

Prospects and Practice in Green Economic Development¹

Karl F. Seidman
MIT Department of Urban Studies and Planning

Introduction

There has been a growing focus on “green” economic development in recent years fueled by concern over global warming and the search for new areas of economic growth following the great recession of December 2007 to June 2009². Through Obama administration initiatives and the American Recovery and Reinvestment Act (ARRA), federal policy has promoted energy efficiency and alternative energy as instruments of both economic development and energy policy. The ‘green economy’ and the potential for green economic development extends beyond the energy sector—an area that emphasizes large scale energy generation projects on the one hand and the construction-based energy-efficiency improvements to buildings, on the other. Karen Chapple, based on her review of 25 reports, defined the green economy as “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 light bulbs to organic and locally produced food” (Chapple 2008). For the purposes of this article, green economic development is defined as including two dimensions: (1) the adaptation of existing business products and processes to achieve greater resource efficiency and reduced environment impact, i.e., “greening the existing economy” and (2) the development of new technology, products and services that respond to markets and mandates for reduced environmental impacts. The first dimension involved assisting businesses to redesign their

¹ Two research assistants, Rebecca Economos and Andrew Stotlz, were essential to the completion of the research for this paper through assisting in conducting surveys and interviews and summarizing survey results.

² This is the formal period for the recession set by the National Bureau of Economic Research

existing products and services to require less material (or recycled materials) and energy and altering a firm's process and facilities to use less water, energy and other resources and/or recycle their waste products. The second dimension involves the attraction, development and expansion of businesses and industries to supply products and services, including but not only energy, that enable greener practices within the larger society—among individuals, households, businesses and governments.

The direction of green economic development will be shaped by federal and state policies and market conditions that drive competitive pressure for greater efficiency and market demand for green products and services. However, a mediating factor in the how quickly and extensively firms and communities respond to these policy and market opportunities is the extent to which economic development organizations incorporate these two aspects of green economic development into their core mission and activities. Economic development organizations function as intermediaries to deliver critical information and resources to firms, overcome market imperfections that can slow investment in new green methods or products, and promote innovation and adoption of new technologies and best practices among firms (Bartik 1990). Economic development organizations are especially important to connecting small business to green economic development opportunities since small business have lesser internal funds and face barriers to accessing capital (Berger and Udell 1998) that may be needed to change their processes, analyze new market opportunities and develop new products and services.

Many studies have focused on job creation potential of the clean energy and green economy sectors³ and numerous plans and strategies that seek to foster green economy development within specific states, cities and regions⁴, but there has been little research on how extensively green economic goals and programs have been incorporated into the broader economic development field. In *Emerald Cities*, Joan Fitzgerald details many city-level initiatives to nurture the green economic development potential in four sectors: renewable energy, energy efficiency, waste reduction and recycling, and transportation. Her research documents the diversity of approaches used along with their successes and challenges, but it does not address the adoption of green economic development goals and activities within the larger economic development field, particularly beyond the nation's largest cities.

How economic development organizations are addressing green economic opportunities is an important question for the economic development field and the larger climate change and environmental policy concerns. It indicates the extent to which this shared environmental and economic agenda is being embraced by the field and can help policy makers understand the role of economic development organizations in advancing these policy goals. Moreover, the experience of practitioners in implementing green economic development initiatives will help identify how organizations can be more effective at addressing this emerging area of economic development and what new skills and relationships are needed by practitioners.

³ These are quite numerous but some prominent examples include Apollo Alliance, *The New Apollo Alliance Plan, Green Recovery: A Program to Create Good Jobs and Start Building a Low Carbon Economy*, and *Efficiency Works: Creating Good Jobs and New Markets through Energy Efficiency*. There have also been many state, city and regional analysis of the economic and job development potential of the green economy and specific sectors. One example is *Energy Efficiency, Renewable Energy, and Jobs in Massachusetts* prepared in 2005 by the state's renewable energy trust

⁴ Many examples for these plans exist. Two examples are The Portland Metro Climate Prosperity Project: A Greenprint for the Metro Region, one of four pilot "greenprint" plans produced under the Climate Prosperity Initiative and Manufacturing Green: Producing a Sustainable New York

This article summarizes research conducted from January through August 2010 on how economic development organizations are adapting their activities to address the two facets of green economic development: helping firms become more resource efficient; and pursuing new green market opportunities. Key findings from the research are that approximately half of economic development organizations are changing their activities to address green economic development. Among the organizations that are offering new services, most are extending their existing core services and competencies to explicitly include green issues. A smaller set of organizations are pioneering new approaches or a providing more comprehensive set of green economic development services to firms. Two challenges emerged to making a greener economy a more central agenda within the economic development field. One is a gap in expertise and knowledge needed to design and implement programs in new areas such as energy, green buildings and environmental managements and that require a more careful assessment of emerging markets. A second barrier is limited business demand for green economic development services and initiatives.

