Rockefeller Evaluation

EVALUATION

Evaluation of the Sustainable Employment in a Green US Economy (SEGUE)

INITIATIVE IN DEVELOPMENT

January 2013

Abt ASSOCIATES

Rockefeller Foundation

Innovation for the Next 100 Years

Rockefeller Foundation
Innovation for the Next 100 Years

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Rockefeller Evaluation

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Acronyms

ACESA	American Clean Energy and Security Act (2009)
ARRA	American Recovery and Reinvestment Act (2009)
BLS	Bureau of Labor Statistics (U.S.)
BRIM	Building Retrofit Industry and Market
CAW	Campaign for American Workers
CBO	Congressional Budget Office
CEA	Council of Economic Advisors
CEWO	Clean Energy Works Oregon
CGI	Clinton Global Initiative
CNT	Center for Neighborhood Technology
CO	Colorado
COWS	Center on Wisconsin Strategy
DB	Deutsche Bank
DC	District of Columbia
DOC	Department of Commerce (U.S.)
DOE	Department of Energy (U.S.)
DOL	Department of Labor (U.S.)
EE	Energy efficiency
EECBG	Energy Efficiency and Conservation Block Grant
EPA	Environmental Protection Agency
EPM	Environmental products manufacturers
ESA	Economic and Statistics Administration (of DOC)
EU	European Union
GAIA	Global Alliance for Incinerator Alternatives
GGS	Green Goods and Services Survey
GIS	Geographic Information Systems
GJ-GNY	Green Jobs – Green New York
GTP	Green Technologies and Practices Survey
HS	High school
HVAC	Heating, ventilation, and air conditioning
ISIS	Innovative Strategies for Increasing Self-Sufficiency
IT	Information technology
ITC	Investable Tax Credit for Renewable Energy
JCSEE	Joint Committee on Standards for Educational Evaluation
LAANE	Los Angeles Alliance for a New Economy
LIUNA	The Laborers' International Union of North America
LLC	Limited liability company
MA	Massachusetts
MIT	Massachusetts Institute of Technology
NA	Not applicable
NAICS	North American Industry Classification System
NJ	New Jersey

NRDC	Natural Resources Defense Council
NY	New York
NYC	New York City
NYCEEC	New York City Energy Efficiency Corporation
OECD	Organization for Economic Eo-operation and Development
OPRE	Office of Planning, Research and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services
OSHA	Occupational Safety and Health Administration
PACE	Property assessed clean energy
PERI	Political Economy Research Institute
PTC	Production tax credit
R&D	Research and development
RD&D	Research, development and demonstration
RF	Rockefeller Foundation
RI	Rhode Island
ROI	Return on investment
SEGUE	Sustainable Employment in a Green US Economy
SEPS	Survey of Environmental Products and Services
TA	Technical assistance
TOCO	Theory of Change Online
UNEP	United Nations Environment Programme
US	United States
WDP	Workers' Defense Project

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Preface

The Rockefeller Foundation seeks to help poor and vulnerable people benefit from more equitable economic growth and increased resilience in order that individuals, communities and systems can survive, adapt and grow in the face of changes, even catastrophic incidents. Working towards that goal through a series of time-bound global and regional Initiatives, the Foundation develops capacity, fosters networks and partnerships, influences policies and public discourse, nurtures innovation and promotes excellence, accountability, social responsibility and good governance.

This vision has played out in two themes relevant for this report. The first relates to program substance and strategy with regard to the US workforce and economic condition. In 2009, the Rockefeller Foundation Executive Team approved Sustainable Employment in a Green US Economy (SEGUE) as an Initiative in Development. The SEGUE Initiative has a total budget of approximately $15 million for its development phase, awarded over a 39-month period from October 2009 to December 2012. To date, approximately $11.5 million has been awarded in grants.

The Initiative's rationale, founded on observations of the twin challenges posed by unemployment and climate change, created the opportunity and imperative to invest in green jobs, both in the United States and around the world. Despite the lack of a forward-looking policy and public discourse on climate change in the US at the Initiative's start, there had been significant momentum and emphasis on green jobs in the private sector, at the level of local, state and federal government, and among unions, non-profits and community-based organizations. However, the demand for green jobs had not yet materialized at scale or in a way that made them accessible to low-income workers. The Initiative, therefore, focused on ways to build the sectors that were most likely to employ disadvantaged workers.

The second theme that has become a focus of the Foundation is the need to monitor and evaluate Initiatives at their various stages of evolution. In particular, the Foundation has looked at numerous strategies to integrate evaluation methods and practices into its operations holistically. In turn, evaluations have been structured so they can provide Foundation staff with material for improving the design of Initiatives, gather sufficient information to contribute to answering key learning questions, provide some level of accountability to the Foundation's leadership to inform investment decisions, and contribute as a public good to knowledge on approaches, methods and tools for evaluating initiatives as well as the specific substantive topics in question.

This Evaluation of the SEGUE Initiative in Development provides further support to both efforts. The Rockefeller Foundation has been proud to support this ongoing program work in SEGUE as well as to further demonstrate how and when evaluation can be integrated into the Foundation's learning and strategic decision-making.

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Finally, this study would not have been possible without the cooperation of those SEGUE grantees' staff and green economy leaders who took the time to answer surveys, discuss their work and mission in detail, and included the evaluation team in programmatic activities. Their willingness to share information about the nature of their activities – so that others might learn from their experiences – was invaluable.

Executive summary

On March 22, 2012, with its first-ever green job estimates, the U.S. Department of Labor Bureau of Labor Statistics (BLS) announced there were 3.1 million jobs in the green goods and services sector for the year 2010, or 2.4 percent of total US employment (BLS, 2012a). The administration's political detractors immediately questioned the credibility of the estimates along with the occupational definitions used to generate them. For green job advocates, the release conjured mixed feelings. On one hand, the estimate demonstrated that the green economy had a clear sector presence and pinpointed the geographic locations where it was occurring. On the other, the lower-than-anticipated numbers were symptomatic of an industry challenged by depressed economic and employment conditions, as well as unique market constraints. The green economy was originally conceived of as an opportunity to repudiate the conventional wisdom that economic growth and environmental protection were incompatible. Ultimately, it appeared significantly more modest in size and effect.

The Rockefeller Foundation's Sustainable Employment in a Green US Economy (SEGUE) initiative has been a central player in green job discussions since 2009, and even earlier through the Foundation's Campaign for American Workers. In its earliest developmental stages, the initiative sought "to maximize the 'green' growth areas of the economy … while benefiting low- and moderate-income workers" (Rockefeller Foundation, 2009b). SEGUE focused on creating jobs by supporting green economic activities. Initially, the focus was the building energy-retrofit market in the construction industry and, later, on water infrastructure and waste management. The demand for workers became recognized as the bottleneck that needed to be released, in order to realize the benefits of the green economy.

By supporting budding sectors in going to "scale and at a rapid pace," SEGUE strives to build self-sustaining industries that have potential to employ disadvantaged workers in "high-road" occupations, counter climate change trends and "respond to the current crisis in un- and underemployment in the United States" (Rockefeller Foundation, 2011e). High-road occupations are those that have some wage or benefits requirements that are higher than current levels or in comparison to other occupations. Since its inception, through 38 grants to 31 organizations, SEGUE has funded numerous analyses of relevant sectors in the green economy, supported green job growth and hiring demonstrations, and subsidized creative investment models and capacity-building assistance.[1]

To document and expand upon the learning and exploration that SEGUE has started, the Rockefeller Foundation provided a grant to the research firm, Abt Associates, Inc., in April 2012, to conduct a short-term, developmental evaluation of SEGUE. The evaluation focused on three areas: learning for the purposes of determining SEGUE's future direction, documenting SEGUE's grant and non-grant outputs for accountability needs, and providing public knowledge on green jobs and evaluations in general. This report provides the results from the evaluation.

[1] As of July 2012, 31 grantees were funded wholly or partially through SEGUE. Thirty of these grantees were reviewed as part of this evaluation.

Key findings

SEGUE'S PREMISE IS SOUND. Overall the evaluation found that many of the initiative's characteristics and its progress provide some level of support for the original premise of promoting both green job growth and job opportunities for low-skilled workers. The premise is also supported by much of the literature – particularly given the historical job access and quality of occupations in key sectors that compose the green economy such as construction and waste management.

IF MOVED INTO EXECUTION IN ITS CURRENT FORM, SEGUE IS UNLIKELY TO MEET THE ORIGINAL GOAL OF GENERATING A LARGE NUMBER OF HIGH-ROAD GREEN JOBS FOR DISADVANTAGED WORKERS IN FIVE TO EIGHT YEARS, EVEN IF ITS EFFORTS ARE LIMITED TO A SPECIFIC SECTOR OF THE GREEN ECONOMY. In spite of its strong premise, the timeframe, resources and expected scale of impacts that would frame its implementation in execution may not be achieved – if its visionary and complex goals are to be maintained. A number of factors limit the ability of this broad initiative to reach its potential. For instance, the investment models that could have national application (one industry-building strategy sponsored by SEGUE) are not likely to attract a volume of funds significant enough to yield job impacts in this relatively short time frame. In addition, to meet the initiative's immediate employment goals, SEGUE must largely work with the current supply of green jobs, which is projected to grow modestly at best.

AMONG THE GRANTEES, LOCAL INDUSTRY DEMONSTRATIONS, SUCH AS FULL-SERVICE BUILDING ENERGY RETROFIT OPERATIONS, ARE MORE LIKELY TO HAVE SHORTER-TERM IMPACTS ON JOB GROWTH THAN OTHER SEGUE ACTIVITIES. HOWEVER, THESE EFFORTS ARE LARGELY CONTINGENT ON STATE OR MUNICIPAL POLICY AND ECONOMIC CONDITIONS, AS WELL AS SECTOR-SPECIFIC CHARACTERISTICS. Though promising, these demonstrations are difficult to expand or bring to scale, except through a patchwork of efforts. The three sectors of the green economy that SEGUE has pursued – building energy retrofits, storm water infrastructure and solid waste recycling – are associated with much larger industries (construction, water management and waste management) which have long-standing institutions, organizations and practices that make transformation difficult. Enabling industries, such as capital finance, also have long-standing techniques and requirements that limit the possibility of immediate change. The industry-building endeavors of these on-the-ground demonstrations, which primarily include advocacy for local hiring agreements, operational supports and market analysis, would require continued long-term public or philanthropic funding in order to become self-sustaining.

SEGUE HAS EXPLORED ONLY A FEW OF MANY POSSIBLE INDUSTRY-BUILDING STRATEGIES. Some, such as supporting local policy advocacy, have been tested in multiple conditions and in many sectors. A few other industry-building strategies that have been part of the SEGUE portfolio, such as green entrepreneurial and small business development, need further time and research to determine whether further investments are warranted. Still others, such as funding of technological research, advocacy for green business tax policy or advocacy for environmental regulations (from national climate change to local building codes or real estate transaction requirements) were not part of SEGUE and have not been considered to date.

EVIDENCE FROM MULTIPLE SEGUE GRANTEES SUGGESTS INDUSTRY-BUILDING STRATEGIES MAY NOT NECESSARILY YIELD JOBS FOR THE INTENDED DISADVANTAGED WORKERS AND AT THE DESIRED LEVEL OF QUALITY UNLESS THESE TERMS ARE SPECIFIED. Even if industry-building activities were to prove successful at scale, they do not necessarily yield job access and job quality improvements. SEGUE is explicitly mindful of its decision to support industry building as the strategy for yielding high-road jobs to high-need workers. It has purposively selected sectors that have historically yielded these outcomes and are more likely to continue to do so, such as construction and waste workers. However, SEGUE grantees have noted significant obstacles to training and placing the target populations in jobs either because of a lack of hiring agreements or basic industry reticence. Many geographic areas where these industries currently operate continue to face extensive job access and job quality constraints and, given current labor organizing trends, will face these constraints in the future.

SEGUE'S ORIGINAL GOALS ARE VERY BROAD, AND THE NUMBER AND DIVERSITY OF ACTIVITIES THAT ARE REQUIRED TO MEET THEM ARE SIGNIFICANT, IF THE INITIATIVE IS EXPECTED TO MEET A QUANTITATIVE TARGET. THE RESOURCES AVAILABLE TO SEGUE, EVEN IN EXECUTION, ARE NOT LIKELY TO BE SUFFICIENT TO MEET THESE GOALS WITHIN THE DESIRED TIMEFRAME. There also may not be sufficient resources for industry-building efforts to produce self-sustaining enterprises in any one green sector without further refinement and demonstration. Select segments of the current theory of change and strategies (pathways) may be more likely to reach redefined goals within the Foundation's resource and time constraints.

Grantee findings

In addition to the above general learning findings, the evaluation team documented the SEGUE portfolio to date. In contrast to the initiative's modest potential impacts when viewed against national economic and employment needs, many individual grant activities have yielded clearly positive, though still finite, outcomes across many of the stated goals. Most of these were achieved through a robust knowledge of local challenges, industrial frameworks and employment needs. Other grantees have attempted to capitalize on that localized learning to scale efforts in other regions or cities. Many grantees across the spectrum of SEGUE activities report that it is still too early to assess the desired outputs. However, there are some clear opportunities to assess accountability across four groups of grantees – knowledge creators, national intermediaries, tool/service focused and service deliverers – and across the general initiative.

KNOWLEDGE CREATORS ACCOUNTED FOR OVER ONE-THIRD OF THE SEGUE GRANT FUNDS. As an initiative in development that had no search phase, SEGUE did not benefit from the learning products usually developed in the search phase. Thus, because that work was still needed, a significant number of SEGUE's grantees have focused exclusively on knowledge creation and analysis, and continue to do so. Some of these grantees have produced employment projections in specific sectors of varying quality (BlueGreen Alliance Foundation, Economic Policy Institute, Innovation Network for Communities and the Pacific Institute). Others have looked at the job access constraints for target populations (Institute for Women's Policy Research and National Council of La Raza) or job quality standards (National Employment Law Project, Inc.),

though all report they have no research findings or recommendations for SEGUE yet because of their later award date. A few have analyzed specific industrial or policy opportunities – such as the employment effects of the 2009 American Recovery and Reinvestment Act (ARRA) funds on job creation in the U.S. Department of Energy's Weatherization Program (for example, the grant given to MIT) or the quality of certification standards – for building retrofit training and hiring (the grant given to University of Wisconsin), both of which are sound analyses in progress or near completion. Finally, one recent grantee, M&R Strategic Services, Inc., examined the messaging associated with green jobs in the current social context but reports no findings to date. In general, many of these organizations have produced helpful research findings, though their advocacy status tempers their final analyses, and a few have added substantially to the broader literature on green jobs.

NATIONAL INTERMEDIARIES ATTEMPTED TO HARNESS TECHNICAL ASSISTANCE, PERFORM RESEARCH AND DOCUMENT BEST PRACTICES IN SUPPORT OF EXPANSION, REPLICATION AND EVENTUALLY SCALING. A second group of grantees working towards national impacts worked across activities and in multiple regions. Emerald Cities, Green for All, Institute for Sustainable Communities, Living Cities, the Global Alliance for Incinerator Alternatives and the Partnership for Working Families are included in this group, with the first three having primarily focused on the building energy-retrofit sector until recently and the final three working in waste management. These groups have produced a few local policy changes and robust reports. With a few exceptions, their technical assistance capacities have been somewhat hampered because their internal capacity and skills do not always match the local need for expertise. Their primary successes have been in leadership development, particularly identifying and fostering champions in community organizations and, to a lesser extent, in relevant industries; and in alliance-building, through extensive networks and communities-of-practice.

TOOLS- AND SERVICE-FOCUSED GRANTEES WORKED ON SINGLE ACTIVITIES OFTEN FOR A SPECIFIC GEOGRAPHIC AREA ON BEHALF OF SEGUE'S INDUSTRY-BUILDING. BY TESTING A VARIETY OF INDIVIDUAL INTERVENTIONS, SEGUE HAS SHOWN THAT THERE ARE KEY LEVERAGE POINTS. HOWEVER, THE SIGNIFICANT VARIATION IN ACTIVITIES UNDERTAKEN DOES NOT ALLOW FOR CROSS-CUTTING CONCLUSIONS. Three of these organizations – Los Angeles Alliance for a New Economy, People United for Sustainable Housing and the Center for Working Families (which is also included the service deliverers group) – have focused on local policy advocacy that would alter or create markets for SEGUE's desired economic activities and all have had success in reaching their desired local policy goals. Five others – Capital E, the Clean Economy Development Center, New York City Energy Efficiency Corporation (in coordination with other Foundation funds to the Natural Resources Defense Council), the Nature Conservancy and the State of Pennsylvania Department of Treasury – have intensively studied and are developing mechanisms for leveraging private capital to finance green economic activities beyond public funds, specifically those from the American Recovery and Reinvestment Act (ARRA). Though still under development, these efforts show some unique promise for long-term market transformation. In fact, they may well present the desired "revolution" in the green economy, though primarily for the finance industry and almost certainly not in the near present. Finally, there were two smaller administrative grants:

the Lehigh Carbon Community College provided contractor training in support of the State of Pennsylvania Department of Treasury's overall project and the Sustainable Jobs Development Corporation worked with national intermediary, Green for All, to develop an awards program for green job champions.

SERVICE DELIVERERS, THE FINAL GROUP OF GRANTEES, INCLUDES THE PROGRAMS THAT OPERATE ACROSS MULTIPLE INDUSTRY-BUILDING ACTIVITIES, INCLUDING LOCAL ENABLING POLICY ADVOCACY, MARKET AGGREGATION, SERVICE DELIVERY AND OPERATIONS, FINANCIAL SUPPORT AND CONSUMER MARKET ANALYSIS. IN SOME INSTANCES, THEY ALSO HAVE SUCCESSFULLY INTEGRATED JOB ACCESS AND JOB QUALITY. These demonstrations, which directly employ green workers, include Clean Energy Works Oregon, CNT Energy, Center for Working Families (included here because of the technical assistance it provides to state contractors whose funding is appropriated by the legislation they advocated), the DC Project "Groundswell", and the Workers' Defense Project. The first three in this list have demonstrated measurable employment outcomes and the first and last have successfully integrated job access and job quality requirements in their efforts. All of these grantees are limited geographically in scope, but also limited programmatically by local political, industrial and economic contexts. Clearly understanding these contexts and developing appropriate strategies has proven critical for the local evolution of existing economic sectors that can be classified as green. Strategies documented in this evaluation include labor-hiring agreements for major building developments, pooling consumer demand to attract local contractors, and maintaining robust analytical tools as a customer service, to name a few. Notably, none of these strategies are immediately replicable in other contexts.

In addition to helping segment outcomes for accountability purposes, these categories may be helpful to the Foundation as it considers future directions for SEGUE activities and investments in the interventions that are more likely to produce short-term results. Overall, SEGUE has had limited effects on national employment in both grantee and non-grantee activities, though this is not necessarily an expected or desired outcome of an initiative in development. Rather, as an initiative in development, SEGUE has explored its original premise, the feasibility of the goals should they be pursued and their likely impacts. The volume of learning – and understanding of what remains to be learned – appear to be SEGUE's greatest outputs.

Finally, several lessons about conducting evaluations at this early stage of an initiative can be drawn. Developmental evaluations are always complicated by the lack of conclusive evidence from which to make assessments and initiative alterations. SEGUE's evaluation was no different. Not only is the initiative's – and, for that matter, the green job movement's – learning just beginning to coalesce, the context in which the green economy functions is also in significant flux. In addition, as there is limited peer-reviewed, scholarly literature on the subject, the evaluation team has to rely on realistic projections, related theory and reasonable judgment. Having well-defined strategies, evidence bases and knowledge of potential grantee pools – that is, undergoing a search phase – is helpful not just for initiatives, but also for subsequent evaluations. Integrating evaluation procedures at the point of project ideation will also likely improve those same strategies.

Conclusions

Further learning about US employment interventions – and their evaluations – is needed beyond this single review. This is particularly true for the green economy. The role of contextual characteristics has not been fully explored in the literature or in specific economic interventions. Transformations of existing industries are also not well understood. As a fundamental tenet of the green economy, the application of this strategy to both existing industries and entirely new sectors requires exploration. In light of the lessons to be learned regarding the lingering effects of the recent recession on the unemployed and underemployed, it is also critical to understand the broader trends with regard to job access, including training and supportive service needs and other job entry barriers, and to job quality, including wage, benefit and safety trends in occupations typically held by low-skilled or minimally educated workers. Moreover, there have been few studies measuring the actual environmental benefits that assumedly result from green economic activities.

To its credit, SEGUE has made forays into all of these territories. As with the green job movement in which it was founded, the initiative is important for calling attention to the potential opportunity posed by the green economy as well as for the many sparks that have been struck from its demonstrations, the leaders it has identified, and the alliances that it completed.

In closing, *the evaluation recommends that SEGUE be further considered as an initiative in execution* provided that strategic directions and targets be revised to overcome the challenges noted in this report, and assuming that these directions and targets are still appropriate to the Rockefeller Foundation's overall approach to its issue areas.

The soundness of the premise and preliminary outputs from some activities show promise in providing positive outcomes on multiple social, economic and environmental fronts. Yet, additional refinement of the goals, strategies, and selected activities is needed. If the initiative moves into execution with reasonable goals, harnessing the most effective and promising of these sparks may eventually yield some of the promised green and job outcomes.

1

Evaluation Framework

The Rockefeller Foundation awarded Abt Associates, Inc., a seven-month grant on April 27, 2012, to embark on a developmental evaluation of the Foundation's Sustainable Employment in a Green US Economy (SEGUE) initiative. SEGUE is unique among the Foundation's initiatives, as its development stage did not have a preceding search stage.[2] The development stage of an initiative is, generally, a medium-term effort to learn more about specific questions (in this case, questions related to the green economy) and to test the potential of various interventions through staged demonstration projects, further research and conferences. The search stage, which usually precedes development in an initiative's lifecycle, is used to learn more about the problems associated with the subject, to propose early innovative solutions and develop a framework to measure their potential for impact in the short term.

By foregoing the search stage activities, SEGUE explored multiple rationales, evolved theories of change and conducted iterative research throughout its more than three years of activity. This sequence can complicate an evaluation of the initiative primarily because there is no established framework to guide activities or *a priori* criteria for assessing their progress. Evolving initiatives are inherently challenging to evaluate, but ultimately can provide important information to guide program or policy change. As the Foundation's Evaluation Office clearly notes, there are many purposes and methods for evaluation that provide the opportunity for external review, internal reflection and reconsideration of the work in progress that is SEGUE.

1.1 Purpose

As stated by the Foundation, the central overarching purpose for undertaking an evaluation of SEGUE at this stage is to provide effective support to the developmental process and contribute to the decision as to whether to take the initiative forward to the stage beyond development – the execution stage. The transition to execution, which involves preparing for a long-term investment with monitoring, is based on the premise that significant impacts are likely and feasible, based on the earlier explorations.

[2] As interpreted from notes taking during conversations with Foundation program and operations staff, the "search" phase is the preliminary or exploratory step in the development of a Foundation initiative. It is followed by the "development" phase in which piloting and testing occurs and, in turn, the "execution" phase in which the initiative's grant and non-grant activities are fully defined, operationalized and monitored.

Evaluations of initiatives in the development phase, such as SEGUE, require a much different approach than an evaluation of a more mature initiative that is intended to focus on measuring outcomes. Instead, evaluations of developing initiatives use a more collaborative approach and focus on the potential for the initiative to achieve various outcomes. The evaluations can also provide recommendations to adjust the direction of the initiative in order to maximize its potential for affecting change. Thus, to provide guidance on whether SEGUE should proceed into execution, this evaluation:

- synthesizes the background literature and thought leadership in the area of the green economy that has been developed throughout the initiative's timeframe – with additional guidance from subject-matter experts on unpublished findings
- reviews the inputs, activities and outputs from past and current SEGUE grantees to provide a qualitative assessment for the evaluation's accountability-related objectives
- documents previous strategies and rationales for the initiative while developing a theory of change framework, and proposes future strategies in collaboration with the initiative staff.

These activities were undertaken to meet the Foundation's three explicit purposes for the evaluation.

1. **LEARNING.** To provide additional learning structured around a few key questions that will lead to improvements in the initiative's design. This learning is meant to provide a framework for the decision to take SEGUE or any of its components beyond the development phase and into execution.
2. **ACCOUNTABILITY.** To measure and determine whether the initiative's individual grantees and the overall initiative portfolio have met a level of accountability that is appropriate to an initiative in development. Credible evidence of advances to date across multiple activities, including research and learning, demonstrations, enabling industry infrastructure, enabling policy reform and alliance-building in support of the Rockefeller Foundation's goals will inform future investment decisions.
3. **PUBLIC GOOD.** To contribute to the global public good of knowledge creation in the areas related to evaluation methods and strategies as well as the subject matter of the initiative itself – namely, the green economy.

In addition to the three purposes, the Foundation specifies ten evaluation objectives that provide additional guidance to the effort's direction. In Table 1 below, the team categorizes the ten evaluation objectives defined in the grant's terms of reference according to the above purposes (the ten evaluation objectives, presented in order, are displayed in Annex 1).

1.2 Methodology and data sources

Based on the Rockefeller Foundation's evaluation needs and the stage of SEGUE's development, the evaluation team initially proposed a formative evaluation methodology involving iterative development with the participant stakeholders. However, as the objectives and scope of the evaluation crystallized, the Abt team, in collaboration

TABLE 1. **SEGUE evaluation purposes and objectives map**

PURPOSE 1: LEARNING
OBJECTIVE 2 Assess the validity of the theory of change of the initiative and contribute to its further development.
OBJECTIVE 7 Help identify the most promising strategies for success, provide information on what may need to be changed and what further developments are required to take the initiative to scale.
PURPOSE 2: ACCOUNTABILITY
OBJECTIVE Assess the relevance and rationale to the mission, strategy and work of the Foundation; the green economy in the US; and the initiative outcomes; including an assessment of the comparative advantage and potential value added.
OBJECTIVE 3 Assess the potential of the initiative to achieve the intended outcomes: a. the quality and quantity of grantee outputs in relation to the desired outcomes, and the use of those outputs by the most critical stakeholders b. the appropriateness of selected grantees and partners in advancing the Foundation in the area c. the strengthening of capacities and knowledge on how best to influence the policy environment d. the achievements, challenges and success factors in the different contexts in which the initiative work in development has been demonstrated
OBJECTIVE 5 Contribute to the ongoing development of the initiative by undertaking evaluative analysis to provide evidence, critical reflection and feedback to help determine the potential of the SEGUE initiative to achieve positive outcomes.
OBJECTIVE 6 Assess the efficiency and effectiveness of the Foundation's leadership and management of the initiative, including the allocation of RF resources for testing and innovation, outputs delivered, thought leadership, and building partnerships to implement the initiative.
OBJECTIVE 9 Make recommendations on further decisions and actions for the initiative, including: a. whether or not the initiative should move to the execution phase and what the exit and/or transition strategies could be b. the most effective strategies for the initiative going forward c. whether there are alternative approaches to achieve the desired impacts d. any improvements to the management and leadership of the initiative, including grantee and partner engagement, relationship management, thought leadership, team management and resource allocation.
PURPOSE 3: PUBLIC GOOD
OBJECTIVE 4 To assess the influence achieved in particular the extent to which critical stakeholders have been motivated and stimulated to change attitudes, behavior, practices and systems in support of the objectives of the work; and in addition, to identify any positive or negative unintended effects emerging from the intervention.
OBJECTIVE 8 Reflect on the implications of the information gained through the evaluation of SEGUE, for the Foundation and its operating model, its partners and grantees and for the wider field.
OBJECTIVE 10 Highlight the knowledge contributions in the field of employment in the green economy and philanthropy.

with the Rockefeller Evaluation Office, shifted to a utilization-focused developmental evaluation framework.

The differences between these two evaluation types can be seen in the level of engagement with participants and the degree to which insights from that engagement guide improvement or decision-making in the initiative itself. A developmental evaluation

is more engaged, more adaptive and produces findings that have more relevance to decision-makers than a formative evaluation, which is more descriptive of past and recent activity.

Use of the developmental methodology allows the team to review previous aspects of an intervention (such as grant outputs and non-grant activities) and, simultaneously, provides guidance for its ongoing development in the dynamic context in which the intervention's goals are evolving (Patton, 2006).[3] This allows the evaluation to reflect upon the complex economic and political context in which SEGUE is undertaken. The initiative is in the midst of systems change with regard to its possible transition to execution phase while the Foundation reconsiders its core issue areas. Its context is further complicated by the fact that many of the grants awarded by SEGUE are still open and in progress.

Several data collection methods for this type of evaluation were employed throughout the work, including the following.

SEGUE STAFF INTERVIEWS. The research team conducted individual and group interviews with SEGUE staff to increase its understanding of the iterative and collaborative nature of this developmental evaluation. Further, the majority of questions regarding the initiative's past, present and future could only be documented through discussions with a variety of Foundation staff, grantees and external experts. Abt developed guides (Annex A) and conducted interviews with the Foundation's SEGUE staff and other Foundation staff-designated stakeholders to provide insight into the initiative's implementation. The findings from these interviews are described in Sections 3.1 and 3.2 of this report.

GRANTEE SURVEY. Abt conducted a survey of all grantees to collect information on their primary activities and goals (Annex B) in May 2012. The findings of the survey are summarized in Section 3.3. The majority of grantees responded to the survey immediately in May. Additional email and phone reminders were provided in June and July, leading to a nearly complete response rate.[4]

GRANTEE INTERVIEWS. A purposive sample of grantees was selected (Annex C) for phone and in-person interviews in July based on grant characteristics. Discussion guides were prepared for these interviews (Annex D). The interviews were conducted to gain further understanding of each grantee's individual implementation and outcomes for the evaluation's accountability purpose, as well as the goals and challenges that the grantees face compared to SEGUE's implicit theory of change for its green employment activities.

