

TRANSFORMING ECONOMIC DEVELOPMENT

Integrating Environmental Sustainability &
Equity into Practice

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I. Transforming Economic Development

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The economic development field is based on the belief that a healthy economy is central to community well-being. As economic development practitioners, our primary mission has been to stimulate private investment and create jobs that generate income for area residents. This income allows households to acquire goods and services to have a “good life” and save to build longer-term wealth. Investment, income and consumption provide the tax base to underwrite shared, communitywide infrastructure and services.

Innovation has been a hallmark of economic development in response to new challenges and deeper understanding of the conditions that create a strong local economy. An early focus on attracting firms, plants and development projects has expanded to investing in the underlying assets and drivers of economic development: nurturing entrepreneurs, investing in workforce skills, and research and development in new technologies. Another innovation has been transcending individual deals to foster development and change at larger scales: working to strengthen industries, clusters and value chains across many firms and supporting institutions; creating “ecosystems” across the public and private sectors to deliver diverse resources needed to create and sustain a dynamic regional economy.

The time is ripe for another wave of innovation in the economic development field. With increasing economic inequality, limited growth in middle-income jobs and growing threats to the natural environment on a global scale, practitioners need to broaden the historic goals and boundaries of economic development and explore new strategies and practices. These challenges present new imperatives and new opportunities. Consequently, new goals, strategies and approaches are needed to equip practitioners with the ideas and tools to create

the type of economies and places that can succeed and thrive in light of these new challenges. Led by visionary leaders and practitioners, communities that innovate and adapt to build more sustainable and fair economies can reap the fruits of innovation: new technologies and industries; lower energy, water and material costs; a productive and talented workforce; advanced infrastructure and reduced risk of disasters; and emerge as places of choice for workers and businesses in the 22nd century. Andre Pettigrew, executive direction of Climate Prosperity, Inc. notes the nexus between change and opportunity:

As people and businesses change their behavior seeking to be more resource efficient whether in terms of energy or land, etc. and as they change, we believe it creates a new set of economic opportunities in communities. If these changes create new markets and new demand, those demands will have to be filled by entrepreneurial companies and innovative companies and yes, even, existing companies.

This paper is based on the belief that a shift in the performance of national, regional and local economies is needed to build long-term wealth, shared prosperity and a diverse and healthy natural environment. It draws on the ideas, experience and discussions among a group of fourteen economic and community development practitioners convened by MIT CoLab’s Mel King Fellows Program during 2012 to advance thinking on how to incorporate environmental sustainability and economic equity goals into economic development practice. Since deep changes in our economy, institutions and public policies are necessary to achieve a more sustainable and equitable economy, we believe the economic development field has an important leadership and implementation role in promoting and facilitating these changes. As Mel King Fellow Bob

Gough noted, “There’s no silver bullet—but there’s golden buckshot—a whole lot of little things that can be done.” This paper is a call to action within the economic development field to innovate, create and deploy this “golden buckshot” to transform our practice in two fundamental ways:

1. MAKE ENVIRONMENTAL STEWARDSHIP A CORE GOAL OF OUR WORK.

Global climate change, rising sea levels and loss of ecological resources present a growing and urgent threat to healthy and prosperous regions and communities. Economic development practitioners increasingly must consider the environmental consequences of economic activities. Our goals and strategies need to minimize the environment impacts of development and promote forms of investment, business organization and enterprise that preserve natural assets, reduce consumption of energy and other resources, and minimize greenhouse gases and pollutants.

2. PROMOTE EQUITABLE ECONOMIC DEVELOPMENT OUTCOMES AND MORE BROADLY SHARED WEALTH.

In recent decades, the economy has generated increasing inequality. Income and wealth are becoming increasingly concentrated in a small percentage of households. Longstanding geographic disparities also persist as the economic fortunes of rural areas lag those of metropolitan areas and many cities continuing to experience population loss,

disinvestment and shrinking economies. Moreover, enterprises and investments that contribute to long-term community and household wealth are often undercapitalized compared to consumption-oriented, short-term investments. Reversing these trends is a priority for the economic development field; it is central to our mission of building resilient local economies and community well-being. It requires strategies that promote living-wage jobs and family asset accumulation, broaden economic opportunities for low-income and marginalized communities, strengthen economic linkages, and influence the geography of investment and opportunity both within metro areas and between urban and rural regions.

This paper seeks to advance change within the economic development field by promoting dialogue and debate about the current challenges facing the field, proposing a framework for a transformed economic development practice and sharing case studies of how economic development organizations are innovating to implement this new practice. As with any major innovation, the path to success will entail experimentation, learning, knowledge sharing and widespread dissemination and adoption. We encourage economic development organizations and practitioners to pursue and test new approaches that embrace these goals, referred to as “Triple Bottom Line” (TBL) development, and to share their progress and learning with the field. The nature and scope of the challenges requires our shared creativity and intelligence.

II. A New Economic and Environmental Context

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The accumulated impact from decades-long trends provides a compelling case for changing the course of economic development. In the US, economic inequality has increased to the highest level since the Great Depression^{*}, with recent job growth concentrated in low-wage occupations. Since the 1980s, wages for the top 1% of workers grew by 150%—ten times the pace of the bottom 90%. As a result, the average after-tax income for the top 1% of households in 2007 was almost 75 times that of the lowest 20%. Wealth inequality was even greater: the richest 1% of households had 225 times the wealth of the average American family[†]. Economic trends since the Great Recession promise to worsen this inequality as jobs with mid-level wages continue to disappear and, to a large extent, are not being replaced. A recent study found that mid-level jobs with wages between \$14 and \$21 per hour accounted for 60% of the job losses during the recession while 58% of new jobs created after the recession were in the lowest paying occupations at \$8 to \$14 per hour, with the fastest growth in retail and food service jobs[‡].

Global environmental challenges are worsening as well. A scientific consensus found that global warming is unequivocal[§] and recent trends confirm that climate change is accelerating:

Global temperatures have been rising. The 20 warmest years on record have occurred since 1981 and the 10 warmest years occurred in the past 12 years, surface warming continues

despite recent minimums in solar output and ocean temperatures have increased by .3 degrees Fahrenheit since 1969[¶].

Polar ice caps and glaciers are melting. The Antarctica and Greenland ice shelves have lost significant mass, the North Pole's ice mass has seen its thickness drop by half (reaching its lowest recorded size in 2007) and other glaciers across the world are shrinking^{**}.

Ocean sea levels are rising more quickly. The rate of sea level change has increased from 1.8 + .5 mm per year during 1961 to 2003 to 3.3 + 0.4 mm from 1993 to 2010. Meanwhile, increased atmospheric carbon is raising ocean acidity and threatening ocean species and ecosystems^{††}.

Human activity has greatly transformed the world's natural systems beyond global warming, with widespread outcomes in declining biological diversity, changed biochemical processes and loss of ecosystems and ecological resources^{‡‡}. The consequences of these ecological changes include loss of fresh water supplies, extinction of many species, decline in marine fisheries, loss of protective coastal wetlands and increased toxicity of air and water. These ecological changes have far-reaching consequences for our society and economy as they threaten water and food supplies, increase the loss of human life from disasters, disease and other health impacts and affect the habitability of cities and communities, particularly in coastal areas^{§§}.

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¶ <http://climate.nasa.gov/evidence/>

** <http://climate.nasa.gov/evidence/>; Kristin Dow and Thomas E. Downing, *The Atlas of Climate Change*, pp. 24-27

†† Dow and Downing, pp. 28-29.

