

Defining the Green Economy:

A Primer on Green Economic Development



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Cover Photo

Clockwise from left: Steven Gregory; GRID Alternatives, Solar Richmond and Richmond Build; Aditi Rao

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Introduction

Cities around the globe are trying to figure out how to *grow green* – i.e., how to generate economic activity that preserves and enhances environmental quality while using natural resources more efficiently. Though the path to reducing human impact on the environment is clear, we are less sure about how to grow our economies and benefit society’s least advantaged members at the same time – in other words, how to link the three E’s (environment, economy, and equity) of development.

This brief surveys the landscape of green economy studies and their definitions of the green economy and describes the state-of-the-art in green economic development practices. The many policies and reports published thus far focus on two different forms of economic development: stimulating production (through business or workforce development) or consumption (primarily at the household level). However, few evaluate the economic development options available at the local and state scale, and even fewer discuss the potential outcomes of these policies in terms of the economy and social equity. The purpose of this brief is to provide a comprehensive definition of the green economy and show how different definitions and policy approaches are likely to meet economic development goals.

What is the Green Economy?

At its most basic level, the green economy is the clean energy economy, consisting primarily of four sectors: renewable energy (e.g. solar, wind, geothermal); green building and energy efficiency technology; energy-efficient infrastructure and transportation; and recycling and waste-to-energy.¹ The green economy is not just about the ability to produce clean energy, but also technologies that allow cleaner production processes, as well as the growing market for products which consume less energy, from fluorescent lightbulbs to organic and locally produced food. Thus, it might include products, processes, and services that reduce environmental impact or improve natural resource use.²

Our review of 25 regional and national reports on the green economy (see Further Reading) found that though few bother to define the green economy, all agree that clean energy is its core. The reports vary in how much they emphasize environmental and/or job quality. The switch to clean energy will of course improve environmental quality by reducing greenhouse gas emissions and impact

sustainability by reducing energy use. However, just 16 of the reports mention transportation and infrastructure as part of the green economy, despite the key role of built form and city planning in shaping energy use. Only the reports by Apollo Alliance, Green for All, and the Center on Wisconsin Strategy focus on job quality, typically defined as well-paid jobs with benefits and opportunities for advancement.

Figure 1 shows our conceptualization of the green economy. The green economy map groups green businesses into 17 categories, based on a review of industries mentioned in the 25 reports. It also highlights how frequently each industry sector is mentioned in the reports (with the darkest shades representing the sectors cited most frequently). The map presents the range of green business categories along two axes. The vertical axis shows the range from traditional businesses, such as utilities, and professional services that are greening their operations, to businesses in emerging industries, such as nanotechnology research, solar panel manufacturing and eco-tourism. On the horizontal axis, businesses move from those that produce green products, such as manufacturers and food processors, to those that sell green products or participate in the green lifestyle economy, such as farmer’s markets and local park maintenance operators. Production industries produce goods that can be exported and imported between regions. Lifestyle or consumption businesses are local-serving only. Business categories located in the middle of the horizontal axis contain both production and consumption aspects. Within the green economy, businesses interact with and are influenced by the government agencies, universities, non-profit organizations, unions, utilities and trade associations in the regional innovation system (shown at the bottom of the diagram).



Photo: City of Los Angeles

Green Economic Development Policies

Policies to grow a green economy tend to fall into two major categories: stimulating production or consumption.