DOCUMENT REVIEWS. In June 2012, Abt reviewed descriptions and assessments of the individual SEGUE grantee's implementations as well as the overall initiative's direction through the record of internal and public documents that narrate the outputs,

[3] A full description of the selection of this evaluation methodology and its implications for data sources and analysis was provided in Abt Associates' "Refined Proposal and Evaluation Work Plan" submitted to the Rockefeller Foundation on May 29, 2012.

[4] Only two of the grantee did not respond after the reminders.

outcomes, impacts (when available), and other performance results or evaluation-related data. Findings from the above interviews and grantee-specific documents are also provided in Section 3.3.

LITERATURE REVIEW. To reflect SEGUE's goal of gauging awareness and advocacy trends, Abt performed an extensive scholarly and non-academic literature review in numerous content areas to provide an overall picture of the green economy as well as to address specific SEGUE learning questions and assumptions. This is presented in Chapter 2.

THEORY OF CHANGE WORKSHOPS. Abt conducted a workshop in June 2012, to ensure a clear understanding of the SEGUE team's implicit assumptions and strategy with regard to the various pathways that the team had employed to date. After reflecting the findings from the literature and grantee interviews onto the preliminary theory of change, Abt conducted an additional workshop in August 2012 to confirm the pathways and analyze decision-making criteria that might be used to select a future theory of change.

These methods, the respective data sources on which they were employed and their relevance to the evaluation's purposes are summarized in Table 2.

TABLE 2. **SEGUE evaluation data collection methods map**

PURPOSE	DATA SOURCE	ANALYTICAL PURPOSE	COLLECTION METHOD(S)
Learning	SEGUE staff	Refining theory-of-change assumptions and learning questions and reviewing answers.	Theory-of-change feedback Learning question interviews Learning answers confirmations
	SEGUE grantees	Reviewing learning outputs.	Grantee learning interviews
	Relevant literature	Learning from previous and current evidence base.	Primary literature review Additional literature review
	Subject experts	Expert feedback on learning answers.	Learning interviews
Accountability	SEGUE staff	Scoping of grantee data sources and strategic assumptions.	Rapid feedback interviews Grantee survey feedback
	SEGUE grantees	Reviewing grantee implementation and outputs	Grantee preliminary survey In-depth grantee interviews
	RF leadership	Scoping of assumptions regarding initiative outputs	Rapid feedback interviews
		Defining foundation goals	Theory-of-change goals focus group
	SEGUE reporting	Grantee implementations	Document review
Public good	RF evaluation staff	Scope discussions	Scoping interviews
	SEGUE staff	Defining evaluation context	Administrative interviews
	Methods literature	Confirming evaluation quality	Quality advisor reflections

We summarize the process of collecting and analyzing this information into three primary activities:

1. uncovering the most recent scholarly literature with regard to the green economy and other fields related to SEGUE's activities and approaches, and reflecting this knowledge onto the initiative's assumptions and strategies
2. fully documenting the evolution of the initiative within the Foundation and the broader green economy advocacy movement, which includes reviewing the challenges and achievements presented by the SEGUE grantees through their public outputs and self-descriptions
3. formalizing the initiative's current approach – that is, its theory of change – to identify gaps and opportunities for future Foundation decisions.

1.3 Limitations to the evaluation

Abt has applied the needed level of rigor for this developmental evaluation using accepted professional standards.[5] Despite this, the evaluation team confronted a few key challenges that are typical of developmental evaluations such as SEGUE but should be noted. First, individual learning questions were rapidly changing, even during the short timeframe in which the evaluation was conducted. Even in the last month of formal data collection, the national policy context for supporting green economy investments (one of many factors influencing SEGUE) was being debated in the U.S. Congress (*The Federal Green Jobs Agenda*, 2012). This complicated the assessment of assumptions for future SEGUE activities. Developmental evaluations encourage internal alterations to learning questions, but rapid and constant external changes make any analysis somewhat tenuous. The evaluation team has noted when this condition affected comprehensive or definitive analysis.

The second set of challenges involved conflicting accounts of the goals of SEGUE itself. To a significant degree, staff and grantees had different understandings of the core objectives and expected outcomes of the overall initiative. While grantees were not necessarily expected to understand or reflect on the whole initiative as a condition of their grant, many experienced difficulty in trying to reflect on questions related to SEGUE's context, goals and strategies, which prohibited an exploration of their insights. However, some consensus was possible, as grantees' descriptions were never in clear disagreement with SEGUE's strategies or goals. Thus, the responses in this analysis are qualified, to the extent that an individual grantee could not speak to issues in the broader green economy or to SEGUE's goals.

Finally, because there is a limited body of research available on the field of green economic growth and green employment, there are gaps and omissions on some questions that cannot be satisfactorily addressed within the scope and timeframe of this effort. Further, in some instances where there is strong evidence to support preliminary findings, they do not directly support the approach of the specific efforts or strategies in SEGUE. Developmental evaluation methods, in this case, mitigate this risk by ensuring a constant collaboration in which findings are clear and regularly

5 For example, Yarbrough *et al.* (2011) is the evaluation publication developed by the Joint Committee on Standards for Educational Evaluation (JCSEE) and supported by the American Evaluation Association.

compared to assumptions. Since all stakeholders anticipate changes to the initiative's future direction, these findings are presented in this document to help promote ownership and commitment to the findings.

1.4 Organization of the report

Findings from the literature review and subsequent iterations are presented in Chapter 2, categorized by content area. Descriptions of SEGUE's history, strategies, non-grant activities and grants (including detailed analysis of grant outputs and progress) are noted in Chapter 3. Chapter 4 reviews SEGUE's implicit theory of change to date and reflects the literature and grantee findings onto it, prior to a summary of findings that concludes with potentially feasible pathways of change for consideration in internal deliberations for moving SEGUE into execution.

Green for All

2

The Green Economy: Background

Many of the technologies, practices and workforce preparations that improve environmental conditions or reduce the impact of economic activities on the natural environment have existed for decades. In his 2008 seminal monograph, *The Green-Collar Economy: How One Solution Can Fix Our Two Biggest Problems*, Van Jones clarified how "the main piece of technology in the green economy is a caulk gun" (Jones, 2008: p. 9).

Despite its apparent ordinariness and evolution, there has been much attention paid to the green economy's inspiring and revolutionary appeal. A significant, though very recent, collective body of scholarly, policy, advocacy and popular literature on green jobs has emerged in the last five years – indeed, during the same timeframe as SEGUE's explorations. Much of this literature has been more predictive of future green job growth than descriptive of past or contemporary green employment. One reason for this speculation has been strategic: to determine the most efficient approach to growing green jobs and gain political and social alliances, advocates have had to estimate their composition and magnitude. In addition, the concept that the green economy would produce green jobs is itself a recent phenomenon.

It was not until the environmental movement embraced market-based strategies for reducing environmental impacts in the 1990s that a "green economy" movement was born. These efforts crystallized later that same decade and into the next century, as reports from the Intergovernmental Panel on Climate Change (IPCC) sounded alarms regarding the environmental consequences of business as usual. With additional allies in labor unions and activists for low-income and other disenfranchised communities, the environmental movement further shaped the possible contours of the green economy. From analyses of the competitive advantage held by the first green construction firms to green venture capitalists, every segment of the traditional economic framework was scrutinized.

Employment was a natural component of this proposed economic transition. The potential for pragmatically linking the parallel movements focused on mitigating and adapting to climate and other environmental change on the one hand, and providing increased employment opportunities to poor and vulnerable populations on the other,

was first envisioned in the US in the mid-2000s and was as economically compelling as it was socially appealing. Much of the literature from this time envisions the green jobs movement as a transformative economic strategy. In workforce development and employment circles, the burgeoning green economy is seen as an opportunity for earnings growth, particularly for disadvantaged workers in the construction and manufacturing sectors.

TABLE 3. **SEGUE learning question and literature review category map**

LEARNING QUESTIONS*	LITERATURE REVIEW CATEGORY
What is a green job?	**Green job definitions**
How many green jobs are there, or will there be? • Is the energy efficiency retrofit industry poised to grow substantially over the coming decade? • What additional sectors of the green economy – in mitigation, adaptation and resilience – are most likely to grow most over the coming decade? Which projections assumed climate change and energy regulation? Which assumed no regulatory or legislative change? What are the core data, variables and assumptions in projection models? Which of these have proven otherwise?	**Green employment projections**
Who has access to these jobs? • If so [retrofit growth], how can a significant share of these jobs be made accessible to low-income and vulnerable workers? • Which of these [sectors] will provide the greatest number of employment opportunities for poor and vulnerable workers? Who can be placed in a green job? What are the skill requirements for different green jobs? Do these requirements map proportionally or higher than proportionally onto poor and vulnerable populations?	**Green job access**
What is the quality of green jobs? • How can these industry sectors provide quality jobs (jobs that provide family-sustaining wages and opportunities for career advancement, particularly as they scale up over time? • What are the mechanisms that help ensure job quality aspects are incorporated routinely? How is quality defined in green jobs, i.e. salaries, benefits, working conditions, organizing?	**Green job quality**
What contextual factors shape the number, kinds and access to green jobs? • If good examples of green sector job-creation exist in one area, what factors lead to uptake in other locations or similar sectors, i.e. how is green economy policy-making and investment influenced best? • What is likely to be the right balance between place-based versus national work? • What level of interest do key stakeholders, including government and the private sector, have in supporting green jobs? • To what extent does the current legal, policy and finance environment support or inhibit the development of green jobs? • What types of policies, legal reforms and incentives would governments and other stakeholders need to develop to support such an employment market? • What are the local and national enabling and inhibiting factors affecting the development of a US green jobs sector? • What regulatory, legislative, or programmatic conditions must be met to grow green job opportunities for the Foundation's target populations? To grow the green economy overall? Which private conditions?	**Green Job Policy and Economic Context**
Do green jobs produce green benefits?	**Environmental benefits**
• What strategies can lead to a growth in green jobs? • What attributes of the green economy can attract larger-scale finance and why? • What value does the "industry-building" framework have for informing the strategy and work of a future initiative in execution? What is not captured by this framework? • Which particular strategies within the SEGUE initiative are likely to be more effective and/or critical than others for promoting a self-sustaining green economy? • What other factors are likely to affect the success of the SEGUE initiative?	**Industrial investment strategies**

* **NOTE:** bulleted questions are explicitly posed by the Rockefeller Foundation SEGUE and Evaluation Office staff while non-bulleted ones are framing questions presented by Abt to help categorize the literature.

Yet, as the following review demonstrates, the green economy still struggles practically and politically. Consequently, our collective understanding of how the green economy functions, how green employment transpires and takes on job qualities available to certain populations in the workforce, and what current and potential outcomes may arise from these efforts is somewhat limited. The following discussion reviews the breadth of literature in the key areas of inquiry – SEGUE's evolving "learning questions" – to set a framework for a review of the initiative. The review includes peer-reviewed and non-peer reviewed sources, which are mapped in Table 3.

2.1 The definition of green jobs

One of the few areas of consensus among researchers and advocates in defining a green job is that there was generally no consensus until very recently. Even this current consensus – essentially de facto around the U.S. Bureau of Labor Statistics (BLS) definitions developed in two reports (BLS, 2010; Federal Register, 2010b) – still has a few though minor points of contention that mirror earlier debates. At the start of the current green jobs movement, there was a general agreement that a green job was one that either preserves or improves the environment, but there was wide variation in how those definitions mapped out onto specific productive sectors and, in turn, on measurable occupations.

With regard to industries, the green economic movement has been generally composed of multiple and somewhat separately defined economic sectors. Establishing parameters around the green economy has therefore involved including sectors, such as infrastructure and building construction and waste management, which have existed for decades in their current legal, organizational and occupational forms. Still others, such as renewable energy source production, are tied to existing industries (in this case, energy production and transmission). They have generated occupations with qualitatively new occupational skills and technological practices and have contributed to establishment of new firms and employment centers. Institutions offering definitions have included states, foundations, advocates and researchers, international agencies and the federal government.

The definition is even more complex for specific occupations. The green economy would certainly include workers who are in an entirely new green sector and directly involved with producing an environmentally beneficial product or implementing an environmentally beneficial practice. For example, a building energy auditor, a solar photovoltaic assembly plant worker, or an organic farmer would reasonably be classified as green jobs by most definitions.

Less clear, though, are those workers in existing sectors who might employ a few environmentally beneficial practices in some portions of the work, such as a carpenter who works on multiple homes, including energy-efficient ones, or specialists who spend a portion of their time creating or monitoring environmentally beneficial practices in their existing sectors, such as a waste stream quality control advisor on a manufacturing plant. Workers who are not directly involved in the productive activities of a company in an environmentally beneficial sector also fall in a murky zone, such as, for example, an accountant at a wind turbine installation contracting firm.

Further, workers in the upstream supply chain of an environmentally beneficial sector could foreseeably be included in the definition, if their own activity contributes to the environmental improvements. In this case, workers for the supplier of a non-toxic fertilizer to the organic farmer would be included due to the qualities of the fertilizer, but the truckers who transport the fertilizer to the farm would not. Similarly, workers who produce the steel used by wind turbine manufacturers would not be included. In all cases, the parsing of occupations is important not just for determining the size of the green economy – it is also important to identify the sectors more likely to employ workers in green jobs as well as the opportunities to access those jobs and the typical qualities of those jobs in terms of salary, benefits, training and career ladders.

2.1.1 Early definitions

Early definitions of green jobs were put forth by various organizations, usually for the purposes of analysis in focused studies and reports. Many of these early definitions were created by international agencies, US advocacy organizations or individual state agencies that were charged with regional green economic development (Pollin and Wicks-Lim, 2008; Bowen, 2012; Environmental Defense Fund, 2008; Bezdek, 2009). As a consequence, they either used very broad language to define green jobs or narrowly defined green jobs to sectors of interest (Gülen, 2011).

Some argued that the definition of green jobs should include an additional component – measurement of the quality of the job. For example, the United Nations Environmental Programme (UNEP) specifies that, in addition to protecting or restoring the environment, green jobs also "offer adequate wages, safe working conditions, job security, reasonable career prospects, and worker rights" (Worldwatch Institute, 2008: p. 4). Similarly, Green for All defines a green job as one that " preserves and enhances environmental conditions through the product that is manufactured, the service that is provided, or through a cleaner and healthier production or service-delivery process, while providing family-supporting wages, career-track opportunities and entry into the middle class" (Green For All, 2010: p. 5). While these qualifiers are helpful for other tracking purposes, the attempts to measure the full range of occupations that could feasibly be described as green continued.

2.1.2 Early US federal definitions

In some of its work, the Environmental Protection Agency (EPA) has relied on a definition of the clean economy used in a survey it co-sponsored with the U.S. Department of Commerce. The one-time Survey of Environmental Products and Services (SEPS), conducted by the U.S. Census Bureau in 1995, was designed to evaluate the size of the environmental industry. The SEPS generally defined the US environmental industry sector as the manufacture, construction and provision of products or services that are used, or have the potential to be used, for controlling, calculating, fixing or avoiding damage to the environment which, in turn, mainly included air, soil and water qualities. The SEPS also included the provision of any services involving storing, removing or transferring contaminants, such as waste and noise, but included only goods and services provided by the private sector and excluded all public sector activities. Specifically, the products and services covered in the survey included: air, water, wastewater and solid waste treatment and management; energy conservation; noise pollution control; and environmental monitoring, assessment, analysis adminis-

tration, management and engineering activities. In contrast to some other recent definitions, SEPS did not include generation of alternative energy or public mass transit.

In 2010, the Economic and Statistics Administration (ESA) of the U.S. Department of Commerce (U.S. DOC) published a paper on the "green economy." Within the paper, green products and services are defined based on President Obama's goals for energy conservation and the environment. For this paper, products and services were defined as "green" if they worked towards conserving energy and other natural resources, or reducing pollution (ESA, 2010).

The ESA provided two definitions of green products and services: i) a narrow definition including only those products and services that are widely agreed upon as being green and ii) a broad definition also including products and services for which there is less consensus on their "greenness". For example, the broad definition includes nuclear energy electricity generation and biofuels but the narrow definition does not. Because of data limitations, the ESA defined products as green based on their usage, as opposed to the production or disposal process for the product. An exception was allowed when there was a product code with labeling, such as "recycled", which indicated it had to be produced by a greener process or with greener inputs. The paper employed the 2007 Economic Census to assess the green economy.

2.1.3 The Brookings Institution and the U.S. Bureau of Labor Statistics definitions

The most recent and generally accepted definitions for green sectors and their subsequent jobs have come from a joint effort by the Brookings Institution and Battelle Technology Partnership Practice, as well as the BLS. Working from the definitions from the Organization for Cooperation and Development (OECD), EPA and BLS, Brookings and Battelle created this definition for the clean economy: "The clean economy is economic activity – measured in terms of establishments and the jobs associated with them – that produces goods and services with an environmental benefit or adds value to such products using skills or technologies that are uniquely applied to those products" (Brookings, 2011: p.13). A key feature of the Brookings definition is that it does not attempt to include "clean process" jobs. Rather than focus on establishments' efforts to meet internal environmental goals, Brookings counts only "clean production" jobs, or those that provide products or services with an environmental benefit. In terms of the supply chain, Brookings' relatively narrow definition includes only establishments that provide parts or services unique to the clean economy.

In contrast, the BLS took all available definitions under consideration in creating its own definition which it first presented for public comment in March 2010 and finalized in September of the same year (Federal Register, 2010a; Federal Register, 2010b). Based on these and public comments, BLS determined that green jobs are either outputs or processes.

- Outputs. Jobs in businesses that produce goods or provide services that benefit the environment or conserve natural resources.
- Processes. Jobs in which workers' duties involve making their establishment's production processes more environmentally friendly or use fewer natural resources.

The outputs definition was used in the BLS' first annual survey of green jobs, the Green Goods and Services Survey (GGS survey), released in March 2012 (BLS, 2012a). The processes definition was used in the Green Technologies and Practices Survey (GTP), released in June (BLS, 2012b). Some examples of industries included in BLS's GGS include the following.

- Energy from renewable sources. Electricity, heat or fuel generated from renewable sources. These energy sources include wind, biomass, geothermal heat, sunlight, ocean tides, hydropower, landfill gas and municipal solid waste.

- Energy efficiency. Products and services that improve energy efficiency, including energy-efficient equipment, appliances, buildings and vehicles, as well as products and services that improve the energy efficiency of buildings and the efficiency of energy storage and distribution, such as smart grid technologies.

- Pollution reduction and removal, greenhouse gas reduction and recycling including those that:
  - reduce or eliminate the creation or release of pollutants or toxic compounds, or remove pollutants or hazardous waste from the environment
  - reduce greenhouse gas emissions through methods other than renewable energy generation and energy efficiency, such as electricity generated from nuclear sources
  - reduce or eliminate the creation of waste materials; collect, reuse, remanufacture, recycle or compost waste materials or wastewater.

- Natural resources conservation. Products and services that conserve natural resources, such as products and services related to organic agriculture and sustainable forestry, land management, soil, water or wildlife conservation, and storm-water management.

- Environmental compliance, education and training, and public awareness, such as services that:
  - enforce environmental regulations
  - provide education and training related to green technologies and practices
  - increase public awareness of environmental issues.

2.1.4 Ongoing exploration

As suggested in the differing definitions above, a key area of disagreement is in how broadly to define green jobs. For example, BLS considered including the distribution of organic produce in its green jobs definition, but ultimately decided that the distribution of goods of any kind does not reclaim or protect the environment. Some definitions, including UNEP's, do not include jobs in the nuclear energy industry while others, such as BLS's, do, because nuclear production does not produce greenhouse gases and is considered a renewable energy production source. Some observers also note that there is a temptation to use an overly broad definition of green jobs, because it may result in optimistic projections in support of public investments in renewable energy and energy efficiency (Gülen, 2011; Morriss *et al.*, 2009).

One point that becomes clear in the review of definitions of green jobs is the distinction between those in mature industries and those in new industries. Those in well-known, mature industries, such as construction or agriculture, require new technologies or markets to be considered environmentally beneficial, while those that are entirely new industries have primary markets, organizational structures and occupational definitions that have emerged in the recent past or are still emerging (Goldman *et al.*, 2010; Martinson *et al.*, 2010). Indeed, many green jobs are traditional jobs that have been modified, such as residential remodelers who weatherize homes, many workers in the waste management industry and workers related to mass transit systems. This distinction is critical in both measuring the numbers of current – and potential – jobs that can be "greened", and identifying distinct strategies for each sector.

Though many sectors may need to apply new techniques and practices to improve their environmental records, those new practices do not necessarily constitute new or emerging industries. In his landmark book, Michael Porter compared emerging and mature industries based on key characteristics, such as buyer types and behaviors, manufacturing and distribution methods, technological research, overall strategy, competitive environments, risk and profits (Porter, 1980; Porter and Rivkin, 2000).

Porter noted that companies in emerging industries face a number of unique challenges, including uncertainty about the technology that will ultimately be adopted, uncertainty about the strategic approach companies should take, high initial costs for production, first-time buyers who must be informed about the new product or service, and a short time horizon for decision making because of pressure to develop customers or produce products. Importantly for industries in the green economy, he also notes that subsidies are not uncommon for emerging industries and that these are a mixed blessing. In particular, "subsidies often add a great deal of instability to an industry, which is made dependent on political decisions that can be quickly reversed or modified." Porter's taxonomy is corroborated by other economists of organizational and technological innovation as well as for specific sectors in the green economy (Utterback, 1996; Mowery and Rosenberg, 1989; Rosenberg, 1982; Tatum, 1986; Rosefielde and Mills, 1979).

Although the entire green economy is often thought of as an emerging industry, by Porter's definition, only some parts of the green economy would be considered as such. Importantly, others would not, meaning a one-size-fits-all strategy for promoting job growth in the green economy may not be appropriate. Further, many industries are newly classified as green, rather than having become more green in practice, such as farming crops for ethanol or biodiesel, hydroelectric power generation, organic farming, nuclear electric power generation and public mass transit operations. Some green sectors involve relatively minor modifications of existing industries such as electrical, plumbing and heating, ventilation and air conditioning (HVAC) contractors who install efficient systems. Others might be considered emerging, including many industries within the renewable energy production sector, carbon storage and sequestration and fuel cell manufacturing. As discussed below, these sectors also typically have had large percentage changes in employment in short timeframes – another characteristic of emerging industries.

2.2 Green employment projections

Given the range of methods used for defining a green job, it is not surprising that counts of current total green jobs and projections for the future vary widely. To understand variations in employment projections, this report first reviews estimates of the number of green jobs currently existing in the economy and then compares different projection methods. Defining both the growth in green jobs as well as their job quality and expected skill requirements became the subject of much scholarly and policy debate by the end of the 2000s. At the time of SEGUE's start in 2009, job growth in the various industries that make up the green economy was estimated to be substantial. For example, according to one account, jobs grew by 9 percent from 1998 to 2007 compared with 4 percent in other industries (Pew Charitable Trusts, 2009). Substantial green job growth was anticipated, even without the environmental legislation that was expected to further investment and industry expansion in the sector.[6]

However, more recent studies have presented more modest employment rates.[7] As noted, the BLS underwent two years of research to define and count green jobs, releasing its findings in March 2012 (BLS, 2012a). Table 3 summarizes seven studies conducted between 2006 and 2012 – their estimates of the number green jobs range from 751,000 as of 2006 to 4.0 million as of 2007. The widely used estimates from Brookings (2011) and BLS (2012) fall roughly in the middle of the range at 2.7 million and 3.1 million, respectively.

It should be noted that comparisons by industry or sector are difficult because of the diversity of classifications used. Most estimates of jobs have an identifiable renewable energy estimate, ranging from the Pew Charitable Trusts' estimate of about 89,000 jobs (2009) to Bezdek's (2009) estimate of 200,000 jobs. Estimates of the numbers jobs related to energy efficiency are also often reported, but exhibit far greater variance, ranging from 73,000 (Pew Charitable Trusts, 2009) to 3.7 million (Bezdek, 2009). In the Bezdek estimate, the largest component of energy-efficiency jobs is in the recycling, reuse and remanufacturing category, which alone accounts for 1.4 million jobs of the total 3.7 million jobs its estimates. However, other estimates do not classify recycling as energy efficiency. For example, Brookings (2011) places recycling in the same category with greenhouse gas reduction and environmental management.

While a few studies estimate employment projections for the clean economy, it is more common for studies to analyze green job growth rates based on a proposed or hypothetical policy scenario. Table 4 shows green jobs projections assuming no significant policy changes. The most straightforward, bottom-up or analytical approach, presented by the Mississippi Department of Employment Security (2011), projects a 13 percent growth rate in green jobs between 2010 and 2020, though the definition includes such sectors as petroleum manufacturing, which may not be included in other studies. Projections by the U.S. Conference of Mayors (2008) and Bezdek

[6] The highest employment estimates and projections for green jobs at the time of SEGUE's start was 16.3 million by 2030 according to Bezdek (2009). Other sources included: Bivens, Irons and Pollack, (2009a); Bivens, Irons and Pollack (2009b); Booz Allen Hamilton, (2009); Pollin *et al.*, (2008); United States Conference of Mayors, (2008); Environmental Defense Fund, (2008); Apollo Alliance & Green for All, (2008).

[7] Another relevant study presenting similar findings is Economic Policy Institute & Blue-Green Alliance, (2011). See Bell (2012), for a qualitative review of other green employment sources.

(2009) both use an input-output model and project 6 and 7 percent annual growth in green jobs, respectively.

TABLE 4. **Summary of green job employment studies**

STUDY	TOTAL GREEN JOBS (DATE)	INDUSTRIAL SECTORS	JOBS PER SECTOR
Gittell and Magnusson, 2007	3.6 million (2007)	Energy efficiency Smart technology Green transportation Renewable energy Environmental services	1.1 million 1.1 million 0.3 million 0.1 million 0.9 million
United States Conference of Mayors, 2008	751,000 (2006)	Renewable power generation Agriculture and forestry Construction and systems installation Manufacturing Equipment dealers and wholesalers Engineering, legal, research and consulting Government administration	127,000 58,000 9,000 61,000 6,000 418,000 72,000
Pew Charitable Trusts, 2009	770,000 (2007)	Conservation and pollution mitigation Environmentally-friendly production Energy efficiency Clean energy Training	501,000 53,900 73,150 89,320 52,360
ESA, 2010	1.8 million (2007)	Agriculture Construction Manufacturing Services	0.0 million 0.2 million 0.2 million 1.4 million
Bezdek, 2009	4.0 million (2007)	Renewable energy Energy efficiency	0.2 million 3.7 million
Brookings, 2011	2.7 million (2010)	Agriculture and resources conservation Education and compliance Energy and resource efficiency Greenhouse gas reduction, environmental management, recycling Renewable energy	0.5 million 0.1 million 0.8 million 1.1 million 0.1 million
BLS, 2012a	3.1 million (2010)	Manufacturing Construction Professional Administration and waste management Transportation and warehousing Other Public sector	0.5 million 0.4 million 0.3 million 0.3 million 0.2 million 0.5 million 0.8 million

TABLE 5. **Summary of green job employment projection studies (no policy change)**

STUDY	FORECAST	ASSUMPTIONS

Mississippi Department of Employment Security, 2011	• Overall growth, 2010–20: 17,300 to 57,900 jobs
	• Annual average growth rate: 13%
	• Areas of fastest growth, 2010–20:
	  • Other manufacturing: 68.2%
	  • Petroleum manufacturing: 44.1%
		Baseline from the Mississippi Green Jobs Survey. Projections adjust baseline for overall growth projections in economy and impact of ARRA funding and new private-sector projects.

CEA, 2009	• Overall growth rate, 2000-16: 52%	NA
United States Conference of Mayors, 2008	• Overall growth, 2008–38: 750,000 to 4.2M jobs • Annual average growth rate: 6%	Renewable energy demand increases from 3 to 40 percent of total net generation by 2038; Reduction in energy consumption of buildings by 35 percent by 2038; Renewable transportation fuels reaches 30 percent of total fuel production by 2038.
Bezdek, 2009	• Overall growth, 2008–30:4.0M to 16.2M jobs • Annual average growth rate: 7%	Assumes no major renewable energy and energy-efficiency initiatives; based on rates of growth experienced over the last two decades. Includes direct and indirect jobs.

These projections for future growth in the green economy are greater than past estimates. According to Brookings (2011), the number of clean economy jobs grew 3.4 percent annually between 2003 and 2010, and this growth was slower than that of the economy overall. This contrasts with the earlier green jobs growth rate projections of 6 and 7 percent. Clean energy jobs have grown faster than the overall economy in some places and over some periods of time (Pew Charitable Trusts, 2009), but past experience may be a weak foundation for extrapolation because base employment numbers are small.

Most studies assume some kind of policy change. Table 5 shows an analysis of different policy scenarios, ranging from modest changes, such as a new building and energy rating disclosure policy, to much more ambitious changes that include adopting the American Clean Energy and Security Act. Some of these studies show large job impacts from policy changes. It is important to note that several do not reflect declines in employment that may occur in other sectors as a result of the change. Only one study reports net job growth while reflecting declines in employment in other sectors (Burr *et al.*, 2012). Further, none of the studies considers whether the policies under study will lead to changes in macro-economic conditions that affect overall levels of employment.

Regardless of the models used for various projections, most recent studies regarding actual green jobs as well as estimated ones from various environmental policies take into account the net effects on the economy across multiple sectors. This includes the effects on non-green markets that might stand to lose in sectors that may have green components that would benefit (such as fossil-fuel energy production versus renewable).[8]

[8] Four types of models have been used in analysis of EPA regulations and green jobs initiatives: econometric models, input-output (I-O) models, computable general equilibrium models; and hybrid models In addition, a fifth model type, "bottom-up" or analytical models, has been used by other studies. These are currently being employed for numerous proposed national environmental regulations.