Research Focus and Methods

The research focused on whether economic development organizations are providing new services to help firms pursue green economic development and the new resources, capacities and partnerships employed to implement these new activities. The study was undertaken in three phases. A web-based survey was conducted with self-identified economic development organizations from January to April 2010 to gauge the extent to which groups were expanding

into green economic development, what new activities were being implemented and how they were funded⁵. One hundred and fifty-nine organizations responded to parts of the survey with 105 completing the full survey. In a second phase, interviews were conducted with 15 organizations that had implemented new programs and volunteered to be interviewed. Interviewees were selected to represent a range of organization types, US regions and type of new activities and services implemented. These interviews covered the motivation for undertaking green economic development, how organizations decided to offer the new activities, the funding and new expertise needed to implement them and their main implementation challenges. In the final part of the study, Small Business Development Centers (SBDC) were surveyed during summer 2010 to explore how one type of economic development organization that is well established in every state is addressing green economic development⁶. Forty-nine SBDCs directors completed the survey encompassing 42 states, Puerto Rico and the Virgin Islands.

The methodology did not provide a large or representative sample of the economic development field. Moreover, self-selection bias in the first survey may overstate the extent to which green economic development programs are being implemented within the economic development field: organizations that created new green economic development activities are more likely to have completed the survey since they may have a stronger interest in the issue and more news to

⁵ To reach economic development organizations, the survey was distributed through four trade organizations: the International Economic Development Council, Northeast Economic Developer's Association, Council of Development Finance Agencies and the Opportunity Finance Network. A web-link to the survey was distributed to the members of these associations through their electronic newsletters or a special email message or both means.

⁶ To conduct the survey, state or regional SBDC directors⁶ were contacted by email and phone and invited to participate in the survey. Directors were given the choice of either filling out a written version of the survey via email or completing it by phone. Follow-up communications occurred for some email-based surveys to clarify responses or obtain complete survey responses.

report. For this reason, the study should be viewed as exploratory research that provides an initial indication of how these organizations are addressing green economic development opportunities and the types of funding, challenges and emerging practices that early adopters within the field are encountering. In this respect, it can help identify issues for further research and what type of support and policies are needed if the economic development field is to become an effective vehicle to advance adoption of green practices and pursuit of green markets by small enterprises.

Survey Results: Economic Development Organizations

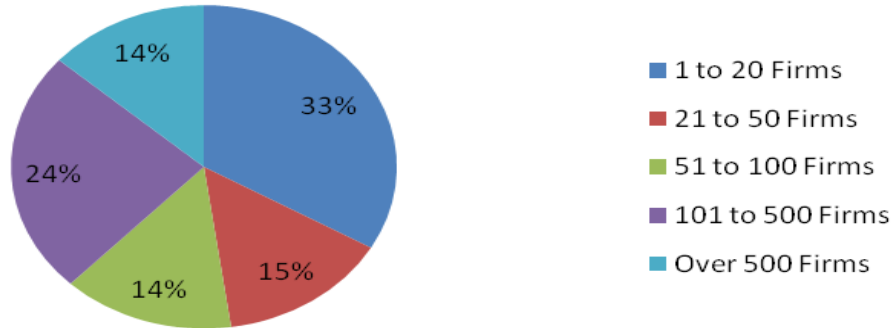
Survey respondents were primarily local government economic development agencies (46%) and non-profit economic development corporations (25%) engaged in providing business training, technical assistance (TA) and financing. Thus, the survey largely concerns how local level organizations are addressing green economic development. Table 1 indicates the share of respondents that provide different economic development services. The most common services are business training or technical assistance (75%) and financing (53%). However, almost half are engaged in real estate development and workforce development. The smallest percentage (31%) assists firms with developing or commercializing new technologies for their business.

Table 1. Services Provided by Survey Respondents

Type of Service	Percentage Providing Service
Business Training or Technical Assistance	75%
Financing	53%
Real Estate Development	47%
Workforce Development*	44%
Technology Development/Transfer	31%

*Includes both employee training and job placement; n=137

Figure 1. Annual Number of Firms Served by Respondents



N= 111

Respondents are fairly evenly divided according to the number of clients served annually. One-third are served 20 or fewer firms in their past fiscal year. Another 29% assisted between 21 and 100 firms while the final 38% are the largest, having assisted over 100 firms in their prior year.