Production

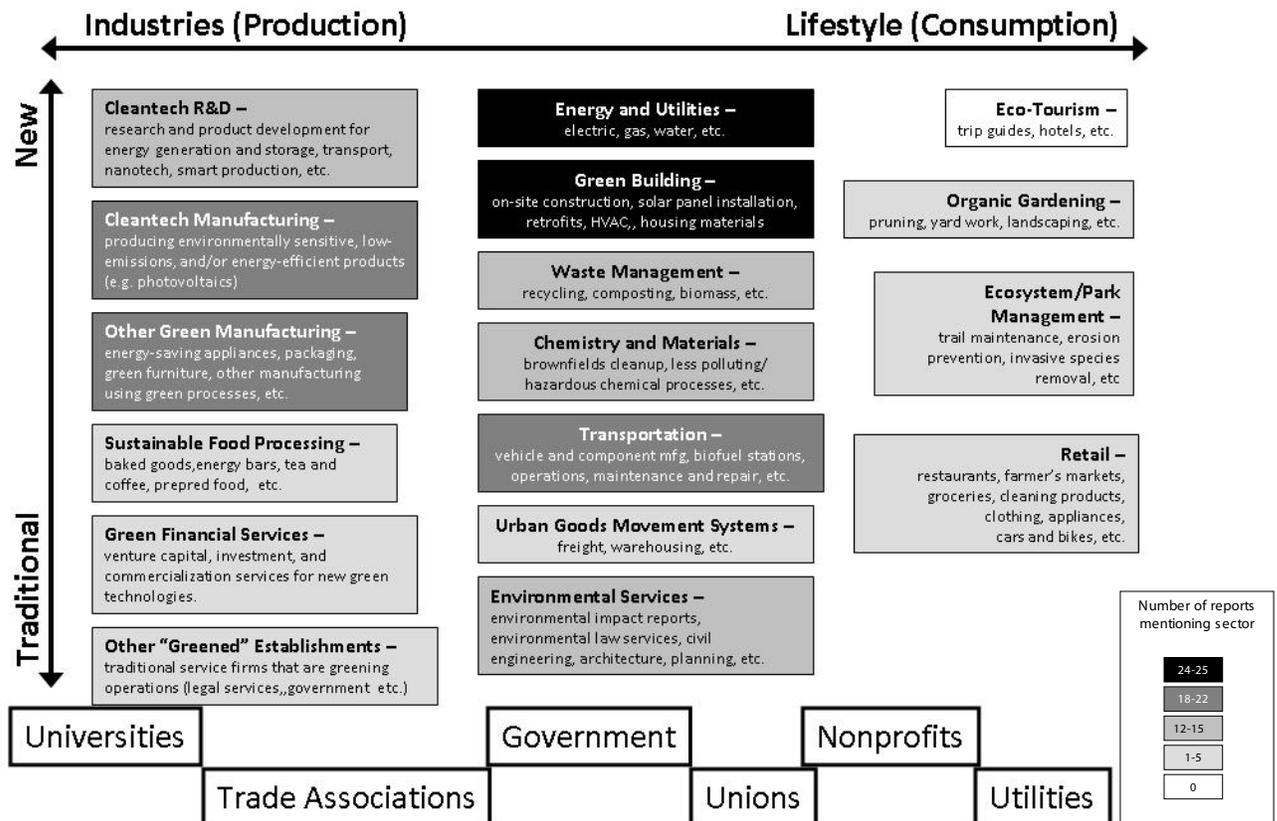
Early in the 20th century, economists identified the importance of exports in generating local income to support urban economies. Ever since, the idea of an “economic base” of export or “driving” sectors has dominated economic development approaches. To stimulate production, cities and states are relying heavily on both carrots and sticks: economic incentives to attract and retain business and green standards and regulations. As a long-term stimulus, many are also trying to build local capacity to compete in the green economy.

Local incentives typically include fee exemptions, low-cost loans, and in-kind contributions (e.g., of land or infrastructure). For example, the City of San Francisco Clean Energy Business Exclusion is a payroll tax exemption for businesses with over ten employees. For large-scale incentives, such as tax credits and abatements, cities usually turn to state programs, such as the Texas Emerging Technology Fund.

Green standards and regulations that stimulate production are typically goals to green the way goods and services are produced by spurring renewable energy use or greater energy efficiency. For instance, many cities and states have adopted renewable energy portfolio targets, specifying that utilities generate a certain amount of electricity from renewable sources. Washington State’s Renewable Energy Standards mandate local ethanol and biofuels purchasing, but only when local businesses demonstrate sufficient capacity for production. A growing number of cities are adopting green building regulations, from mandating LEED standards in government buildings to setting these standards for all large development, as in San Francisco. Recycling standards to reduce waste from construction and demolition can help spur the local recycling industry. In order to use such regulations to grow local business, however, cities need to pair them with preference purchasing clauses or marketing programs (such as green certification programs) for local businesses.