TABLE 6. **Summary of green job employment projection studies (with policy change)**

STUDY	FORECAST	ASSUMPTIONS
Burr, *et al.*, 2012	• 2015: 9,200 net new jobs • 2020: 11,600 net new jobs	Impact of new building and energy rating disclosure policy.
Garret-Peltier, 2011	• 7,000 jobs from federal spending 42,000 jobs from private spending (no specified timeframe)	Impact of provisions from US DOE Better Buildings Initiative (tax incentives, loan guarantees, grant program and ARRA funding)
Heintz *et al.*, 2011	• 637,922 (direct jobs) between 2010 and 2015	Assumes air pollution rules proposed for the electric power sector by the EPA
Wicks-Lim, 2009	• 1.7 million net per year (direct, indirect and induced jobs) over a decade	Assumes ARRA and ACESA leverage $150 billion per year in public and private

2.3 Green job access

A number of advocates and observers argue that the expansion of the green economy presents an opportunity to create employment prospects for people who struggle to secure stable employment, including low-income, at-risk youth, ex-offenders, recently unemployed, long-term unemployed and veterans. Advocates assert that green jobs offer these target populations the opportunity to obtain well-paying jobs with career prospects, which offer long-term stability for the employees as well as their families. To succeed, these populations are likely to require training, preparation and job placement services, as well as apprenticeships and job opportunities to move into (Martinson *et al.*, 2010; Green for All, 2009; Affordable Comfort Institute, 2008).

Many populations have been the focus of both advocacy and exploratory research with regard to green job access (Liu and Keleher, 2009). In particular, many preliminary analyses have looked at the potential for women to enter into sectors of the green economy that are mature and have traditionally excluded them, such as construction (U.S. Department of Labor Women's Bureau, 2009; GreenWays Initiative, 2012). Connecting ex-offenders with green jobs has also been a focus, since this population has been particularly challenging to serve – many people with criminal backgrounds struggle to secure employment, a factor that contributes to high recidivism rates (Green for All, 2011). Other advocates are exploring the potential for – and challenges to – green job access for other groups, such as Latinos, immigrants and veterans, but have yet to release more detailed analyses of these sectors.

Of equal interest is whether green jobs are a good fit for a target population in terms of skills match. Most green jobs require at least a middle-skill level or some post-high school education but less than a four-year college degree, which may be several steps away from the current skill level of some disadvantaged populations (Grobe *et al.*, 2011).[9] Consequently, advocates see a need to design and implement training and job

[9] This skills-mapping is corroborated in the Brooking projections (2011), though Grobe *et al.* (2011) defined low-skill as having a high school diploma or less where many members of the target population may be focused on below high-school.

placement programs to prepare workers for employment in these careers. At the same time, many recognize that training programs should respond to market conditions (White, 2010; White and Walsh, 2008).

The literature identifies several approaches to providing green job education and training opportunities to target populations. Rosner (2006) suggests that apprenticeship programs and work-centered training programs are two of the most effective ways to assist low-income people of color in securing green jobs. Apollo Alliance and Urban Habitat (2007) recommends training in the hard and soft skills necessary for success in the workplace with connections to green career pathways, allowing students to pursue green careers directly from high school, adult basic education programs and community colleges.[10]

Industry and labor groups are viewed as key allies in the training and job access world. Many of the primary green job advocacy groups note that industry groups can assist in providing knowledge about what skills and traits are necessary to be hired into their field, as well as what demand currently exists. Labor partners, such as unions, can use the collective bargaining process to establish relationships and hiring processes with employers. By partnering with unions, green job training programs can potentially gain access to information about workers' training needs and skills, as well as access possible employment opportunities for program graduates. Unions also sponsor apprenticeships in technical and construction fields, which can be a good fit for green job categories. Historically, many industry and labor organizations associated with more mature green sectors have had a mixed history when it has come to providing access points for disadvantaged populations.

In some locations, workforce intermediaries are playing a key role in helping to establish pathways to green jobs for vulnerable populations. Workforce intermediaries are public-private partnerships between regional economic development stakeholders, including businesses, unions, technical and community colleges, job training programs, community-based organizations, and local and state workforce officials. Workforce intermediaries can aid in the development of green career pathways in communities, and also secure commitments for employment opportunities, although resources are needed to fund their role in the process.

Some advocates have examined access to green jobs for low-skilled individuals. These include community workforce or hiring agreements that require contractors to use local labor on large constructions jobs, in an effort to encourage participation in apprenticeship programs or trade certification programs (Figueroa *et al.*, 2011). Similarly, some jurisdictions require that companies receiving incentives – such as local government subsidies and tax breaks – offer living wages and benefits to all of their employees. Receipt of public subsidies is also sometimes tied to wage standards, such as the regional median wage or to health insurance requirements, or it can be linked with state-approved apprenticeship programs or wage programs. These efforts endorse preparing unemployed or underemployed populations for green jobs, but they also point to the need for promoting job quality improvements in green jobs or ensuring that jobs will not exacerbate economic hardship.

[10] For a broader discussion of the literature, see Fein (2012).

2.4 Green job quality

The quality of green jobs varies, depending on the sectors in which the job is located, that sector's job quality history and the local conditions that determine that history. Job quality can be defined by the safety level or precautions associated with the actual work performed, the physical and mental intensity of the work, wages and, also, non-wage benefits such as health insurance, career advancement opportunities and training. Unfortunately, the literature provides limited insight into the specific characteristics of jobs created by the green economy such as pay levels, benefits offered, and worker health and safety protections.

In general, green jobs are expected to be higher quality than those in the economy as a whole because they are disproportionately in sectors with high rates of unionization (Bivens *et al.*, 2009b; Brookings, 2011).[11] However, there remain some low-skill jobs that are likely to be no higher quality than other low-skill work unless policy interventions are made or the quality of all jobs is raised. Some researchers speculate that jobs in the green economy have, on average, lower productivity than those in other sectors because they are more labor-intensive and less capital-intensive. This industrial organizational typically translates into lower pay (Pollin *et al.*, 2008).[12]

As a result of this lower productivity and typically corresponding lower pay, some researchers express concern that low-skill green jobs will be of low quality unless specific policy measures are taken (Mattera *et al.*, 2009). For example, Green for All (2010) expresses concern that a shift toward a green economy could exploit low-skill workers, noting that "without intervention, the transition to a green economy could reinforce and amplify disparities, limit the economic opportunities of low-income, minority and politically marginalized groups …" (p. 4). These include improving the environment for union organizing among low-skill workers and setting higher minimum wage requirements (Apollo Alliance, 2010; Pollin *et al.*, 2009). Similarly, Wicks-Lim (2009) puts forth specific policies to improve the environment for organizing in general.

Our review uncovered only one peer-reviewed article that projects the specific characteristics of green jobs: Becker and Shadbegian (2008). This study used the SEPS (described earlier), which asked businesses to report on employment and revenues associated with the manufacture of various environmental products and services, along with data from the U.S. Census Bureau Annual Survey of Manufacturers (ASM) and several Censuses of Manufacturers. Conducting multivariate analysis of job quality between the two types of manufacturers, the study found that environmental

[11] Bivens, *et al.*, (2009b) estimates that 55 percent of green jobs will be low-credential; 27 percent will be mid-credential; and 18 percent will require a bachelor's degree or higher. However, they note that the jobs created are more likely to be covered by a union than those in the economy generally (16 percent versus 12 percent) and therefore may be higher quality than otherwise suggested by the credential required. They are also more likely to be occupied by men (75 percent) than women (25 percent), primarily because of their concentration in the construction industry. Brookings (2011) finds that, overall, median wages in the green economy are 13 percent higher than those in the economy as a whole, are disproportionately in manufacturing (26 percent of jobs compared with 9 percent in the economy as a whole) and installation and construction (1.5 times more prevalent), but disproportionately in highly-trained professions such as science, engineering and architecture.

[12] Pollin *et al.*, (2008) estimates that average pay for green jobs is about 20 percent lower than in the non-renewable energy sector, but argues that new green jobs are still preferable because they help the economy reach fuller employment.

products manufacturers (EPMs) offered higher levels of benefits to their workers than non-EPMs but slightly lower compensation, making total compensation roughly the same. The findings of this study suggest that, to the extent that green jobs are higher quality than other jobs, it is because they are concentrated in industries with higher-quality jobs than in the economy overall – it is not because establishments in the green economy place a higher value on their workers.

Other reports on job quality in the green economy reinforce this view, often pointing out that green jobs are expected to be in industries such as manufacturing and construction that offer higher pay than in other industries for comparable skills.[13] In all cases, the trend of job quality remaining high in existing green sectors is dependent on both the demand for workers and the ability of the workforce to effectively maintain its quality requirements. In contrast, job quality standards have yet to be fully measured or standardized in many new green sectors, such as renewable energy production where there is significant use of temporary installation labor.

2.5 Environmental benefits

Few studies have measured the actual environmental benefits from green jobs. Policy changes, regulation and public funding conceptually result in both green jobs and, in turn, the environmental benefits from those jobs. Policy analyses, therefore, often include projections of both economic and environmental impacts, but not an analysis of actual environmental impact from specific employment activities. Some recent evaluations have attempted to measure environmental outcomes, particularly for ARRA-related funding and other energy-related programs (Oak Ridge National Laboratory, 2011; Tonn, 2011). For example, these evaluations survey employment changes along with reductions in energy consumption. At this time, only a few of these studies have been completed and are available publically. It should be noted that findings from a SEGUE-funded randomized controlled trial of weatherization efforts are expected to contribute significantly to this body of knowledge.

2.6 Green job policy and economic context

The literature suggests that the private sector plays by far the largest role in the green economy, but a number of public sector actions are necessary to improve green job opportunities. As one green job analysis notes in reference to several key green economy sectors, "Energy markets have always been profoundly shaped by policy choices" (Hendricks and Campbell, 2010). In fact, a variety of policy, legal and finance environments –through a complex layering of global, national, state and local scales – act as supports and barriers to the green economy (Hallegatte *et al.*, 2012).

[13] Pollin, *et al.*, (2009) argue that most (60 percent) low-skill jobs will have good opportunities for advancement to a livable wage of $15 per hour. Brookings (2011) found that the green economy pays well for workers with a high school diploma or less: almost half of all jobs in the clean economy are held by low-credential workers, but pay higher wages than typical low-skill jobs. Specifically, 26.5 percent of all middle-wage jobs in the green economy are held by workers with a high school diploma or less. The study also found that 28.1 percent of all green economy occupations are "strong-wage" (above the national median) and low-skill compared to 13.3 percent nationally and that 32.5 percent of green economy jobs are "weak-wage" (below the national median) and low-skill compared to 41.4 percent nationally.

2.6.1 Policy contexts

Despite the lack of federal climate change and renewable energy standard legislation in the past several years, several federal incentives for the green economy have been in place. These primarily include programs that are features of ARRA, including the Advanced Energy Manufacturing Tax Credit, Clean Energy Renewable Bonds, Section 1705 DOE Loan Guarantee, Section 1603 Treasury Grant, and the Production Tax Credit (PTC) for Renewable Energy. Other non-ARRA incentives include elements of the 2005 Energy Policy Act, such as the Energy Efficient Appliance Manufacturing Tax Credit, the Energy Efficient New Homes Tax Credit for Builders and the Investable Tax Credit for Renewable Energy (ITC). Even more broadly, most if not all historical environmental legislation has had economic and employment effects, and compliance with them (for regulations) or taking advantage (for incentives) have been key drivers in generating employment at the local level.

Many states also provide important support for renewable energy and energy efficiency, through clean energy standards or efficiency targets, also called Renewable Portfolio Standards (Brookings, 2011; Hendricks and Campbell, 2010). These include policies that establish markets for tradable clean energy credits, unbundled utility structures that encourage least costs, decoupled utility rate structures, penalties for utilities' non-compliance with energy efficiency standards, property-assessed financing tools and their regulatory structures, e.g. Property Assessed Clean Energy (PACE) bonds, and service assessment delivery structures that serve a similar function to property-assessed financing structures. At the local level, building codes, mandatory real estate transaction disclosing, revolving loan funds and other regulatory and enabling policy also have significant job impacts. However, at other levels of government, there has been uneven adoption of green policies, such as those that encourage demand for renewable energy and that incentivize energy efficiency. Further, the dynamic nature of the local policy context has prohibited the accounting of most of these impacts.[14]

Although the state and federal policy environment creates some green economy opportunities, they also can inhibit their development. These barriers include an uncertain policy environment at the federal level, lack of access to financing, a misalignment of incentives and the lack of a trained workforce. For example, the federal tax incentives that are scheduled to expire in the near future prohibit current investments that would yield employment in critical green sectors (Brookings, 2011; National Commission on Energy Policy, 2010). This lack of predictability creates risk for companies making decisions about whether to expand solar or wind energy production. Further, unstable and diminishing tax credits can limit access to financing. As a consequence, green job analysts have provided numerous recommendations for national policy interventions considered critical for catalyzing the green economy and creating the conditions for green job growth.[15]

Industry stakeholders have also presented what they foresee as ideal policy contexts for advances in green jobs development. For investors in the more emergent green

[14] An exception includes the expected evaluation of New York State's "Green Jobs/Green New York" program.

[15] Brookings (2011) and Hendricks (2010) make clear recommendations in the areas of: catalyzing demand for renewable energy; ensuring adequate financing; facilitating renewable energy production; supporting innovation; and improving green jobs training efforts.

sectors, such as the renewable energy production industries, policies such as customer tax credits, renewable energy standards, demonstration grants, and research and development (R&D) funding are preferable to production tax credits, renewable energy standards and direct government venture capital funding and programs (Bürer and Wüstenhagen, 2009). In the building energy efficiency sector, both national and local policies could be utilized to establish energy efficient codes for new buildings, disclosure requirements for existing buildings, requirements of the public building inventory and seed funding for financing models – all policies focused on transforming the industrial context for these specific sectors (DB Climate Change Advisors and Rockefeller Foundation, 2012). Not surprisingly, the level of private investment increases in regions or cities where these policies occur more densely (Held *et al.*, 2006; Hofman and Huisman, 2012).

2.6.2 Industrial and economic contexts

Market inefficiencies can also create barriers to faster growth in the green economy. For example, the high up-front costs of energy-efficiency retrofits, their sometimes-lengthy payback periods and the lack of available financing can be a barrier to homeowners and other property owners investing in energy-efficient systems. While there are property-assessed financing structures designed to address this problem, they are not available in all states or in ways that are permitted by other regulatory bodies, such as the Federal Housing Finance Authority. Other market-based barriers to broader investment in energy efficiency include information failures – consumers often do not see the true costs of energy use when they buy a building or purchase new systems or appliances.

Split incentives, which refers to the fact that those making the decision about whether to invest in energy-efficient systems or appliances, e.g. landlords and tenants or builders and purchasers, often are not the ones paying the energy bill. This can lead to a focus on up-front costs rather than lifecycle costs of a system or appliance and to underinvestment in greater efficiency. In addition, current real estate valuation practices do not always fully reflect the value of energy efficiency, which can prevent access to financing for these improvements.

Many aspects of the current economic context are just as pertinent as the ongoing challenges that green sectors face, and perhaps even more so. Specifically, reports of workers who complete green jobs training programs and are unable to find work are not uncommon (Fletcher, 2010; Gruen, 2010). The lingering effects of the 2008 recession on employment rates in all sectors are particularly troubling for overall green job growth as well as for job access and job quality considerations. With no new green growth, there are no green jobs of any desired quality or for any target population.

Some argue that policy interventions that increase the price of labor, such as minimum wage laws, will create unemployment, thus hurting the people the intervention is designed to help. In the long run, firms may respond to the change in labor cost by substituting capital for labor or by substituting cheaper labor, such as lower-paid workers in other countries. Under this model, attempts to improve job quality without near full employment result in higher unemployment.

However, research does not always find that minimum wage increases lead to higher unemployment. Card (1992), for example, examined the effects of an increase in the Federal minimum wage in 1990 after a decade of stagnation. He focused on teenagers, who make up a large share of low-wage workers, and found that the law increased teenage wage rates but not unemployment levels. With Krueger (Card and Krueger, 1995), he further suggests that the evidence that minimum wage changes do not affect employment levels (or may even have a positive effect) is at least as compelling as the evidence that it does. These and other similar findings suggest that the relationship between wages and unemployment is weak. There are a variety of theories for the weak relationship between job quality or wages and employment levels, including wage "stickiness" – that is, the notion that wages are more resistant to change than would be expected in market economies.

Green jobs are sometimes touted as a promising source of employment for traditionally low-wage workers specifically because of the characteristics of many of these jobs. For example, many, such as waste management, construction, retrofits and energy audits, cannot be outsourced. Plus they are labor intensive and it is difficult to substitute capital for labor. All of these characteristics could serve to weaken the relationship between job quality and employment levels. Ultimately, the relationship between employment growth in a sector and improvements in job access and job quality for workers in that sector may depend on the sector's specific characteristics and organization.

Some of the same contextual obstacles to development of the green economy create obstacles to establishing green jobs training programs. Because many of the sectors in the green economy are in flux, with uncertain demand and employment growth, the demand for training is also unstable (Cowan and Evelyn, 2007). A key recommendation in the training literature is that green jobs training efforts match local need (White, 2008; Martinson *et al.*, 2010). This mismatch between trained workers and employers' needs results from efforts that are not sufficiently data driven, based on specific regional needs or informed by partnerships with employers. Modest modifications in training and re-training may be more efficient methods for incorporating green techniques in many existing green sectors rather than creating entirely new programs (Cleary and Kopick, 2009).

2.7 Industrial investment strategies

Our research review found that investors have chosen numerous methods to support industrial change and growth in a particular sector and there are numerous activities within the recipient organizations to which those investments are applied. For example, technological R&D funds, market analyses, entrepreneurial development and training, equipment, operational startup costs, strategic tools or planning, funding of regulatory advocacy or legislative lobbying, leveraging of other capital with equity funds are just a few of the techniques that have been used by both private and philanthropic investors.

In green sectors, most of the available literature focuses on venture capital investments in renewable energy firms primarily because of the financial interest in their potential

growth as emerging sectors. Renewable venture capital is a qualitatively different channel for accessing capital than other finance options. However, it provides some insight into the broader investment community's expectations for green industries' returns on investment.[16] In exchange for a stake in the enterprise, these investors provide a flow of capital to companies that often cannot get financing through other avenues because they are not yet economically viable, i.e. they are in the precarious "valley of death" – that is, the developmental phase of an innovation in which massive investment is needed. Venture investors also often provide business expertise that start-up companies need. In recent decades, they have also played critical roles in technological transformation, with its accompanying higher risks (Moore and Wüstenhagen, 2004; Randjelovic *et al.*, 2003).

Potentially reflecting how other investors may perceive other green sectors, the main source of financing for green venture capital funds is high net worth individual investors motivated, at least in part, by their recognition of the environmental and social benefits of their investments. This leaves a gap in financing that is only partly filled by other sources of funds. In energy-efficiency retrofits, institutional investors such as pension funds and banks may be more likely to focus on financial vehicles such as energy service contracts and service agreements because of their reduced comparative risk as well as their potential ability to be pooled to be more efficient, and the reduced complexity from other market constraints, such as pre-existing mortgages and liens. To date, however, there have been few examples of private investments in these vehicles, and funding has come generally from public and semi-public sources, such as utility energy-efficiency program requirements, and from philanthropic sources. A small but significant volume of recent literature has explored the viability of different finance vehicles, particularly in the building energy retrofit market that include many of the experiments funded with ARRA seed capital (Kats *et al.*, 2012). Financing models that would attract significant investments would need to overcome numerous operational obstacles as well as comparative disadvantages from investments in other industries that do not require the same heavy-lifting.

2.8 Summary and learning

The literature has provided an opportunity to categorize primary themes related to SEGUE's goals, while also answering key questions that SEGUE's activities have posed. These two objectives are presented below.

2.8.1 Summary of topic reviews

Embarking on any evaluation or research effort requires solid grounding in the fundamental areas of inquiry. Yet, limited research has been conducted on the nascent green workforce and economy in key fields of economics, environment and low-income worker opportunities. This review is based on existing green economy projections and analyses as well as the Foundation's learning objectives and classified into the six relevant categories listed below. Because much of the more engaging work

[16] As noted in DB Climate Change Advisors and Rockefeller Foundation (2012): "The market [for institutional capital] appears to be following a development pathway similar to other categories (e.g. infrastructure or venture capital) where opportunistic one-off investments are followed by initial instances of opportunistic partnerships and structures" (p 43).

has been produced by non-peer reviewed sources, our review includes scholarly literature, credible media and advocacy pieces in order to provide a robust background and context for the beginning of the SEGUE evaluation work.

Green jobs definition

There is general agreement that a green job is one that either preserves or improves the environment, but more specific definitions – offered by the BLS, EPA, foundations, international agencies and others – vary widely. Some areas of disagreement include whether the definition should include only jobs directly related to renewable energy production or energy efficiency, or whether it should include the production of necessary inputs and the distribution of related goods. In addition, some products or services are not universally accepted as being green, such as nuclear power and biofuels. Some advocates suggest jobs should not be defined as green unless the job meets quality standards.

Despite possible misgivings, the BLS (2010; 2012a; 2012b) definition is becoming more commonly used since the release of a survey that applied those definitions to occupational accounts. This definition includes two parts: jobs related to green outputs and jobs related to green processes. BLS' role as the key arbiter of employment definitions and statistics means that its classification will continue to gain traction.

Green employment projections

Estimates of the current number of green jobs in the economy vary from roughly 750,000 to 3.6 million depending on the definition used. BLS estimates put the number of jobs in firms that produced green goods and services (encompassing only green outputs, not green processes) in 2010 at 3.1 million. Other counts of green jobs often rely on North American Industry Classification System (NAICS) codes, although these exclude several important sectors of the economy including government, agriculture, rail transportation and educational institutions. In addition, they only include products and services with their own codes, thus excluding products such as alternative fuel vehicles and energy efficient appliances.

There is widespread agreement that most green jobs are not truly new but are existing jobs that are refocused on more energy efficient or environmentally friendly practices, services or products. These include jobs for residential remodelers, many workers in the waste management industry and public transit system workers. Some truly new jobs include solar power operations; carbon capture and sequestration engineers, technicians and maintenance workers; waste composters; and whole home performance analysts and energy auditors.

The most optimistic projections call for 6 to 7 percent annual green jobs growth for the next 20 or more years, but these projections suffer from flaws. For example, they fail to account for jobs that might be lost in other sectors and make optimistic assumptions about clean energy adoption rates. Projections of green job growth based on analysis of specific policy scenarios are also often flawed because they fail to account for macro-economic impacts of policies. The most credible of these are from peer-reviewed journals. They consider the impacts of restrictions on carbon emissions, finding that carbon emissions restrictions could have negative impacts on employ-

ment, but that these impacts can be offset with appropriate labor market policies. We did not find studies in the academic literature measuring the impacts of other policies, such as incentives for investment in energy efficiency or funding of weatherization, though current research projects are underway.

Green job access

While some green jobs do not require specific training or credentials, our review found that the majority of green jobs require a high school diploma plus some post-secondary education training. This level of skill may require additional training for disadvantaged workers. Research on training for low-skilled individuals, has found that strong supports, such as career and personal guidance and assistance and supportive services, are important for the success of hard-to-employ populations. Some suggest that training programs partner with American Job Centers, employers and labor unions to understand the needs of employers and access employment opportunities for program graduates. It is important to note that many low-credential green jobs are in the construction trade, which has traditionally offered few opportunities for women, who head the majority of poor households. Workforce intermediaries and job training programs may need to make extra efforts to connect women with these jobs.

Green job quality

Many studies found that median wages in the green economy are 13 percent higher than those in the economy as a whole. In part, this is because green jobs are concentrated in industries with high rates of unionization such as construction and manufacturing. They are also disproportionately in highly trained professions such as science, engineering and architecture. However, some green jobs are not likely to be any higher quality than other low-skill work without policy interventions such as improving the environment for union organizing among low-skill workers and setting higher minimum-wage requirements.

Policy and economic contexts

A number of policies and programs are currently in place to provide support to the green economy, including ARRA provisions such as the Advanced Energy Manufacturing Tax Credit and the Production Tax Credit for Renewable Energy. State policies such as Renewable Portfolio Standards are also encouraging renewable energy production. However, an unstable federal policy environment stands as a barrier to faster development of the green economy. For example, many of the provisions of ARRA are set to expire in the near future, and Congress has yet to enact a climate policy. This uncertainty exacerbates a lack of financing for clean energy projects. A number of reforms have been recommended that would better support the development of the green economy, such as catalyzing demand for renewable energy and energy efficiency, ensuring adequate financing for clean economy projects, supporting innovation and improving green jobs training efforts by, for example, keeping them regionally focused and demand driven.

When efforts are not sufficiently data-driven, based on specific regional needs and informed by partnerships with employers, a mismatch can result between the needs of trained workers and those of employers. Geography is important in the green economy, in that different types of industries are clustered in different locations across the country.

Additional access to financing will also help drive innovation in the sectors themselves as well as the capital markets that invest in them. Some advocates suggest reforming the DOE's loan guarantee program, which is intended to drive innovation by supplementing private investment in research and demonstration, while others suggest replacing it with an organization less subject to political influence such as an Energy Technology Corporation. In addition, advocates argue for more funding for federal and state research, development and demonstration (RD&D) budgets and expansion of existing innovation centers.

Industry building, transformation and investment

There is limited information on the behaviors, strategies and lessons from green economy investors because of the emergent nature of some of the green sectors and the institutional practices of the mature ones. Generally, however, the strategies for investing in emerging sectors are more efficient, yield more return on a given investment volume and require different supportive activities than moving mature industries to alter practices. The exceptions for mature industries include setting new regulations, providing public financial incentives for an extended timeframe or experiencing sufficient customer demand.

A variety of investment strategies, many of which have been the subject of public investments recently, can be applied to expand the capacity of firms in any industry. These include, for example, technological R&D funds, market analyses, entrepreneurial development and training, equipment, operational startup costs, strategic tools or planning, funding of regulatory advocacy or legislative lobbying, and leveraging of other capital with equity funds. Ultimately, a stable policy and public funding stream will likely ensure that private investments will become routine.

2.8.2 Learning questions

In addition to presenting a series of critical themes for scholarly and practical exploration, SEGUE posed specific questions to be addressed by the evaluation team. These can be answered through the knowledge gained from the Primary Literature Review as well as the insights from grantee outcomes described in Chapter 3. Responses are provided in the original order of questions.

What is the potential of the SEGUE initiative to contribute toward the creation of a significant number of good jobs?

The literature suggests that, within the current economic and policy context and based on green job accounts, the likelihood of a significant number of good jobs being created in the near future is small. Most of the activities supported by the initiative to date – such as capacity building, networking, leaders' incubation, sector analysis and financial model pilots – will not have measurable outcomes for some 3–10 years, and their effects on employment may take even longer to realize. The grantees that currently produce jobs will continue to do so in an execution phase, though likely at the same modest pace. Other industry-building SEGUE grantees that are not currently producing jobs, such as the finance facility pilots, can foreseeably produce employment outcomes, though not within the immediate future or at a scale that may be desired given their long-term focus.

An important corollary to this question centers on the quality and accessibility of the jobs that can be produced in both the short and long terms. Of the SEGUE activities that are currently producing jobs, only a few can provide evidence that the jobs produced are high-road and are explicitly available to disadvantaged workers, including either low-income residents of targeted neighborhoods or currently underpaid workers. These gains have primarily come from local advocacy with city and state governments and labor monitoring protocols – all of which have had strong results despite current employment rates and the financial conditions of most local governments. Defining the target populations according to income, geography, labor skill classification or demographic characteristic, and defining job quality goals according to wages, benefits, career ladders and union organizing, are both essential prerequisites to any decision to move the initiative into execution.

SEGUE has also been concerned with selecting the sectors of the green economy most likely to yield the highest number of jobs for the target populations at the highest job quality. It has particular interest in the difference between "new" and "existing" job sectors. As noted in the review of green employment projections, sectors that are emerging and generate new jobs are doing so at high rates (though modest absolute values), but these jobs are predominately in high-skill occupations. However, the BLS Occupational Outlook Handbook predicts many low-skill occupations in existing green sectors will grow in the next ten years. This includes both those with long-standing high job quality standards, such as many construction jobs, and those without, such as waste collectors and sorters. Different strategies for sustaining and expanding job quality may be needed depending on how the sectors or the job quality goals are defined. Job access needs and entry points (including training, apprenticeship and community benefit agreements) would need to be considered systematically.

What is the potential of the SEGUE initiative to contribute to climate change resilience and mitigation, and how could the initiative evaluate those impacts?

The literature provides little insight for this question since most employment projections stem from a change in environmental policy that ties environmental outcomes to specific economic outcomes. Further, different economic activities can yield environmental benefits such as renewable energy production for climate change mitigation, but also environmental costs through reductions in land conservation where the production is located. In SEGUE's pilots, the outputs of buildings retrofitted to conserve or use energy more efficiently have had a positive, though negligible, impact on global climate change mitigation, although the attribution of that impact to SEGUE cannot specifically be attributed to the efforts of the SEGUE pilots. When potentially scaled, the magnitude of the impact would grow accordingly. The activities in this sector will contribute only to climate change mitigation, not resilience.

Depending on the specific green sector and activity, estimates of environmental benefits, e,g reduced greenhouse gas emissions due to energy reductions of an average building retrofit, or of actual benefits, e.g. energy monitoring of the retrofitted buildings, could be compared to the costs of the intervention to evaluate the initiative's impacts.

What is the potential of SEGUE to contribute to key positive outcomes (health, community cohesion, etc.) for its target population?

Certain environmental benefits, such as reduced greenhouse gas emissions or removed solid waste facilities, could also yield health benefits, though for a much broader population than the target population. However, the magnitude of the environmental benefits from SEGUE, as described above, will likely be negligible. Community cohesion is a more tenuous outcome from environmental benefits, with the possible exception of non-labor environmental justice strategies that are not part of the SEGUE portfolio or goals. The positive outcomes of SEGUE that would most likely be felt disproportionately by the target population would be the product of stable employment.