Table 2 Distribution of Respondents by the Percent of Client Firms Seeking Technical Assistance or Training for Green ED Activities in Past Fiscal Year

Type of Activity	0%	Below 25%	Above 25%
Energy Efficiency Improvements	23%	66%	11%
Reducing Use of Non-energy Resources	43%	44%	13%
Recycling Waste Products	36%	52%	13%
Installing Renewable Energy System	34%	53%	13%
Building, Renovating or Leasing a LEED or Green Building	39%	53%	8%
Certification as a Green Business	58%	36%	6%
Redesigning Products to Reduce Environmental Impact	61%	34%	5%
Serving New Markets in Energy Efficiency or Renewable Energy	31%	53%	16%
Serving New Markets in other Green Products or Services	40%	45%	15%
Training Workers for New Skills Related to Green Jobs	49%	35%	16%
Hiring Workers to fill New Green Jobs	65%	30%	5%

N=101

Economic development organizations report modest business demand for green economic development services. Few organizations report that at least one-quarter of their client firms sought such assistance (see Table 2). Practitioners report the greatest demand for help in making energy efficiency improvements, for which 77% reported some client demand. Energy efficiency is also the largest area for which financing is sought, but overall interest in financing green improvements or new green products and services was low (See Table 3). With the exception of energy efficiency improvements, a majority of organizations report no demand for financing green initiatives among their business clients. Over 60% of respondents reported some client demand for technical assistance or training in four areas: reducing waste products, installing a renewable energy system and building, renovating or leasing a LEED certified or green building, and serving new energy efficiency or renewable energy markets

Table 3. Distribution of Respondents by the Percent of their Client Firms Seeking Financing for Green ED Activities in Past Fiscal Year

Type of Activity	0%	Below 25%	Above 25%
Making Energy Efficiency Improvements	44%	48%	8%
Installing Renewable Energy System	52%	43%	6%
Business Changes to Obtain Certification as a Green Business	78%	17%	5%
New Equipment or Improvements to Reduce Use of Non-energy Resources	55%	37%	8%
Building, Renovating or Leasing a LEED/Green Building	66%	32%	2%
Introducing New Products or Services for Energy Efficiency or Renewable Energy Markets	58%	36%	7%
Introducing New Products or Services for other Green Markets	63%	32%	5%
Training Workers for New Skills Related to Green Jobs	70%	22%	8%
Hiring Workers to fill New Green Jobs	68%	28%	4%

N=95; row totals may not sum to 100% due to rounding.

Expanding Green ED Services. Despite modest business demand, half of the ED organizations expanded into green economic development activities in their past fiscal year. Fifty-one percent⁷ introduced new services to help businesses reduce their use of energy or other resources while 48% added services to help firms introduce new products or services for the energy efficiency, renewable energy or other environmentally focused markets. Table 4 shows the incidence of different services among those organizations that added new green ED activities. Training and

Table 4. Percentage of Organizations with New Green ED Services Adding Different Type of Services

Type of New Program or Service	Percent Adding Service to Help Firms Reduce Resource Use	Percent Adding Service to Help Firms Enter Green Markets
Training Courses/Workshops	62%	56%
Specialized Technical Assistance	57%	50%
Loan Product/Program to Finance these Investments	51%	43%
Grant Program to Finance these Investments	38%	43%
Secure Tax Credits to Finance these Investments	30%	30%
Train Incumbent Workers for Skills Needed in this Area	40%	38%
Training New Workers for Skills Needed in this Area	44%	39%
Hiring New Workers for Jobs in This Area	30%	23%
Developed or Leased LEED/Green Building Space for Businesses	19%	14%
	N=54	N=48

technical assistance is the most common new activity and is the only service implemented by a majority of organizations to address both realms of green ED—reducing resource consumption and developing new green products/services. Just over half of organizations also implemented a new loan program for energy and other resource efficiency investments. Workforce

⁷ This was 54 of the 106 groups that answered this question.

development is also fairly common as close to 40% of the organizations added new training programs. Developing green buildings is being pursued by the smallest set of organizations—despite the large share of organizations involved in real estate development. However, with the low number of responses, these small differences are not significant and may not be representative of the larger field. For seven of the nine service categories, a higher percentage of organizations added services to reduce resource use than to pursue new green markets, as many organizations implemented multiple services to address resource efficiency. Several factors may explain the greater attention to resource efficiency: higher business demand in this area, a greater focus on cost savings during a recession when businesses may be reluctant to pursue new markets, and greater funding for energy efficiency and renewable energy.