Economists often argue that such regulations and standards will not result in cheaper or higher quality inputs, but instead will simply force businesses to

Figure 1. Sectors of the Green Economy According to Recent Studies



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internalize new costs, putting them at a competitive disadvantage. New regulations will undoubtedly hurt businesses that are just marginally competitive. However, for most, they will help develop new capacity, which in turn could lead to increased exports or import substitution. Though the costs of their products and services will rise, new awareness of environmental quality issues should make the market more willing to bear these increases.

Another set of programs, from cluster initiatives to green campuses to workforce development, build local capacity to compete in the green economy. Since these efforts are much more difficult to implement, they will have more impact if they build on existing local and regional strengths and infrastructure. Cluster initiatives facilitate the networking that connects core businesses with suppliers and new technologies. The Oakland Partnership Green Industry Cluster brings together a variety of public, university, and private sector partners to coordinate and market Oakland's green economic development activities, while the East Bay Green Corridor Partnership performs the same function at a regional scale. Penn Future is an environmental organization that advocates for regulatory changes in support of renewable energy and educates the public about buying green. Green business incubators, as in Austin and Sacramento, provide logistical support and financing for startups, while eco-industrial campuses, as proposed in the South Bronx and San Francisco's Hunter's Point, convert brownfields into green campuses. Finally, a number of cities and states across the country have started workforce development programs, typically focused on green building construction programs: for instance Richmond Build trains local youth in solar panel installation and experiences 90 percent placement rates due to close relationships with both unions and industry.

Consumption

Despite the focus on production, in recent times, local-serving jobs account for at least two-thirds of all jobs and higher rates of job growth than export sectors.³ There are four reasons to support local-serving jobs as an economic development strategy. First, investing in local quality of life is key to attracting and retaining businesses and their workers.⁴ Second, local services play a critical support role in industry clusters.⁵ Third, local services from education to health care and child care are public goods because of their critical role in local human development.⁶ And fourth, providing these services locally means that they are not imported and thus a drag on the local economy.⁷

Cities and states are increasingly recognizing the importance of consumption-driven economic development by adopting three types of green policies: green standards and regulations for energy use (described above), green building incentives, and environmentally preferable purchasing. For the most part, these policies are easier to implement than policies related to production. These policies may or may not help grow local businesses, depending on how mandates are framed (e.g., whether local purchasing standards accompany them). However, they still play an important role by raising awareness of the environment and thus indirectly helping to build the market for green goods and services. They also create economic development by helping develop new expertise, for instance in green building operations or energy use evaluations.

Most common are energy efficiency programs, e.g., ratepayer surcharges to create public benefits funds for renewable facilities, R&D, and education. Though not direct economic development programs, these at least help to support green innovation and develop a new market for green products. Another common consumption incentive is the solar panel installation tax credit or permit fee waiver. A more substantial impact on spending patterns is likely to come from green building financing programs, such as the model Berkeley First Sustainable Energy Financing District, which will reimburse homeowners for solar installation costs, to be paid back at a fixed rate via property taxes. All of these programs help build a critical mass of clean energy support services, which in turn helps build local clusters and reduce dependence on imports. Though they may not have a direct impact on local quality of life, they can help a city green its image and thus market itself more effectively.

Choosing Green Economic Development Strategies

In this era of global competition and local fiscal constraint, cities increasingly seek to develop and maintain a vibrant economy. Yet, few cities have adopted comprehensive economic development strategies, and even if they have articulated explicit economic development goals, they rarely adopt the right types of policies to support them. In the push to stimulate the green economy, cities are often confused about whether to pursue economic **growth** or **development**, as well as whether to seek **high-quality jobs** or simply **job creation** of any kind. Despite the rallying cry for green jobs as pathways out of poverty, a green economy does not necessarily mean well-paying, green-collar jobs unless local job standards and training programs are in place. And though we might expect a net gain in jobs, many studies have underestimated the potential for job loss, since some businesses will shed jobs in the process of producing green products or becoming more green. Another overlooked role for the green economy in a time of recession is job retention, since efficiency measures and demand for new products can help keep factories open and workers (e.g., in construction) employed.

Growth vs. Development

Simply put, economic growth is an increase in output through the efficient use of resources, while economic development is a change in functional capacity that generates new resources for growth. Growth is quantitative change (in numbers of new businesses, jobs, per capita income, buildings, etc.), while development is qualitative, structural change that can help foster innovation and improve productivity.⁸ Growth can lead to development, if the new resources it generates are reinvested in businesses, people, or places. Likewise, development will likely increase growth – but only over the long-term.

