and bioenergy. The Valley has enough land, even excluding the most sensitive lands, to support 114 GW of electricity capacity from solar compared to 5 GW of wind and 1.8 GW of bioenergy.[32] However, resources like bioenergy may produce more jobs per kWh (see below) and take advantage of existing agricultural and municipal waste, producing biofuels that can be used locally.

Workforce Development and Jobs

- **Expansion of clean energy generation can create thousands of jobs annually within the Valley.** Depending on the amount of different technologies in each portfolio, roughly half of those direct jobs would be permanent jobs. For most technologies, well over half of all direct jobs are considered high-road jobs that pay more than the median U.S. income. Adding in indirect and induced jobs roughly doubles the estimated job creation.

- **Some technologies create more jobs than others.** Hydrogen, bioenergy, and biogas projects create more jobs than solar per unit of energy they produce, and more of those jobs are permanent jobs. While utility-scale solar creates fewer jobs than other technologies per KWh, solar still has the biggest clean energy resource potential, and given its scale, could still be a significant job creator. Solar energy is also used to support other technologies, such as hydrogen production, which, in turn, creates more jobs.

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29 The Nature Conservancy. (2023). *Power of Place-National.* https://www.nature.org/en-us/what-we-do/our-priorities/tackle-climate-change/climate-change-stories/power-of-place/

30 This is based only on the amount of electricity that could be produced in total on the remaining lowest-conflict land in terms of gigawatt-hours and is intended to give a sense of scale. It does not reflect practical realities of transmission, time of day limitations, etc.

31 USDA. (2023). 2023 California Almond Objective Measurement Report. https://www.nass.usda.gov/Statistics_by_State/California/Publications/Specialty_and_Other_Releases/Almond/Objective-Measurement/2023almondOM.pdf

32 Analysis derived from data in The Nature Conservancy. (2022). Power of Place-West. https://www.nature.org/content/dam/tnc/nature/en/documents/TNC_Power-of-Place-WEST-Executive_Summary_WEB-9.2.22.pdf

- **The modeling estimates are a lower bound for jobs created in the SJV – efforts could be made to attract jobs to the region that might go elsewhere in the country.** Clean energy development, in conjunction with jobs that are created to support or attracted to clean energy development (indirect and induced jobs), can serve as a foundation for additional job growth in the region.

- **The modeling does not show significant workforce constraints given existing workforce size, composition, and skills.** However, existing workers will likely need training to successfully pivot to clean energy opportunities. Workforce training will be necessary and SJV leaders will need to do a gap analysis of what training is needed to meet clean energy transition jobs. The number of people who may require training is consistent with current graduation rates from community college training programs for similar skills in the region.[33]

Ensuring Effective Deployment

- **The region will need to think carefully about how much and where clean energy is developed.** Solar will be one of the highest sources of electricity in the Valley and can be dedicated to a variety of uses. SJV leaders can explore local opportunities for solar energy use and dual-use of land, such as ground cover and land management practices that support ecosystem services, which may hold particular promise for the SJV as it seeks to mitigate further environmental impacts.[34]

- **Starting with a diverse mix of clean energy developments will afford the SJV maximum flexibility to pursue different futures.** Additionally, implementing a diverse mix of clean energy projects in the near term will help keep options open in future years.

- **Clean energy development can help reduce pollution.** Solar is land intensive, but generates significant amounts of clean energy to contribute to a clean grid in the region and across the state. Solar also produces very little, if any, local pollution. Hydrogen fuel produced in the valley creates jobs and can reduce particulate matter emissions if used locally to offset traditional surface transportation fuels.

- **Acting quickly can ensure the Valley makes the most of this opportunity.** There are actions that the Valley can take today that will set the region up for success across many future clean energy pathways without overbuilding or overinvesting in infrastructure. These include building solar, encouraging hydrogen production, and investigating manufacturing opportunities. Additionally, for many of these technologies, acting quickly will provide the Valley with the advantage of being an early mover, signaling to industry, the state, and the nation that the SJV is open for business.