Funding Green ED Activities. The final issue explored in the survey was how groups funded new green economic development activities (see Table 5). Reallocating existing budgets was the most common funding source, especially in the resource efficiency realm for which 70% of

Table 5. Percent of Organizations That Used Various Funding Sources to Implement New Green ED Services

Funding Source	Services to Help Firms Reduce Resource Use	Services to Help Firms Enter Green Markets
Reallocation of Existing Funds	70%	59%
Fees or Income From New Services	28%	29%
Federal Government Grant or Appropriation (Non-ARRA)	40%	36%
Federal Grant or Appropriation (ARRA)	53%	44%
State Government Grant or Appropriation	50%	56%
Local Government Grant or Appropriation	30%	32%
Foundation Grant/Funding	14%	21%
Other Private Funding	23%	29%
	N=49	N=47

organizations relied on it. This suggests a real commitment by these organizations to the environmental and/or economic development benefits of green programs since they were not using their own funds to reorder priorities. Federal and state governments were the next most common funding source used by a majority of organizations. State governments were an important source in funding program that help firms pursue new markets—used by 56% of organizations. ARRA funding was important in both realms but was the second most common source for new services to help businesses improve efficiency. Program revenue, foundation grants and private sector funding were used infrequently by less than 30% of organizations in both green ED realms.

Digging Deeper: The Experience of Early Adapters

Interviews with practitioners from organizations that implemented green economic development initiatives provided a richer understanding of the process, challenges and capacities associated with program development. This understanding can inform how to advance and support the adoption of green economic development activities within the economic development field. Most programs are in early stages of implementation so these results are indicative of the early stage of work with some conflicting results. For example, several programs reported slow business demand that lead to lower than expected results while others reported that strong business interest was accelerating implementation and yielding greater than projected program results. Table Six summarizes the green program activities implemented by the 15 interviewed organizations and how these activities were funded. Activities among these organizations show that common economic development tools are being targeted to green economic development

purposes, including business incubators, revolving loan funds and business visitation programs. In fact, some organizations are simply refocusing their existing activities to address green business issues rather than adding new services tailored to green economic development. Furthermore, most organizations added one or two new programs or projects with a modest scope. Only a few organizations reported undertaking a comprehensive green economic development strategy to addresses different facets of greening existing businesses and foster emerging industries in green products and services.

Table 6. Summary of Green Economic Development Activities Implemented by Interviewees

Organization	Current Green ED Programs/Activities	New funds needed	Funding source for new funds
City of Northampton	Partner with Chamber of Commerce to run a Green Business Program that conducts business audits with referral to business mentors to adopt best industry practices. Informal annual award program	None	Applied for EDA grant for energy efficiency loan fund.
Coastal Enterprises, Inc, Maine	Green loan fund started in 1990s; in late 1990s started EcoTag, which works with revolving loan fund recipients to incorporate green practices into their businesses. Green workforce development project in design phase.	New programs still being developed.	Applied for \$2M CDFI fund grant for green loan fund.
City of Boise, Idaho	Green office challenge to get property owners and businesses to work toward sustainability; Green tech incubator for renewable energy and energy efficient businesses.	Incubator: \$50 to 75,000 for build out; 10,000 per year for utilities. Green Office Challenge: \$25,000	Existing economic development fund and sponsorship for Green Office challenge.
City of Minneapolis, Economic Development Office	Green marketing campaign; business calling program targets green businesses; partnered with Chamber of Commerce to form green business network; revolving loan fund (RLF) to fund energy efficiency projects; examining workforce skills gaps for energy efficiency	RLF: \$780,000 Green branding and marketing: a few hundred thousand dollars	City appropriations, state funds, funds raised by Green-Blue Alliance Fund; EECBGs, reallocation of funds;
Workforce Florida	Support of green jobs training programs through regional BIDs. Manage Banner	Specific figures not available.	Pursued many grant

	Centers to research statewide workforce needs and recalibrate curriculum to address them; one targeted sector is infrastructure, including energy, clean tech, and water.		opportunities; part of WIA 15% Governor's discretionary for new job training efforts.
Cumberland County, Pennsylvania Economic Development Office	Revolving loan fund to finance renewable energy and energy efficiency retrofits.	\$441,460	ARRA DOE grant (part of a larger \$2.2 million county grant)
Rocket Ventures, Northwest Ohio	Entrepreneurial Service Program aimed to support start-ups in biosciences, advanced and alternative energy via business coaching, grant program (pre-start up) and venture capital investment.	\$13.5 million for investment fund plus \$9 million for overhead, personnel, and grants	\$15 million awarded through Ohio state grant competition; \$7.5 million match raised from private sources.
City of Davidson, North Carolina	Project of Innovative Energy and Sustainability (PIES)--a pilot business incubator for firms working on renewable energy, energy efficiency, and recycling.	\$300,000 to start up and create angel investor fund.	Federal and local grants, sponsor donations.
Development Corporation of Knox County— State	Business park manager. Partnered with Chamber of Commerce to run business visitation program to promote energy efficiency. Connects business park tenants to energy programs. Built new drainage and rain gardens at one business park.	None	Reallocated existing resources.
Lucas County Improvement Corporation, State	Conducts outreach and technical assistance (TA) to businesses to connect them to state funds for renewable energy and energy efficiency; TA focuses on energy audits and grant writing	None	Reallocated existing resources.
GSKIZ , Pennsylvania spell out name	Uses existing programs to promote green businesses and green practices. Existing programs include business competition plan, micro-start up grants, TA and consulting services, business incubator space, university partnership, work with state to provide tax credits to businesses	None	Use existing resources`
Town of Windsor Chamber of Commerce	Established a Green Committee that provided TA to green businesses, ran green business and green energy award program, provided newsletter for green tips and tools, and managed educational booths on greening at town events.	None	Volunteer driven; used existing resources.
Las Vegas	Runs Green Initiative Committee, which	Limited	Reallocation of