‡‡ For a full discussion, see Peter M. Vitousek, et al. "Human Domination of Earth's Ecosystems," *Science*, Science 277, 494 (1997)

§§ Dow and Downing, pp.62-71.

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* Stiglitz, *The Price of Inequality*, pp. 5.

† All three statistics were reported in Stiglitz, *The Price of Inequality*, pp. 4 to 8.

‡ National Employment Law Project, *The Low-Wage Recovery and Growing Inequality*, Data Brief, August 2012, http://www.nelp.org/page/-/Job_Creation/Low-WageRecovery2012.pdf?nocdn=1

§ International Panel on Climate Change, 2007

III. The Ethical and Economic Case for Change

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Economic development organizations can help alter the trajectory of our economy at the state, regional and community level:

In strategy and policy leadership roles, they shape understanding and thinking about the ends and means of economic development;

As developers and financing entities, they undertake direct investments in firms, human and physical assets;

As intermediaries, they connect firms and individuals to information and resources.

In these roles, economic development professionals have a responsibility to advance the well-being of entire regions and communities. This commitment to broad community interests is recognized in ethical standards adopted by leading professional organizations. The International Economic Development Council's code of ethics, for example, states that, "Professional economic developers are mindful that they are representatives of the community and shall represent the overall community interest." We believe that a commitment to overall community well-being and to representing communitywide interests entails working to protect and preserve resources for future generations, seeking to ensure that economic development delivers opportunities and benefits for all segments of society and cooperating with other stakeholders to achieve common economic, environmental and social goals.

Embracing a mission that encompasses environmental and equity goals is increasingly

important to building healthy, competitive and dynamic economies. Communities and regions that can protect and manage resources, reduce carbon emissions, capitalize on and reward broad participation in the economy and earn recognition as sustainable places will have important advantages in the future:

With energy, water, and other resources becoming scarcer and more valuable, regions that steward their natural resources more carefully and operate more efficiently will have an important competitive advantage. Firms and industries will benefit from lower production costs and will be better positioned to respond to new carbon and environmental regulations and consumer demand for environmentally sustainable products. They also will be more adaptable to extreme weather events and price or supply shocks, as they will be less dependent on external supplies that are subject to shocks and interruptions. For these reasons, environmental and economic goals are becoming more complementary and less conflicting.

Communities and regions that expand opportunity and effectively address economic disparities will necessarily bring more people in the workforce, expand their skills and capabilities, increase their ownership stake in the economy and foster entrepreneurial activity. Consequently, such regions will better utilize their human resources, increase employee and firm productivity and increase the number of new enterprises. When pro-equity strategies reduce unemployment and increase incomes and assets, they can also expand demand for local goods and services while reducing government spending on safety

net programs linked to poverty such as poor health and domestic violence.

New business and value creation opportunities emerge from leadership in addressing environmental sustainability and economic equity. Growing “clean-tech markets” include energy efficiency, renewable energy, green infrastructure, green buildings, electric vehicles, waste reduction and recycling, sustainable agriculture, resource management and many others. New opportunities around education and training, employment services, childcare, transportation, business consulting and finance will likely emerge from pro-equity initiatives. Regions and communities that lead the way in addressing environmental and equity goals will be early adopters of these new products and services which, in turn, will stimulate investment, innovation and employment. This early market development and innovation can position regional economies and their workers to benefit as

these markets grow over time and area firms and industry clusters become more adept at spotting and responding to new opportunities.

Significant cost savings will likely accompany reduced inequality and reversing the depletion of natural and environmental resources. Multiple studies have linked economic inequality with higher levels of social and health problems, such as obesity, crime, drug use that impose significant costs on businesses, residents and others who often pay these costs through higher taxes and prices^{*}. Environmental damage to water, air and other natural resources has direct health consequences in addition to undermining the long-term productivity and the value of vital natural resources[†].

Places may also gain a “brand advantage” from being greener and more equitable that helps them to attract new residents, entrepreneurs, skilled workers and visitors.

^{*} See https://en.wikipedia.org/wiki/Economic_inequality#Effects_of_inequality for summaries and citations on several of these studies. Richard H. Adams, *Economic Costs of Inequality*, The University of Chicago Law School, 2007 (<http://www.law.uchicago.edu/Lawecon/index.html>) documents the theory and empirical evidence for how economic inequality contributes to increasing crime, impairing democracy and slowing growth.

[†] One of the most detailed overviews of these trends and costs globally is OECD Environmental Outlook reports published in 2011, 2008 and 2012. The *Economics of Ecosystems and Biodiversity* (<http://www.teebweb.org>) has several studies on valuing of ecosystems and biodiversity and thus the costs associated with their degradation and loss. A survey of studies on the health impacts and costs from air pollution can be found at <http://journalistsresource.org/studies/environment/health-effects-costs-air-pollution-research-roundup#>.

IV. A Vision for Transformed Economic Development Practice

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To become a more effective force in addressing these critical challenges, the economic development field needs to transform its practice in several ways. This section outlines a threefold framework for changing how economic development organizations (EDO) and practitioners can work to create a more environmentally sustainable and equitable economy. This framework is based on a phased approach to bring change to our organizations and then within our communities, states and regions to advance development of a “triple-bottom-line economy.”

Given the early stage of work, best practices are still emerging. We have thus chosen to frame broad strategies, rather than focus on specific tools, programs and policies, in order to promote debate and thinking about how to transform the field. The components of this three-pronged agenda are:

1. Changing our economic development organizations to incorporate environmental and equity values and goals into their mission and work
2. Implementing and adapting EDO activities, programs, and policies that put triple-bottom-line values and goals into practice
3. Creating policy and structural changes in the larger environment necessary to advance a more sustainable and equitable economy

Change within EDOs

Change begins at home. For EDOs to effectively promote a triple-bottom-line (TBL) economy, they need to adopt these goals as a core part of their mission. By adopting TBL development as a core goal and value, EDOs are more likely to prioritize the

implementation of TBL approaches and incorporate them throughout their operations. Key reasons to push for organization-wide adoption of TBL goals include:

Establishing greater accountability and a stronger commitment to putting these values into practice and finding means to advance these goals within its work on a sustained basis. It signals that this change represents a long-term commitment rather than a passing fad or a response to political winds or new funding opportunities

Encouraging the organization to measure and evaluate how well it is reaching these goals, promote learning and find ways to become more effective in their pursuit over time

Building trust with other stakeholders and organizations that the EDOs need to work with to advance these goals. Given the history within the ED field of placing investment and job creation goals above environmental and equity concerns, many remain skeptical of EDOs’ commitment to TBL goals. Embracing TBL goals and values within the organization is a first step toward changing these perceptions and emphasizing shared goals and values

The ability and opportunity to influence an organization’s core values and goals varies with a person’s position within the EDO, the particular political climate and situation facing the organization. An organization’s leadership—its directors and senior managers—are in the best position to bring about change. Still, all staff members can raise questions and promote new thinking, especially in organizations that encourage open communication, collaboration and deliberative decision-making.