What strategies could SEGUE use in managing toward final outcomes (e.g. number of people employed) and interim outcomes (i.e. milestones of multi-decadal industry development) over the lifespan of an approximately 8-year initiative in execution?

As noted by SEGUE staff, one critical long-term outcome necessary for meeting its goals is the creation of one or many green industrial sectors that are self-sustaining and, thus, would not require ongoing public or philanthropic funding. Building new industries as well as transformation of existing industries within 8-year timeframes is possible and has occurred historically. However, the number of jobs created – and, further, the quality of those jobs and the populations that are employed – cannot be estimated. Should SEGUE be interested in tracking industry-building outcomes first, indicators should focus on appropriate measures. These could include the number of comparable firms entering into the market, number of products or units produced, revenue, patents, profits and, if in existing sectors, market share. Basic indicators for employment, access and quality could be tracked independently or through estimates using public data (such as BLS or unemployment insurance data). Ultimately, the pathway of change ("strategy") and indicators for different activities on the pathway will depend on the goal that this is selected for execution.

What are the key assumptions that underpin the theory of change for the initiative?

As described more fully in Chapter 4 with regard to the logic of the theory of change, the evaluation team has noted several key assumptions from both formal SEGUE documentation and ongoing discussions with SEGUE staff. When reflected across the literature, however, there are some insights into the questions of whether each assumption holds.

- *Enabling environments, both political and market, will catalyze growth in the green economy.*
  - *The enabling environment could be national or local.*
  - *ARRA presents a window of opportunity.*
  - *Energy prices will be high.*
  - *Expected climate change impacts will require policy and industry change.*

  SEGUE activities have spanned two different global economic conditions: the post-recession years of 2009–2010 during which ARRA funding was appropriated,

and the stagnant economy of 2011–2012 marked by decreased public funds, continuing debates about environmental policy and regulation, and ongoing, though improving, unemployment. By most accounts, ARRA funding sustained employment levels that would have been weaker without it. However, the impact of ARRA on the green economy is not known, or mixed at best, particularly the impact of funds given to energy production, public energy block grants, weatherization and green job training programs. Some of the research and development funds have been utilized to produce products and practices with potential to provide environmental benefits with an eye towards cost effectiveness, while others have been less successful. Anecdotally, the attention paid to well-publicized failures has led to political repercussions and some reticence to make public and private investments in technological and operational transformations in existing and emerging green industries. Unfortunately, there are no studies that have either qualitatively described this history or measured its effects on the green economy, though several ARRA impact studies are underway. The very slight increase in the retail price of energy in the United States during this time has also contributed to generally inaccurate statements regarding the effects of ARRA.[17]

ARRA posed multiple, small catalysts more than a singular catalyst to promote the green economy, and the post-ARRA era does not represent a continued enabling environment, particularly in terms of national policy. Some local efforts have created enabling infrastructure, particularly with regard to building code and real estate legislation and ARRA-funded lending and grant programs, though much of is unlikely to be sustained. The reluctance of investors of all kinds to lend capital in the post-recession environment also continues to present a more inhibiting business environment.

- *Growth in specific sectors will lead to sustainable employment growth.*
  - *Certain sectors are poised to grow.*
  - *Sectors' ability to offer jobs is limited by growth.*
  - *Specific sectors of focus should be selected based on projected low-income worker employment.*

  Barring public funding, growth in the private sector is a logical cause of employment growth. However, emerging and existing industries within the green economy have not grown or transformed, respectively, as rapidly as anticipated in early green job projections. This includes both proportional and absolute growth as noted in comparisons of projections available at the onset of SEGUE to the recent estimates of actual green jobs.

  Using summary findings from the BLS GGS survey of green jobs for 2010 (Table 6), complemented by the Brookings' estimates of the change in green job numbers from 2003 to 2010 (Table 7), the sectors with green jobs most likely to grow proportionally are in the renewable energy sector. According to BLS, the proportion of jobs in utilities that were green was higher than other indus-

[17] Price information can be found at the Electric Power Monthly reports from the US Department of Energy's Energy Information Administration: http://www.eia.gov/electricity/monthly.

tries, followed by construction and transportation. However, manufacturing had the highest absolute numbers of green jobs, followed by construction and professional, scientific and technical services.

A more detailed analysis provided by Brookings of specific subsectors confirmed the renewable sector – energy production and storage – as having the highest growth. The five subsectors with the highest growth in jobs from 2003-2010, were:

- wave renewable energy (20.9 percent growth)
- solar thermal renewable energy (18.4 percent)
- wind renewable energy (14.9 percent)
- carbon storage and management (13.3 percent)
- fuel cell manufacturing (10.3 percent)

In absolute numbers, other sectors have proven to be potent job sources in the recent past:

- conservation (121,147 jobs added)
- public mass transit (82,601 jobs)
- waste management and treatment (79,401 jobs)
- professional environmental services (51,793 jobs)
- regulation and compliance (46,826 jobs)
- recycling and reuse (39,668 jobs)

TABLE 7. **BLS green goods and service employment estimates by industry, 2010**

INDUSTRY	GREEN GOODS AND SERVICES PRIVATE-SECTOR EMPLOYMENT (TOTAL NUMBER)	GREEN GOODS AND SERVICES JOBS AS % OF JOBS IN INDUSTRY	SEGUE POPULATION APPLICABILITY
Total, all private industries	2,268,824	2.1	
Natural resources and mining	65,050	3.6	
Utilities	65,664	11.9	
Construction	372,077	6.8	√
Manufacturing	461,847	4.0	√
Trade	202,370	1.0	
Transportation and warehousing	245,057	6.2	√
Information	37,163	1.4	
Financial activities	190	0.0	
Professional, scientific and technical services	349,024	4.7	
Management of companies and enterprises	34,711	1.9	
Administrative and waste services	319,915	4.3	√
Education and health services	37,069	0.2	
Leisure and hospitality	22,510	0.2	√
Other services, except public administration	56,174	1.3	

SOURCE: BLS (2012a)

TABLE 8. **The Brookings Institution of "clean economy" job estimates, 2003-2010**

CATEGORY	TOTAL JOBS (2010)	JOB CHANGE 2003-2010	SHARE OF JOBS HELD BY WORKERS WITH HS DIPLOMA OR LESS (2010)	SEGUE POPULATION APPLICABILITY
Aggregate	2,675,545	3.4	44.6	
Agricultural and natural resources conservation	505,993	4.4	39.4	
Education and compliance	142,156	5.9	29.0	
Energy and resource efficiency	830,146	3.0	49.3	√
Greenhouse gas reduction, env. management, & recycling	1,058,886	3.1	45.5	√
Renewable energy	138,364	3.1	43.3	

SOURCE: Brookings (2011).

- *Resulting jobs will be "accessible" to low-income, low-skill workers.*
- *Sectors' ability to grow is not due to mismatch between jobs and skills.*

When one considers the growth sectors discussed above for SEGUE's target population of disadvantaged populations, the most promising sectors change. The Brookings study, the only one that attempted to track the characteristics of green jobs, found that approximately 28 percent of all occupations in the clean economy are strong-wage, which means they pay above the US median, and also low-skill, with the percentage of workers with a high school diploma or less higher than the national average. This compares to 13.3 percent in the national economy.

Merging the Brookings and BLS findings, high-road green jobs occupied by poor and vulnerable workers are 0.7 percent of national employment, yet this poor and vulnerable workforce is about 8 percent of the population. So, while the green economy has been more favorable to the target population compared to other economic sectors, it has obviously not employed all of this population. The study also notes that in the fastest growing sectors noted above, the rate of jobs held by workers with a high school diploma or less was occasionally on par with the average in the green economy as a whole, which was 44.6 percent.

For example, 53.3 percent of the jobs in the solar thermal renewable energy subsector are held by workers with a high school diploma or less while only 19.6 percent of jobs in the ocean wave renewable energy subsector (the fastest growing subsector) are held by these workers. Among other subsectors, 49.8 percent of workers in the wind renewable energy sector have only a high school education or less, along with 54.4 percent in the public mass transit sector and 51.3 percent in the recycling and reuse sectors. In contrast, only 27.1 percent of conservation jobs, 20.5 percent of professional environmental services jobs and 29 percent of regulation and compliance jobs are held by these "low-skilled" workers.

Two of the three sectors with higher-than-average shares of jobs held by workers with a high school diploma or less (waste management and treatment and recycling and reuse) are among those that were the focus of SEGUE. Other sectors of note that overlap with SEGUE's efforts often include the manufacturing aspects of materials and products along with final installation, namely:

- green building materials (61.1 percent)
- energy-saving building materials (58.7 percent of jobs held by low-skilled workers)
- remediation (52.9 percent)
- water-efficient products (50.2 percent)
- HVAC and building control systems (45.0 percent)

SEGUE focused on all of the sectors in which workers with a high school diploma or less would be more likely to be employed from the past with the exception of some renewable energy sectors as well as a few manufacturing markets. All of these sectors are also expected to continue employing lower-skill workers, though modestly.

- *With specific interventions in tools and services, these sectors will grow.*
  As described in the investment strategy discussions, a variety of interventions is possible to assist industry growth, particularly basic funds and investments. Targeted tools and services for those interventions, such as R&D, enabling policy advocacy, leveraged financing models and entrepreneurial developments, also have been used historically by investors and industrial consultants to promote growth in other industrial sectors successfully. The assumption that one or a combination of these tools or services can do the same for different sectors in the green economy is plausible. However, the appropriateness of the tools and services for each sector, along with the scale of resources needed to produce good tools and services, varies significantly and is the subject of ongoing economic and investment exploration.

- *Resulting jobs will be high quality, meaning, for example, better pay and career paths than in other industries.*
  As discussed above, the Brookings study estimates that green jobs offer higher pay for low- and middle-skilled workers than jobs in the economy generally: overall, median wages are 13 percent higher than those in the economy as a whole. A primary reason for this higher job quality is that many of the green jobs, particularly those in mature industries, are disproportionately in sectors with high rates of unionization. This was corroborated by other green job quality projections described in the literature review and is further projected for the largest and fastest growing jobs for low-skilled workers in the future.

  In an analysis performed for the SEGUE team, the evaluation team used BLS employment data to project all of the highest growing green occupations. This was done to determine whether the targeted sectors would provide high-road employment to low-skilled workers, defined first as those requiring a high school

diploma (Table 8) and then as those requiring less than a high school diploma (Figure 1). The high-growth occupations with high salaries that could be classified as "green" and required a high school diploma were largely in the construction trades, which directly overlaps with two of SEGUE's target sectors: building retrofits and water infrastructure). A third SEGUE sector, waste and recycling, is expected to produce jobs at a high-growth rate too, but at lower wages. This finding was corroborated when the Los Angeles Alliance for a New Economy (LAANE), a SEGUE grantee, found that "recycling workers fall considerably below the self-sufficiency wage in Los Angeles County for one parent in a dual-income family," which indicated that additional labor policy advocacy may then be necessary to ensure job quality (Bornstein, 2011: p. 14).

- *There will be net green benefits from this economic growth.*
  Given the definition of green jobs, the products they produce or practices they employ will have positive environmental impacts. These may include climate change mitigation strategies, as well as air, water, soil and land conservation or remediation. The magnitude of the benefit will depend on the scale and types of green jobs, e.g. greenhouse gas reductions from the energy savings produced by retrofits. However, since there are often unintended costs, the net benefits of any one activity can differ from gross benefits. For example, nuclear plant workers are included in the BLS definition of utility industry green jobs because nuclear energy is a renewable energy source. Yet many environmental activists would not necessarily classify this sector as environmentally beneficial.

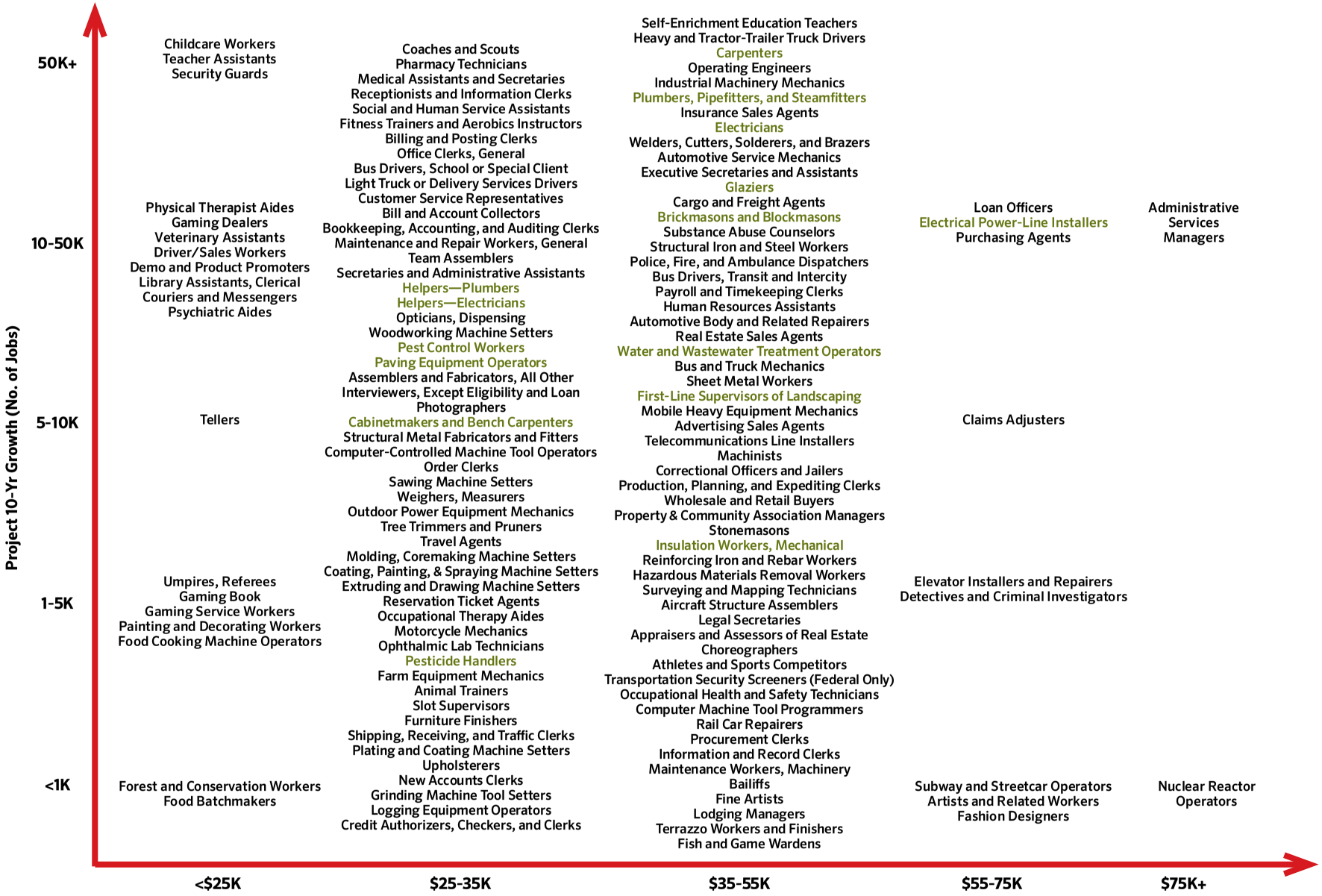
What value does the industry-building framework have for informing the strategy and work of a future initiative in execution? What is not captured by this framework?

SEGUE's goals have multiple dimensions and explicitly include job access, job quality and environmental benefits that parallel, but are distinct from, the increased employment that would result from industry building. SEGUE has implicitly attempted to connect with those dimensions' outcomes by selecting green economy sectors that will most likely be accessible to the target population and that either currently provide higher quality jobs or could through other mechanisms. To various degrees, many of the grantees have worked across all of these dimensions.

Selecting industry-building as an explicit strategy for job growth is sound, but could lead to employment that is inaccessible or of low quality, which would make it more difficult to rectify at a later point. In contrast, broadening SEGUE's activities to encompass all three outcomes simultaneously could dilute the resources, as well as limit the opportunities for interventions to select locations that have the specific conditions necessary for potentially realizing impact. This alternative strategy could reduce the likelihood of achieving significant impacts across all of the outcome dimensions, but especially achieving significant job growth.

What does the experience of SEGUE to date suggest about the value of focusing on a particular sector (e.g. energy efficiency retrofits) vs. multiple sectors in the green economy? What are the associated pros and cons?

FIGURE 1. **Growth projections and average wage ranges for jobs requiring only a high school diploma, 2010-2020**



The chart includes all growth occupations, with those that fall in possible green activity highlighted in green. Source: BLS (2010).

FIGURE 2. **Growth projections and average wage ranges for jobs requiring less than a high school diploma, 2010-2020**

The chart includes all growth occupations, with those that fall in possible green activity highlighted in green. Source: BLS (2010).

The selection of sectors in SEGUE was done purposively to grow industry and, in turn, jobs, where accessible, high-road employment was likely. As noted earlier, the sectors selected – building energy retrofits, water infrastructure and waste management – are, indeed, likely to grow the kinds of jobs desired more than other sectors in the green economy. At the outset of SEGUE, there was a clear opportunity from the ARRA funding to focus on SEGUE's first sector, building energy retrofits. This opportunity no longer exists in the same way due to the winding down of ARRA.

Alternative strategies fall into two categories. SEGUE could continue focusing on its dominant sector (building retrofits) and exploring new opportunities in that sector given the wealth of knowledge that has been built already. Alternately, SEGUE could develop a different single sector or a limited pool of additional sectors that are likely to grow the target jobs. This latter strategy will require a more nuanced approach given each sector's characteristics. There is no one-size-fits-all approach across all green sectors, and targeting a wide pool of multiple sectors is not likely to be feasible from either a resource or learning standpoint. Such an expansive effort may consequently dilute outcomes.

A clear advantage of focusing on a single sector is the higher likelihood of making significant, replicable change. Each green sector has different characteristics in different locations. The construction industry, for example, has different local markets, firms, technologies, regulations, incentives, institutional labor and management representation, and workforce in each metropolitan market in the country. Thus, focusing on a specific sector would also likely involve focusing on certain cities or regions for the typical duration of an initiative in order to have more complete understanding of the broad national impacts.

Working *across* sectors also has advantages, such as the ability to learn about the effects of specific activities in different contexts. Much like the learning from finance models that are currently being explored by SEGUE grantees between building energy retrofits and storm water retrofits, there are other cross-sector activities, such as entrepreneurial training and market analyses, that may benefit from testing in different industries. As discussed, the disadvantage to this approach is that it is more exploratory and likely would not yield the same employment outcomes as a single-sector focus.

What is likely to be the right balance between place-based versus national work?
The sectors in question almost all have slightly different organizational, client and regulatory structures in different places. Any national strategy would still likely have to play out, at least partially, with a place-based intervention. The advantage of looking for regional or national impacts is the opportunity to learn from each of these places and replicate, if not scale. Ultimately, the specific balance would depend on the sector in question. According to analyses performed by SEGUE grantees and industrial scholars, some sectors, such as construction, are more fragmented than others, such as waste management.

Which particular strategies within the SEGUE initiative are likely to be more effective and/or critical than others for promoting a self-sustaining green economy?

SEGUE has supported pilots across many potential industry-building strategies, including: developing financial and investment models, operational tools and databases, market analyses, marketing and communications support, entrepreneurial training, advocacy for local regulatory and enabling policies, and business strategic planning. To date, some of these have yielded more outputs, particularly, advocacy and strategic planning, Others have started too recently to compare. Because of the challenge of seeding many different strategies within multiple sectors, SEGUE was not able to undertake systematic testing of any one strategy over another. Alternative strategies, such as capital leveraging and technology research, have not been tested but they have been shown to catalyze new industries and transform existing ones. Depending on the sector selected, these may be employed and tested as well.

Which portions of SEGUE's work have the greatest likelihood of scaling?

Scaling, or significantly increasing an existing proven model or program, would require replication of individual programs rather than expansion for most of the sectors that SEGUE is likely to explore, due to their existing, fragmented nature. SEGUE has focused on confirming outcomes of the portion of SEGUE grantees that operate models or programs rather than replication or scaling, though one grantee (CNT) is exploring replication in another city as the primary goal. Three types of models have been developed in all of SEGUE:

- full building energy retrofit services, including audit, finance, retrofit and loan servicing
- coalition-based advocacy for job access and job quality hiring agreements
- secondary markets for green loans (usually energy retrofit)

The first two have the potential for replication though likely not at a pace that could yield short-term job growth. The last is still in demonstration stages.

What level of interest do key stakeholders, including government and the private sector, have in supporting green jobs?

Recent debates at the national policy level focusing explicitly on green jobs suggest that interest is mixed, at best. At the city level, new initiatives have increased and been continuously supported despite the broader economic condition. For this reason, many green job advocates have focused on local experiments and advocacy. According to anecdotal industry reports, private sector investments have fallen in key sectors popularly identified as green, namely renewable energy equipment manufacturing and installation. At the same time, large financial institutions have made explicit, recent commitments to investing and lending in green economic activities, including a handful of pension funds. To date, the actual funds have been substantial but only partially realized.

To what extent does the current legal, policy and finance environment support or inhibit the development of green jobs?

SEGUE was created to leverage the policy interests in developing the green economy and, through ARRA, to provide financial support to various supporting economic ac-

tivities. With the winding down of these funds, many of the activities that developed from public funding are actively looking for alternative sources of funding. The lack of more robust climate change legislation, national energy standards, infrastructure funding and final environmental regulations and rulemaking in the last two years, as well as the current policy limbo resulting from both new environmental regulations and new incentives or enabling polices, have further inhibited many of the more emergent sectors of the green economy. Fluid or ambiguous policy environments are as inhibiting to industry as restrictive ones – if not more so.

Other environmental factors are inhibiting green sectors, though each in a different way. Some more mature sectors are adversely affected by the continuing economic condition. This is particularly true of construction, but with the notable exception of new multifamily buildings. Other mature sectors, such as waste management, are primarily inhibited by long-standing local agreements and slow-to-move practices perpetuated by national industry players. Still other markets within mature industries, particularly building energy retrofits, are inhibited by the general economy and institutional players, as well as a lack of incentives and investment platforms by which to transform themselves.

Ongoing legal constraints continue to inhibit the growth of many of the ARRA-induced or expanded experiments in the green economy, such as the refusal of the Federal Housing Finance Authority to allow the government-sponsored enterprises (Fannie Mae and Freddie Mac) to allow mortgages covered by property-assessed clean energy (PACE) efforts. The renewable energy manufacturing and installation industries also have been hampered by dramatically fluctuating material and equipment prices. One supportive factor has been the ongoing, though still distant, capital markets: financial environments have largely been as supportive of developing the green economy post ARRA as they were prior to the stimulus, though this was minimal then.

What types of policies, legal reforms and incentives would governments and other stakeholders need to develop to support such an employment market?

National energy standards, renewable production tax credits, research and development funds and support for green training programs would all support the growth of green jobs but, as the current existence of green jobs demonstrates, are not a requirement. Local policies have provided opportunities for growth, though much more modestly. The policies described in the literature review suggest that there is some clarity about public efforts that would prove more supportive for job growth. As for job quality, two SEGUE grantees have successfully implemented community benefits and workforce agreements. Although they have had modest outcomes compared to the total volume of local employment, these agreements can serve as models for a high-road employment market.

What other factors are likely to affect the success of the SEGUE initiative?

Because of the breadth of SEGUE's goals and activities, there are numerous other factors that might affect the green economy. For example, the policy environment has been influenced by national presidential and congressional elections, and the financial and lending environment has been influenced by the euro crisis, the pricing of energy and water in areas such as domestic natural gas findings and the recent Midwestern

drought, and by the changing nature of workforce training due to industry involvement and community college curricula. Ongoing trends associated with the decreasing wage, benefit and labor organizing environments for low-skilled workers present additional challenges for the target populations and the quality of their likely employment opportunities.

3

Review of SEGUE Strategy and Activities

The Rockefeller Foundation Executive Team approved SEGUE as an initiative in development in August 2009 with a budget of $15 million. During the 39-month period from September 2009 to July 2012, 34 grants totaling $14.2 million were made to 28 different organizations with another 4 grants totaling $2.1 million given to 3 organization that were jointly supported by SEGUE and other Foundation initiatives.[18] Because of its expansive scope and trajectory, SEGUE experienced transitions internally, with regard to its organization, and externally in the context of the broader cultural and political movements around green jobs. Three key timeframes have marked SEGUE's historical environment.

MID-2000s: EMERGENCE OF THE BROADER GREEN JOBS MOVEMENT. Along with the environmentally beneficial markets and economic activities first conceptualized by environmental advocacy groups as described in the literature review, an awareness of environmentally preferable products and practices among consumers materialized at the turn of the twentieth century. This market transformation was marked even in the most staid and institutionalized of American industries. For example, the growth of the U.S. Green Building Council and the massive uptake of its rating systems for the construction of new buildings by the mid-2000s gave credence to the idea that businesses could be green and financially successful. Multiple advocacy organizations were founded during this time, such as Green for All, as well as those formed in collaboration with national organized labor, including Apollo Alliance and BlueGreen Alliance.

2008: EMERGENCE OF THE GLOBAL RECESSION. The global recession set the stage for the second timeframe, marked by the election of Barack Obama in 2008 and the promise of implementing the green jobs premise at a massive scale. The new administration committed to expansive policy in support of environmental regulation, public funds for technological research, financial and tax incentives for green industries and green job

[18] There were 31 total grantees funded wholly or partially through SEGUE. Thirty of these grantees were reviewed as part of this evaluation. An additional grant was awarded on July 12, 2012 to a new grantee, the Energy Foundation, that was not included in the formal analysis.

training programs – all while responding to the global economic recession. The subsequent stimulus represented by ARRA's energy efficiency, renewable energy, energy transmission and green job training funds and programs set forth fertile ground for many of the national, local and industry activities needed to "kick start" green industries but also sustain and recover the overall economy.

2010 TO PRESENT: THE POST-ARRA ERA. For the green jobs movement, this era began with the resignation of Van Jones as Special Advisor for Green Jobs, Enterprise and Innovation at the White House Council on Environmental Quality in September 2009 and the failure of significant climate change commitments at the December 2009 United Nations Climate Change Conference in Copenhagen. During the ensuing years, the continued effects of the recession have restrained employment throughout the economy despite the short-term positive effects of the stimulus (Congressional Budget Office, 2012). The lack of national climate change legislation, renewable energy standards and the subsequent winding down of ARRA programs have led to some concern about the viability of fledging, new green sectors as well as the transformation of existing green sectors, such as those in the construction and infrastructure industries.

3.1 SEGUE strategy

These three recent eras in the broader green jobs movement's history mirrored the formation of SEGUE's justification internally and its evolving strategy. Prior to the August 2009 approval to appropriate the funds for the initiative in development, Rockefeller Foundation staff had been involved in broader discussions on job quality in the Campaign for American Workers (CAW) – an initiative in execution focused on job quality and economic security for vulnerable workers (Rockefeller Foundation, n.d.a).[19] As one possible branch of CAW, SEGUE's purpose took a page out of the green jobs movement by juxtaposing the "twin challenges of cutting carbon emissions and creating good jobs for workers of diverse skill levels", and recognizing them as "mutually reinforcing" (Rockefeller Foundation, 2009a).

Though not explicitly focused on employment in the green economy, CAW laid some of the groundwork for SEGUE To maintain CAW's primary interest in green jobs regarding the economic security of low-income workers, the initiative was tasked with including job quality criteria in its working definition of green jobs. The new initiative in development would focus on "maximizing" the sectors of the green economy that presented opportunities for low- and moderate-income workers, particularly those with a high school diploma or less, and who were "recently as well as chronically under/unemployed" (Rockefeller Foundation, 2009b).

The timing of the initiative's approval coincided with the early stages of ARRA fund implementation. In anticipation of the programs developed under ARRA, SEGUE focused early activities on city-based implementation and operational issues through, for example, the energy block grants. It also provided support for developing and replicating similar models, such as the Green Jobs/Green New York program enacted

[19] This initiative was wound down in the spring of 2011.

by the New York State Senate one month later, in October of 2009. This confluence of events at the beginning of the second timeframe served as the rationale for the one-year initiative in development.

Within the year, SEGUE had made several learning discoveries, many of which came from the team's extensive documentation and fact-finding missions of ARRA-funded energy retrofit programs. This led the team to support a focus on the single-family home energy retrofit market as the green sector of interest, given both the advances made at the local level and the opportunities presented for employment of SEGUE's target population (Rockefeller Foundation, 2010). In particular, SEGUE noted the progress made in financing pilots that leveraged municipal and state funds, property assessment revenues and utility billing as innovations for building markets – a strategy it increasingly viewed as critical because of the modest growth in the green economy since SEGUE's inception (Rockefeller Foundation, n.d.b; Rockefeller Foundation, 2011a).

During this time, SEGUE's grantees included both knowledge creators and industry analysts who helped determine the outlines of the full green economy and make sense of its constituent parts, and national intermediaries who documented activities in these respective parts while providing varying degrees of assistance to local actors. The Foundation's support to these intermediaries was generally described by grantees as critical for efficient learning and capacity building. SEGUE continued to fund these intermediaries along with many of the local implementation demonstrations that received their assistance into early 2011, an additional six months beyond the original first year.

At that time, SEGUE grappled with the same struggles that the broader green jobs movement was confronting. These included: the ongoing unemployment and finance crisis, impeded progress on environmental policy, and few legislative or administrative gains by organized labor to stem the ongoing tide in job quality reductions. In response in June 2011, SEGUE began pursuing additional activities in the building energy retrofit market, going beyond a single-family home focus and considering marketing and messaging support. It also paid more attention to job quality and access learning, looked at the scale of intervention (that is city versus national) and, most significantly, explored entirely new sectors in the green economy (Rockefeller Foundation, 2011b).