Figure 2 shows common economic development goals or outcomes, as well as the green economic policies used to achieve them. On the growth side, the most common goals are creating new jobs, growing new or expanding existing businesses, and thus expanding the tax base. Green business incentives and green standards and regulations are all relatively easy to enact and likely to produce these outcomes.

But some caveats apply. Many green standards are simply requiring the substitution of energy-efficient for traditional inputs, and as such are unlikely to result in net increases

of jobs or materials. They could even result in job loss, as firms figure out how to produce goods or services more efficiently or hire fewer workers. New regulations will undoubtedly result in job loss in carbon-intensive industries. In order to result in growth or even retention, the regulations will have to grow the overall market. For instance, green building retrofits may create a new market, as households undertake rehabilitation projects they would otherwise not have. But green cleaning products may not, as consumers substitute eco-sensitive for traditional cleansers.

Likewise, incentives will be ineffective unless they include clawback provisions that require companies to pay back subsidies if they relocate or fail to meet performance standards in job creation or other indicators. Moreover, since business expansions are far more common than relocations, subsidies are best targeted at existing and startup businesses.⁹ Though some anticipate that carbon regulation and fuel costs will keep more businesses captive in core regions, large manufacturers are generally more footloose than smaller producers or other types of industries, in part because of the ability to offshore production.

Further, none of these approaches alone are likely to lead to the quality jobs sought. Certain industry sectors are much more likely to provide high-paying jobs for low-skilled workers, especially heavily unionized sectors such as utilities and construction. If cities and states are targeting industry sectors that hire a large share of low-wage workers (such as retail, waste management, trucking, or business support services), yet are interested in job quality, they will need to implement provisions for job standards. These might include living wage and benefit ordinances, certification programs, local hiring clauses, and project-specific community benefits agreements.¹⁰ A softer approach would be to develop a set of standards for cities and states to evaluate the job quality impacts of different opportunities (e.g., wage level, advancement opportunities, on-the-job training, connections to training providers, and/or integration with sector-based strategies).