Organizations are more likely to embrace change when established goals, priorities and activities are brought into question. Examples of these “critical moments” when deep changes are more likely to be considered and adopted include: (1) transition in the organization’s leadership or overseers (e.g., Board chairs, elected political leaders, etc.); (2) during a strategic planning process; (3) when a crisis or threat to the organization exists or is perceived; and (4) when it takes on a major new program or initiative. ED practitioners need to be creative and adaptive in spotting and pursuing opportunities to promote and accelerate the adoption of TBL values within their organization. At times, this may entail raising questions about what type of economy and community their organization seeks to create. In other circumstances, it may require making the case for change and/or providing examples and evidence of effective TBL approaches elsewhere.

Incorporating TBL goals involves a number of changes with an organization. At its most basic level, it involves formal inclusion of TBL goals in the organization’s mission statement and strategic goals. Second, it entails finding ways to apply TBL values within its own internal operations and activities (i.e., reducing its environmental footprint and pursuing more equitable outcomes through its employment and purchasing). Third, it involves assessing the barriers it will face to pursuing these goals and identifying the new capacities, resources, and alliances that it will need to put these goals values into practice. Finally, and most importantly, the organization must determine how to changes its overall strategy and work—its core policies, activities and programs—to bring about TBL outcomes within its community and region.

CEI, as explained in the subsequent case study, is one organization that formally adopted TBL goals in its mission statement and business strategy as the result of a strategic planning process. This change led to more deliberate policies and approaches to address TBL goals in its programs—especially its lending activities and sector initiatives—and to CEI’s participation in efforts to advance TBL practices within the community development finance field.

Putting Triple-Bottom-Line Values into Practice

Once the commitment to TBL goals is in place, EDOs need to translate these goals into their on-going work. Existing economic development practice and capacities provide a starting point and platform to advance environmental and equity goals. Economic developers engage in many activities that influence the nature and location of business and real estate investment, create long-term community assets and connect enterprises and individuals to resources. These include:

- Creating overall economic development strategies for communities, regions and states

- Developing real estate to house new and growing firms and create commercial centers with cities and regions

- Redeveloping properties and areas to attract and support new uses, including building new infrastructure to support redevelopment

- Providing financing and technical assistance to businesses

- Marketing places to attract new firms, visitors and events to cities, communities and regions

- Establishing education and training that meets the evolving needs of employers

- Promoting entrepreneurship and new business creation

- Investing in new knowledge and technology and facilitating its commercial deployment.

- Supporting inter-firm networks, value chains and clusters to capitalize on emerging markets, improve productivity and increase the value that is both added and captured by firms and workers within a region

Any and all of these activities can be done in ways that move beyond a sole focus on jobs and investment to generate triple-bottom-line outcomes. This entails determining the environmental and equity opportunities and impacts associated with an organization's work, identifying specific goals and strategies that tie economic development to triple-bottom-line results and then incorporating practices and approaches that advance sustainable and equitable outcomes. It may also entail identifying new partners and aligning other activities and new investments to create and broaden environmental and equity outcomes. Policies and practices that EDOs can implement to move down this path include:

Adopting an intentional and reflective approach that explicitly seeks to improve economic outcomes and wealth for low-income populations and improve environmental outcomes across their activities while working to track, learn from, adapt and improve these strategies and tools over time to generate sustained improvement in TBL outcomes.

Setting policies and standards for our own development projects that advance environmental and equity goals—for instance, building LEED or Energy Star green buildings, designing to minimize energy and water use and storm water runoff, incorporating renewable energy sources, establishing living-wage requirements for contractors and vendors, setting contracting and hiring goals that broaden access to opportunities.

Applying TBL environmental and equity criteria to firms and project that receive financial assistance (grants, investments, loans, or subsidies) from an EDO. This approach has been spearheaded by the Triple Bottom Line Collaborative and is demonstrated in the case study of Coastal Enterprise, Inc.

Educating clients on the benefits of TBL practices and providing referrals and services to help them incorporate these practices. This includes (1) business attraction organizations proactively locating new firms in sites that minimize environment impacts, incorporating

low-impact/green site and building designs and utilizing employment and training programs that expand access to jobs and career advancement to low-income and marginalized workers; (2) working with business retention and expansion clients to assess ways in which they can improve their environmental and equity practices and developing partnerships and referral relationships to connect firms to resources to implement these improvements (e.g. assistance in completing energy audits and accessing renewable energy and energy efficiency incentives and connecting firms to designers with expertise in green-building); (3) developing new products and services that help firms and developers implement greener operations and expand job access and wealth-building opportunities for workers; (4) promoting supplier, purchasing and value chain relationships that advance good environmental practices and/or expand regional business and employment with in urban cores and adjacent rural areas.

Establishing stronger relationships and partnerships with education and workforce development organizations to more effectively prepare workers with skills needed by employers, to incorporate sustainability knowledge and practices and to overcome barriers faced by low-income and disadvantaged workers.

Expanding network and cluster development efforts to identify, nurture and support industry clusters and value chains that supply “clean tech” goods and services, and push other cluster initiative to adopt broader sustainability practices and advance wealth building strategies.

Use technology development, innovation and research and development programs to invest in new knowledge and technologies that promote better environmental and social equity outcomes.

As noted by Rob Bennett, another Mel King Fellow, incorporating TBL principles requires integrative thinking and planning in order to garner broader

benefits and outcomes from economic development investments:

How can you get three or four or five benefits out of the infrastructure investments that cities are making? If you are going to manage storm water, can you create bike boulevards and pedestrian crossing and safety with that same infrastructure? These are the kind of integrated investments and thinking that can lead to better outcomes and long-term livability benefits.

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As illustrated by the CEI, the Minneapolis-Saint Paul and Phoenix Economic Growth Council (PEGC) case studies, economic development organizations throughout the country and across rural and urban areas are adapting their practices and implementing new initiatives to pursue TBL goals. CEI uses several tools to promote specific environmental and employment outcomes in the businesses and projects that it finances. Under its most recent strategic plan, CEI is deploying its financing and technical assistance to firms in targeted sectors that directly advance TBL goals, such as renewable energy and sustainable forestry and fishing. Minneapolis-Saint Paul had taken a cluster-based approach to advance TBL goals through supporting the growth of green product manufacturing and green building design and construction firms. Under city leadership, government, business, educational institutions and other stakeholders were organized regionally to design and implement its strategy, which uses public and private sector procurement to build demand for green products and services and integrates robust workforce training to connect the resulting job growth to disadvantaged workers. PEGC's work to attract and grow solar energy firms is complemented with job training and workforce development programs that target new job opportunities for displaced, underemployed and unemployed workers. Special initiatives were created to connect ex-offenders, high-school dropouts, and low-income workers to solar industry jobs.

Promoting policy and structural change

Despite our best efforts, progress is often constrained by structural conditions and systems that impact economic development and contribute to increasing inequality and environmental damage. These structural barriers can take a number of forms: (a) ineffective institutions and systems that do not accomplish their community missions and functions; (b) entrenched policies that incentivize poor environmental and economic results; (c) business models that rely on exploitative practices rather than true value creation; and (d) disconnected and “siloe” work that fails to link the investments and resources needed to achieve more comprehensive and beneficial TBL goals. Structural and systematic factors that limit progress toward TBL economies include:

Established energy systems based on fossil fuels and public policies that favor these non-renewable energy sources

Industries and business models that rely on low-wage employment, environment degradation or removing wealth from communities to reward their owners and investors, e.g., the predatory mortgage lending that helped trigger the recent financial crisis and great recession

Land-use, development and transportation policies that do not take into account the environmental, displacement and economic opportunity consequences of investments

Educational systems that fail to prepare graduates with adequate academic, workforce and life skills

Highly fragmented workforce development policies and institutions that are not resourced, designed or equipped to address the widespread skill deficits of workers and the increasing incidence of job turnover and occupational change

Addressing these structural problems is central to transforming economies to generate triple-bottom-line results: to remove policy and institutional barriers, amplify the impact of our work and reverse forces at odds with achieving triple-bottom-line goals. Consequently, in addition to changing their own organizations, economic developers also must work to alter systems, policies and institutional arrangements so they operate to protect environmental resources, reduce disparities in income and wealth and strengthen community assets that are vital to economic well-being. Although this type of change is very challenging and may seem to be beyond the mission and scope of economic development organizations, it is too important to ignore. Moreover, successful systemic and policy changes will aid and amplify the impact of EDOs by moving the policies, investments and actions of other systems and institutions to support EDO initiatives to achieve TBL goals.