Chamber of Commerce	provides education and networking opportunities; manages Green Roots program (tiered greening system for businesses to become greener)		existing staff; member earmarking of funds.
Crystal Lake Chamber of Commerce	Runs a Green Business Task Force that provides energy/environmental assessments to businesses; provides education to Chamber members	None	
Lincoln Park Chamber of Commerce	Run a 2 year Green Business Initiative to provide businesses with education and access to tools to be greener and also save money; host kick-off educational summit	None	Reallocation of existing staff.

These interviews revealed three ways (or paths) in which organizations are implementing green initiatives. One path is from an earlier sustainability, economic development or comprehensive plan that recommended new green projects or initiatives for the economic development organization to implement. Minneapolis and Boise exemplify this pathway. The mayors of Minneapolis and St. Paul completed a strategic plan with the Blue Green Alliance in 2006 to 2007 to build a green manufacturing economy. Minneapolis' branding and marketing efforts and green businesses network were proposed in this plan. In Boise, Mayor Bieter had signed onto the US Conference of Mayors' climate change initiative in 2007 which led to the formation of an advisory committee on climate protection, Sustainable Boise, which made recommendations for city policies and actions in 2008. Boise's economic development office then implemented the recommendations within their scope. A second path is when an organization through either staff initiative or in response to business demand adapts its existing activities to incorporate green economic development goals. Coastal Enterprises, Inc, a non-profit state-wide economic development organization in Maine, had a long-standing commitment to environmental sustainability and sought to incorporate these values into its growing business loan programs. It developed EcoTag as a tool for its loan clients to assess ways their business could become greener and incorporate these improvements in their business plans. A new staff person with a

background in climate change joined the Las Vegas Chamber of Commerce in May 2008 and pushed the organization to undertake its Green Initiative, which was launched in January 2009. In the third case, organizations implement a new green ED program or project in response to a funding opportunity. Pennsylvania's Cumberland County initiated its alternative energy Revolving Loan Fund in response to stimulus funding that became available from the US Department of Energy. Rocket Ventures Fund, an entrepreneurial development and venture capital program in northwest Ohio was established to apply for a state grant under the Third Frontier program to stimulate high technology development in six Ohio regions. Although staff commitment and leadership is important for all three pathways, it is especially important in the later two cases in which external leadership and initiative is not driving adoption of green economic development. Among the small sample of 15 organizations, staff initiative was the driver in ten cases while external initiatives or leadership was the primary motivator for the other five. This suggests that building awareness and commitment to green economic development within the profession will be important to driving organizational adoption.

Although organizations varied in the research and planning undertaken to design new green programs, several recurring research needs surfaced. Some organizations conducted little or no program planning⁸ and others moved forward with projects designed in prior plans and strategies. However, most organizations conducted some program development research that included at least one of the following tasks: (1) research to better understand business and industry needs; (2) reviewing programs and best practices from other cities, and (3) analyzing regulations from funding sources and their impact on a program's design and operations. In

⁸ Several organizations had little need for program design since they either implement very simple programs, e.g., a peer based review of existing practices, or targeted an existing tool, e.g., a loan fund, to help firm implement "green" projects.

most cases, this research was done internally by staff but sometimes outside consultants or a partner organization undertook or assisted with this research. In rare instances, detailed and intensive research was conducted to inform program strategy. Workforce Florida, for example, undertook a million dollar year-long study to define green jobs and their specific skill and training requirements. This research was critical to the agency's workforce strategy as it convinced them that green jobs were not new types of jobs but rather represented an expanded skill set for existing positions and occupations. Consequently, incumbent worker training has been a central part of their efforts to prepare the state's workforce for new demands of a greener economy.