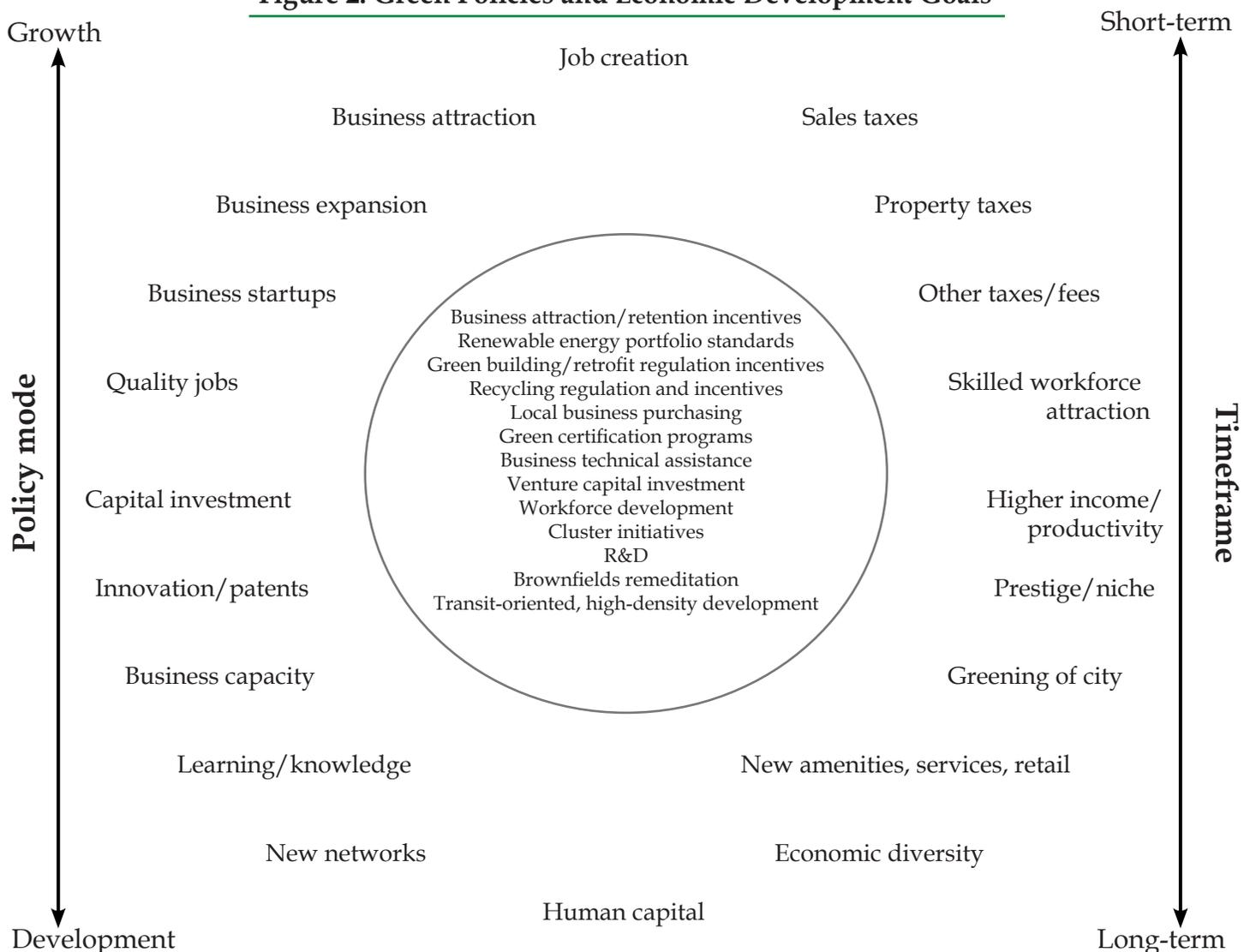
Development goals range from improving business functions and knowledge, to city quality of life, to worker human capital. Over time, these will make cities and states more competitive in the green economy. Attaining these goals requires considerable investment, often long-term, in cluster initiatives, R&D, business incubators, marketing,

transportation and land use, workforce development, and other programs. Though they create few jobs, at least in the short-run, they may generate more high-quality jobs.

But again, results will depend on which industry sectors cities invest in. Cluster initiatives facilitating technology transfer from university to businesses tend to create jobs mostly for high-skilled workers (with graduate-level education).¹¹ In fact, there is some evidence that job creation is lower in industries participating in cluster initiatives than those outside of clusters.¹² Cleantech R&D will generate innovations, but few new jobs. Later phases of the product cycle will produce far more jobs and output, but mass assembly and manufacturing is likely to occur far from the original city.

The experience of business incubators has been uneven, since sectors vary in how much they will benefit from shared infrastructure, management and supplies. Improving quality of life will enhance environmental quality and attract a more competitive workforce, but the resultant land value increases may displace existing residents if protections are not in place. The experience with sector-based workforce development programs has shown that it is easiest to create quality jobs and career ladders in unionized sectors like construction and health care.¹³ In general, unionized companies are more likely to be able to do quick turnaround on job training in new technologies. Since all of these initiatives take considerable time, energy, and money, they will be most effective as endogenous approaches, building on existing strengths.

Figure 2. Green Policies and Economic Development Goals



Conclusion

The green economy will emerge in different forms in different regions, depending on local economic strengths and weaknesses. Stakeholders in local economic development have an opportunity to shape their green economy through policy. But intervention will be most effective if it builds upon local strengths and chooses appropriate policies to meet local goals. Is the economic development goal job generation and retention? Cities and states should consider enacting policies such as green building standards with provisions for local purchasing and hiring. Local quality of life? Cities might stimulate consumption through green building policies, support for open space amenities, and technical assistance for retailers. Job quality? Local governments might look to sectors that have traditionally provided well-paying, career-track jobs, with established job training programs and relationships with unions, such as utilities and transportation. Innovation, with a long-term horizon for outcomes? Incentivizing the cleantech sector with funding for R&D and technical assistance for startups may be the best approach, particularly at the state level. In any case, local actors will want to evaluate the match between their goals and existing resources in the community to determine what is possible.