With input from a convening of grantees in July, these new strategic parameters were incorporated into an extension of another year of SEGUE's developmental status in August 2011. This extension into SEGUE's Phase II was provided with any eye towards preparing for the decision to move SEGUE into the execution phase (Rockefeller Foundation, 2011c). This extended phase also constituted a significant expansion in scope and activities. In turn, the new approach led to grants related to storm water infrastructure, solid waste management and renewable energy equipment manufacturing because of their benefits to community "resilience" and, more directly, the likelihood these sectors create jobs for the target workforce (Rockefeller Foundation, 2011d).

With more than two year of learning and exploration, SEGUE embarked on the final steps in its journey towards execution with new questions and new charges but generally maintained its original, broad goal and industry-building strategy. This work has been done with an explicit acknowledgment that the "demand for green jobs has not yet materialized at scale, or in a way that makes them accessible to low-income workers" (Rockefeller Foundation, 2011e).

Many of the changes brought on by the transition to Phase II appear to be refinements of Phase I activities that respond to changing policy scenarios. These include the expansion of the retrofit markets, the focus on city-level demonstrations and the explicit attention to job access and quality – all within the same industry-building framework. While the expansion of the scope to other sectors was a necessary programmatic and operational decision given the changing policy and financial context, it complicates an evaluation of the original pilots' effectiveness and potential. The newer grantees are in the earliest stages of implementation, while early grantees are still producing preliminary outcomes. Expansion into other sectors has allowed SEGUE to uncover commonalities among sectors, for example, the localized nature of many of their markets. However, it has also kept the initiative from developing a clearer evidence base for a single set of activities to go into execution. In all cases, a review of SEGUE's activities during these external and internal transitions will help shed light on the initiative's progress.

3.2 Non-grant activities

Along with the grants themselves, the SEGUE team within the Foundation has embarked on numerous non-grant activities – most significantly, monitoring the policy, economic and social developments associated with the topical green jobs movement. Second only to tracking the latest scholarship in the topics related to SEGUE's goals, this monitoring has been complicated by the fluid job and environment policy context of the past three years. Yet, SEGUE's internal expertise has also led to knowledge contributions in non-grant activities.[20] The successful work in these activities has led to the SEGUE team serving as a clearinghouse for the latest research and industry trends.

Additional activities have included participation in grantee conferences and fora.[21] These have been extensive, given that many grantees were charged with creating the first alliances and networks in the green jobs movements. SEGUE has also used its stature as a Rockefeller Foundation initiative to coordinate introductions and preliminary discussions with potential private industry partners for grantees – something that would likely not have occurred otherwise. Almost by definition of its early justification, SEGUE team members had access to officials in key national and local administrations from whom they could gain insight into their grantees' challenges with, for example, ARRA program implementation or national policy inhibiters. Furthermore, the SEGUE team has coordinated with other funders to ensure either an adequate leveraging of the Foundation's funds or a lack of duplication within the broader phil-

[20] An example of this is DB Climate Change Advisors and Rockefeller Foundation (2012).

[21] The SEGUE team's chairing of the Green Economy Working Group for its grantee, Living Cities, as well as active participation in other cross-foundation networks are examples of this leadership.

anthropic community. However, the most important activity performed by the SEGUE team during this development phase has been learning from its grantees.

3.3 SEGUE grants

SEGUE categorized its grantees into four general groups based on the initiative's strategies:

- **RESEARCH AND LEARNING** – includes sector-specific analyses and employment projections and challenges performed by grantees
- **DEMONSTRATIONS** – includes particularly those grantees focused on unique service delivery implementation of green economic activities
- **ENABLING INDUSTRY INFRASTRUCTURE** – includes particularly the grantees experimenting with financial models that can support the demonstrations and their subsequent scaling
- **POLICY REFORM** – includes advocacy-based grantees that work on national and local polices or regulations in support of either green sector growth or job access and quality improvements within it[22]

Because of the breadth of sectors and activities covered by the grantees – as well as the need to provide categories that distinguish between future scalable demonstrations – the evaluation team has also categorized the grantees in four groups that are different from, but generally related to, those groups developed by SEGUE.

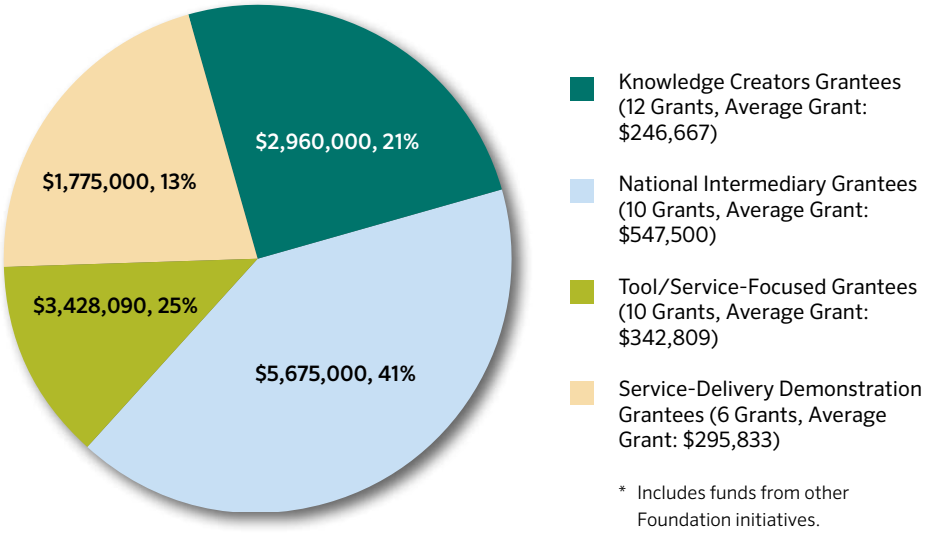
- **KNOWLEDGE CREATORS.** Similar to SEGUE's definition, knowledge creators include grantees who have performed market analyses for specific sectors and employment projections, including studies of employment challenges for SEGUE's target populations. This group includes those grantees that have not directly provided a green employment opportunity or provided assistance for those that do.
- **NATIONAL INTERMEDIARIES**. Because of their critical role early in SEGUE's life, as well as their ongoing advisory role to SEGUE staff, this group is categorized separately. The types of activities they perform – creating networks, providing technical assistance and supporting leadership development – are clearly distinct from other grantees.
- **TOOL- OR SERVICE-FOCUSED GRANTEES.** SEGUE has supported many grantees that are attempting to create a specific tool or program as their contribution to industry building, or are creating it for their own purposes as a model that can be replicated to build the industry. Examples include functional tools, such as databases, as well as what SEGUE refers to as "enabling infrastructure", such as financing models.
- **SERVICE-DELIVERY DEMONSTRATIONS.** This group of grantees is involved in on-the-ground demonstrations in which green products or services are provided directly to consumers or industry stakeholders and individuals are employed by the grantee in green productive sectors. Many of these often include job quality and job access contributions.

[22] Ibid. The Rockefeller Foundation also proposed a fifth strategy focused on "communications and influence" related to both specific grantees' demonstrations as well as the broader green jobs movement, though is only a recent addition.

3.3.1 Grantee overview

Based on these categories, the national intermediaries received the largest portion of SEGUE funds with over one-third of grant allocations (Figure 2). The average grant size for this group was $567,500, the highest across all grant types. Tool- and service-focused grantees had an average grant size of $342,809, though this includes outliers that received funding from other Foundation initiatives. Figure 3 shows grantees in each of the four categories.

FIGURE 3. **Distribution of SEGUE grantee categories by category percentage of total funds***



3.3.2 Grantee activities

In our survey of the grantees, the evaluation team found significant variation in self-identification about activities. For example, grantees operating demonstrations or developing single tools or services refer to themselves as knowledge creators because of the practical insights they are generating on programs. Similarly, many knowledge creators see themselves as national intermediaries, because they perform tasks such as establishing alliances or building capacity, and because of the wide audience for their research findings or the findings' utility. Other knowledge creators classify themselves as tool- or service-focused grantees that might advocate for policy because of the policy implications based upon their research findings. Regardless of their self-identification, the grantees listed clear activities when provided the opportunity to answer open-ended questions in the survey. This input was supplemented by the more detailed descriptions collected through interviews with the purposively selected sample of grantees.

Knowledge creators

The primary activity of SEGUE knowledge creators involves the analytical exploration of a specific aspect of SEGUE's goals towards building the green economy. This

TABLE 9. **SEGUE grantees by category**

CATEGORY	SEGUE GRANTEES (NUMBER OF GRANTS)*	PRIMARY GRANT ACTIVITY
Knowledge creators	BlueGreen Alliance Foundation (1)	Renewable energy green job projections
	Economic Policy Institute (1)	Green job projections in all sectors with job access points
	Innovation Network for Communities (3)	Analysis of building retrofit markets
	Institute for Women's Policy Research (1)	Study of women's access challenges to green jobs
	M&R Strategic Services (1)	Analysis of green job messaging strategy
	MIT (1)	Impact evaluation of DOE's Weatherization Program
	National Council of La Raza (1)	Study of Latinos' access challenges to green jobs
	National Employment Law Project, Inc. (1)	Study of job quality standards in green jobs
	Pacific Institute (1)	Study of water infrastructure industry and job potential
	University of Wisconsin-Madison (1)	Study of green access needs and opportunities
National intermediaries	Emerald Cities Collaborative, Inc. (2)	Technical assistance and coalition-building
	Green for All (3)	Communities of practice and business leader incubators
	Institute for Sustainable Communities (2)†	Networking and capacity building academies
	Living Cities Inc. (1)	City-focused capacity building
	Global Alliance for Incinerator Alternatives (1) **	Waste utility-level coalition building and policy advocacy
	Partnership for Working Families (1)	Waste utility-level coalition building and policy advocacy
Tool/service-focused grantees	Capital E LLC (1)	Building energy performance database
	Clean Economy Development Center (1)	Rhode Island energy retrofit program creation
	Lehigh Carbon Community College (1)	Training to support Pennsylvania retrofit loan program
	Los Angeles Alliance for a New Economy (1)	Local advocacy for recycling change and job quality
	Natural Resources Defense Council (1)†	Support for New York City Energy Efficiency Corporation
	Nature Conservancy (1)	Creation of Philadelphia storm water retrofit finance facility
	Pennsylvania Treasury Department (1)†	Secondary market for Pennsylvania retrofit loan portfolio
	People United for Sustainable Housing (1)	Support for Green Development Zone concept
	Sustainable Jobs Development Corporation (1)	Awards program for green job advocates and employers
Service-delivery demonstrations	Clean Energy Works Oregon (1)	Support for CEWO (home retrofit) expansion operations
	CNT Energy (1)	Replication of existing multifamily retrofit program
	Progressive America Fund (2)**	Advocacy and monitoring of new state home retrofit program
	The DC Project (1)	Development of home and institutional retrofit program
	Workers' Defense Project, Inc. (1)	Advocacy for local commercial construction access and quality

* Includes all SEGUE grantees except those funded after July 1, 2012.
** Global Alliance for Incinerator Alternatives was funded through its financial intermediary, the Pesticide Alliance Network.
*** Progressive America Fund received grants under its previous name: Center for Working Families.
† Three grantees were jointly funded by SEGUE and other Foundation initiatives.

includes any grantees that are not directly offering an industry service, developing a tool for industry use or providing direct capacity building to industry activities. The topics covered by these grantees' investigations range from general green job employment projections early in SEGUE's life to more focused analyses of specific green sectors, workforce populations or green industry constraints (Table 9). Many of these projects focus on key questions posed by SEGUE, such as the building retrofit industry and market (BRIM) analysis, while others are more loosely structured around a theme or topic of interest. One grantee is also analyzing messaging and communications strategies for green jobs.

TABLE 10. **SEGUE knowledge creator grantees: activities**

GRANTEES	PRIMARY ACTIVITY(IES)
BlueGreen Alliance Foundation	*"...background research on types of jobs across the wind and solar supply chains."*
Economic Policy Institute	*"...a rich, data-driven characterization of the recent Bureau of Labor Statistics release on "green jobs"*
Innovation Network for Communities	*"...a market segmentation and analysis of sustainable water markets"*
Institute for Women's Policy Research	*"...analysis of state-by-state data...on women and girls' participation in career and technical education"*
M&R Strategic Services	*"...building some SEGUE grantee communications capacity on implementing communications strategies"*
MIT	*"collecting data"; "demonstrating that it is possible to answer questions about the green economy with randomized control trials"*
National Council of La Raza	*"report on areas of geographic overlap of Latino population growth and green industry growth"*
National Employment Law Project, Inc.	*"[report on cities and green jobs]","report on quality jobs in commercial retrofit efforts"*
Pacific Institute	*"report that analyzes the industries and occupations... of sustainable water management practices"*
University of Wisconsin-Madison	*"assesses... a more inclusive and rational policy agenda (state and national) for human capital development in a greening economy"*

SOURCE: SEGUE Evaluation Survey Responses.

Six of the ten knowledge creator grantees have produced final or partial findings from their work. The remaining four are recent grants and thus grantees are still in the process of analyzing and generating findings. By definition, these research-focused grantees produce documentation of their output in the form of published findings. The evaluators excluded grants in this group from the interview sample as there was less need for additional documentation of their achievements and challenges.

National intermediaries

National intermediaries are focusing on a variety of capacity building activities as described in Table 10. These include providing opportunities for networking across green job advocacy groups, training programs and shared-interest communities – opportunities that include in-person conferences, workshops and training programs along with standing conference calls, webinars, and clearinghouses for relevant

research and "best practice" lessons. Along with these networking functions, these grantees have also created distinct capacity-building offerings, including direct technical assistance and mediation services for local coalition building. Local policy advocacy has been a critical topic for this assistance, but this work has also involved developing local potential green business and advocacy leaders. Table 10 lists the self-description of activities provided by these grantees.

TABLE 11. **SEGUE national intermediary grantees: activities**

GRANTEES	PRIMARY ACTIVITY(IES)
Emerald Cities Collaborative, Inc.	*"held four capacity building training sessions;" "initiated a technical assistance program for each city to request TA as needed"*
Green for All	*"training for small businesses that would benefit from…innovative storm water management policies;" providing TA to local leaders/coalitions with capacity to drive a city-scale model;" "tracking and selectively engaging in key federal policy issues;" "conducted a landscape analysis of key cities, utilities, advocacy groups and other experts"*
Institute for Sustainable Communities	*"… launched the Sustainable Communities Leadership Academy on Sustainable Economic Development Green Job Creation;" "produced two resource guides for practitioners;" "developed a new web portal for this program"*
Living Cities Inc.	*"re-granted this support to 4 national leaders identifying sustainable financing models for affordable housing retrofits"*
Global Alliance for Incinerator Alternatives	*"organized a State Policy Meeting… for members of our network to have the chance to focus on how state policies in the waste, energy and jobs arenas affect job creation"*
Partnership for Working Families	*"developed cadre of research and campaign staff with recycling and waste expertise in seven major cities;" "conducted a two day recycling strategy session;" "affiliates… have begun evaluating potential policy change"*

SOURCE: SEGUE Evaluation Survey Responses.

These intermediaries have established networks of national organizations, coalitions of local chapters from their national organizations partners or grantees of national programs, or have utilized their existing local chapters as champions for local coalition building. Regardless of structure, the intermediaries have focused on funneling national conversations through their networks for the purpose of fomenting local change.

The evaluation team gained several insights from the interviews. In particular, the breadth of alliances and coalition fora across the grantees is sizeable and includes significant participation from worker- and community-based organizations with notably

less participation from private sector firms and associations. However, as the size of these coalitions has also proven to be somewhat difficult to manage, some fora have become purposefully exclusive to provide more focus.

Direct technical assistance and capacity building activities also have proven challenging to implement. Often, the specific cities or regions that receive intermediaries' assistance are those most likely prepared to receive it and already have the capacity to develop initiatives. Further, the intermediaries' assistance itself is limited by the varying expertise their staff and pool of assistance partners have, in terms of understanding and providing comprehensive services within the complex engineering, financial, organizational and policy systems faced by local leaders. While this situation led one intermediary to reconsider its entire assistance delivery plan, other intermediaries have reacted by honing their ability to detail local policy and industry conditions comprehensively.

Two other areas of activity are noteworthy but not readily presented in either the intermediaries' survey responses or their publicly accessible information: the documentation of local efforts and leadership incubation. In the former, most of the grantees have developed clearinghouses or they are, at least, working in groups with shared resources from which innovative approaches and local successes are being catalogued. The activity has been particularly helpful for SEGUE staff members who have relied on these organizations for ongoing knowledge gathering. For the latter, all grantees have provided informal opportunities for local and national leaders to interact and, just as importantly, identify themselves. Some of the intermediaries have also established formal programs to identify, foster and reward community and business leaders through training and, in some cases, seed capital. In all cases, the national intermediaries are performing similar activities, though at varying depth.

Tool- and service-focused grantees

Grantees focusing on developing specific industry-building interventions have been involved in the most diverse set of activities, a summary of which is presented in Table 11. Three have worked almost exclusively on state or local advocacy. One grantee is focusing on developing a common data platform as a tool for promoting cross-building performance and, therefore, enabling more robust engineering and financial analysis for building retrofit underwriting, while another is developing a green jobs awards and recognition program. One grantee is developing a contractor training and certification program in support of one of the more successful local revolving energy retrofit loan fund programs in the country, while its partner organization – along with two other grantees – is experimenting with financing facilities and investment models to spur a broader demand for energy retrofit services.

This spectrum of activities demonstrates a broad, though not necessarily comprehensive range of industry-building activities at key points of intervention. In fact, each grantee has noted in some fashion how its activities are designed to address a key industrial problem, such as those identified by the BRIM analysis or other research findings of SEGUE and non-SEGUE knowledge creation. SEGUE awarded

these grants opportunistically because of their ability to address an industry-building barrier, such as enabling financial infrastructures, local policies, technical constraints and productivity bottlenecks.

TABLE 12. **SEGUE tool/service-focused grantees: activities**

GRANTEES	PRIMARY ACTIVITY(IES)
Capital E LLC	*"able to take our existing database of 170 Green Building Projects and place it into an online database that is free and open to all users"*
Clean Economy Development Center	*"identified three projects with near-term potential for implementation;" "compiled a list of existing programs and statutes and has assessed them for viability"*
Los Angeles Alliance for a New Economy	*"built a broad-based coalition of organizations committed to transforming the region's waste and recycling industry into a green job creator"*
Natural Resources Defense Council (NYCEEC)	*"conduct a design charrette that educates stakeholders about... options... we also develop a value analysis of the packages of measures that are appropriate:" "developing a financial tool that commercial tenants can use"*
Nature Conservancy	*"working with the Philadelphia Water Department to develop an offsite credit generation/trading program for storm water runoff retrofits"*
Pennsylvania Treasury Department	*"developed significant and valuable information regarding the most effective attributes of energy efficiency financing assets for the purpose of attracting secondary market investors"*
People United for Sustainable Housing	*"early implementer of the new Green Jobs/Green NY program"*
Sustainable Jobs Development Corporation	*"created a criteria framework for evaluating entrepreneurial green jobs"*

NOTE: Lehigh Carbon Community College was unavailable to report on its activities.
SOURCE: SEGUE Evaluation Survey Responses.

Service-delivery demonstrations

In contrast to the wide diversity of activities being performed by the grantees with a specific tool or service in mind, the service delivery demonstrations are consistent in their focus on providing "one-stop-shop" activities directly for retail consumption. By integrating financing options (either from subsidized, private lending institutions or revolving public loan funds), centralized marketing and sales, robust operational and management accounting and, to a lesser degree, job training certifications and job quality requirements, these grantees are either completing proof-of-concept trials or expanding services to the point of being able to replicate or become independent private entities with additional assistance.

TABLE 13. **SEGUE service-delivery demonstration grantees: activities**

SEGUE GRANTEES	PRIMARY ACTIVITY(IES)
Clean Energy Works Oregon	*"IT platform and online portal rolled out… robust program management software…web services to ease integration with partners' data and workforce data collection to track and report against program standards"*
CNT Energy	*"developed an effective method for sharing our program's success with other partners. Specifically, we have developed a set of consulting services and trainings"*
Progressive America Fund	*"worked with community-based organizations on GJ-GNY program design, enabling CBOs to apply for outreach funds to implement program"*
Workers' Defense Project, Inc.	*"team of four… researchers…investigating demand for green jobs in building consumer markets;" "through partnership with…LiUNA, WDP has created opportunities for low-income workers to enroll in intensive, hands-on, green construction skills training"*

NOTE: The DC Project was unavailable to report on its activities.
SOURCE: SEGUE Evaluation Survey Responses.

VARIATION AMONG ACTIVITIES. The primary points of variation among these grantees' activities are around the depth of incorporation of a specific program detail. For example, two of the demonstration programs include job quality agreements, one includes an external financing partner, two others rely on public loan funds and another avoids financing integration completely by relying solely on the mandated community-benefit agreements being voluntarily accepted by large developers. Another variation is more a sign of each grantee's level of industrial sophistication, with some having robust online recruitment or management and other relying on public entities for coordination.

COMMON TRAITS OF ACTIVITIES. In all five demonstrations, grantees reported the need to address the multiple bottlenecks in local green sectors, yet each has addressed this need in a different way and to different effect. A second common trait among these demonstrations has been their attention to local conditions in i) policy, such as the status of the local utility's energy-efficiency programs or local municipal development permit hearings, and ii) in economic environments, including market analysis of local homeowners or developers that includes competitor monitoring. The grantees are accounting for these contextual characteristics within their day-to-day planning and operations. Local conditions also emerged as a relevant factor in the achievements' of grantees (explored in greater depth in Section 3.3.3) A third commonality is that all grantees fall within the broader construction industry, though in different markets, with two in single-family energy retrofits, one in multifamily energy retrofits, one in new commercial green building and another in a broad range of retrofit markets.

3.3.3 Outputs and achievements

In contrast to their activities, grantees' self-reporting on outputs and achievements was much more straightforward. From research reports to network memberships to actual numbers of retrofitted homes, the grantees describe specific outputs and also provide insight into their expected outcomes.

Knowledge creators

Outputs from knowledge creators are research findings, generally in the form of research reports or presentations (Table 13). Many of these findings satisfy SEGUE's purposes for exploring a specific topic and presenting the general terrain of scholarship. Other grantees contributed to the literature on green jobs. Citations and references to report findings are an indicator of both the quality and the significance of the findings, and this attribution has been noted by Economic Policy Institute's green job projection studies as well as the University of Wisconsin-Madison's early green pathways studies. The latter is one of the most cited monographs with regard to training and credentialing in the green jobs literature. However, most of the early grantees report still being in the data collection or analysis phases, and the more recent grantees are just embarking on research designs and work plans.

TABLE 14. **SEGUE knowledge creator grantees: outputs and achievements**

SEGUE GRANTEES	OUTPUTS AND ACHIEVEMENTS
BlueGreen Alliance Foundation	*"initial research for this project has resulted in capacity building of…staff expertise"*
Economic Policy Institute	*"robust advocacy campaign for local-level regulatory changes [and] defense of EPA's regulatory changes"*
Innovation Network for Communities	*"strength is in framing opportunities for field and market development"*
Institute for Women's Policy Research	*"developing methodology for estimating the gender breakdown of green jobs on state-by-state basis"*
M&R Strategic Services	*"too early to tell"*
MIT	*"don't have any reports yet"*
National Employment Law Project, Inc.	*"still in the research phase"*
Pacific Institute	*"too early to note long-term achievements"*
University of Wisconsin-Madison	*"advancing the national conversation on equity, jobs and the green economy"*

NOTE: National Council of La Raza was unavailable to comment on its activities.
SOURCE: SEGUE Evaluation Survey Responses.

National intermediaries

The achievements of the national intermediaries vary somewhat from expectations. Many report limited outputs to date (Table 14), though subsequent interviews provide much more richness to these responses. These grantees often grapple with fluid policy contexts at the national and local levels that exist beyond their control, as well as the complex organizational structures and coalitions in which they exist. The intermediaries, whose scope broadly covers all areas and topics of the green economy, are transitioning or expanding their focus given the recent policy and economic context (the post-ARRA "third timeframe" of the green jobs movement) and, more directly, the expansion of SEGUE into Phase II. To a lesser, though repeatedly noted, extent, intermediaries' achievements have also been limited by their technical expertise in the key

areas of concern to local green jobs stakeholders. For all of these grantees, outcomes from technical assistance and alliance-building activities are difficult to ascertain at this early time. The two grantees that have specific sector focus have fairly recent awards and are still in early planning stages, so their achievements are not yet measurable.

Despite these constraints, the intermediaries report successful assistance interventions in two critical areas: local industry mapping and local policy advocacy techniques. In the former, some of the intermediaries are providing very detailed analyses to assist local partners, such as identifying local political and industry players and providing best practices for analyzing strategies. This has been especially true in advocacy efforts for labor hiring and community benefits agreements. These analyses have also been useful for expanding local coalitions to integrate stakeholders who stand to benefit from planned programs or local policy initiatives. The attention to deep analysis, however, is being balanced with the need to provide services to a wider group of communities.

TABLE 15. **SEGUE national intermediary grantees: outputs and achievements**

GRANTEES	OUTPUTS AND ACHIEVEMENTS
Emerald Cities Collaborative, Inc.	*"still in its start up phase"*
Green for All	*"national jobs study "Water Works';" "newly formed National Working Group"*
Institute for Sustainable Communities	*"helped dozens of communities take a smarter, more holistic approach to green economic development and job creation"*
Living Cities Inc.	*"not yet"*
Global Alliance for Incinerator Alternatives	*"much of our work is still to be achieved"*
Partnership for Working Families	*"a national profile and assessment of good green jobs potential in the recycling and waste industry;" "survey of the top 25 MSA's to assess potential for developing good green jobs;" "a major role in the design, development and drafting of Don't Waste LA's franchise proposal;" "developed a working theory of transformation in the recycling industry that can be applied both nationally and locally"*

SOURCE: SEGUE Evaluation Survey Responses.

As clearinghouses for best practices, the national intermediaries are sharing the details of successes with other communities when direct assistance is not possible. In this regard, the intermediaries report conducting webinars, conferences, communities of practice conference calls and other activities that have been largely available to the public. Formal programs for supporting fledgling green businesses, green entrepreneurs and green community organizers have also shown demonstrable outputs. Notably, a few of the intermediaries are developing internal monitoring and performance protocols to improve tracking of their achievements and milestones.

Tool/service-focused grantees

The level of output and achievement of grantees focusing on specific interventions varies as much as the breadth of tools and services they offer, as shown in Table 15. For certain activities, particularly those focusing on finance models and analytical tools, the grantees report that it is still too early to note any outputs, let alone outcomes. In others, such as local policy advocacy, the record is mixed, with some grantees noting the successful passage of enabling legislation, such as Green Jobs/Green New York, while several are still struggling with local policy constraints. Grantees implementing more finite activities, such as training or recognition programs, have completed the first stage of their work and are awaiting outcomes.

TABLE 16. **SEGUE tool/service-focused grantees: outputs and achievements**

SEGUE GRANTEES	OUTPUTS AND ACHIEVEMENTS
Capital E LLC	*"database has been and will be presented at a number of conferences:" "database is currently in the beta release stage"*
Clean Economy Development Center	*"securing an ongoing commitment from [RI] Treasurer to pursuing clean economic development and recommending specific projects and tools which the Treasurer and her staff are continuing to pursue.;" "successful in introducing new capital sources... to retrofit the Providence School District"*
Los Angeles Alliance for a New Economy	*"don't have any achievements yet"*
Natural Resources Defense Council (NYCEEC)	*"developing a range of resources to be available and promoted publicly to drive broader adoption of the practices that we are proving out (both economically and procedurally);" "showcased at the Clinton Global Initiative (CGI)"*
Nature Conservancy	*"can't yet point to on-the-ground achievements. Some early wins include:- development of an advisorycommittee in Philadelphia"*
Pennsylvania Treasury Department	*"development of an innovative structure for a loan aggregation facility that allows private and public investment, utilizes available federal grant dollars to make loans to homeowners more attractive and allows for efficient securitization of bundled assets"*
People United for Sustainable Housing	*"developed a GIS-linked database for prioritizing neighborhoods for retrofit outreach and tracking data stemming from outreach and marketing activities; "developed original marketing collateral that could be adapted for broader use in the retrofit sector;" "developed a network of 10 retrofit contractors...[in] an aggregation pilot;" "developed training materials and workshops for at-risk workers entering the retrofit field, in partnership with LIUNA;" "an agreement to monitor project sites for prevailing wage compliance"*
Sustainable Jobs Development Corporation	*"presented Green Jobs Award winners;" "too soon to tell"*

NOTE: Lehigh Carbon Community College was unavailable to report on its activities.
SOURCE: SEGUE Evaluation Survey Responses.

The mixed results reported by these focused grantees are largely due to the still nascent formation of many of their concepts. Further, many of the grantees whose SEGUE-funded projects are components of larger endeavors have underestimated those larger achievements, such as LAANE's broader waste campaign and National Resources Defense Council's (NRDC's) market initiatives. In reference to their grant

projects, though, most report that additional piloting and beta testing are still required, or that the confluence of multiple external factors is still needed for the tool or service to gain traction. Only one reported a decision to temporarily wind down activities due to a lack of resources, but not to terminate them.

Service-delivery demonstrations

The grantees running on-the-ground demonstrations of green economic activities have, generally, the highest number of measurable outputs of all the grantee categories. From specific numbers of buildings retrofitted to employment numbers, these grantees are producing outputs because of the nature of both their missions and their selected interventions. By their respective accounting, some of these grantees have produced hundreds of jobs over their lifetimes and approximately 300 jobs in total during their SEGUE grants.