Maximizing Manufacturing and Supply Chain Opportunities

Developing manufacturing and supply chain opportunities that are complementary to the clean energy industry will be key for the Valley to maximize additional economic benefits. Local manufacturing will create an integrated local supply chain, capturing value locally, while supporting clean energy projects around the state and nation. While clean energy generation infrastructure will bring new jobs, manufacturing will also bring additional high-road jobs in a more significant capacity.[35] Undertaking a detailed manufacturing and supply chain analysis was out of scope for this effort. However, as Valley leaders develop their Jobs First plans, they should evaluate the role of new manufacturing and supply chain opportunities enabled by a rapidly growing clean energy industry. Diversifying the region's economy will bring greater economic stability, high-road jobs, and intergenerational wealth that will help the Valley meet the objectives noted above.

33 RAND did not determine the point at which training might be a constraint on job creation if the Valley exceeded clean energy development or expanded supply chain opportunities beyond the assessed portfolios.

34 Natalie Manitius. (2024). *Dual-use solar: An exploration of potential in the San Joaquin Valley.* Clean Air Task Force.

35 Canary Media. (2023). *Made in the USA: Ramping up clean energy manufacturing.* https://www.canarymedia.com/made-in-the-usa-ramping-up-clean-energy-manufacturing

Community Benefits

The clean energy vision for the SJV anticipates substantial investment into the Valley's economy, creating new jobs and expanding the economic base. Community benefits, developed through agreements with developers, can further boost economic impact while providing additional social and environmental benefits for host communities.[36] Traditional community benefit agreements are signed on a project-by-project basis and often provide funding or grants to local community organizations, workforce opportunities, or educational programs. During this effort, Valley leaders signaled interest in developing a coordinated framework to ensure meaningful and effective community benefits are delivered across the region.

The CATF project team convened a community benefits working group consisting of local government officials, locally respected leaders, community organizers, and experts on community benefits. Initial conversations among the group identified that rural communities will bear much of the burden of existing and future clean energy development. Additionally, commercial agriculture and more recent solar development in the Valley historically have not substantially and equitably benefited local communities. Throughout the broader effort, Valley leaders expressed significant interest in finding opportunities to create as much local value as possible from new development. The group discussed the importance of community benefits as a way to enhance project benefits, mitigate negative impacts, streamline development, and generate lasting investment into communities.

The working group developed a set of principles to guide community benefits for the Valley (see Appendix B). The group envisions a Valley-wide approach to community benefits that sets clear expectations for developers, puts decision-making on community investment into the hands of the locals, and ensures that no community is left behind. If all communities in the region adopt the same approach to community benefits and demand substantially similar provisions, developers will not flock to areas with fewer requirements, avoiding a race to the bottom. Such a framework must balance what the community is interested in with what is feasible for developers on their individual projects. If the bar is set too high, investment could be lost to other regions deemed more feasible. A coordinated, Valley-wide approach will provide clarity to developers, simplify and expedite the community benefit negotiation processes, and provide more predictable project development timelines.

The guiding principles are a starting point that can inform a more detailed innovative community benefits model for the Valley. Refining and implementing this proposed framework will require: 1) intensive on-the-ground community organizing by trusted local organizers to involve and engage residents and community organizations, and 2) close coordination among local governments. The SJV must act quickly to develop and deploy this framework. Without a strong community benefits model in place, the Valley's residents will lose out on getting the most value from projects that are developed in the meantime.

Clean Energy is Happening in the SJV: Kore & Tule River Forest Biomass[37,38]

Kore Infrastructure and Tule River Economic Development Corporation are developing a first of a kind modular, forest biomass-to-biofuel facility in Porterville, California. The California Department of Conservation granted $500k for the construction of the facility, which would reduce wildfire risk by removing 48 tons per day of non-merchantable dead trees and biomaterial while also helping decarbonize transportation and shipping handling through the facility's carbon-free hydrogen production. The project will begin construction in early 2024 and is expected to be operational by the summer or fall of 2025.