Mel King Fellow Sara Pennington explains how advancing TBL development in Kentucky is linked to achieving broad systemic changes in economic and political power:

We are working for new power where it is not just the coal companies owning all the wealth, and therefore, owning all the political power... We know it is going to take disrupting the centralized system of coal production and use and electricity generation to break up that economic power that the industry has in the area and thus the political power that stops the shift to alternative energy.

Several promising strategies are emerging that suggest how EDOs can have a meaningful impact on structural change, working collaboration with other institutions and partners. Some are well established while others are in early stages of development and implementation and will require more time to test their ultimate impact. Among the approaches to creating structural change that EDOs should investigate and consider pursuing in their states, regions and communities include:

Investing to create long-term assets that enable communities, their firms and residents to serve markets while creating sustained

economic and environmental well-being. This approach is being developed and tested by the Wealth Creation in Rural Communities Initiative (now WealthWorks) which focuses on the development and management of market-based value chains that increase seven forms of wealth in rural communities: natural capital, financial capital, built capital, human capital, social capital, intellectual capital, and political capital in the context of cultural capital.

- Transforming the energy system through extensive investments in high efficiency buildings and renewable energy. Several cities and states are working to make large-scale changes in energy use and generation through multiple initiatives to increase buildings' energy efficiency and expanding renewable energy use and leverage these investments to build more equitable local economies. Under the Emerald Cities Collaborative, ten cities are pursuing this strategy.

Developing regional scale systems of locally produced goods or services to capture and share the benefits of a region's spending while also advancing good environmental stewardship. The growing initiatives to change regional food systems while expanding access to healthy foods and more sustainable agriculture practices exemplify this approach.

The use and replication of natural systems to reduce and manage environmental impacts and reduce and process waste. The growing use of green storm water management infrastructure exemplifies this strategy.

Working with large employers and anchor institutions, such as hospitals and universities, to use their economic power via hiring, procurement, facility construction and research and development to expand economic opportunity, improve community assets and change land-use patterns. Baltimore, Cleveland, Detroit, and Philadelphia are among the cities applying this strategy.

Introducing ownership and compensation systems that generate more broadly shared

income and wealth and retain locally generated wealth. ESOP and cooperatively owned enterprise are examples of such practices. Cleveland is using this model in conjunction with anchor procurement strategies. Several development finance institutions target investments to support firms with employee wealth sharing policies.

Promoting land-use and development forms that reduce environmental impacts and increase economic opportunities. This involved planning and building mixed-use and mixed-income districts that include affordable and market-rate housing, provide for a range of employment and business ownership opportunities connected to low-carbon transportation options, and employ green energy and infrastructure systems. Cities and regions employing this approach include Denver, Portland and Minneapolis-Saint Paul.

Creating more effective institutions and pathways to connect marginalized and unemployed workers to living-wage jobs and careers. The Baltimore Integration Partnership is pursuing this approach in connection with anchor institutions initiatives and new transit investments. It is also being pursued through many sector or cluster-based workforce development initiatives.

Since economic developer organizations cannot work on all of these systemic changes, they need to target those structural or systemic barriers that are most important to their community and region and for which the opportunities for meaningful and sustained change are the greatest. These targeting decisions will be informed by the situation in their own region and by how their leadership and organizational resources can have the greatest impact. Nonetheless, economic development organizations need to expand their scope to address these structural problems and economic development professionals can be effective leaders and partners for advancing structural change.

The Greater Phoenix Economic Council case study shows how an EDO can be an effective leader in advancing policy changes. GPEC focused on researching and advocating for policies needed to attract a robust solar energy industry to Arizona. While GPEC's policy work aligned with its historic mission of business attraction and relied on traditional investment tax incentives, they also incorporated two key policies to advance TBL goals. First, they tied tax incentives to firms that created good quality jobs with health insurance and wages above 125% of the state median. Second, they secured strong Renewable Energy Portfolio Standards to increase the share of electricity generated with renewable energy sources, including solar.

V. The New Practice in Action

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The final section of this paper presents cases of three organizations, referenced earlier, that are applying one or more aspects of the framework for TBL economic development practice. These cases are evidence that a TBL approach can be applied and led across different organizational and geographic contexts: (1) a Midwestern municipal economic development agency; and (2) a southwestern metropolitan public-private partnership; and (3) a northeastern statewide CDFI and community development organization serving rural and urban areas. By detailing the specific strategies, processes and actions undertaken by each organization, the cases can also inspire practitioners to think about and take action on the best ways to advance TBL values and approaches in their organizations and communities. Through the experience profiled in these cases and discussions among the practitioners convened under the 2012 Mel King Fellows Program, several lessons and themes for implementing TBL development emerge:

Increased collaboration across organizations, fields and geographic scales is critical. Economic developers need greater institutional reach and influence, more resources and a far wider range of policies and tools to achieve TBL goals. To realize concurrent economic, environmental and equity outcomes, coordination and alignment of activities across fields and institutions is needed. Consequently, a foundation of TBL economic development entails working more closely with organizations across diverse fields, including environment policy, energy, infrastructure, education, workforce development and community development.

Proactively addressing employment, job quality and workforce issues is at the core of

broadening inclusion and advancing equity goals. The TBL strategies in all three cases incorporated employment and workforce initiatives targeted to unemployed and/or disadvantaged workers.

Targeting industry and sectors with the greatest potential to impact TBL goals (i.e. to create good quality jobs, expand local wealth, conserve energy and other resources and reduce environment impacts). Cleantech, renewable energy, transportation, building and resource-based industries that have a direct impact on environmental stewardship are all important targets, but opportunities will vary within the regional economic and political contexts. Within these targeted sectors, greater TBL impacts can be achieved by working throughout an entire cluster or value chain to implement an integrated TBL strategy.

Working in an integrated manner to address both the demand side and supply side of TBL development. This means pursuing opportunities, policies and initiatives to grow demand for goods and services that advance environmental and equity outcomes while building the business and workforce capacity to respond to this demand.

TBL economic development is growing in importance but it is still an emerging practice that has not yet permeated EDOs. With stronger leadership and accelerated innovation and learning among practitioners throughout the field, this situation can change. We hope to look back before the decade ends to see TBL values and methods become the expected norm for economic development organizations. As Della Rucker of the Wise Economy Workshop noted,

We're at a moment in history where our communities and our residents demand and need more from our economic development incentives. . . It is critical that we widen our view or what it means to do economic development, to do community planning, and to pay attention to how these different aspects [environment and equity] interrelate to each other and how to balance all the needs of our communities.