TABLE 17. **SEGUE service-delivery demonstration grantees: outputs and achievements**

SEGUE GRANTEES	OUTPUTS AND ACHIEVEMENTS
Clean Energy Works Oregon	*"contractor management and support, ongoing technical assistance and quality control;" "nearly $24 million in economic activity, 175 new construction jobs – and nearly 800 workers... more than 1,500 low-interest loans... more than 1,000 homes retrofitted in the Portland Metro...17.1% project dollars going to minority and women firms and more than 35 small business contractors;" "developed a plan to bring a financing option... in discussion to bring referrals from first-time homebuyer loan program;" "CEWO and Worksystems – the regional coordinator of the Portland Metropolitan area workforce system – provide training scholarships and an on-the-job-training wage subsidy to contractors"*
CNT Energy	*"developed a business model for replicating Energy Savers in other markets...also developed a market analysis capacity;" "put small building contractors (400 jobs in Chicago)"*
Progressive America Fund	*"created white paper detailing how a GJ/GNY should be created and implemented; created on-bill recovery policy proposal (both of the above were turned into state policy); drafted job standards for the program (not yet adopted)" "job standards in 8 aggregation pilots, with 3 scheduled to launch"*
Workers' Defense Project, Inc.	*"78 workers graduated from their first ever OSHA 10 course... WDP certified that Foundation Communities was creating good, green construction jobs;" "trained twelve worker leaders to advocate on behalf of green job creation;" " developed a construction worksite monitoring program;" "passed an amendment to the City of Austin's economic development agreement with Apple, Inc. [and] an amendment to the City of Austin's master development agreement with Trammell Crow"*

NOTE: The DC Project was unavailable to report on its outputs.
SOURCE: SEGUE Evaluation Survey Responses.

Many of these grantees had the benefit of a head start since they began their demonstrations well before they had SEGUE's support. Among these grantees, two are producing outputs in all categories of interest to SEGUE: job creation, wage and benefits agreements, community training and hiring requirements and reductions in energy consumption. Another is producing job creation and energy consumption outputs, but is also paying special attention to affordable housing units – providing an additional community benefit. A fourth is focusing on job access (primarily training

graduates) and job quality measures (including labor hiring and monitoring agreements). Information for the DC Project was not accessible, beyond what was publically available.

3.3.4 Challenges, insights and expectations

Though less straightforward than reporting on outputs, grantees' assessments of their own challenges, the insights they are gaining from their explorations of the green economy and their expectations for future green economic activity in their organizations have been very informative. In fact, this information provides much of the understanding of the potential for SEGUE's current premise to create impacts, as well as the different alternatives that may be considered.

TABLE 18. **SEGUE knowledge creator grantees: challenges and opportunities**

SEGUE GRANTEES	CHALLENGES AND OPPORTUNITIES
BlueGreen Alliance Foundation	*"next step is to show how can we take advantage of these opportunities"*
Economic Policy Institute	*"several states are much more/less "green" than one would guess just looking at their industrial mix of employment … descriptions of… state policies…would be very useful"*
Innovation Network for Communities	*"help shape choices for philanthropic investors"*
Institute for Women's Policy Research	*"women's under-representation in green jobs is part of a broader policy concern related to women's underrepresentation in reasonably paid technical occupations"*
M&R Strategic Services	*"begin implementing/putting to practice and lay out a second year for the campaign"*
MIT	*"fiscal environment has proved challenging because it has reduced funding for the Weatherization Assistance Program which we are evaluating"*
National Employment Law Project	*"a lack of data: federal tracking of green jobs is very new, making it difficult;" "in the current economic and political climate many opinion leaders and policymakers are more focused on the quantity of jobs being created than the quality"*
Pacific Institute	*"primary challenge to our research has been the lack of employment data for sustainable water projects"*
University of Wisconsin-Madison	*"honest assessments and information-gathering were at times hard to come by in a highly politicized and economically fraught environment where 'green' was suddenly suspect, if not outright toxic and where demands for instant ROI on long-term jobs and training projects (in the midst of an economic meltdown) led to poor decisions and imperfect reporting;" "Human capital and high road economic development will continue to anchor all of our work… squares with our argument -- now widely accepted – that there are no "green" sectors; rather, all jobs can and should be greener"*

NOTE: National Council of La Raza was unavailable to report on its challenges.
SOURCE: SEGUE Evaluation Survey Responses.

Knowledge creators

The knowledge creators report research-related challenges, such as limited data sources and opportunities to apply more rigorous methodologies (Table 17). A few mention more profound challenges regarding the green economy overall, particularly related to decreasing public funding and political partisanship. Others describe

the desire to apply their research findings, assumedly in either policy formulation or practical industry developments. One of the more notable challenges posed by these grantees with regard to future green jobs research has been the short-term focus on job numbers rather than long-term job quality. Not only does this trend narrow the spectrum of potentially relevant research subjects but, as these grantees note, it could potentially narrow the significance of the green jobs movement overall.

TABLE 19. **SEGUE national intermediary grantees: challenges and opportunities**

GRANTEES	CHALLENGES AND OPPORTUNITIES
Emerald Cities Collaborative, Inc.	*"economy has made it difficult to have conversations about workforce development and investing in building retro-fits"*
Green for All	*"the overall field and specifically the nexus of stormwater management, green infrastructure and the creation of quality accessible jobs is nascent"*
Institute for Sustainable Communities	*"many communities were... focusing hard on strengthening green workforce development, but not enough on greening the overarching economy. So we shifted to a broader focus on green economic development;" "another important challenge we recognized early on was... collaboration -- the difficulty most communities/cities/regions face in terms of working effectively across agencies... jurisdictions... and sectors;" "we want to do more of this work at the regional and metro-scale"*
Living Cities Inc.	*"this work has allowed us to have greater alignment between our programmatic and debt agendas whichwill be invaluable to us moving forward"*
Global Alliance for Incinerator Alternatives	*"work in this sector often goes on in very siloed, locally-specific ways at the local and state levels;" "we see strong potential for job creation in recycling, organic waste (food waste, yard waste) management and reuse. We expect that these gains will be achieved through creating conducive state policy environments and supporting effective local programs"*
Partnership for Working Families	*"scale and scope of the waste industry is absolutely enormous;" " there's very little discussion (other than our product)of the quality of jobs that are created;" "we see our role as continuing to lead innovative policy campaigns"*

SOURCE: SEGUE Evaluation Survey Responses.

National Intermediaries

The transition to the current economic and policy context from the earlier, more supportive environment represented by ARRA has been especially difficult for national intermediaries. For these grantees, the political and economic challenges have increased and are exacerbated by a decrease in resources and an increasingly negative public awareness environment (Table 18). Where they may have formerly seen themselves as links between national policy and federal programs to local entities and innovators, some of the grantees are now focusing more on the needs and opportunities within their local networks. This local, more grassroots focus requires a deeper understanding of the technical and industrial systems in which member communities exist.

Many of the intermediaries are also undergoing the expected organizational growing pains typical of non-profit advocacy organizations after their start-up phase. For these grantees, the mainstreaming of some portions of the green economy has been accompanied by the institutionalization of the green jobs movement. This organizational transition has varied between intermediaries. Those focused on specific sectors note some clear opportunities for operational growth.

Tool- and service-focused grantees

Because many of the tools and services are still in incubation or early investment stages, these grantees are tentative about speculating on their future opportunities, though they tend to express cautious optimism about implementing, expanding and scaling. Table 19 lists the key responses to related questions from these grantees. With few exceptions, each of the focused grantees continues to analyze the bottlenecks associated with its product's or practice's placement in its respective industry, be it retrofitting, finance or mass marketing.

TABLE 20. **SEGUE tool/service-focused grantees: challenges and opportunities**

SEGUE GRANTEES	CHALLENGES AND OPPORTUNITIES
Capital E LLC	*"hope to form long-term relationships with organizations that have large portfolios of green building projects"*
Clean Economy Development Center	*"challenges in identifying suitable projects and partners;" "appears that initial projects identified may not be as viable as previously thought"*
Los Angeles Alliance for a New Economy	*"developing a market that incentivizes the investment in waste processing Infrastructure;" "we will set in motion the realization of a robust zero waste program"*
Natural Resources Defense Council (NYCEEC)	*"essential technical, real estate and engineering experience... is critical for completing the necessary tasks and also for ensuring credibility:" "honing in on opportunities to scale private sector action by collaborating on city, state and federal level initiatives"*
Nature Conservancy	*"the demand for new infrastructure creates an opportunity for new solutions that, if supported effectively, can result in economic opportunities"*
Pennsylvania Treasury Department	*"limited-time availability of federal stimulus funds that can subsidize residential EE retrofit borrowing; high interest of several leading financial institutions to develop EE secondary market;" "improve workforce and diversity opportunities in EE sector as capital sources become cheaper and more reliable"*
People United for Sustainable Housing	*"shifting regulatory and administrative environment related to the program, including implementation of on-bill finance and resistance to change from vested interests to achieve an aggregation program"*
Sustainable Jobs Development Corporation	*"financial resources have constrained our opportunities;" "Solyndra and other negative associations with 'green jobs' have made the term politically problematic"*

NOTE: Lehigh Carbon Community College was unavailable to report on its challenges.
SOURCE: SEGUE Evaluation Survey Responses.

Those bottlenecks – in the form of appropriate partnerships or funding sources – continue to be the biggest challenge in these grantees' perspectives; more than the broader policy and economic environments. But, in fact, only a few express concerns about being able to demonstrate achievements in the long term. Yet, only a few grantees have gone beyond the proof-of-concept stage, making it unclear which of these interventions are likely to show promise in their own contexts, let alone be replicable in others. The consensus, both among the grantees and in reviews of their activities, is that it is simply too early to tell.

Service-delivery demonstrations

In contrast, many of the demonstration grantees are either successfully breaking down the bottlenecks they face, or are finding ways to negotiate them despite having to do

so on multiple industrial fronts. These grantees have the benefit of a longer incubation period than the targeted-tool grantees. For many of the demonstrations, the primary challenges come from anticipating what the national policy and funding scenarios will be at both the national and local levels. In each case, these grantees' achieve outputs primarily because of their full understanding and ability to take advantage of opportunities in local conditions, which are being influenced by national programs.

TABLE 21. **SEGUE service-delivery demonstrations: challenges and opportunities**

SEGUE GRANTEES	CHALLENGES AND OPPORTUNITIES
Clean Energy Works Oregon	*"policies were in place prior [to] our SEGUE funding;" "need to move to a public-private funding model;" "need willing partners in the public, foundation and utility sectors over the next 2-3 years beyond our US DOE grant;" "there will need to be a focused effort to build consensus among home performance, energy, utility and real estate interests;" "starting with a citywide pilot and moving to a statewide program have meant an evolution of … what we mean by equity, underrepresented and economically disadvantaged"*
CNT Energy	*"exploring the concept of a Community of Practice for multi-family energy efficiency providers;" "there have been many federal, state and local investments in building retrofit markets that have not been successful"*
Progressive America Fund	*"heavy opposition from conservative forces on green jobs policies, climate change and renewable energy (e.g. Solyndra). Opposition is not as heavy on state or local level, but it still poses a challenge"*
Workers' Defense Project, Inc.	*"Companies are advocating for rapid job creation, oftentimes pushing City officials into giving acquiescing large tax rebates to companies without any stipulation for green job creation"*

NOTE: The DC project was unavailable to report on its challenges.
SOURCE: SEGUE Evaluation Survey Responses.

As the frontline for SEGUE with respect to operational findings, the demonstrations report potential challenges for other SEGUE activities beyond general funding and policy. Along with their individual programmatic challenges and failures, these grantees have tracked possible challenges for other green economy activities, such as employers skirting job quality standards, flagging consumer interest and the need to leap into private-sector models.

3.4 Summary

Past and current SEGUE grants and activities shed some light on the initiative's core premise, and many may demonstrate potential localized impacts in the near term. Potential grantees – those under consideration – may also lead to further learning in future incarnations of the initiative. However, many of the broader SEGUE research questions regarding the growth potential of green jobs for poor and vulnerable individuals are still unanswered through the initiative's activities. This is particularly true of the more recent, Phase II grantees that are focusing on new green economic sectors. These new sectors face entirely different conditions than the original sector. Furthermore, the Phase II grantees are too early in their grant cycles to provide robust findings or programs that can be assessed in this evaluation.

Among the grantees with a longer tenure, there is a mixed record on outputs and achievements. Some of SEGUE's knowledge creators generated research and analysis that the wider scholarly and practitioner worlds view as meaningful contributions to the literature. Other grantees produced synthesizing documents to answer particular SEGUE questions or programmatic concerns. As with most research, the lack of sufficient data sources and opportunities to employ rigorous methods to address multiple research questions hindered short-term findings.

Activities in the Campaign for American Workers contributed the type of information SEGUE would have uncovered in a search phase. Yet, it soon became apparent that this scholarship would only answer a fraction of the questions posed by the new, green economy initiative. An extensive additional set of research projects was funded – and continued to be funded as SEGUE entered its Phase II. The record of longer-term intermediaries' outputs show varied success. Some have been successfully launching new leadership incubators, but more time is needed before the impacts of these can be considered.

The coalitions and alliance-building networks that most intermediaries have created are facing growing pains either through disinterest, the purposeful exclusion of some parties or ongoing difficulty in coming to concrete agreements on activities. These grantees fulfilled their early mission of identifying promising local models and innovations and bringing these to SEGUE's attention. The one area where the intermediaries' achievements are most unclear is in direct technical assistance and capacity building. As national organizations, these groups often lack the technical expertise in key disciplines to address the unique *local* conditions of fledgling organizations though they have often been able to connect local organizations to other providers successfully.[23] If SEGUE intends to expand the already large proportion of grants funds that have been issued to intermediaries, the new resources could be used to harness the most strategic minds and practitioners in different fields. As the intermediaries themselves have noted, this expertise could come either through efficiently identifying the most effective local experts or through developing the expertise internally in their national organizations.

Tools- and service-focused grantees provide lessons from the entrepreneur's perspective, by working in a variety of different scenarios to address an equally wide variety of industrial bottlenecks. To date, however, few of these grantees report substantial traction or replication of any of their approaches to local policy advocacy, analytical tools and supplementary training services, or recognition of industry leaders. The three grantees in this category that are working on activities in a similar field, namely, finance facilities and investment models, are still in very early stages. They will require more time (10 to 15 years by one grantee's calculation) before scaling and any noticeable employment effects can occur.

In contrast, the service-delivery demonstrations have measurable outputs that are likely to continue producing short-term outcomes in the near future – but only with ongoing public and philanthropic resources. All of these grantees note

[23] One possible exception to this has been in policy advocacy, where a portion of the intermediaries report some modest local impacts.

a desire to become self-supporting enterprises, even in the not-too-distant future. Many also report that the services they provide exceed those available from their local competition, making them potentially lucrative ventures. Notably, they cite the inroads that they have made in their communities (as well as the funding pools into which they can tap) as public or non-profit entities as a key reason for their current operational success. The winding down of ARRA funds, lack of new requirements on utilities and local entities for energy-efficiency programs and the persistent "glass walls" of accessible market-rate investments portend a transition period for these grantees.

Overall, the record of past and current grantees' performance has depended as much on the need to learn in a complex environment as it has on any individual grantee's capacity. The broader economic and policy context has inhibited all of the grantees – even the knowledge creators who have been unable to acquire data or locate sufficient models and sites to analyze. The transition in SEGUE's sectors and scope has also led to reduced resources for testing additional interventions in a single sector, though it has provided the opportunity to test similar interventions in different sectors, such as local policy advocacy strategies and broader investment models and financing facilities. However, this transition appeared necessary for programmatic reasons given the nascence of the retrofit market.

One gap in SEGUE's grant and non-grant activities has been the explicit involvement of industry players. Though informal conversations between grantees or SEGUE staff with industry could not be documented by the evaluation, the lack of visible interactions with the private sector is particularly striking given the initiative's industry-building strategy. An industry representative who participated in a workshop discussion led by one of SEGUE's knowledge creators explicitly noted this gap. Furthermore, the low levels of participation from industry are immediately apparent from the grantees' industry partner lists. When involved through working groups, communities of practice or even specific SEGUE grantee's activities, members of the construction and finance industries have been participating in marginal or non-committal ways. Two exceptions to this are: i) building contractors that are actively involved with some of the demonstration grantees; and ii) the financial institutions that are holding exploratory discussions with some of the tool-focused grantees.

There appear to be several reasons for the dearth of industry involvement appears. According to some grantees, some of the industry members that have been participating are primarily interested in short-term business opportunities rather than the longer-term activities and market transformations of SEGUE's focus. SEGUE also relies heavily on public, non-profit and academic advisors with varying breadth and depth in the industry networks within the sectors of interest.

Integrating "mainstream" industry has been another challenge. Mainstream industry is often unwilling to come to the table to work on the issues that SEGUE is trying to address. In some cases, industry is entirely hostile to SEGUE's strategies for some of the green economy pathways. Job access and job quality improvements, as well as environmental and industrial regulations, are obvious examples.

Finally, as a Foundation initiative, SEGUE is restricted in being able to support for-profit enterprises. There may be feasible alternatives for overcoming this barrier, including working with green industry trade associations that are largely non-profits or collaborating with industry players in impact investment efforts. Regardless of the cause, the omission of the private sector in industry-building strategies requires further exploration if industry-building goals are to be accomplished.

Despite some gaps in activities for demonstrating SEGUE's comprehensive proof-of-concept, SEGUE has provided extensive learning, piloting and documentation since its inception. In numerous ways, SEGUE and its grantees have become repositories of the latest green jobs knowledge. That information is critical for reflecting on SEGUE's strategy to date, as well as the feasibility of alternative strategy scenarios.

GAIA (Global Alliance for Incinerator Alternatives)

4

SEGUE Theory of Change

The evaluation team's third primary activity involved exploring SEGUE's fundamental premise and that premise's evolution throughout the initiative's existence – that is, SEGUE's "theory of change". A theory of change is an ongoing process of inquiry and reflection to explore how change happens in a complex social initiative. By articulating this process, organizations can understand the context for change – the relationships, structures and processes that influence change in the lives of the target group or sectors – and the dimensions of change that must happen to reach long-term outcomes. This enables organizations to locate a program or initiative within a framework for collaboratively constructing and systematically documenting how and why change happens (Anderson 2005a; Anderson 2005b). Theory of change analysis is especially useful for complex initiatives that are less amenable to traditional evaluation approaches that rely on simpler, linear logic models (Mayne, n.d.).

A fully developed theory of change explains and illustrates the causal relationships between planned activities and the outcomes that must occur to reach the long-term goal of the initiative (Rogers, 2008). Further, it must state the underlying assumptions about how change is expected to occur at each step along the pathway which, in developmental initiatives, can only be predicted from informed projections. The model should clearly articulate and communicate the program's goals, strategies and mechanism of action to external stakeholders. That said, the model is seldom static. In most cases, the theory of change evolves over time. While it is too soon to ascertain conclusively what the funds invested in SEGUE have yielded to date, articulating and validating the existing theory of change with the SEGUE team has proven a valuable exercise. The theory of change is a useful tool for surfacing questions about the program's successes and challenges as well as informing the decision whether to move the initiative into execution.

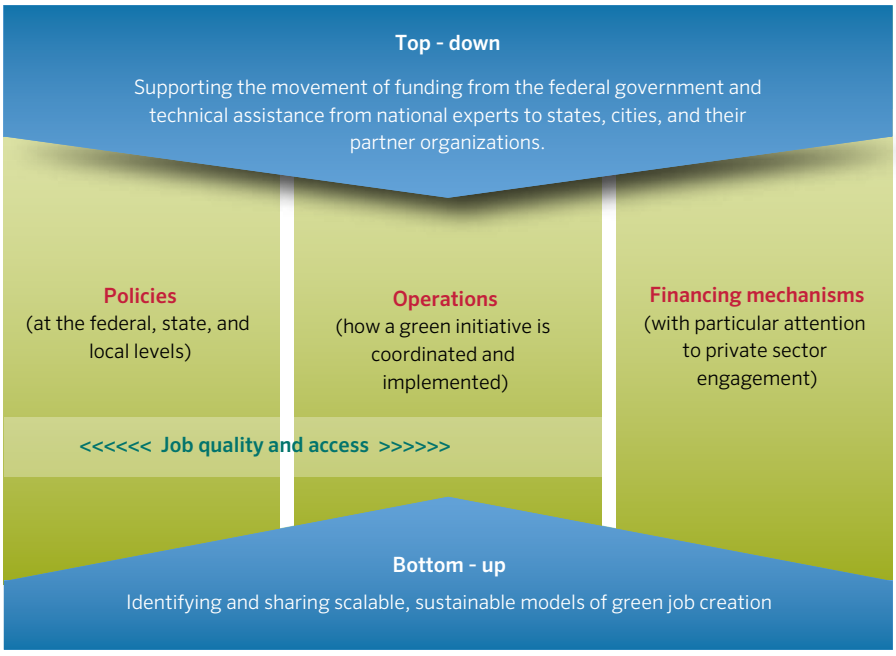
For this activity, the evaluation team documented previous tacit strategies, surveyed the terrain of green economic and employment strategies and collaborated with the SEGUE team to articulate, record and provide feedback about the learning gained

from SEGUE's development phase.[24] The final product described in this document consists of a theory of change for the current SEGUE initiative that incorporates the discussion and reflection of the SEGUE team along with alternative theory of change scenarios based on the knowledge base developed during the evaluation.

4.1 Existing framework

SEGUE's developmental premise focuses on the "belief that growth in the building retrofit industry and market, as well as other areas of the economy related to climate change mitigation and resilience, can lead to a significant expansion of work opportunities for poor and vulnerable workers in the US over the next decade and beyond" (Rockefeller Foundation, 2011e). In so doing, the initiative explicitly lists the demand for green workers – that is, the number of available green jobs generated by firms in the struggling green economy – as being the primary challenge to realizing high quality green employment for the targeted population of disadvantaged workers. To release this bottleneck, SEGUE further theorizes that the growth of individual green sectors will increase the number of green jobs. By investing in models that could be adopted by the private sector or in tools and services that can assist the private sector directly, SEGUE would assist green job sectors in expanding, becoming self-sustaining and, ultimately, producing green jobs.

FIGURE 4. **Chart depicting the opportunity model for SEGUE**



SOURCE: Rockefeller Foundation (2009a).

[24] The evaluation team's approach to reviewing and refining the theory of change for SEGUE is an adaptation of the theory of change framework and process developed by Dr. Helene Clark of ActKnowledge and developer of the Theory of Change Online (TOCO) tool. It also draws on foundational thinking from the Aspen Institute by practitioners Andrea Anderson-Hamilton, Anne C. Kubisch and James P. Connell. The framework has been adapted to include inquiry-based developmental evaluation principles pioneered by Michael Quinn Patton, as well.

SEGUE chose to employ and test a breadth of "strategic interventions where the proportion of public benefit is greatest (where private markets are least likely to invest as they develop) and/or where they can leverage the greatest amount of public and private resources" (Rockefeller Foundation, 2011e). Early on, these interventions were characterized as opportunities to shape "policies, operations and financing mechanisms" at the national and local levels. After exploring capacity building strategies in other sectors, the Rockefeller Foundation further refined the characterization of the SEGUE interventions to include:

- knowledge creation, in the form of research on market dynamics, core technologies, best practices, benchmarking, etc.
- innovations like new products, services, technologies and financing that advance the market
- standards in industry that enable consumer protection, social equity, quality assurance, etc.
- institutions and structures, like trade associations, networks and other vehicles for organizing players for collaboration within the market (Cleveland *et al.*, 2010).

The following discussion narrates the current SEGUE thinking with regard to the explicit goals and strategies of the initiative, while noting any gaps that are implied.

4.1.1 Goals

As noted earlier, the Foundation conceived SEGUE as an opportunistic response to a dual set of challenges. During the recession that began in 2008, American workers experienced double-digit unemployment rates, exacerbating a persistent trend in underemployment and declining median household incomes over the past decade. These trends were more severe for certain segments of the population including minorities, low-skilled and other disadvantaged workers. At the same time, the adverse effects of global warming and climate change are predicted to be particularly damaging and disruptive for low income communities and vulnerable Americans. As articulated in the SEGUE Development Paper, "the economic and climate crises facing America and the rest of the world present an immense challenge to create and maintain jobs on the one hand and to reduce carbon emissions and increase peoples' resilience to the effects of climate change on the other" (Rockefeller Foundation 2009a: p. 3).

The Rockefeller Foundation's goals for SEGUE fall under three domains: resilience, jobs and environmental justice.

- **RESILIENCE.** *Low-income populations are less vulnerable and more resilient to shocks to the economy, e.g. job loss spikes and recessionary conditions.*
  Attainment of the long-term "green jobs goal" would ensure that low-income populations would be less vulnerable and more resilient to shocks to the economy. Thus, promoting resilience of the target population is a "side effect" or "co-benefit" of the primary goal of SEGUE.

- **JOBS.** *Target population finds employment in the green economy*
  The primary long-term goal of the initiative is for significant numbers of poor or low-income and vulnerable workers to acquire jobs in the green economy. According to the SEGUE documents, realizing this goal requires the substantial growth of green jobs in

targeted industries with a significant share of these jobs being accessible to low-income and vulnerable workers. To detail this goal further, SEGUE refined the target population to include "low-income workers who have a high school diploma or less and are chronically under- or unemployed" (Rockefeller Foundation, 2010).

- ENVIRONMENTAL JUSTICE. *Positive community, environmental and health impacts for poor and vulnerable communities, low-income populations live in greener neighborhoods.*
  The third long-term goal of the initiative is also an outgrowth of the first goal. In addition to the social benefits, the targeted industry development within the green economy associated with SEGUE should bring about positive environmental, community and health impacts for poor and vulnerable communities. This would be achieved by virtue of low-income populations living in greener neighborhoods.

4.1.2 Inputs and resources

Inputs are the human and financial resources and assets that can be leveraged toward achieving the goals of the initiative. Initiative inputs include grants and non-grant resources, such as networks and relationships that the Foundation contributes to accomplish the activities and actions prescribed by the SEGUE strategies. Accomplishing the SEGUE theory of change also requires inputs from a broad array of stakeholders that are beyond the Foundations' sphere of influence.

These stakeholders include, but may not be limited to, public and private sector investors, financial institutions, industry associations, policymakers, government agencies and regulators, researchers, advocacy groups, entrepreneurs, businesses and employers, institutions of higher education, technical assistance providers and other consultants and professionals, employment training and service providers, and other leaders and organizations across the public, private and nonprofit sectors. The theory requires the combined and coordinated efforts of a diverse and broad set of stakeholders to achieve the shorter term and intermediate pre-conditions and outcomes along the way to attaining the long-term goals. In SEGUE's documentation, these groups are referred to in broad terms for the purposes of exploration and development.

4.1.3 SEGUE intervention and strategies

THE PRIMARY STRATEGY FOR THE SEGUE INITIATIVE IS INDUSTRY-BUILDING TO CATALYZE THE SUPPLY AND DEMAND FOR GREEN JOBS. The SEGUE intervention is a mix of strategies and activities that define the Foundation's approach to achieving the goals of the initiative. The initiative's past grant portfolio includes multiple types of industry-building activities, including the development of private sector financing mechanisms and the provision of technical assistance to implement industry-building approaches. The SEGUE grantee, Innovation Network for Communities, recommended other industry-building activities that SEGUE could employ. The Network found that catalyzing and transforming growth in an industry requires the development of financial models and policy mechanisms to generate private sector financing. This type of growth also requires technical assistance and expertise, in the form of tools, capacity and networks, to design, drive and support the implementation of these industry-building activities. These financial and technical activities are seen as necessary components of the industry-building strategy.

Although industry-building is the primary strategy, the initiative literature discusses the need to employ other secondary strategies – notably policy changes – to bring about higher job quality in targeted industries in the green economy. It also mentions the need for policy mechanisms to promote "green on-ramps" for linking low-skilled workers to entry-level green jobs to ensure that jobs created through the industry building strategy are accessible to the target population. Further, SEGUE refers to other Foundation activities in support of climate change mitigation and adaptation goals. Though not specified in SEGUE, these activities suggest a fourth implicit pathway focused on environmental benefits. The resultant, current SEGUE Theory of Change diagram represents all four pathways occurring in tandem (Figure 4).

4.1.4 Pathways of change

A "pathway of change" – also called an outcomes map – describes the causal relationships between planned activities and anticipated shorter-term outcomes or pre-conditions that must occur to affect longer-term outcomes and achieve impact. In short, a pathway is a way to reach the long-term goal or goals. Each point along a pathway specifies preconditions of change that are both necessary and sufficient to achieve the next outcome in the pathway. Preconditions of change are time-dependent. Some must occur early on to enable changes later on.

Preconditions of change often need to happen on many different levels, ranging from changes in individuals' attitudes and behaviors to community, institutional and system changes. Preconditions involve tangible changes in conditions, such as the creation of self-sustaining green economic organizations, and less tangible changes in process, such as changes in business relationships, politicians' attitudes, or workers' skills – both of which are necessary to support and bring about other changes along the pathway. Finally, some preconditions are a direct result of the initiative's investments and activities while others are only partially or not at all within the control of the initiative, requiring action by other stakeholders to affect them. Ultimately, the strength of a theory of change depends on the likelihood that if each precondition occurs, then the next outcome in the pathway will also occur. The resulting theory of change provides a rationale for which strategies are effective or most likely to be effective, given the context and the extent to which the supporting assumptions hold true and the inhibiting factors and risks can be mitigated.

Figure 4 illustrates four pathways of change for the SEGUE initiative in four phases, moving from left to right: early preconditions, shorter-term outcomes, intermediate outcomes and longer-term outcomes. Enabling activities and assumptions as well as inhibiting factors are listed with each outcome. The first pathway on the top, "improved environment", leads to the "environmental justice" goal. The other three pathways of change –"industry building", "improved job access", and "improved job quality" – also must all be realized to achieve the long-term goal of green jobs for the target population. According to the SEGUE team and the literature review presented in this document, SEGUE's investment strategy implicitly recognizes the necessity of all four pathways of change. Specifically, the initiative did not fund grantees that were unwilling to address job quality or job access issues, though there were many that did not foreground them. Additionally, SEGUE only provided monies for work in sectors with explicit environ-

mental benefit. Because environmental benefits can be achieved independent of job quality and job access outcomes, but would likely share several preconditions with the industry building pathway, it is portrayed separately in the diagram. A more detailed discussion of the environmental benefits portion of the model is not provided because of the limited evidence base for its pathways.