**This is an example of clean energy activity in the Valley; CATF is not endorsing any particular project.*

36 Clean Air Task Force. (2023). *Community Benefits Programs and Clean Energy.* https://cdn.catf.us/wp-content/uploads/2023/09/28141915/community-benefits-programs-fact-sheet.pdf

37 California Department of Conservation. (2023). *California Awards $1 Million to Tribal Partnerships That Seek to Convert Forest Waste into Carbon-Negative Fuel.* https://www.conservation.ca.gov/index/Pages/News/1-Million-to-Tribal-Partnerships-Convert-Forest-Waste-Carbon-Negative-Fuel.aspx

38 Kobayashi-Soloman, Erik. (2024). *Kore's Latest Project Cuts Fire Risk And Creates Green Hydrogen.* Forbes. https://www.forbes.com/sites/erikkobayashisolomon/2024/02/06/kores-latest-project-cuts-fire-risk-and-creates-carbon-negative-fuel/?sh=152f72e94153

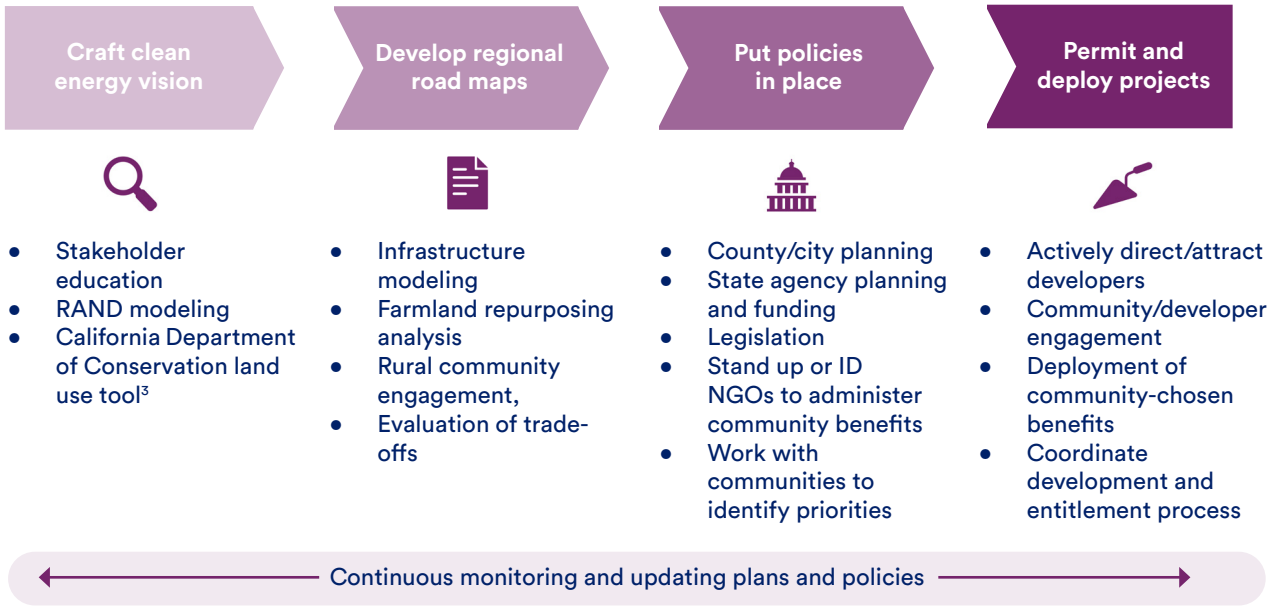
Recommendations for Achieving the Vision

Next Steps Beyond the Clean Energy Vision

The work done thus far to develop the vision statement, objectives, and portfolios is just the first step. To realize their full potential benefits, the portfolios should be further vetted and refined through future local and state economic development and planning efforts such as Jobs First plans, general plan updates, economic development corporation planning, SB100 planning, and transmission planning.

A region-wide clean energy transition roadmap, developed by local leaders and informed by additional analysis of workforce, manufacturing, and industry opportunities and trade-offs, is a necessary next step (see Figure 4 below). Implementation of the roadmap will require additional vetting of possible clean energy futures, expanded community engagement, united political support, clearly articulated expectations for developers, development of innovative mechanisms for policy and financing, and strong coordination between the Valley and with state agencies such as the CEC, DOC, and CAISO. With the right information on how the clean energy transition can help meet local objectives and goals, local leaders can then make decisions that will best shape local outcomes.