Three challenges to implementing green initiatives were cited most often among practitioners. One common challenge was limited business interest and demand for green services. This challenge was cited in both urban and rural areas and across different types of programs. However, it was not ubiquitous. Several programs reported strong business demand with full allocation of their initial funds. Not surprisingly, funding was another frequently reported challenge, but not only for the program. Several practitioners cited problems that green industry firms faced in securing private capital. The third challenge concerned new expertise or knowledge needed to implement programs. These included expertise to help business adopt green practices, business financing expertise related to green industries, familiarity with specific program regulations and knowledge of workforce development needs in green industries. Some organizations worked with universities or other partners to help gain needed expertise. For example, the City of Boise partnered with the SBDC at Boise State University to gain expertise needed to review business plans and prospects for potential tenants at its green business

incubator. But for some programs, such as business finance programs, organizations need internal staff with expertise in green business matters.

Although funding was cited as a program challenge, most organizations required modest funding to implement their green economic development initiatives. In many cases, no new funds were secured and organizations reallocated existing resources and staff—this was largely true for the Chambers of Commerce and organizations that redeployed existing services to help businesses adopt green practices. Even when a totally new project or program was undertaken, e.g. a business incubator or a new loan fund, the required funding was on the order of a few hundred thousand dollars. Statewide and regional organizations involved in larger workforce and cluster development initiatives were the exception. Their new initiatives involved several million dollars in new funding. In addition to local sources and the reallocation of existing organizational resources, a diverse set of federal programs were used or targeted to fund the new green ED programs: Energy Efficiency Community Block Grants, Economic Development Administration grants, the Community Development Financial Institutions Fund, and Workforce Investment Act discretionary funds.

SBDCs and Green Business Development

Small Business Development Centers (SBDCs) provide an example to look at how green economic development is being addressed by a single type of economic development organization. SBDCs exist in every state, have substantial staff and financial resources (which provide capacity to design and implement new services) and are mandated to assist small

businesses. Therefore, they are in a good position to be early adopters of green business development services and a promising subject to study. Their experience in addressing green helps to confirm or counter observations from the survey and interviews, particularly around how widely green economic development is being pursued, the funding of new activities and implementation challenges.

Forty-nine SBDCs responded to the survey representing statewide or regional networks in 43 states, D.C, Puerto Rico and the Virgin Islands. Consequently, the survey results offer a fairly complete coverage of SBDCs activities. SBDC networks⁹ vary considerably in their size and resources, which may impact their capacity to address green business development. Vermont and the Virgin Islands have the smallest annual budgets at \$1 million compared to Florida, the largest with \$12 million. Rhode Island has the smallest staff with 8 FTE while New York employs 200 people. Across the 49 respondents, the average annual budget was \$3.7 million with 20 full time equivalent staff and 13 offices.

Table 7: Percent of SBDC Networks Providing “Green” Services by Service Area

Green Business Development Service Area	Technical Assistance	Training	Added in Last Two Years, All SBDC Networks	Added in Last Two Years, of Networks Offering the Service
Making energy efficiency improvements	51%	41%	33%	43%
Reducing the use of other (non-energy) resources in their businesses	55%	39%	24%	32%
Recycling waste products	53%	33%	29%	38%
Installing a renewable energy	39%	22%	27%	35%

⁹ SBDC networks referred to a collection of SBDC centers and staff that are operated and managed together. In most cases, networks are organized statewide, but some larger states, e.g. Texas and California, have separate sub-state SBDC networks that are managed separately.

source at their facility				
Building a new LEED or other “green building”	31%	18%	18%	24%
Obtaining certification as a green or environmentally sustainable businesses	29%	16%	18%	24%
Redesigning existing products to reduce their environmental impact	35%	16%	16%	22%
Analyzing or serving new market opportunities in energy efficiency or renewable energy	57%	37%	37%	49%
Analyzing or serving new market opportunities related to other environmentally beneficial products or services	55%	37%	39%	51%

Most SBDCs are providing services in at one aspect of green business development with an emphasis on technical assistance over training. Seventy-five percent of SBDC networks provide services in at least one of the nine service categories listed in Table 7. Moreover, a majority of SBDC networks provide technical assistance in five of the nine categories with the largest percentages helping firm analyze or serve new markets for energy efficiency or renewable energy (57%) and for other green products and services (55%). This reflects SBDC’s historic focus on helping entrepreneurs analyze and plan for new business start-ups. SBDCs are also active in addressing resource efficiency issues with 51% to 55% of the networks offering technical assistance to increase energy efficiency, reduce waste, and reduce use of other resources. Even among the services in which SBDCs are most active, over 40% of SBDC networks are not providing assistance. This leaves many states without their SBDC as a resource to further important components of a green economic development agenda. The areas in which the fewest SBDC networks provide services are LEED/green buildings (32%) and green business certification (29%). In all categories, fewer SBDCs provide training than technical assistance,