VI. CEI Case Study

By Tara Aubuchon, MIT Department of Urban Studies and Planning

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CEI, founded in 1977, is both a community development corporation (CDC) and a community development financial institution (CDFI). It is based in Maine but works throughout New England and upstate New York, and invests nationally under the New Markets Tax Credit (NMTC) Program. CEI focuses in three major areas: (1) lending to small and medium sized businesses; (2) programs for business development, housing, natural resources and others; and (3) policy advocacy and research on social and economic justice, and housing. Their mission, reflecting TBL values is “to help create economically and environmentally healthy communities in which all people, especially those with low incomes, can reach their full potential.”

CEI’s targeted economic sectors and program areas include:

- Value-added fisheries, farms and forest projects
- Nature-based and cultural tourism
- Microenterprise development
- Targeted job creation
- Building supported, rental and privately owned housing
- Assistance to women business owners
- Childcare facility development
- Support for refugees and new immigrants

CEI has delivered \$958 million in capital to finance over 2,250 businesses and leveraged an additional \$2.44 billion. These loans and investments have supported 27,181 full-time jobs (at the time of loan closing) and created or preserved 1,483 affordable housing units and 5,466 childcare slots.

Adoption of Triple Bottom Line (TBL)

CEI has always supported programs that address equity issues. As an organization focused in rural areas, investment strategies also include natural resource opportunities that promote environmental stewardship. After a five-year planning process ending in 2002, CEI leaders decided to explicitly state their commitment to TBL principles and added a reference to the environment to their mission statement. CEI now uses a “three e” approach to investing that includes equity opportunities for disadvantaged groups, economy as represented by a viable return and tangible assets, and lessening impact on the environment.

As a CDFI, much of CEI’s triple-bottom-line work in is through their lending programs. Over the years, they have developed several Tags and Targeted Services:

The FishTAG program requires fisheries to collect biological data for a marine agency and to implement at least one project to reduce waste or energy consumption. CEI has coordinated 60 programs to date.

EcoTAGs are voluntary agreements for small businesses to achieve greater environmental sustainability and efficiency in production and supply chains. These improvements typically address energy efficiency or greenhouse gas reductions. One EcoTAG provided financial support for a laundry company to purchase EnergyStar equipment and fuel-efficient thermal boilers. Another loan supported a whale-watching business that uses biodiesel

fuel for its boats. For participation in the program, businesses receive a rate reduction of .5%. Every little bit helps, but CEI leaders recognize that additional support, not a rate reduction, is usually the deciding factor.

Farms for the Future assists current farmers in writing business plans. A second phase of the program allows farmers to compete for grants providing 25% of the cost of implementation. Grants are limited to \$25,000. The remaining 75% of the financing may include cash, loans, other grants, and in-kind services provided by the farmer. Farmers also agree to preserve farmland for seven years.

Employment Training Agreements (ETAG) require some firms to enter into a long-term plan (typically a memorandum of understanding) for hiring and training low-income workers. ETAGs are applied on a case-by-case basis, typically for loans larger than \$50,000 and for situations where the project will create jobs. Eligible employees include those transitioning from state assistance programs or people with disabilities. CEI staff meets with businesses to evaluate the types and quality of potential jobs, conduct detailed job task analyses, discuss wages and advancement opportunities and determine a timeline for establishing the positions. To date, the program has helped 7,719 low-income individuals find work through 529 ETAG agreements. CEI is currently expanding the scope of what agreements are necessary in the ETAG program to increase the base of companies involved and to streamline the process. This is in response to companies citing difficulty meeting the current demands of the ETAGs.

The Healthy Food Finance Initiative provides flexible capital funds for retail store business development and finance in areas with limited healthy food options. Financing is also available for food banks or farm-to-institution (schools, jails, hospitals, assisted living facilities, etc.) groups. CEI works with grocery store operators to make healthier foods available and to connect these options with educational components such as cooking classes or

nutrition information. They also work with program participants to support locally sourced and organic food options, where possible.

CEI also arranges affordable housing financing to address equity issues in communities, while pursuing environmental best practices such as on-site renewables, energy efficient construction, and greener material choices. These elements are easiest to incorporate when they are included in the financing structure up front.

In addition to lending programs, CEI created five metrics to track sustainability and environmental impact of investments. They are also a founding member of the Triple Bottom Line Collaborative, an alliance of community development financial organizations working to promote triple-bottom-line programs within the industry and for changes in federal policy. CEI promotes internal greening and strategies that incorporate sustainable practices in each of their offices.

Challenges to Implementing TBL

Along with its progress, CEI has encountered several challenges in advancing TBL goals through its lending programs. One difficulty is achieving the necessary payback from green business practices to motivate firms to adopt these practices. The small interest rate reduction that CEI offers on its loans is usually not the deciding factor for a company to pursue environmental goals; businesses often have these ideas in mind before approaching CEI. In contrast, conventional businesses and the wider financial community find it challenging to change entrenched philosophies of seeking economic returns irrespective of environmental and social needs. A second challenge is that equity and environmental metrics add complexity and require more staff time during the lending process, including maintaining contact with businesses to track implementation and document results. However, CEI's limited staff affects its ability to effectively manage individual company agreements and track performance.

Key Lessons and Takeaways

CEI staff note that they are always learning more about what it means to engage in TBL processes. Due to the diversity of projects they support, it is difficult to aggregate outcomes in meaningful ways. This complexity however, allowed CEI to develop a market niche. Although coordinating a loan with a business entails a unique process every time, CEI has become an expert in industries underserved by traditional financial institutions.

CEI determined new opportunities in its most recent five-year plan, planning to shift their individual business focus to industry sectors themselves (e.g. energy, forestry, fisheries). This allows them to support industries that directly advance TBL

outcomes and to build on their staff expertise in these areas. Instead of directly changing businesses practices, CEI will focus on financially and technically supporting firms that traditional banks are unable to support and directly contribute to pursue TBL goals through the nature of their business. For example, CEI recently provided bridge financing for a turbine company, supported a solar installation and leasing company and financed an organic milk distributor as well as assisting the farmers who supply the milk. CEI is not directly involved in these organizations' business practices but effectively supports growth in TBL practices through financial support to targeted industries. As CEI shifts to an explicit industry focus, they do not plan to abandon their individual business programs. CEI is a widely recognized expert based on their long history of working in particular sectors, and they continue to capitalize on these assets.

VII. Minneapolis-St. Paul Case Study

By Cathy Polasky, Minneapolis Department of Community Planning and Economic Development

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The Minneapolis-Saint Paul region is working to instill triple-bottom-line practices in its economic development work in the areas of green manufacturing and green buildings. What began in 2006 as an initiative of the cities of Minneapolis and Saint Paul in partnership with the Blue-Green Alliance (a labor-environmental coalition) to identify the region's best opportunities to expand the green economy has evolved into a set of strategies to leverage public and private investment to grow our green building and clean energy products and services cluster, under a new Thinc.GreenMSP regional collaborative. Research revealed that the region was home to many firms making products and providing services to reduce energy use in buildings. Local firms manufacture high-efficiency HVAC systems, energy optimization software used globally and "smart" power cables. The region is even home to the world's largest manufacturer of blower doors, used to test airtightness in buildings, and conducts leading research in indoor air quality, lighting retrofits, and sustainable design firms. Local leaders wanted to test what a regional, public-private partnership could do to increase demand for these products and services, and to provide a pathway to new and emerging jobs for disadvantaged workers.