Figure 4: Pathway to the SJV's Clean Energy Future



Recommendations

Clean energy investments can support local community goals with aligned federal, state, and local support. This section offers recommendations drawn from the convenings, scenario analysis, and SJV leadership engagement described above. These recommendations do not reflect a consensus among process participants but instead, encompass a wide range of actions that one or more participants considered critical for achieving the ambitions of the SJV communities during this time of economic flux. The recommendations are summarized in Figure 5 and then discussed in more detail below.

Figure 5: Summary of Recommendations

COMBINED LOCAL AND STATE ACTION

- Continue investing in structured conversations with state and local representatives to explore and lay the groundwork for expedited clean energy development that meets local and state goals and objectives.
- Include key state and federal representatives who can work in service of and help facilitate the local or regional clean energy conversations.

STATE ACTION

- Replicate locally led and state supported clean energy planning outside the SJV.
- Align state energy infrastructure planning processes with local planning processes, priorities, and interests.
- Provide technical assistance to regions and local communities.
- Fund a clean energy workforce analysis for the SJV.
- Embrace bioenergy projects that can efficiently use existing local biomass resources.
- Reduce bureaucratic barriers to efficient and cost effective clean energy generation, transmission, and clean energy manufacturing.
- Conduct a gap analysis and dedicate workforce training funds and programs to communities actively embracing clean energy development.

LOCAL ACTION

- Quickly coordinate clean energy planning and strategy across the region.
- Leverage this work to develop clean energy implementation roadmaps.
- Conduct a comprehensive analysis of clean energy supply chain and manufacturing opportunities.
- Align local policy with clean energy strategies to facilitate deployment.
- Develop an economic development strategy, including incentive programs, to attract clean energy companies.
- Develop and implement a robust community benefits framework.

COMMERCIAL ACTION

- Proactively engage with communities to align needs and expectations.

Recommendations for Combined Local and State Action

Include key state and federal representatives who can work in service of and help facilitate the local or regional clean energy conversations.

This effort's facilitated conversations were supported by state government representatives from energy, conservation, and other agencies who were willing to listen first, then bring their support and expertise to the local conversations as needed. This locally-led approach allowed the ultimate siting, permitting, and decision-making entities–local governments–to drive the conversations and define options for their clean energy future. These options can be brought forward for broader analysis and vetting as part of Jobs First and other state and local energy planning.

Continue investing in structured conversations with state and local representatives to explore and lay the groundwork for expedited clean energy development that meets local goals and objectives.

This effort brought together local leaders and experts to learn more about clean energy options and explore possible futures. These discussions have demonstrated that increased collaboration between state and local leaders will yield better energy infrastructure planning results that are informed by and in line with local community desires.

Recommendations for State Action

Replicate locally led and state supported clean energy planning outside the SJV.

This model of community engagement, deliberation, and analysis proved fruitful for those involved and should be replicated in other parts of California as well as continued in the SJV. Stakeholder engagement paired with detailed modeling analysis will help leaders understand how to take advantage of and deploy state and federal incentives, funding, and grant programs. Public or philanthropic dollars can be leveraged to facilitate the process and provide modeling support.

Align state energy infrastructure planning with local planning processes, priorities, and interests.

Greater alignment between state energy infrastructure planning, such as SB100 planning and transmission planning, and local realities will result in wiser investment choices, faster deployment, and fewer political disputes. Through this process, the Valley has begun to articulate a clearer vision of what kind of clean energy infrastructure and economic activity they want to see. The state should incorporate these learnings into ongoing and future state infrastructure planning processes.

Provide technical assistance to regions and local communities.