and there is no category in which a majority of SBDCs provide training to businesses. One quarter of SBDC networks do not offer training or technical assistance in any of the categories, and thus are not supporting any component of green business development with their region. On the other hand, seventeen SBDCs, 35% of all respondents, are quite active in green economic development providing services in at least seven of the nine categories. Responses were also analyzed for variation in services provided by the population size of the SBDC service area¹⁰ and its US region¹¹. Small states (population below two million) offer fewer services on average than larger states, and they are more likely to offer no services than larger states¹². There was limited variation in services across regions with the exception of three aspects of green economic development for which SBDCs in southern state were less likely to provide technical assistance: installing a renewable energy sources; obtaining green business certification and redesigning existing products to reduce environmental impacts¹³.

Among the SBDCs that offer green economic development assistance, most provided these services prior to 2008, before the current federal policy emphasis and stimulus funding for energy efficiency and alternative energy. This is especially true for services related to resource efficiency for which less than 40% of SBDCs added services in the past two years. Most of the growth in green services among SBDCs over the past two years occurred in three areas: (1) implementing energy efficiency improvements; (2) analyzing or serving new energy efficient or

¹⁰ Based on US Census Bureau 2009 Population Estimates (<http://www.census.gov/popest/states/NST-ann-est.html>).

¹¹ SBDCs were divided into the four US census regions (Northeast, Midwest, South and West) excluding island states and territories (http://www.census.gov/geo/www/us_regdiv.pdf).

¹² **Add data on this point**

¹³ 'At least 50% of SBDC in the other 3 regions assisted with installing alternative energy systems compared to 13% of southern SBDCs. One-third to 56% of SBDCs in other regional provided assistance with green business certification compared to 7% of those in the south. For redesigning existing products, 20% of southern SBDC provided technical assistance while 40% to 44% did in the other three regions.

renewable energy markets. For SBDCs that recently expanded their green services markets, the share that did so in each of these three areas were 64%, 76% and 72%, respectively.

This expansion is noteworthy given limited business demand for these services reported by SBDCs. Among survey respondents, 76% indicated that less than 10% of their clients received one of the nine services in the past year. The other 24% of SBDCs reported slightly higher utilization—by 10% to 24% of their clients. Business demand also was viewed as the greatest barrier to implementing green development services by one-third of respondents.

Table 8: Funding for "Green" Projects or Programs

Funding Source	SBDC Networks Receiving Funds¹⁴	Total Funds Reported (\$)	Average Grant or Allocation Size (\$)
Federal grant or appropriation	13	1,849,000	184,900
State government grant or appropriation	10	778,000	111,143
Reallocation of existing funds	9	548,000	91,333
Fees/Income from product/service	5	85,000	21,250
Local government grant or appropriation	4	290,000	96,667

SBDCs had a similar reliance on federal and state grants to fund expansion into green services as other economic development organizations, but were less likely to reallocate existing funds.

Federal grants were the most common funding sources—used by 52% of the 25 SBDCs that added new services over the past two years. Unlike other surveyed EDOs, most SBDCs that

¹⁴ Includes networks that did not report specific funding amounts.

obtained federal funds used non-ARRA funding¹⁵ (11 of 13). State governments were the second most common source, used by 40% of the SBDCs that added new services. Nine or 36% reallocated existing funds to provide new services and only 4 used private sources, including foundation grants. Federal grants also provided the largest amount of new funds--\$184,000 on average followed by state grants at \$11,143.¹⁶ SBDCs that reallocated existing funds moved an average of \$91,000 into green business services. Despite their success in raising new funds, SBDCs viewed funding as the primary barrier to adding new green economic development services; 43% of respondents cited funding as their greatest barrier—above the share for any other barrier with business demand ranking second with 33% of SBDCs viewing it as their greatest barrier to implement new green economic development activities.

New staff and partnerships were added as part of SBDC's expansion into green services. Ten SBDCs, or 40%, added new staff to provided needed expertise. The specific expertise gained through new hires included: environmental engineering/science (3); sustainable practices (2); green buildings and construction (2); green technology/technology transfer (2); lean manufacturing (1), wood milling (1), green business experience (1) and wind energy (1). Even more SBDCs (59%) formed new partnerships to help deliver their new services. These partnerships involved a range of institutions and were not dominated by any single type of organization. The most common partner, for 45% of respondents, was an industry or business association. Government agencies were another frequent partner but the government partner cut

¹⁵ The federal sources cited by SBDC respondents were: Environmental Protection Agency, Economic Development Administration, Department of Labor, Small Business Administration, Department of Agriculture and Department of Energy

¹⁶ One SBDC received a foundation grant of \$50,000, but with only one foundation grant for all respondents—this did not indicate higher average levels of foundation funding.

across both the state and local level and multiple agency functions, not simply economic development.