4.1.5 Core assumptions and beliefs

The SEGUE intervention and pathways of change draw from certain core assumptions and beliefs about change. The industry-building approach to creating green jobs and generating employment for the target population reflects the Foundation's broader and most recently articulated beliefs about how change needs to happen (Rockefeller Foundation, 2012a). The Foundation believes that the new realities of today's world add complexity to its mission of improving human well-being. Recognizing that poor and vulnerable populations are most likely to face shocks and disproportionately experience the negative impacts of today's dynamic reality, the Foundation believes that new solutions are required to create opportunities and promote resilience for the people who are most vulnerable to losing their jobs in a recession and for the communities most vulnerable to environmental degradation.

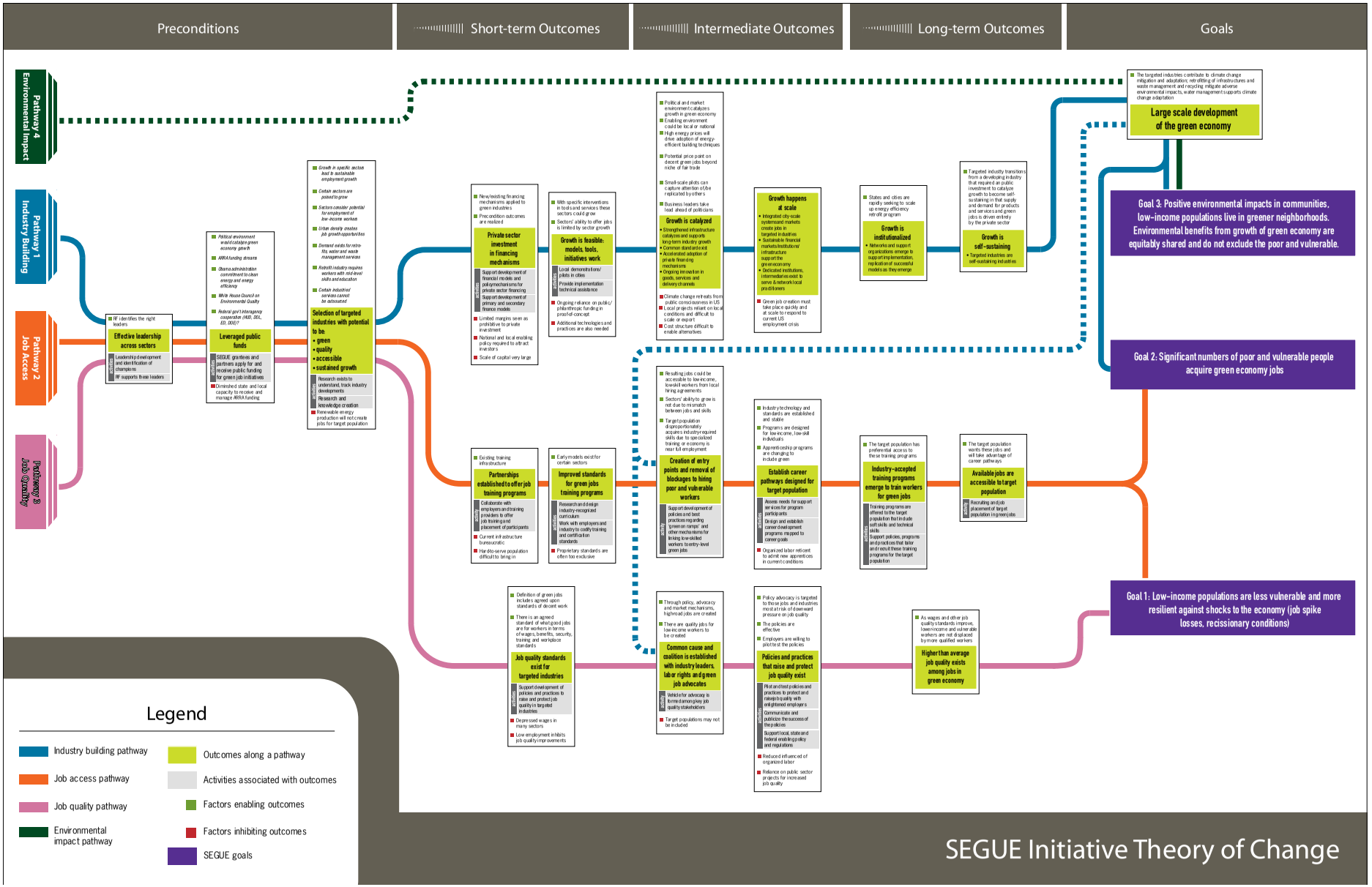
New solutions involve a new understanding and way of thinking about the challenges and options for addressing them. They involve a paradigm shift both in how to approach the problem and in innovation in products, processes or services that catalyze transformational change – so that poor and vulnerable populations are better equipped to respond to shocks and access opportunities in this new dynamic reality. The heart of the Foundation's beliefs about change is that new challenges necessitate new solutions and that innovation is the key to catalyzing transformational change. The implicit assumption that follows from this belief is that applying traditional thinking and existing approaches are an inadequate response to current problems and new opportunities.

This broader belief about how change must happen has informed an underlying assumption about the industry-building approach as an innovative strategy for catalyzing change. The industry-building strategy holds, with reasonable support from the literature, that catalyzing the growth of certain green jobs industries can alter the economic opportunities available to the target population at a large scale. Thus, the Foundation's role in the intervention focuses on the levers of change needed to catalyze growth. The success of the SEGUE intervention hinges on the ability to develop green industries enough to reach a "tipping point", at which they become self-sustaining, generating green jobs in substantial numbers that match the skill and educational attainment levels of the target population.

4.1.6 Preconditions

At the initial stages of the initiative, effective leadership, public funding or incentives, and the selection of targeted industries that have the potential to meet the Foundation's green jobs criteria – green, quality, accessible, sustained growth – are the early preconditions of change for the initiative's jobs goal. These preconditions are shown in detail in Figure 5: Diagram of preconditions in the current SEGUE theory of change.

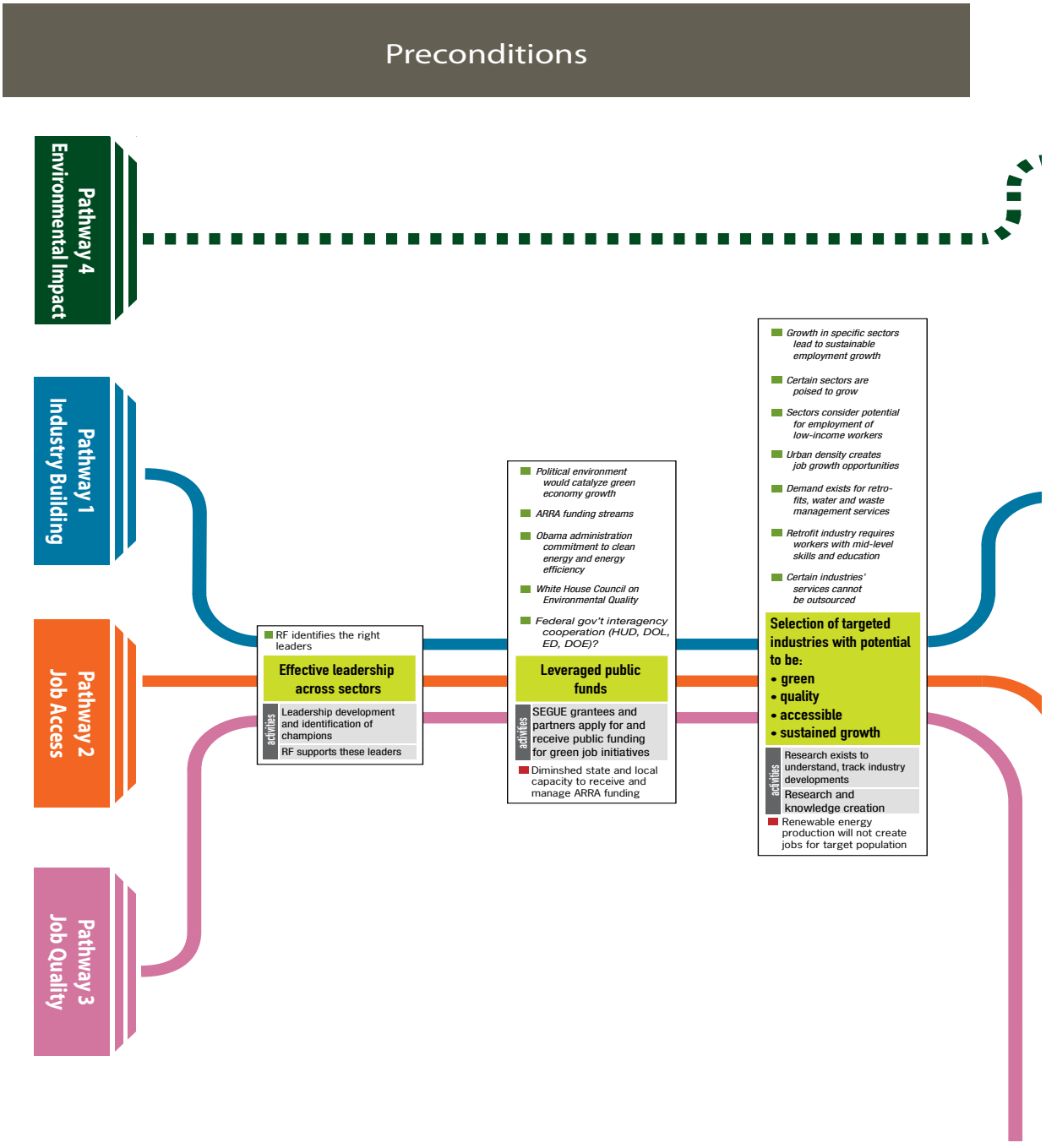
FIGURE 5. **Full diagram of the current SEGUE theory of change**



Effective leadership

Initial Foundation activities include identifying, developing and supporting leaders and champions of the initiative. Assuming that the Foundation identifies the right leaders – people with the requisite knowledge, skills, connections and commitment – these activities will result in effective leadership from individuals and organizations across sectors who will spearhead the SEGUE intervention and activities.

FIGURE 6. **Diagram of preconditions in the current SEGUE theory of change**



Leveraged public funds or incentives

Effective leaders will facilitate the Foundation's communication activities to promote the green jobs movement to policymakers and impact investors. The Foundation's investment in and support of effective leaders will also enable SEGUE grantees and partners to access public funding for green jobs initiatives. Initial public investment in green jobs initiatives, particularly at the federal level, was considered an opportunity and an early prerequisite for attracting private investment. The availability of federal funding for green jobs initiatives was premised on several assumptions enabled by a favorable political environment. It assumed, foremost, that funding streams made available through ARRA in early 2009 would indeed be available and leveraged at the initial stages of the initiative. Other supporting assumptions included the political commitment at the beginning of the Obama administration to invest in clean energy and energy efficiency.

According to SEGUE documents, an important barrier to leveraging public funds successfully is the diminished capacity of state and local governments – in terms of staff experience, time, relationships and finances – to move rapidly in applying for, allocating and reporting on ARRA funding. Weakened local capacity threatens learning and innovation in implementation and coordination of green initiatives to benefit low-income individuals. With the ARRA funds no longer available, funding from state and local governments, as well as incentive systems and market-pull policies, are alternative strategies to attract private investment in green jobs initiatives. It is important to note that SEGUE is reconsidering whether public funds represent a necessary precondition for the entire initiative – and in fact, it foresees public funds becoming an enabling condition. This discussion is addressed below, in the Industry-building pathway section.

Selection of targeted industries

Identification and selection of targeted industries that meet certain criteria is another critical precondition. These industries must be green and have the potential to be sustained, i.e. poised for long-term growth. They also must provide decent or high quality jobs, and provide jobs that are accessible to the target population. The initiative defines a green job as one that is directly or indirectly related to any service or product that will reduce carbon emissions, and that includes a family-supporting wage, benefits and advancement opportunities. The transition of SEGUE's sectors in Phase II demonstrated that the selection of sectors based on these criteria and supported by external analysis is critical to the viability of linking the industry-building pathway to the job access and job quality pathways. Targeting the right industries that will produce the desired numbers and types of jobs that meet the Foundation's criteria is the multilayered goal. Thus, the importance of this early precondition to the success of the SEGUE intervention cannot be overstated without altering the goals and the allowable initiative timeframe.

4.1.7 Industry-building pathway of change

The initiative must attract private sector investment and demonstrate that growing the targeted green industries is feasible in the long term in order to catalyze industry building in the short term. In the intermediate term, industry growth must be accelerated and happen at scale to reach a tipping point. At this point, growth must be institutionalized and become self-sustaining over the long term in order to realize the initiative's jobs goal. This industry-building pathway is depicted in detail in Figure 7.

FIGURE 7. **Diagram of industry-building pathway in the current SEGUE theory of change**

Private sector investment

The industry-building pathway begins with the assumption that federal, state or local public funding or incentive systems will be available for green jobs initiatives. As stated earlier, this could also be an enabling contextual characteristic rather than a necessary precondition. It also assumes that effective leaders have been engaged to determine the right industries to target. The SEGUE initiative will support leaders across the private, public and non-profit sectors in collaborating to research and develop financial models, tools and policy mechanisms that will stimulate private sector financing in the targeted green industries. Assuming that existing and new innovative private and public financing mechanisms can be applied to energy efficiency retrofits and other green jobs areas, SEGUE grantees and stakeholders will be able to leverage public funding and incentives to attract private sector investment in financing mechanisms.

It should be noted that there are many other industry-building activities that can lead to this investment and that this investment can take many forms. Many of these were discussed in the literature and were also piloted by SEGUE grantees. For the purposes of simplifying the pathway, these are grouped.

Growth is feasible

Private sector investment in financing mechanisms will enable testing and creation of new models, tools and local initiatives in the targeted industries that actually work. Initiative activities include funding of local demonstrations and pilots in cities and providing technical assistance for implementation, in the form of tools, capacity and networks. Industry-building strategy requires multiple but specific interventions in tools and services to finance, design, drive and support implementation of green jobs initiatives in order to enable industry growth. Because the intent of the SEGUE strategy is to catalyze industry growth, the direct influence of the SEGUE initiative takes place within the short-term of the industry-building pathway. Changes that occur beyond the short-term are considered indirect results of the initiative investments and activities.

Growth is catalyzed and accelerated

In the intermediate term, if innovative tools, policies and initiatives have been tested locally and have proven viable in the target industries, it follows that they will strengthen the green economy infrastructure. This includes financial markets institutions, industry networks and data standards – all needed to catalyze and support long-term growth of the targeted green jobs industries. As the green economy infrastructure develops, it will lead to accelerated adoption of successful energy-related private sector financing mechanisms and ongoing innovation in goods, services and delivery channels.

During this stage, political and market conditions are an important influence that can support or inhibit industry growth. These include a national or local enabling environment and high energy prices that will drive adoption of energy-efficient building techniques. Other supporting conditions might include small-scale, proven pilots that can capture the attention of, and be replicated by, other entrepreneurs and progressive business leaders who choose to venture into green economic activities. Counteracting these are inhibiting factors such as the retroactive movement on climate change in the

public consciousness in the US. Although both negative and positive influences may be at work, the supporting conditions must outweigh the inhibiting ones for the initiative to advance to the next stage of the industry-building pathway.

Growth happens at scale

As the green economy infrastructure matures, it will provide stability and support for more and broader financial institutions and infrastructure that can support the green economy. Local, small-scale pilots that were effective in the short-term will be taken to scale as city-wide integrated systems and markets that produce green jobs in the targeted industries in the intermediate term. Another indication of a maturing economic infrastructure is the emergence of dedicated institutions and intermediaries that serve and provide specialized industry networks for local practitioners.

Again, for the green economy to mature at scale depends on external factors in the political and economic environment. Timing is also a factor. The Foundation believes that the process of green job creation must take place at scale and at a rapid pace if it is to respond to the current crisis in unemployment and underemployment in the United States.

Growth is institutionalized

The SEGUE theory of change posits that once industry growth happens at scale, it will result in the emergence of networks and support organizations that will support implementation and replication of successful models as they emerge. This outcome will be more possible if states and cities are rapidly seeking to scale-up energy efficiency retrofit programs or those in other green sectors such as storm water retrofits or recycling. As solutions are adopted by more and more localities and regions, growth will become institutionalized.

Growth is self-sustaining

In the long term, the existence of integrated, city-scale systems and markets will spur job creation in the targeted industries, enabling the creation of self-sustaining industries. According to this theory of change, somewhere in the intermediate or long term, the targeted industries will experience a "tipping point". This means that they will transition from developing industries that required an initial public investment or special industry incentives to catalyze their growth to self-sustaining industries in which the supply and demand for products and services (and green jobs) are driven entirely by the private sector. These are the enabling pre-conditions for significant numbers of poor and vulnerable workers to find employment in the green economy – the primary long-term goal of the initiative.

It should be noted that the SEGUE team has commented that it considers industry building a precursor to the job access and job quality pathways, under the assumption that efforts to improve job quality and access cannot commence until new green jobs have been created. This assumption depends on whether initiative strategies focus on creation of new green jobs or addressing quality and access for existing green jobs. The existence or absence of full employment conditions may also moderate the effect of efforts to improve job access in tandem with the industry-building intervention.

In all cases, the industry-building pathway is shown as both a parallel and preceding series of outcomes to the other two primary pathways.

4.1.8 Job access pathway of change

Though it is implied in SEGUE's goals and is an explicit focus of the Rockefeller Foundation, providing access opportunities to disadvantaged workers (generally defined as those having a high school diploma or less and, therefore, being less economically resilient) has not been fully articulated as a parallel strategy. This is explicitly included here and is depicted visually in Figure 6.

To accomplish outcomes in the short-term stages of the job access pathway, the initiative must establish partnerships with training providers, unions, employers, city regulatory agencies and key players in job placement programs and initiatives. Stimulating demand for labor in the targeted green industries entails supporting targeted hiring programs such as city-approved or voluntary community benefits agreements with organized labor, private firms or public contractors. Improving the supply of labor among the target population begins with supporting improvements in curricular and certification standards. This lays the groundwork for the intermediate outcomes of establishing and tailoring career pathways and providing industry-accepted training for the Foundation's target beneficiaries of industry growth and green jobs creation. Green on-ramps – mechanisms facilitating entry into the job market – may also be needed in the long-term for employers to hire poor and vulnerable workers over similarly qualified mainstream workers and ensure that the newly created green jobs are accessible.

Establish partnerships

The Foundation will need to assume an active role in promoting targeted hiring programs or green job training partnerships, for example, through collaboration with employers, unions, city regulatory agencies, institutions of higher education, and training and service providers. An alternate approach would be for the Foundation to ensure that this work is being accomplished by other parties. These partnerships are essential for establishing agreements and policies that place parameters on hiring practices of low-income workers in the private or public sectors. Agreements might include incentives for compliance or penalties for non-compliance. Local partnerships are also needed so that training and service providers can access resources and networks to design and implement programs, offer on-site training and internship opportunities, and facilitate placement and advancement of participants. Once these partnerships are established, Foundation activities might include testing local pilots of green on-ramp or service providers to offer training programs to the target population.

Green on-ramps

Key activities involve supporting development of policies and best practices for 'green on-ramps' and other mechanisms for linking low-skilled workers to entry-level green jobs in order to create entry points and remove blockages to hiring poor and vulnerable workers. However, achieving these outcomes is premised on several factors. First, it assumes that the target population is already qualified for the types of new jobs that will be created through the industry-building strategy and that the jobs that

FIGURE 8. **Diagram of job access pathway in the current SEGUE theory of change**

have been created in the growth industry could be accessible to low-income, low-skill workers. Second, for green on-ramps to contribute to job access assumes that there is no mismatch between jobs and skills. Third, for low-income people who require training, it assumes the target population will disproportionately acquire the technical skills needed for targeted industries. For instance, if the economy is near full employment, or the skills the target population is trained in are not held by others, it will reduce competition for those jobs. Once people in the target population have acquired "soft" job skills as well as the requisite technical skills, green on-ramps may be needed in both the shorter term and in the longer run, if additional measures are needed to improve their chances of being hired.

Improved curricular and certification standards

Having established training, building credible partnerships in coordination with industry is a critical precursor to improving curricular and certification standards for green jobs training programs. Foundation activities might include supporting research and design of industry-recognized curricula and working with employers and industry associations to codify training and certification standards.

Green career pathways

As noted in the literature review, the field of workforce development has developed career pathway programs as an integrative framework for promising approaches to post-secondary education and training for low-income and low-skill adults. The state of the field suggests that establishing career pathways for specific green jobs is an important step in the job access pathway. A key assumption is that the programs would be designed for the Foundation's target population – individuals who are low-income, low-skilled, unemployed or underemployed. Career pathways are closely tied to an industry's technology and require that standards be sufficiently established and stable in order to design a program based on those standards – a key interdependency with the industry-building pathway.

Because of its dependence on catalyzing industry growth, activities to develop career pathways would take place in the intermediate pathway of change and may be beyond the initiative's direct involvement. They include addressing support service needs of program participants (e.g. case management, academic and vocational counseling, peer mentoring, social supports), and designing and establishing programs and their components, such as credentialing mapped to career goals, internships with employers and job placement.

Industry-accepted job training programs

In conjunction with career pathway programs, industry-accepted job training programs, offered through community colleges, on-the-job-training or other venues, must exist or be repositioned to train workers for green jobs in the targeted industries. Support for policies, programs and practices will be needed to tailor and recruit these training programs for the target population. Training programs that are offered to the target population must include both soft skills and technical skills. These programs are more likely to be successful if the target population has preferential access to them.

Available jobs are accessible to the target population

Future activities to ensure that poor and vulnerable people actually acquire jobs in the green economy include recruiting and job placement of the target population in green jobs and providing support services, such as access to child care and transportation services, once they are hired. For people to access available jobs assumes that there are jobs to be held – another key dependency with the industry- building pathway – and that the target population wants these jobs and will take advantage of career pathways and industry-accepted training programs.

4.1.9 Job quality pathway of change

As with job access, the job quality pathway is implied but not fully articulated in SEGUE's strategies and rationale. Promoting the quality of green jobs in the short-term requires that the initiative identify and support the development of evidence-based policy and market mechanisms that will be effective in protecting or raising job quality. This pathway is presented visually in Figure 7.

Evidence-based policies

An initial step in the job quality pathway is researching policies and practices to protect and raise job quality in the targeted industries if they already exist or are new sectors, respectively. It is expected that this research would yield insights into which policy and market mechanisms are most effective in protecting and raising job quality, e.g. wages, benefits, career advancement opportunities, job safety protection and other possible quality characteristics. In many sectors, these standards may exist at different levels geographically, such as in right-to-work states. Where policies and practices do not exist, initiative grant making might support their development. This work assumes that initiative stakeholders also agreed to a standard of job quality for workers of diverse skill levels.

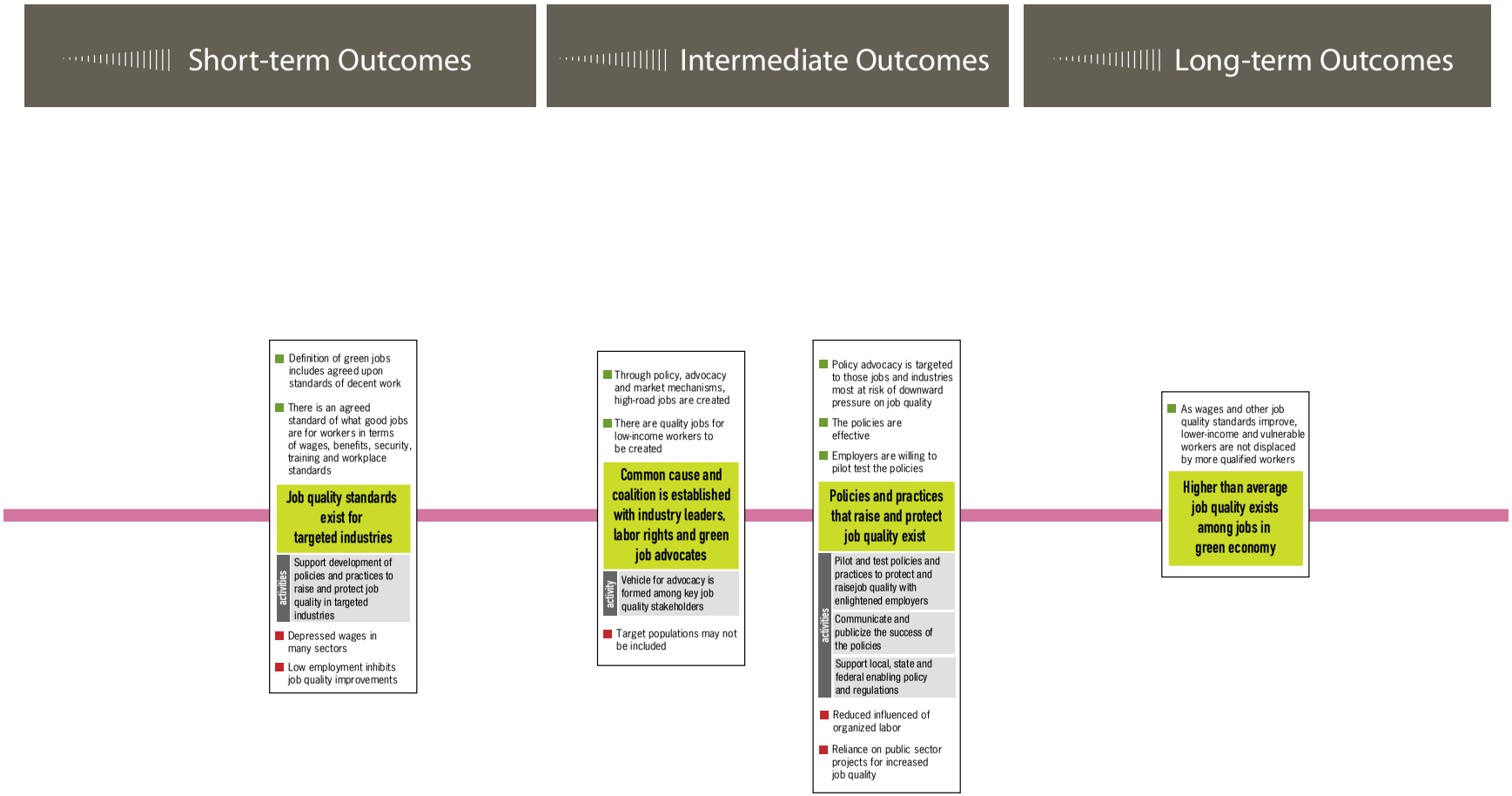
Coalitions

In order to implement policies and practices that would protect and raise job quality in the targeted industries, coalitions or other advocacy vehicles must be formed among key stakeholders along job quality issues. These coalitions can include, but are not restricted to, industry leaders, unionized labor and green jobs advocates. Success may be contingent on several factors. Though not necessarily required as noted in the literature, green job industries may need to be at or near full employment prior to job quality advocacy. This sequence of activities also assumes that there are high-road jobs to be had. A depressed labor market in the targeted green job industries may be a significant inhibiting factor.

Pilot policies

Successful advocacy and public awareness efforts can create opportunities to pilot and test policies and practices to protect and raise job quality with enlightened employers in the private sector. Assuming that employers are willing to pilot test the policies and that the piloted policies prove effective, initiative stakeholders can build on early successes by communicating and publicizing their results. This will create momentum and support for local, state and federal enabling policy and regulations which, under favorable conditions, can lead to local, state and federal policy changes being enacted and regulations that are enforced. Targeting new green jobs and oc-

FIGURE 9. **Diagram of job quality pathway in the current SEGUE theory of change**



cupations without predefined job qualities may be as effective as targeting those jobs and industries most at risk of downward pressure for job quality in the mid-term (4-6 years) if these jobs are likely to be disproportionately held by poor, low-income and vulnerable workers.

Green high-road jobs exist

The job quality pathway is expected to culminate in higher-than-average (high-road) job quality among jobs in green economy. This assumes the resulting jobs that are high quality – meaning for example they offer good pay and career paths – are better than standards for comparable jobs in other industries. To support this favorable outcome, as wages and other job quality standards improve (or do not deteriorate), lower-income and vulnerable workers must not be displaced by more qualified workers in the US in a down economy or by lower-cost workers abroad.

4.1.10 Improved environment pathway of change

Along with the large-scale economic development of the green economy, SEGUE posits that there will be a resulting positive environmental impact in communities. While the evidence base for this is surprisingly limited, this outcome appears to be possible through the very definition of green economic activities. As with the job access and job quality pathways, the improvement environment pathway is not articulated in SEGUE, though many grantees have provided environmental outputs.

Large-scale economic development of the green economy

A critically desired longer-term outcome in the industry-building pathway of change is that, as a result of large-scale economic development of green industries, communities will experience positive environmental impacts. For this to be true, the targeted industries must contribute to climate change mitigation and adaptation or other environmentally beneficial activities – not solely environmentally benign or neutral ones. For example, retrofitting of building infrastructures mitigates continued global warming, and recycling mitigates greenhouse gas emissions and conserves material resources (which in turn conserves energy, water and land) while improving air quality. Green water management supports climate change adaptation as well as water quality.

4.1.11 Goals

Together, the job access and job quality pathways can contribute to Goal 1 regarding the reductions in the vulnerability and increases in resilience of low-income populations to economic shocks. In combination with industry-building, though, the job access pathways ensures that a significant numbers of poor and vulnerable people acquire jobs in the green economy, Goal 2.