State policymakers have adopted policies and regulations that will result in an economic transition that has huge implications for the SJV. Clean energy deployment requires detailed land use, transmission, workforce, and community development planning. This planning is best done through deliberation that is supported by robust analysis. Local planning and permitting are in need of state support, as clean energy proposals will outpace the ability of counties and municipalities to build internal capacity. State agencies can be partners to local governments by providing data, analysis capabilities, and technical expertise. One example is DOC's aforementioned Land Use Tool which provided San Joaquin Valley representatives with detailed agricultural, water, and economic land use data to assess alternative land use scenarios. The state could also fund a clean energy planning staff that provides ongoing, dedicated technical support that is on-call to support regional and local efforts.[39]

Conduct a gap analysis and dedicate workforce training funds and programs to communities actively embracing clean energy development.

The RAND analysis demonstrates there are ample skilled workers in the region; however, these workers will likely need training to successfully pivot to clean energy opportunities. State programs should collaborate with local stakeholders and regional initiatives including clean energy industries, educational institutions, and community organizations to conduct a gap analysis and design training programs and curricula that are in line with anticipated local industry demands and workforce requirements.

39 The state could leverage existing programs to create a clean energy support center that is federally and state funded and staffed by government agencies, the University of California, and California State University systems, national labs, etc. See OSTP climate services guidance: https://www.whitehouse.gov/ostp/news-updates/2023/03/22/fact-sheet-the-white-house-office-of-science-and-technology-policy-releases-new-resources-to-advance-climate-science-and-support-decision-making/

Fund a clean energy workforce analysis for the SJV.

The State should fund an SJV workforce gap analysis that is completed by local subject matter experts. This analysis should start by clearly identifying future clean energy jobs and skill sets, conducting a comprehensive survey of existing state, regional, and local workforce training programs, and identifying gaps and solutions.

Reduce bureaucratic barriers to efficient and cost-effective development of clean energy generation, transmission, and clean energy manufacturing.

Even when state and local perspectives align, permitting processes or legal restrictions on taxation or land use can stymie new investments. For example, the state should reduce permitting barriers to new transmission[40] and clean energy projects, reassess the Williamson Act[41] so that it doesn't unintentionally restrict development on lands that are no longer feasible for agriculture given water scarcity challenges, and revisit the solar property tax exemption[42] to create a glide path that brings needed local funding streams and allows projects to move forward. These policy changes will create a more dynamic and less restricted policy environment by which local communities can more ably chart their futures.

Embrace bioenergy projects that can efficiently use existing local biomass resources.

The State should support projects that use existing resources, industries, and infrastructure to fully leverage local resources, stimulate economic development, yield carbon benefits, and help address the Valley's other unique challenges. The state should particularly embrace bioenergy projects that can efficiently utilize existing local biomass resources from forest, agricultural, and municipal waste to provide clean, low-carbon fuels and fertilizers that could also be utilized across the region.

Recommendations for Local Action

Quickly coordinate clean energy planning and strategy across the SJV region.

Steps to combat the worst climate change impacts and deploy substantial quantities of clean energy are accelerating. Timely, proactive, and collaborative engagement across the Valley will ensure that the SJV will have first mover advantages and that no community is left behind. To formalize this coordination, Valley leaders may consider signing a memorandum of understanding or developing a valley-wide community organization that can aid in information sharing, collaboration, and implementation. Existing SJV entities, such as the California Partnership for the SJV or an existing or new Community Choice Aggregation (CCA), could help realize the full benefits of the clean energy transition to the region and should be further explored.

Leverage this work to develop clean energy implementation roadmaps.

Communities that proactively identify which opportunities are best suited to their region and develop strategies to seize them—as those in the San Joaquin Valley are doing now—will stand to reap the greatest gains. Developing a vision was the first step in, and a catalyst to, the Valley's transformation, but the work is just beginning. Valley leaders should collaborate to develop a detailed roadmap for implementing their clean energy vision and objectives across the Valley, and integrating the vision into their Jobs First plans, rezoning, programmatic environmental reviews, or other economic development efforts. Collaboration should include local governments, community organizations, businesses, state agencies, and should stay grounded in the objectives laid out in this report, centering equity and health outcomes in all efforts to promote local jobs and wealth creation.