With guidance from a marketing firm, a Thinc.Green MSP steering committee was formed with representatives from business, manufacturing, labor, workforce, energy and government to create a marketing plan to increase demand for locally produced green products and services. Our strategies were designed to leverage public investment, build awareness and use of local green product and service firms and brand the region as a good place for innovative, sustainable firms. To build awareness and foster greater use of local products and services, the Blue-Green Alliance working with city economic development agencies commissioned the creation

of a Green Directory. The directory, now on line, contains descriptions of over 600 green products and services made in the region.

Small firms told the Minneapolis and Saint Paul economic development agencies not to underestimate the importance of government buying from them. In response, the city of Minneapolis adopted a green purchasing policy. An immediate outcome is that the majority of Minneapolis' cleaning products and office supplies are now green. Minneapolis, Saint Paul, and other communities in the region also adopted green building policies. City buildings must be built to at least LEED Silver standards. The recent Hiawatha Public Works building achieved LEED Platinum, in part by sourcing locally produced green products ranging from pervious pavers made from plastic bottles and tires to energy efficient building systems and components.

But public sector purchases are a fraction of private sector demand. So Thinc.GreenMSP launched a pilot program with our business and development partners. Developers and firms were asked to test the green directory in their construction projects. The pilot was a success as firms did find new green products and services, which they incorporated into their projects. Moreover, they provided valuable feedback on how to make the directory more useful.

At the same time, the two cities refocused their workforce efforts to prepare workers for jobs in the green manufacturing and green building sectors. If Thinc.GreenMSP succeeded in growing demand, new jobs would be created for workers with the necessary skills. Working regionally with training providers, educational institutions, and workforce groups, Minneapolis and Saint Paul economic development agencies created the RENEW program to prepare workers in four key areas: building systems,

renewable energy, manufacturing and construction. The programs were designed in response to needs articulated by business and industry and reflected emerging trends towards greener operations and the desire to operate more sustainably. Many firms clearly understood that they would be more competitive globally if they could reduce their operating costs. Others had heard from tenants and clients that working with firms concerned about energy reduction and reduced environmental impacts was important to them. Therefore, the building owners and managers as well as their tenants wanted to make building changes to reduce energy and improve operations.

To help connect firms with newly trained RENEW workers, Thinc.GreenMSP and city economic development agencies engaged in business outreach, calling on scores of businesses, and conducted jobs fairs. Now in its third year, over 430 disadvantaged workers have obtained training and credentials through the program and been placed in good-paying jobs. Moreover, the name RENEW has come to symbolize well-trained employees with skills to support firms' growth in the new, green economy. Firms seek out RENEW graduates.

To spur even more demand for building retrofits, Minneapolis and Saint Paul joined with the cities' private utility and the Building Owners and Managers Association of Greater Minneapolis to sponsor a "Kilowatt Crackdown" competition. Eighty-six commercial buildings entered the competition, creating building retrofit work for over 500 workers.

With these early successes, and lessons, under our belts, city leaders were ready to "go for the triple." North Minneapolis was hit hard by the foreclosure crisis and a tornado, and it continues to suffer higher unemployment than the region as a whole. What if the City of Minneapolis could attract investment dollars to build new homes on the lots left vacant by foreclosures and Mother Nature, build them to green standards, using locally produced green products and services, and train and employ dislocated workers from the community to build the homes? The result is Green Homes North, a City of Minneapolis commitment to build 100 green homes in North Minneapolis in five years. Developers are selected through an open RFP process, with proposals scored on the development firm's commitment to hire workers living in the community and trained through RENEW, to source products and services from the green directory and to build to green building standards.

In Minneapolis-Saint Paul, economic development agencies have come to understand that we can convert our traditional economic development work into triple-bottom-line work, by partnering with business to grow demand for sustainable products and services, by demanding higher sustainability standards in our own city government procurement and buildings, and by incorporating emerging green credentials into our workforce training.

VIII. Greater Phoenix Economic Council Leads Arizona to Success in Solar

By Emily Brown and Liz Thorstensen, International Economic Development Council

In just one decade, Arizona has become one of the leading states in solar energy production and manufacturing. This industry is supported by a state tax credit, available financing, and a coordinating program with local universities. Since 2010, these amenities have attracted 12 new companies, \$621,700,000 in investment and 1,714 jobs^{*}. The story of how Arizona rose to prominence in the solar industry proves that local economic development organizations can and should take a lead role in influencing state policies to stimulate emerging industries. The Greater Phoenix Economic Council (GPEC) demonstrated the importance of engaging with state economic development policy through two vital roles. First, they leveraged their skills in economic and industry analysis to provide expert advice and guidance to policymakers in the Arizona legislature crafting job creation legislation. Second, they served as a community and industry liaison, developing beneficial connections with local leaders and businesspeople as well as leading institutions like universities. Furthermore, through marketing and educational efforts, GPEC engaged domestic and international solar companies. The case of GPEC leading the development of Arizona's solar industry illustrates not only that local economic development agencies are capable of assisting in state-level economic development initiatives but that local EDOs' unique skills and networks place them in the best position to influence industry development at a state level.

^{*} Greater Phoenix Economic Council, Renewable Companies since 1403, Power Point Presentation.

Background

The Greater Phoenix Economic Council is a regional economic development organization founded in 1989. Structured as a public-private partnership, represents Maricopa County, as well as 20 communities in the region and more than 150 private investors. Their mission is to attract quality businesses to the Greater Phoenix area from around the world, and to advocate and champion foundational efforts to improve the region's competitiveness. To assist companies in expanding or relocating, they provide a variety of services including market analysis, site-selection assistance, and connections to key community and business leaders[†]. They are consistently recognized as one of the top economic development organizations in the United States, gaining accolades from site consultant groups as well as IEDC.

In the late 2000s GPEC leadership heard the rumblings of a vibrant solar industry from far away. In their peer states of California, Oregon, New Mexico and Nevada, state economic development organizations and venture capitalists were investing in the next energy revolution. However, Arizona was not yet in the game. For example, in 2007, the Tempe-based company First Solar announced that, rather than expanding in their home state, they would build a new manufacturing plant in Malaysia[‡]. GPEC was

[†] Greater Phoenix Economic Council Website <http://www.gpec.org/home>, 2013.

[‡] The Art of a Deal: First Solar in Arizona, Greater Phoenix Economic Council, 2011.

frustrated to see valuable jobs and investment in the solar industry bypass their state. As a result, they launched an investigation as to why solar companies did not find doing business in a place with an average of 286 sunny days per year competitive. This investigation was the first step in a successful program of business retention and attraction program for solar and renewable energy in Arizona, led by GPEC but engaged at state legislative levels and beyond.

GPEC looked to their recently completed Economic Impact Analysis and Competitive Analysis, which showed that financing was one of the largest hurdles to solar companies locating in Arizona. Oregon, New Mexico, Texas, Nevada and other states had been using aggressive economic development initiative packages to recruit solar industry. This was causing Arizona to lose out on more than 3,800 manufacturing jobs and \$2.3 billion in capital investments to competitor markets.^{*} To round out their efforts in researching the industry, GPEC also reached out to market leaders, including First Solar, to gauge the state's competitive position.[†]

GPEC Enters the Policy Realm

Leaders in the state legislature had become aware of the expanding renewable energy market as well. In September of 2007, then Arizona House Representative Lucy Mason invited GPEC to an off-session energy stakeholder meeting. In November, they were contacted by then Representative John Nelson to discuss successful quality jobs programs in other states with his colleagues in the Arizona legislature. As a result of these meetings, GPEC was drawn into the policy recommendation process.