Observations and Discussion

This preliminary research shows that many economic development organizations are expanding into green economic development but a large part of the field is not embracing this agenda. Moreover, most efforts identified by this research, particularly at the local level, are modest in scale and scope. Survey results suggest that half of the ED field is not expanding into green economic development and among SBDCs one quarter are not offering any services to support either component of green economic development. A minority of economic development organizations appear to be pursuing green economic development comprehensively by working to green existing businesses **and** grow new firms in emerging green industries and by providing multiple types of services. The narrow scope on green economic development activities partly reflects the limited focus of many organizations and the tendency for new green services to reflect their existing capacity and services. However, this tendency to adopt a narrow green agenda constrains the economic development field's ability to be an important intermediary to achieve a greener economy.

Economic development organizations need new expertise and capacities to take on a larger and more comprehensive role in advancing a greener economy. This can be addressed through partnerships with new organizations that can bring expertise in energy, green building and environmental engineering, but economic development practitioners also need to broaden their knowledge in these areas to intelligently design and manage these new activities. Just as

economic developers needed to become more conversant in business accounting and finance to become effective sources of business gap financing, they will need to be better informed about energy, ecology, and environmental systems to be effective intermediaries to help businesses become greener and to evaluate new market and industry development opportunities.

A more comprehensive approach to green economic development that includes new green industry and business development requires a more rigorous framework, analysis, and resources than assessing existing business needs and scanning for best practices, the most typical research reported by economic development practitioners. It requires a deeper and strategic understanding of the drivers and requirements for industry and business competitive success in emerging green markets and how a region's assets and competitive advantages align with these requirements. As Fitzgerald has reported, nurturing new green industries is quite challenging and even cities with strong local leadership, activist policies and major investments have experienced limited success¹⁷.

Economic development staff leadership and commitment to green economic development is another important issue to expand green economic development efforts. Individual staff members were critical drivers to create many of the green programs identified by this study. Even when political leadership or legal mandates drives green economic development initiatives, staff leadership will be vital to ensuring these efforts are effective and sustained.

Although funding was an important concern among practitioners, it was a main barrier to new green economic development activities among the surveyed organizations. The availability of federal and state funds and the modest scope on new initiatives allowed most organizations to

¹⁷ Austin, Texas, for example has actively worked to attract and develop photovoltaic manufacturing firms ...

move without raising large amounts of funding. Funding may be a more critical issue if organizations pursue larger scale and multifaceted green economic development initiatives, and with future reductions in federal and state budgets.

Business demand for services to green their operations and firms' interest in pursuing new markets emerged as the greatest challenge to field and to advancing the larger societal goals from a more resource efficient and sustainable economy. More research and attention is needed to better understand the reasons for weak business demand and how to more strongly align business interests with greener operations and the pursuit of green markets. One approach is a conventional marketing one, to increase outreach and information so that businesses are aware of new services and opportunities. A second option is to make green services integral to the core operations of economic development organizations, rather than a separate line of services. For example, a finance program could incorporate green business audits into its basic financial underwriting, workforce development agencies could integrate training around green practices and new technologies into their curriculum core job and occupational training curricula. This option will require more systemic change in the way economic development organizations operate—change that will need to be driven by considerable outside pressure and leadership from within the field.

Conclusions

This exploratory research indicates that close to half of economic development organizations are expanding into green economic development but on a fairly modest scale by extending their

existing services and applying standard economic development tools. A large scale or comprehensive green economic program appears to be exceptional within the field, at least among local government and non-profit groups that participated in this. If true for the entire field, then economic development organizations are not now positioned to be a major contributor to addressing climate change. Furthermore, part of the intermediary infrastructure to support the transition to greener local and regional economies, particularly among small firms, is underdeveloped. On the positive side, there is considerable leadership among practitioners to address environmental challenges with the impetus for establishing new green economic development programs coming from the economic development staff. This commitment among local practitioners provides one vehicle to expand the commitment to green economic development both with local communities and within the field. For this internal force for change within the field to flourish and generate a more comprehensive approach to fostering a green economy, reinforcing pressure to change will be needed from other sources including the political, civic and corporate leadership that set economic development priorities and stronger interest and demand within the local business community. Economic development organizations also need new knowledge, expertise and deeper program planning and design capacity to undertake effective green economic development initiatives. As has been the case with many SBDCs, economic development organizations will need to hire new staff and form new partnerships with institutions in a range across fields to gain these new capabilities.

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