Conduct a comprehensive analysis of clean energy supply chain and manufacturing opportunities for the SJV.

The aforementioned recommended roadmap should include a detailed analysis, conducted by the community or a third-party, that evaluates specific opportunities to develop supportive manufacturing and supply chain opportunities for the clean energy industry. This analysis should identify innovation priorities, barriers, and solutions; workforce development needs; industry supports; and other critical enabling actions.

40 Clean Air Task Force. (2023). *Transmission Development in California - What's the slowdown?* https://www.catf.us/resource/transmission-development-california-slowdown/

41 See https://www.conservation.ca.gov/dlrp/wa for more information

42 See https://www.boe.ca.gov/proptaxes/active-solar-energy-system.htm for more information

Align local policy with clean energy strategies to facilitate deployment.

Local communities must be proactive in implementing local land use, tax, and fee policies and streamlining siting and permitting processes that are permissive for desired clean energy development. Policies can be structured to both provide clarity and set expectations for developers. Proactive updates to the general plan and/or rezoning to specify areas for clean energy developments, such as Beam Circular's North San Joaquin Valley's Bioeconomy Development Opportunity (BDO) Zone[43] and Kern County's Carbon Management Business Park,[44] will also ensure clean energy development is aligned with other land use priorities for the community.

Develop and implement a robust community benefits framework.

A key opportunity identified in this project is for local leaders to develop a regional framework for community benefits that provides a floor that all communities in the Valley can adhere to. Draft guiding principles for such a framework were developed as part of this effort, and are included in Appendix B. Further refinement of the framework and successful project-by-project implementation of enforceable community benefits agreements will require robust and focused community organizing in rural SJV communities impacted by new clean energy development and coordination across local governments.

Develop an economic development strategy, including incentive programs, to attract clean energy companies.

Engaging clean energy and manufacturing industries to identify their needs can help shape meaningful policy reforms that create a supportive investment environment aligned with community goals. Coordination between economic development corporations, local governments, and industry will provide added certainty, reduce risk for developers, and create more predictable development timelines. The Valley should leverage innovation and business incubators to support clean energy and associated manufacturing deployment.

Recommendations for Commercial Action

Proactively engage with communities to align needs and expectations.

Private investments can reshape local communities for the better. Companies can do more to engage early, frankly, and openly with potential host communities to define conditions for success for both parties and ensure investments made today are in service of long-term mutual prosperity. These conversations can guide project design, identify the most compelling local incentives, and result in meaningful community benefits.

43 Bioeconomy Development Opportunity Zone Initiative. (2023). *North San Joaquin Valley Bioeconomy Development Opportunity Zone.* https://bdozone.org/rating_award/north-san-joaquin-valley-california/

44 Kern County Planning and Natural Resources Department. (2023). *Vision - Carbon Management Park.* https://kernplanning.com/cmbp-landing/

Appendix A: Guiding Principles for Community Benefits Related to Clean Energy Projects in the San Joaquin Valley

Preamble

- Rural cities and communities will likely bear the brunt of negative impacts of the transition to clean energy in the SJV, and therefore should receive the greatest share of direct community benefits.
- California has a history of marginalizing SJV communities, relying on the Valley's people and plentiful agricultural and energy resources to serve the "greater good." These rural communities have not traditionally benefited from a hundred years of extractive industry (agricultural, solar, mining, oil, gas, etc.). Benefits and mitigations, exacted by government via CEQA or by other intermediary organizations, have not improved SJV communities' socioeconomic status, health, and wellbeing.
- The clean energy industrial transition can provide SJV residents with community benefits –direct and indirect– that have the potential to transform these impacted communities and address historic injustices.
- Clarity and certainty around community benefits has potential to accelerate desired clean energy projects, which are those that are consistent with the SJV Clean Energy Vision Statement and Objectives. Strong community benefits mechanisms can lower impacts, costs, and risks associated with industrial scale clean energy deployment, attract investment, and deliver feasible, real, and durable benefits to impacted communities.
- Community benefits should be determined by the local impacted communities and should be the maximum feasible, so that desirable projects are still financially viable. While benefits from a single project cannot solve the challenges faced by communities, aggregated community benefits from multiple projects can have a substantial impact.
- Rural community prosperity will not happen without respect for, deference to, and engagement and empowerment of residents and leaders in impacted rural communities. Communities must be able to articulate their vision and objectives, be part of the examination and determination of the full suite of project impacts, and author their own community-determined benefits packages including negotiated agreement(s).
- Community Benefit Agreements (CBAs) will be required. To be meaningful and transformative, CBAs must ultimately be negotiated between energy developers and impacted rural community organizations that will determine, govern, and manage implementation of their community benefits. This CBA process can be assisted, streamlined, and made regionally consistent in various ways. However, the CBA process must emphasize building and sustaining rural community civic infrastructure with shared power and governance over high-capacity nonprofits intentionally established to hold and deploy their own hard earned rural community benefit resources.
- The authentic and measurable empowerment and self-determination work requires a commitment to intense and long-term rural community organizing, leadership development, and achievement of peer status for rural communities in all aspects of the clean energy transition along with government, markets, and the traditional nonprofit sector.