In meetings with Rep. Mason and Rep. Nelson, GPEC expanded the role of an economic development organization by becoming the key architects of a renewable policy that could gain supporters across the political spectrum. Due to their recently completed studies and their extensive research of

competing states' policies and solar companies' needs, they were able to craft a competitive tax credit incentive that would deliver a net gain to the state. Their political partners joined them in a policy position that would support return-driven programs to enhance competitiveness and lead to quality jobs with healthcare coverage. The key to this strategy was to balance the need to meet the aggressive incentive levels in competitor states with the need to provide a net financial gain for Arizona in the form of jobs and capital investment. Due to extensive industry research, GPEC was able to tailor the policy to the specific concerns of solar companies, meeting their needs in ways that other states did not.[‡] Furthermore, they ensured financial returns for the state of Arizona through stringent clawback measures, guaranteeing that the state's investment would not be squandered.

In April of 2008, the group approached then House Speaker Jim Weier with a renewable energy tax credit program to capture opportunities for Arizona. The tax credit was included in Speaker Weiers' job creation package, introduced in June of 2008. In the legislative debate, national site selectors, incentives advisors, and economists testified in favor of the bill. For example, Incentives Advisors presented their analysis of the package, concluding that the program would "position Arizona as one of the most competitive locations" to attract the renewable energy industry.[§] Ultimately, the bill was introduced too late in the session to complete the legislative process. However, GPEC decided to build on the momentum with the hopes of successfully passing the bill in the 2009 legislative session.

In this effort, two objectives emerged; first, the engagement of solar companies internationally and domestically, and second, a public relations campaign to reach business leaders and community stakeholders. In 2008, GPEC became the only US economic development organization to join Bunderverband Solarwirtschaft (BSW), the German solar industry association, and also launched a direct marketing campaign reaching 600 German solar companies. In late 2008 GPEC solidified ties with old and new allies in the legislature, as well as marketed their state by bringing 15 executives from top solar

^{*} The Art of a Deal: First Solar in Arizona, Greater Phoenix Economic Council, 2011.

[†] Ibid.

[‡] Interview with Chris Camacho, March 1, 2013.

[§] The Art of a Deal: First Solar in Arizona, Greater Phoenix Economic Council, 2011.

Tax Credits under Arizona's Renewable Energy Tax Incentive Program

Source: Renewable Energy Tax Incentive, Greater Phoenix Economic Council, 2011

TYPE	CRITERIA	PROJECT EXAMPLE	CACULATION
Manufacturing	Creates at least 1.5 jobs per \$500,000 in capital investment	<ul style="list-style-type: none"> • \$150M in capital investment • 1,273 jobs 	$\$150M \times 10\% = \$15M$
Headquarter	Creates at least 1 job per \$200,000 in capital investment	<ul style="list-style-type: none"> • \$10M in capital investment • 50 jobs 	$\$10M \times 10\% = \$1M$

b. If the project does not meet the above job-to-capital investment ratio, the company would receive a reduced benefit as follows:

TYPE	CRITERIA	PROJECT EXAMPLE	CACULATION
Manufacturing	Creates at least 1.5 jobs per \$500,000 in capital investment	<ul style="list-style-type: none"> • \$150M in capital investment • 150 jobs 	$\$150 \times \$500,000 / 1.5 = \$50M \times 10\% = \$5M$
Headquarter	Creates at least 1 job per \$200,000 in capital investment	<ul style="list-style-type: none"> • \$10M in capital investment • 35 jobs 	$\$35M \times \$200,000 / 1 = \$7M \times 10\% = \$700,000$

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companies to the region for a familiarization tour.

The public relations campaign coincided with the introduction of the bill into the legislature in January of 2009. GPEC ramped up their public relations efforts, holding a series of “Convening the Community” events. The first was an event in April of 2009 attended by 800 people and featuring Governor Jan Brewer, House Speaker Kirk Adams and GPEC leadership. The second event, in May, was a live video stream on GPEC’s website emphasizing policy improvements to drive job creation and increase revenues for the state. This was followed by a third event broadcast on local television with panelists from national economic development firms, the Mayor of Phoenix, Phil Gordon, leadership from Arizona State University, and leadership from GPEC, which had a viewership of more than 15,500.

Early in the next legislative session, Senator Barbara Leff and Representative Michelle Reagan introduced SB1403: Quality Jobs through Renewable Energy Industries (RETIP), which included the Arizona Renewable Energy Tax Incentive Program refundable corporate income tax credit tied to jobs-to-investment ratio and a property tax reclassification. The program is designed to stimulate new investments in manufacturing and headquarter operations of in-state and out-of-state renewable energy companies, including solar, wind, biofuel, geothermal, and

other renewable technologies^{*}. The benefits include a refundable corporate income tax credit and a real and personal property tax reduction. Businesses making new investments in manufacturing and/or headquarter operations in Arizona’s renewable energy industries are eligible for the program if they meet two requirements. First, 51% of new jobs must pay a wage that equals or exceeds 125% of the state’s median wage. Second, the firm must offer health coverage and pay 80% or more of the premium for the employee or equivalent for alternative models.

The refundable corporate income tax credit is structured to benefit both the state and the company. The company can receive up to 10% of the total capital investment of the project, which is defined as investment in facilities, equipment, land and infrastructure. The credit must be taken in equal installments over five years. The amount of the tax credit is determined by a job to capital investment ratio, which differs according to the type of project. Figure 1 explains the difference and details the reduced benefit scenario[†].

For projects with a minimum of \$25 million in capital investment, a real and personal property tax reclass-

* Ibid.

† There is a program cap for the income tax credit portion. The program is effective until December 31, 2014, which makes the cap \$350 million over five years. Additionally, the state of Arizona may pre-approve \$70 million in benefits per year

sification is available, which effectively constitutes a 77% reduction. The period of reclassification is based on wage levels. If a project pays 51% of employees between 125% and 199% of the median state wage on average, the classification would exist for 10 years. If the project pays 51% of employees at least 200% of the median state wage on average, the reclassification would exist for 15 years.

The income tax credit portion has a program cap. The program is effective until December 31, 2014, which makes the cap \$350 over five years. Additionally, the state of Arizona may pre-approve \$70 million in benefits per year. Due to the generous structure of the incentives, strong clawback provisions exist. If a firm chooses to leave before five years, any benefits received must be returned in full with annual interest. And if the firm's employment figures drop below the required number of full-time employees or established wage levels, all future benefits cease^{*}.

In the 2012 legislative session, GPEC worked with their legislative partners and the Arizona Commerce Authority to add legislation to the original Quality Jobs Through Renewable Energy Industries (RETIP) legislation to expand the tax credit to other high technology manufacturing and qualified renewable companies interested in locating a headquarters or research and development arm in Arizona. This is known as the Qualified Facilities Tax Credit and is structured the same as the RETIP. In the 2013 legislative session, GPEC will be supporting a bill to allow any high tech or renewable energy manufacturer to have a 10% property tax abatement[†]. They are continuing to build on the success of previous tax incentives and reviewing what high tech and renewable companies most value, while ensuring that the program results in a net gain for Arizona. Chris Camacho of GPEC explains,

The early education we provided to legislators on the importance of base industries (exporting products and services) allowed the pilot program to expand and support high-tech manufacturing with investment tax credits[‡].