New green standards, regulations, incentives, technical assistance, and marketing programs can help spur the green economy, but they will not actually create local economic development in the absence of supporting policies. Local purchasing and hiring requirements, labor standards, and clawback provisions will need to be part of the green economic development package if green policies are to have an impact on the economy and equity as well as the environment – and if they are to support local sustainability.

As with any new economic development initiative, green economic policies will be most successful to the extent that they build on existing strengths in the city, region, or state. Existing stakeholders, from government agencies to universities, nonprofits, trade associations, utilities, and unions, need to be involved. Green economic development programs should take advantage of existing, often surplus, capacity in job training programs, business incubators, small business assistance centers, and other organizations. New green programs should build on successful existing programs and organizations (for example, the Berkeley First Source hiring program, the MIT Entrepreneurship Center, and the New York Industrial Retention Network). Drawing on existing strengths will not only generate more endogenous development, but also will help create a more sustainable green economy over time.

Notes

- ¹ Kate Gordon and Jeremy Hays, *Green-Collar Jobs in America's Cities: Building Pathways out of Poverty and Careers in the Clean Energy Economy* (Apollo Alliance and Green for All, 2008). <http://www.apolloalliance.org/downloads/greencollarjobs.pdf>
- ² Adapted from Buffa et al., *California's Global Warming Solutions Act of 2006 – A Background Paper for Labour Unions* (CA: Center for Labor Research and Education, UC-Berkeley, 2008).
- ³ Michael Porter, "The Economic Performance of Regions," *Regional Studies* 37(6&7): 549-578, 2003; Ann. Markusen, Greg Schrock, and Elisa Barbour, *Making the City Distinctive: A Guide for Planners and Policymakers* (Minneapolis, MN: Project on Regional and Industrial Economics, 2004).
- ⁴ Richard Florida, *The Rise of the Creative Class: And How It's Transforming Work, Leisure, Community and Everyday Life* (New York: Basic Books, 2002).
- ⁵ Porter op.cit.; Mildred Warner and Zhilin Liu, "The Importance of Child Care in Economic Development: A Comparative Analysis of Regional Economic Linkage," *Economic Development Quarterly* 20(1):97-103, 2006.
- ⁶ Committee for Economic Development, *A New Framework for Assessing the Benefits of Early Childhood Education* (Washington, DC: Committee for Economic Development, 2004); Amartya Sen. *Development as Freedom* (New York: Knopf, 1999)
- ⁷ Colin Williams, *Consumer Services and Economic Development* (London; New York: Routledge, 1997).
- ⁸ Emil Malizia and Edward Feser, *Understanding Local Economic Development* (New Brunswick, NJ: The State University of New Jersey Press, 1999).
- ⁹ Greg Leroy, *The Great American Jobs Scam* (San Francisco: Berrett-Koehler Publishers, 2005). Only eleven percent of businesses relocate over their lifetime (Karen Chapple, Sara Hinkley, and Carrie Makarewicz, "Business as Usual in California's Suburbs?: Exploring the Dynamics of Firm Relocation, 1990-2005," unpublished paper, 2008), accounting for just one to two percent of job loss (David Neumark, Junfu Zhang, and Brandon Wall, *Business Establishment Dynamics and Employment Growth*, Hudson Institute Research Paper #05-02, 2005).
- ¹⁰ For a description of these provisions, see Foshay et al., *Ensuring that Green Jobs are Quality Jobs* (Berkeley, CA: Center for Labor Research and Education and Center for Community Innovation, 2008).
- ¹¹ Enrico Marcelli, Sundari Baru and Donald Cohen, *Planning for Shared Prosperity or Growing Inequality? An In-Depth Look at San Diego's Leading Industry Clusters* (San Diego, CA: Center on Policy Initiatives, 2000). <http://www.onlinepci.org/publications.html>.
- ¹² Edward Feser, Henry Renski, and Harvey Goldstein, "Clusters and Economic Development Outcomes: An Analysis of the Link Between Clustering and Industry Growth." *Economic Development Quarterly* 22(4):324-344, 2008.
- ¹³ Maureen Conway, Amy Blair, Steven L. Dawson and Linda Dworak-Muñoz, *Sector Strategies for Low-Income Workers: Lessons from the Field* (Washington, DC: Aspen Institute, 2007).

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