Guiding Principles for all SJV Clean Energy Projects

1. **Uniformity Across the Valley:** Community Benefits Plans and associated enforceable Community Benefit Agreements are a prerequisite for all clean energy projects[45] valley-wide; a consistent CBA approach across the valley will provide clarity for developers and prevent communities from competing against each other and losing benefits, or overburdening an area with development because it has fewer requirements.

   This will require a several next steps beyond the report "An Exploration of Clean Energy Options and Opportunities for the San Joaquin Valley's Clean Energy Future" including:

   - Coordination of local governments to establish a regulatory framework for CBAs across the valley to provide clarification of the project's costs and certainty about the process, participants, and feasible monetary and non-monetary benefits;[46]
   - Local government buy-in to a uniform approach valley-wide. This will include sharing mitigations and coordinating community benefits flowing from these projects with impacted community organizations.

2. **Inclusive:** Intentional inclusion of and capacity building for the most impacted rural communities is fundamental.

   - Lead agencies typically foster community outreach through formal entitlement and planning processes. However, community led conversations have a broader and deeper reach and yield better results. Engagement processes in project development and CBA negotiation must begin from a place of learning, seek out underrepresented voices, and value community led discussions.
   - Community benefits must include negotiated agreements, like CBAs, between project developers and impacted communities. Communities must be in a position to determine, govern, and manage implementation of their community benefits. Capacity building and technical assistance need to be fostered locally and with support from trusted experts and with state and federal assistance.

3. **Locally Controlled:** Benefits should be determined by local communities (in close coordination with local government) and benefits deployed by community-created and owned non-profit organizations.

   - Responsibility for establishing non-profit organizations to receive funds and deploy benefits lies with the community. There are capacity and funding challenges, but this approach is superior to the developer controlling the "table" and fundamental to securing the desired outcomes.
   - Community 501(c)(3)s will be guided by the "social determinants of health" and receive revenue from projects and other sources (philanthropic, government grants, income from investing in local clean energy projects, etc.).

4. **Enforceable, Transparent, & Accountable:** CBAs shall be legally enforceable. CBAs should be transparent and made public, when possible, to ensure that all parties are held accountable for use of tax/community benefit investment dollars. CBAs shall include measurable goals and actions supported by the best available information, and mechanisms for citizens at large to ensure accountability.

5. **Co-Beneficial:** A standardized approach to CBAs in the SJV consistent with these principles will accelerate desirable clean energy projects necessary to mitigate climate impacts while also ensuring durable, meaningful, and community determined and deployed community benefits.

45 Consider using the definition of clean energy projects in AB 205: solar PV 50MW+, Energy Storage 200MW, Facilities for manufacture, production, or assembly, transmission lines to first point of interconnection, and thermal gen 50MW.

46 Examples include Arches 2.0 (1 percent of project costs); Lead Agency exacted fees (e.g., Kern, Tulare, Kings), existing CBAs (e.g., offshore wind, major development projects such as stadiums, American Flyer and Tribal).