Following Through on the International Front

When researching solar industries in the early 2000s, GPEC had identified many emerging companies in Western Europe, most notably in Spain, Germany and Italy. Though this market was identified as an opportunity, at that time, Arizona's capacity to attract, invest and utilize capital, and compete globally was not as strong as other markets of their size, mainly due to a lack of financial incentives. During the same time period, GPEC was expanding their international efforts with a newly formed partnership with Tucson Regional Economic Opportunities and the Greater Flagstaff Economic Council, known as the Arizona Global Network. This statewide venture to attract foreign direct investment created a foundation for further marketing to international markets.

Following passage of the Quality Jobs through Renewable Energy Industries bill, GPEC ramped up its international and domestic marketing efforts. In October of 2009, GPEC traveled to Germany on a trade mission and met with 50 renewable energy companies. Further international forays included a trip in September of 2010 to attend a photovoltaic conference in Spain, and a trip in February of 2011 with the Arizona Commerce Authority and Arizona State University to Shanghai to meet with top government officials and corporate leaders, and attend SNEC, an international solar industry conference. This was followed by GPEC hosting a delegation from Jiangsu Province to discuss renewable energy opportunities and agreeing to take first steps toward developing a memorandum of understanding between the two regions. Domestically, GPEC has focused their energy on providing information about their competitive incentive program and qualified workforce to solar companies currently located in California, attending the Inter-Solar and Solar Power International conferences in 2009, and holding ongoing meetings with domestic solar companies.

^{*} Renewable Energy Tax Incentive, Greater Phoenix Economic Council, 2011.

[†] Interview with Chris Camacho, March 1, 2013.

[‡] Ibid.

Making Solar Companies Welcome

Part of making Arizona the top state for the solar industry was to ensure a dependable local market. Impacting Arizona's Renewable Energy Standard was one way to show a commitment to solar. Renewable Energy Standards are regulations that obligate electricity supply companies to produce a specified fraction of their electricity from renewable energy sources. Arizona aims to have renewable energy comprise 15% of its total energy portfolio by 2025^{*}. Prior to marketing the state to solar companies abroad, GPEC worked to increase the amount of solar included in the Renewable Energy Standard, resulting in one of the highest solar requirements in the nation[†]. This was shared with executives at solar companies to highlight the upcoming need for renewable energy.

Aside from legislative work, and international and public relations campaigns, GPEC worked hard to make the state a hospitable place for solar power companies to locate by overcoming financing roadblocks and ensuring a local market for solar products. Although solar companies received financial assistance through the tax credit, there was a challenge in how to financially incentivize local homeowners and businesses to create a market for renewable energy in Arizona. The model used in California and elsewhere was PACE, or Property Assessed Clean Energy. In PACE programs, municipal governments sell bonds to investors and then loan the proceeds to homeowners and businesses to finance a solar installation or energy efficiency retrofit. Though successful in other places, this program had fallen out of favor as Fannie Mae and Freddie Mac refused to back mortgages with PACE loans. Not to be discouraged, GPEC worked with the National Bank of Arizona to develop effective alternative financing[‡]. State tax credits are also available for installation and production of solar panels. Furthermore, to meet RES, utilities offer rebates and performance-based incentives to residents and businesses.

^{*} Renewable Energy in Greater Phoenix, Greater Phoenix Economic Council, 2012.

[†] Interview with Chris Camacho, March 1, 2013.

[‡] Arizona Success Story: Developing a Renewable Energy Value Proposition, Chris Camacho, 2011.

Partnering with Research and Workforce Organizations

When investigating the possibility of a solar industry in the late 2000s, GPEC drew on the support and expertise of organizations that were already aligned with innovative science and technology. The Science Foundation of Arizona and Arizona State University (ASU) worked with GPEC to develop programs that encouraged innovation and entrepreneurial activity, such as the ASU initiative to provide lab space for students to work with science-based firms. Furthermore, the ASU and GPEC partnership led to a joint venture between ASU and Germany-based TUV Rhineland Group to test and certify photovoltaic devices.

A number of workforce organizations have created programs to train disadvantaged populations in skills to enter the green workforce. The Arizona Opportunities Industrialization Center's Pathways Out of Poverty program provides training and job placement for individuals seeking careers in the energy efficiency and renewable power industries in Arizona. Applicants are limited by ZIP code, and they must be an ex-offender, currently unemployed, a high school dropout, or low-income. Program participants are trained in solar installation and design, as well as weatherization.

Two federal grants have supported green workforce development as well. In 2009, Arizona Women's Education & Employment (AWEE) was awarded a \$100,000, one-year grant from the US Department of Labor to build green industry capacity for underserved communities, particularly for ex-offenders and women. Concurrently, the US Department of Labor awarded the State of Arizona \$6 million to develop a statewide plan to establish strategies for integrating the workforce needs of targeted green energy industries in Arizona, targeting businesses, dislocated workers and the underemployed and unemployed. So far, this grant has helped arm approximately 4,000 Arizonans with a clean tech skill set, including energy efficient building, green construction, renew-

able energy, Smart Grid, solar and thermal power^{*}.

Outcome: First Solar in Mesa

The biggest success story to come out of GPEC's solar initiative was turning the tide for First Solar to return jobs back to the United States and Arizona. This was achieved through a combination of teamwork and preparedness. In August of 2010, a site selection firm contacted GPEC regarding a renewable energy project. GPEC responded to the request for information with an overview of state incentive programs and site-specific information from several cities. GPEC worked with APS and Salt River Project, two of the state's largest utility providers, to identify industrial sites. The company selected a site in Mesa, but it was not available. Luckily, the city had laid the groundwork for industrial investment, previously completing a comprehensive master plan to provide increased zoning of manufacturing, industrial and employment districts. A large landowner in Mesa, who was also a GPEC partner, was able to provide a replacement site[†].

The project turned out to be a technology campus for First Solar. As the First Solar team conducted due diligence on the site, GPEC partners Intel and Boeing testified to the availability of a skilled workforce in the region, while ASU highlighted their engineering program and workforce training through the community college system. The project qualified for the Renewable Energy Tax Incentive, and in March of 2011, First Solar publicly announced its future technology campus in Mesa.

Conclusion

GPEC's success in building an Arizona solar energy industry relied on Arizona's climate, existing economic assets and tools and partnerships with other organizations, but it was also driven by GPEC willingness to take on new roles in research and

advocacy, which led to state-level policy change. These policy changes altered the market and investment environment in Arizona and linked new solar industry investment to the creation of good-paying jobs. GPEC's research allowed it to develop an evidence-based case for what was needed to make Arizona competitive for the solar industry. This knowledge allowed GPEC to act as expert policy advisor and legislation architect helping to craft a tax credit that impacted solar companies where they needed it most. Moreover, GPEC built a strong coalition of state elected officials, representatives from complementary economic development organizations, community partners, public utilities and local government to bring about these policy changes and implement a strategy to leverage the policy changes to attract substantial solar industry investment. Mayoral-level leadership was a very important piece of this coalition, especially from Mayor Scott Smith of Mesa[‡].

* Green Workforce Development, Greater Phoenix Economic Council, 2013.

† The Art of a Deal: First Solar in Arizona, Greater Phoenix Economic Council, 2011

‡ Interview with Chris Camacho, March 1, 2013.