The premise hypothesizes that large-scale economic development of the green economy will lead to significant improvements in energy efficiency, reductions in carbon emissions and other local environmental resource improvements. For low-income communities, this could mean living in neighborhoods characterized with better air quality, cleaner water and less costly to maintain, energy-efficient homes. The long-term outcome of industry-building in the green economy supported by environmental improvement outcomes, then, will lead to the large-scale green economy outcome noted above and, finally Goal 3's positive community, environmental and

health impacts for poor and vulnerable communities. All of these interactions are depicted in Figure 8. These individual goals are only components of the broader vision to grow the green economy for the purposes of benefiting the environment and the target workforce populations. These are depicted as individual pathways with mutually supporting final goals both for clarity's sake and for examining how they interrelate.

4.1.12 Assumptions

Some of the implicit assumptions of individual conditions made at SEGUE's start may not have come to pass in light of external events far beyond SEGUE's control, as described in this report's literature review. Others regarding the connections between the pathways, however, should be explored. Each of the pathways, for example, could be accomplished independently. For example, the green economy could lack high-road jobs in the long term, or their job quality standards might be improved without entry points for the disadvantaged workforce. Further, the target populations could have access to high-road jobs in other sectors that have no or negative environmentally-beneficial impacts. The purposeful prioritization of the industry building pathway in SEGUE's strategy may be a critical and necessary one for the vision – and may even be the most critical – but it is insufficient.

It is the confluence of the pathways and their respective challenges, enablers and outcomes that is desired and that requires a clearer articulation. Generally, though, the premise proposed across the individual pathways and in their final visionary goals that the "green economy in the US can meet the triple bottom line of financial, social and environmental returns" is sound. However, the feasibility of implementing that logic and the number of external factors that might contribute positively and negatively to their outcomes beg further consideration.

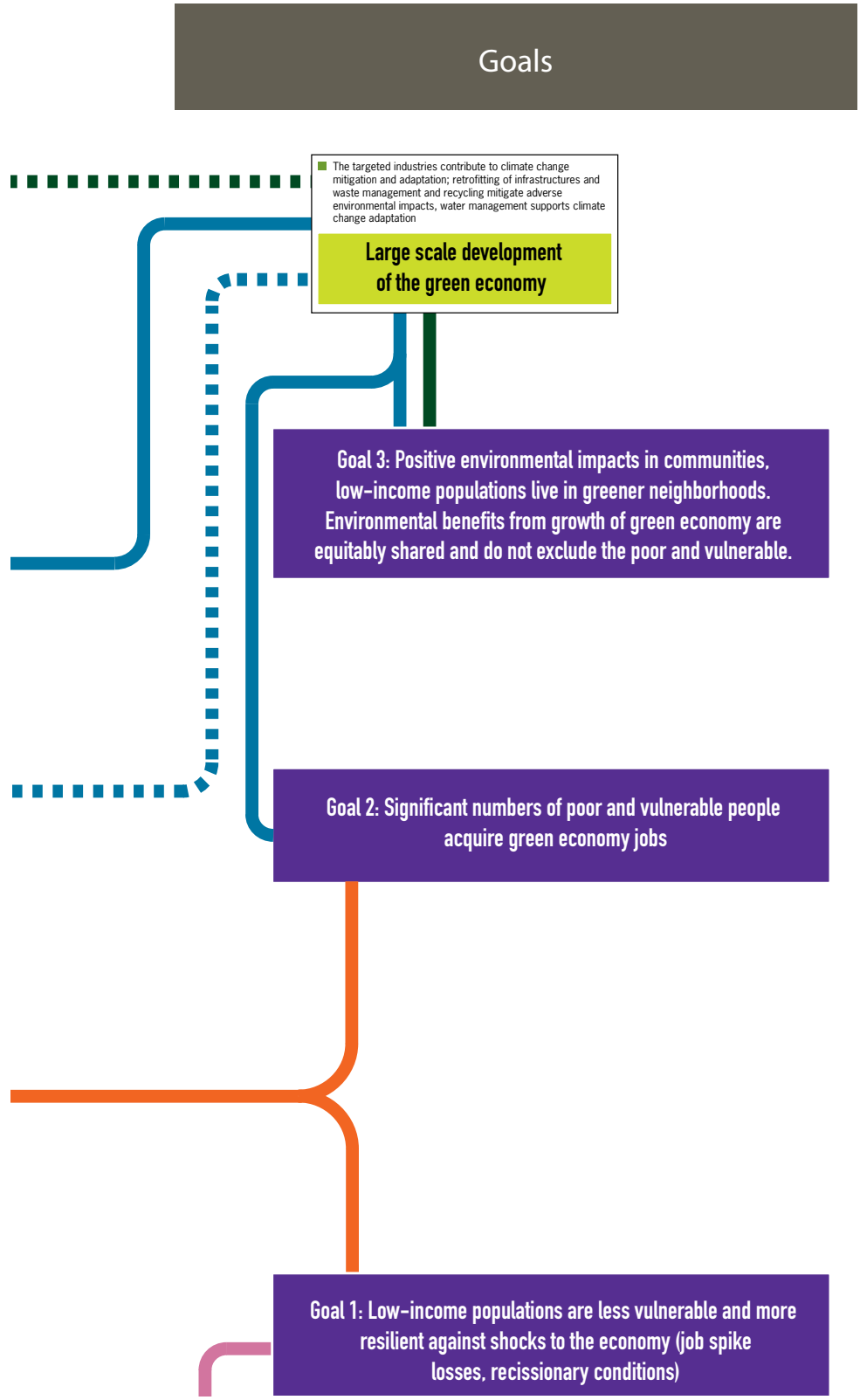
4.1.13 Indicators

An additional note on indicators for the theory of change is needed. The initiative has not yet established formal target indicators for measuring goal attainment either in its conception of the broader initiative, or for the short-term developmental activities. The language used to describe its goals and outcomes suggests a scope of large-scale impact involving significant and substantial numbers of jobs and industries. Because the initiative has not defined the size or timing of desired impacts, the theory of change is somewhat imprecise about the amount, intensity, duration and quality of the threshold changes necessary to catalyze and support the pathways of change successfully.

The initiative's recent documentation suggests potential indicators, often based on projections of green job growth under favorable policy conditions, which show tremendous movement towards articulating targets. These include:

- *"At least 15 local or state-based retrofit programs employ >250 workers/each, of which >50% are vulnerable."*
- *"At least x number of minority and women-owned contractors have received contracts in water management."*
- *"Multi-state warehouse facility exists for residential energy efficiency loans, with >$100M in capital."*

FIGURE 10. **Diagram of goals in the current SEGUE theory of change**



- *"At least 10 viable loan products exist for energy efficiency finance. Public and private data aggregators agree on at least one data-sharing protocol for retrofit performance"* (Rockefeller Foundation, 2012b).

Further development of these, depending on the decision to move the initiative into execution and the form the initiative will take, will also assist in determining the necessary resources for different levels of investment. This process must also take into account the timescale for achieving the long-term goals and providing reasonable milestones for short- and mid-term outcomes.

4.2 Alternative theory of change

Since the current SEGUE theory of change proposes a reasonable, clarified premise, it is possible to speculate on how segments or combinations of the pathways could produce outcomes, if they were to operate separately from the current initiative but using the initiative's findings to date. Given the four pathways of change, a variety of alternatives to the current pathways of change is conceivable – including maintaining the status quo. These are summarized and compared using the criteria discussed in Figure 9.

4.2.1 Criteria for comparing alternatives

Because SEGUE is a unique initiative that was established with a broad set of goals and activities at its onset, establishing criteria based on the scope and scale of those goals provides a useful framework for comparing alternative structures. Three criteria have already been established based on existing Foundation parameters: the target population, the estimated timeframe for achieving significant impacts and the geographic scope of the initiative. As discussed, the target populations most relevant to the Foundation's mission are those that are most likely to face employment challenges: the lower-skilled and generally lower-paid workforce. Early SEGUE documents defined this group as those workers with high school diplomas or less. Initiatives in execution are generally defined as lasting from five to eight years. As an initiative with its roots in the Campaign for American Workers, SEGUE is also exclusively focused on impact in the US, regardless of whether that comes from national activities or a compilation of multiple city-based ones. These three criteria apply to all alternative pathway scenarios. Additional criteria can be applied differently depending on the pathway. These criteria include the type and expected size of the impact.

- **TYPE OF IMPACT.** SEGUE currently seeks to accomplish a multilayered vision that includes reducing unemployment and underemployment, increasing job access opportunities, improving job quality and providing environmental benefits. By definition, the pathways are more likely to contribute to a single goal rather than achieving multiple goals. By including this criterion, comparisons can be made regarding whether the approach seeks to impact job quality outcomes (1), job access outcomes (2), industry-building and job growth outcomes (3), or improved environment outcomes (4).
- **EXPECTED SIZE OF THE IMPACT.** Examples of this criterion which may provide useful comparisons include the creation of a given number of green jobs, green firms with a share of a green sector's market, tons of greenhouse gases not emitted, or

a proportional increase in green job wages or in the share of an occupation that has a high school diploma or less. Regardless of the type of impact, the size of the alternative scenario can be rated as large (L), middle-range (M), or small (S). Making strict use of new high-road job growth as the metric, a small impact might be less than 2,500 jobs, middle-range impact could be 2,500-5,000, and a large impact could be over 5,000 jobs during the initiative's execution.

4.2.2 Alternatives

A number of alternatives to the theory of change are possible, as shown on Figure 9 and discussed in this section. The first group of alternatives includes those that rely on the existing theory of change with its four interrelated pathways. This includes the status quo theory of change focusing on multiple sectors of the broad green environment, along with five permutations applying the full theory of change with its four pathways on one specific green sector. As the grants and literature suggest, maintaining the status quo of multiple pathways across sectors is unlikely to yield significant impacts.

In contrast, the focus on either building retrofit or waste management are the most likely to provide some impacts for the target populations of all possible green sectors due to the current occupational projections and the slowly improving overall economic environment. The building retrofit sector is likely to pose ongoing challenges for job access and job quality improvements, as well as the overall limitations in long-term finance. This sector would require a thorough exploration and systematic coordination of all activities to ensure comprehensive green sector growth. Waste management, in contrast, has fewer job access challenges and many job quality barriers. However, as with building retrofits, it is part of an existing industry with many entrenched stakeholders. Different industry-building strategies would need to be formulated for either sector.

The second group of alternatives selects one single pathway in the green economy for development, which could apply to either a single green sector or multiple green sectors depending on the selected pathway. In this group, three pathways are likely to produce larger impacts than others. For example, a focus on industry-building while de-prioritizing access and quality improvements is likely to produce larger impacts in the retrofit sector. By selecting an appropriate mix of industry-building activities, there is a possibility to build on SEGUE's efforts to date.

Based on the evidence to date, an initiative focused solely on maintaining or improving the quality of jobs in existing green sectors also appears tenable. In many of the green sectors that have demonstrated an employment base, there is a growing concern about the reductions in wages, benefits, career ladders and other quality concerns. For example, one demonstration is primarily focused on activities along this pathway. A combination of the industry-building and the job quality pathways may also be possible to execute and likely to yield some impacts.

Another more nuanced opportunity to apply a single pathway calls for applying a select group of industry-building activities, but across multiple green sectors. Three examples of this from SEGUE's current portfolio include: focusing solely on local

policy advocacy for green legislation that enable multiple sectors; developing financial models and investment facilities that apply to multiple green programs; or focusing on full-service demonstrations in a few green sectors. Of these, the last is the most likely to provide more impact within the initiative's constraints. Though all of the demonstrations funded by SEGUE to date have been in the construction industry (both energy retrofit and new green construction), demonstrations in the waste management industry have been documented by the national intermediaries and could feasibly apply some of the same structures. These demonstrations also can potentially incorporate job access and job quality considerations.

TABLE 22. **Alternative SEGUE theories of change**

THEORY OF CHANGE	EVIDENCE BASE FROM INITIATIVE DEVELOPMENT	CRITERIA*	
		IMPACT	SIZE
Complete theory of change			
Status quo	Insufficient ability to affect change in any one sector by targeting all of them	1-4	S
Building retrofit	New conditions limit major impacts, but provide cross-pathway impacts	1-4	M
Water infrastructure	Pilots are too preliminary to scale	1,3,4	S
Waste management	Pilots show promise but exist within a current industry with sufficient access	1,4	M
Renewable energy	Unlikely to provide sufficient jobs for target populations	1,4	S
Green manufacturing	Unlikely job quality improvements or significant environmental benefits	1,2	S
Single pathway in green economy			
Improved environment	Entirely different activities, though likely to create industrial growth	4	S
General industry-building	No access or quality benefits, possibly not in line with RF mission	3, 4	M
Local policy advocacy	Activity focus can ensure local enabling green industry growth	1, 3, 4	S
Financial models	Long-term promising activity focus but with no immediate job growth	3, 4	S
Service delivery models	Activity focus job access and quality potential but job growth limits	3, 4	M
Green job access	Focus only on job access in existing green sectors	2, 4	S
Green job quality	Focus only improving job quality improvements in existing green jobs	1, 4	M
Single pathway in general economy			
General industry-building	No access or quality benefits, Dilution across industries. Unclear RF benefit.	3	S
Job access	Significant barriers in existing industries; broader skills need development	2	S
Job quality	Need for quality maintenance in many industries	1	S

* Criteria are based on likelihood of impacts in the US within in 5–8 years. Impact: 1 job quality outcomes, 2 job access outcomes, 3 industry-building and job growth outcomes, 4 improved environment outcomes. Size of impact: L large (L), M middle-range, S small.

The third group of activities apply the same single pathways, but in the broader economy. These broader strategies are provided mainly to serve as a frame of reference for green economy initiatives and to suggest ways to achieve one or a few of SEGUE's non-environmental outcomes. Not surprisingly, these strategies have more

constrained impacts than when they are applied in the green economy simply because of the potential for dilution, though the magnitude of impacts from effective interventions could be significant.

4.2.3 Foundation issue areas

The potential effectiveness of any one strategy for meeting SEGUE's selected goals is a primary consideration for moving forward. Yet, an additional set of criteria focused on the Rockefeller Foundation's signature approach to social investment must be integrated. These include reconciling the likely strategies and their outcomes to the Foundation's long-standing philanthropic mission and the two goals of building individual, community and institutional resilience while promoting equity. More practically, this includes identifying where SEGUE falls among the Foundation's issue areas that seek to value ecosystems, promote health, secure livelihoods and transform cities.

As an initiative with its roots in household income security, SEGUE has clear connections to the secure livelihoods issue area. The central pursuit of this issue area is addressing unemployment and underemployment globally – but not necessarily through previously held conceptions of economic growth and improvements on life outcomes. By explicitly integrating job access and job quality betterment within economically productive activity, SEGUE poses just such a shift.

It is also critical to remember the "green" in SEGUE. As an opportunity to reconsider Malthusian notions of the tradeoffs between the natural and human environments, SEGUE poses a dynamic response for secure livelihoods while finding "effective ways to integrate natural ecosystems into our economic and social systems" – the hallmarks of the value ecosystems area (Rockefeller Foundation, 2012a). Both issue areas' circles of opportunity appeal to SEGUE's grantees. A key finding of this evaluation has also been the localized nature of the green economic sectors of interests – especially to urban areas in the US. SEGUE can shed light on how the intense productivity and resource consumption of these geographic units – the focus of the Foundation's Transform Cities issue area – can be balanced.

5

Summary and recommendations

The SEGUE evaluation has applied methods and collected data appropriate to an initiative in development. In contrast to an impact evaluation, a developmental evaluation requires refinement and reflection based on extant, often limited scholarship and still emergent practices. For this initiative, the reflection has been informed by growing literature on the green economy and green jobs, but also from the broader and more established literature in job access, job quality and industrial investment strategies. Through this evidence, the evaluation has noted that initiatives with goals that explicitly include job access, job quality and environmental benefits in new and transforming industrial sectors must also have clear strategies for reaching them.

Even with that consideration, SEGUE's careful observations of industry conditions and broader economic and policy contexts that it has made since its inception provide a strong foundation for its focus on building green economic sectors as a primary strategy for achieving its broad goals, given its resource constraints. Activities across various grantees provide information both on the preferred methods for industry building and the opportunities for incorporating job access and job quality improvements simultaneously. Many of the grantees have grassroots experience with the actions and practices described in the literature. SEGUE has had successes and lessons. It has also faced some challenges, especially the different economic, policy and social scenario than it faced at its inception.

It is at this critical juncture in SEGUE's history that this evaluation comes. While providing an assessment of the initiative's achievements to date, the evaluation is also cognizant of the initiative's potential achievements if the Foundation decides to move it into execution. The formalized theory of change is an important tool for gaining clarity in that decision-making process – it facilitates the exploration of refinements or wholesale changes to the program. The theory also highlights questions regarding the scope of the initiative's goals and feasible targets given available resources. Finally, using the theory, indicators or benchmarks can be established prior to execution. This will facilitate future program monitoring and evaluation efforts.

5.1 Summary

In the spirit of integrating reflection and practice, the evaluation returns to the original objectives set forth for this work to summarize its results. The ten original objectives, displayed in order, are presented in Annex 1. As first shown in Table 1, the objectiveswere mapped onto the evaluation's three primary purposes: learning, accountability and public good contributions.

5.1.1 Learning

Two of the ten objectives were relevant to the evaluation's learning purpose.

Objective 2.

Assess the validity of the theory of change of the initiative and contribute to its further development.

Prior to assessing the validity of SEGUE's theory of change, the evaluation formalized its structure and the respective pathways in coordination with SEGUE and the initiative's documented record. The evaluation team then clarified the need to integrate explicated pathways of change to justify the initiative's outcomes and goals (particularly along the themes of job access, job quality and environmental impacts). This analysis is provided in Chapter 4.

Objective 7.

Help identify the most promising strategies for success, provide information on what may need to be changed and what further developments are required to take the initiative to scale.

The evaluation also extended this analysis to consider possible alternative scenarios to the existing theory of change. The evaluation team based this analysis on the original learning questions as well as subsequent iterations of questions from the Rockefeller Foundation. Responding to these questions served as a catalyst for considering other strategies.

5.1.2 Accountability

Five of the objectives for SEGUE's evaluation require accountability assessments with regard to the Foundation's mission, resources and decision-making.

Objective 1.

Assess the relevance and rationale to the mission, strategy and work of the Foundation; the green economy in the US; and the initiative outcomes; including an assessment of the comparative advantage and potential value added.

The evaluation matched SEGUE's activities, grants and strategies to the Foundation's mission along with the more recent refinements of the mission in the form of the Issue Areas. For each category of grantee, the evaluation team reviewed the magnitude and relevance of outcomes. This work is discussed in Chapter 3.

Objective 3.

Assess the potential of the initiative to achieve the intended outcomes.

Based on both extant literature and in-depth interviews with a purposive sample of SEGUE's grantees, the evaluation team assessed the overall initiative activities and the outcomes from categories of grantees. While each grantee's outputs were analyzed, individual grantee impacts were not reviewed because of the developmental nature of the initiative and because many grantees had only recently been awarded their monies. Their activities could not be reviewed using similar criteria. For grantees with longer histories of SEGUE support, however, some notable observations were made with regard to the scale and quality of outputs.

Objective 5.

Contribute to the ongoing development of the initiative by undertaking evaluative analysis to provide evidence, critical reflection and feedback to help determine the potential of the SEGUE initiative to achieve positive outcomes.

A comprehensive literature review was conducted to provide a foundation for reviewing SEGUE's activities. This literature review is provided in Chapter 2, but it is also referenced in later chapters.

Objective 6.

Assess the efficiency and effectiveness of the Foundation's leadership and management of the initiative, including the allocation of RF resources for testing and innovation, outputs, thought leadership and partnerships to implement the initiative.

As an initiative in development, SEGUE's purpose is to learn through demonstrations and research. As such, the Foundation has managed the initiative through awarding and monitoring grantee activities closely and by developing an internal knowledge base. This knowledge base was often complemented by insights solicited from grantees as part of their grant terms. While these comments appear to have been helpful in guiding internal SEGUE thinking, triangulating insights with additional external opinions may have provided further useful guidance. In general, however, management performance measures were not reviewed under this evaluation.

Objective 9.

Make recommendations on further decisions and actions for the initiative.

The evaluation team reviewed the initiative's current operational structure and surveyed alternative scenarios to the current theory of change. Recommendations for future actions are provided at the end of this evaluation.

5.1.3 Public Good

Finally, there are benefits that can be extended as public good contributions even beyond the synthesis of green jobs literature and SEGUE's activities. Three evaluation objectives fall under this purpose.

Objective 4.

To assess the influence achieved in particular the extent to which critical stakeholders have been motivated and stimulated to change attitudes, behavior, practices and systems in support of the objectives of the work; and in addition, to identify any positive or negative unintended effects emerging from the intervention.

The potential terrain in which SEGUE is placed is expansive. In contrast to the possibly diluting effects from having such a wide set of strategies on its operations, SEGUE's wide net has expanded its influence. SEGUE has notable sway with key green jobs advocates in the public and social service sectors and – to a lesser extent – private-sector stakeholders. To date, there have been no negative or unintended consequences from that influence. However, SEGUE has not been able to influence political and economic leaders that have rejected the premise of the green jobs movement altogether. Similarly, SEGUE has not been able to stem the tide of indifference in popular opinion with regard to green jobs opportunities.[25] The targeted and efficient use of resources suggested in this evaluation could potentially narrow SEGUE's current sphere of influence, but it might be able to produce the deeper influence needed to alter a key policy for a specific issue. This balance must be carefully considered if the initiative goes into execution.

Objective 8.

Reflect on the implications of the information gained through the evaluation of SEGUE, for the Foundation and its operating model, its partners and grantees and for the wider field.

The SEGUE evaluation provided a unique opportunity for the evaluation team to exercise the type of iterative reflection that is only occasionally applied during evaluations of initiative's in more advanced stages of implementation.

Objective 10.

Highlight the knowledge contributions in the field of employment in the green economy and philanthropy.

SEGUE's contributions to the literature are best demonstrated by highlighting that some of its knowledge products and grantees are regularly cited by other scholars and practitioners. As a regular contributor to and convener of green jobs advocates and researchers, SEGUE has played a key role in defining this arena.

5.2 Recommendations

The Rockefeller Foundation seeks to help poor and vulnerable people benefit from more equitable economic growth. In turn, SEGUE hopes to respond to this need while simultaneously addressing another critical global crisis – namely, climate change and other environmental threats. As an initiative in development, SEGUE has undergone several rounds of learning, demonstration and applying new lessons. These iterations have been challenged by a dramatically and rapidly changing policy and industrial

[25] This concern led to a recent grant award on messaging, for example.

context, to which grantees have been particularly hard-pressed to respond. With a focus on industry building, SEGUE's implementation under these conditions has been particularly complicated. Yet, SEGUE has contributed important knowledge and achieved a few key practical successes despite these impediments.

In its current strategic form, SEGUE has been explicitly focusing on an industry-building pathway for reaching the desired goals of employing disadvantaged workers in high-road green jobs. In turn, specific activities within this pathway have been implemented, including: local policy advocacy, financial investment models, technical supporting tools and services, and one-stop service delivery demonstrations. SEGUE has been opportunistically supporting activities that fall either on or across these activities, occasionally incorporating improvements in job access, job quality and environmental benefits as they have arisen. With the integration of these additional pathways of change and refinements in the selection of industry-building activities, SEGUE's central premise is sound and the goals are feasible. The questions that remain focus on the desired timeframe and scale of the targets for achieving these goals, as well as the appropriateness of the resources. As the literature and the review of grantee activities suggests, some investments may yield employment outcomes (though of indeterminable job access and job quality characteristics) in a timeframe of 10 to 20 years. Others are currently providing high-road, accessible jobs, though on a modest scale.

In all cases, the possibility of becoming an initiative in execution provides the opportunity to test the soundness that the initiative in development has demonstrated. To enter into this stage, an initiative should be able to have significant impact in the lives of the disadvantaged communities it serves over several years. For this condition to hold true, the evaluation team recommends a few steps be considered in SEGUE's organization and in the decision-making process. These include the following.

A green jobs pathway of change could be selected that is more manageable and more easily monitored and evaluated. Such a pathway would need to correspond to available resources. It would also increase the likelihood that any effects detected during monitoring and evaluation could be attributed to SEGUE. Though the broad scope of SEGUE's developmental activities contributed useful research for green jobs scholarship, it is likely to be less effective as the initiative turns to more programmatic and operational activities.

The selected pathway could focus either entirely on a single green economic sector or on a similar intervention type across sectors. This evaluation presents a variety of alternative scenarios with their likely impact area and size.

Should an alternative scenario be selected, the goals should be reconsidered. The current goals imply a finite but still complex number of pathways of change with a potentially unwieldy number of needed activities and outcomes. The team recommends that an evaluator or theory-of-change expert be involved in the final formation of the theory of change to ensure that the final product can be monitored and reflected upon. The reconsideration of goals may follow this kind of "right-sizing", or it may lead it. As the Foundation's Issue Areas are formalized, specific goals related to employment or the environment in the US may develop to which SEGUE can readily be grafted.

Combining key elements from an alternative scenario along with those pathway-of-change links that might stem from an altered goal statement could be considered. In all cases, additional analysis based on the literature presented in this evaluation report may be needed to reflect on and confirm any new theory of change.

The entire menu of activities that would lead to any specific outcome, e.g. all potential industry-building activities, should be mapped and reviewed prior to selecting the activities for any given link in the theory of change's causal chain. In its developmental stage, SEGUE made grants in a relatively informal manner as opportunities arose. In execution, activities should be strategically selected and draw on as much evidence as is available.

With these activities, indicators should be developed for the initiative's inputs, activities and outcomes to set the targets of the goal at the onset and monitor progress.

In closing, the evaluation recommends that SEGUE be further considered as an initiative in execution, provided that its goals be clear and reasonable, its target sectors and intervention points be identified and based upon past SEGUE findings and the broader literature, and its progress be measured with clear metrics. Further, SEGUE must be placed within the Rockefeller Foundation's most recent thinking regarding the overall definition and approach to its Issue Areas. All of these actions are likely to improve SEGUE's operations, lead to the target goals, and add to SEGUE's previous contributions to the green jobs literature and praxis.

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Annexes

ANNEX 1: ROCKEFELLER FOUNDATION EVALUATION OBJECTIVES

Objective 1.

Assess the relevance and rationale to the mission, strategy and work of the Foundation; the green economy in the US; and the initiative outcomes; including an assessment of the comparative advantage and potential value added.

Objective 2.

Assess the validity of the theory of change of the initiative and contribute to its further development.

Objective 3.

Assess the potential of the initiative to achieve the intended outcomes:

- the quality and quantity of grantee outputs in relation to the desired outcomes, and the use of those outputs by the most critical stakeholders
- the appropriateness of selected grantees and partners in advancing the Foundation in the area
- the strengthening of capacities and knowledge on how best to influence the policy environment
- the achievements, challenges and success factors in the different contexts in which the initiative work in development has been demonstrated

Objective 4.

Assess the influence achieved in particular the extent to which critical stakeholders have been motivated and stimulated to change attitudes, behavior, practices and systems in support of the objectives of the work; and in addition, to identify any positive or negative unintended effects emerging from the intervention.

Objective 5.

Contribute to the ongoing development of the initiative by undertaking evaluative analysis to provide evidence, critical reflection and feedback to help determine the potential of the SEGUE initiative to achieve positive outcomes.

Objective 6.

Assess the efficiency and effectiveness of the Foundation's leadership and management of the initiative, including the allocation of RF resources for testing and innovation, outputs delivered, thought leadership, and building partnerships to implement the initiative.

Objective 7.

Help identify the most promising strategies for success, provide information on what may need to be changed and what further developments are required to take the initiative to scale.

Objective 8.

Reflect on the implications of the information gained through the evaluation of SEGUE, for the Foundation and its operating model, its partners and grantees and for the wider field.

Objective 9.

Make recommendations on further decisions and actions for the initiative, including:

- whether or not the initiative should move to the execution phase and what the exit and/or transition strategies could be
- the most effective strategies for the initiative going forward
- whether there are alternative approaches to achieve the desired impacts
- any improvements to the management and leadership of the initiative, including grantee and partner engagement, relationship management, thought leadership, team management and resource allocation.

Objective 10.

Highlight the knowledge contributions in the field of employment in the green economy and philanthropy.

ANNEX 2: ROCKEFELLER FOUNDATION RAPID FEEDBACK INTERVIEWS: DISCUSSION GUIDES

SEGUE Initiative Team Staff

DEVELOPMENT of SEGUE

- How did SEGUE emerge out of the Campaign for American Workers? Why did it emerge?
- Who internally helped develop SEGUE? How was the determination made of who would make up the SEGUE team?
- What resources did you consult in its development (e.g academic scholarship, white papers, etc.)?
- What external partners or stakeholders did you consult in developing SEGUE? In what ways did you work with them?
- Did you consult with potential grantees in developing the initiative? How so?
- What effect has the lack of climate change legislation had on the initiative?

GRANT FOCUS and CHARACTERISTICS

- How did you decide to focus on building retrofits?
- What other targeted strategies were ruled out along the way?
- How were grant funding amounts determined?
- How were the terms of the grants determined (most but not all are about 1 year)?

GRANTEE CHARACTERISTICS

- Who did you initially envision as potential grantees? Why?
- What work was involved in determining the universe of potential grantees? Were potential grantees consulted during that process?
- Grantees include researchers, advocated, and direct implementers of green energy initiative. How was that mixed determined? Did you consider focusing in one area?
- How do the eventual grantees compare to the initially envisioned grantees?
- Were geographic areas targeted? Did you want a mix of regional and national grantees?
- Which grantees have been the most successful in meeting the foundation's expectations? Which have faced the most challenges?

GRANT PROCESS

- What process do grantees go through to apply for grants? Is this a typical process for Rockefeller grantees or is it distinct in some ways?
- What criteria did grantees have to meet to be considered for a grant? Why were those important?
- How were grantee proposals/applications reviewed? Was this a typical process for Rockefeller grantees or was it distinct in some ways?
- What did you want/expect grantees to achieve, and how was that conveyed to them?
- How do grantees report on their progress to the foundation?
- What outcomes are grantees tracking?

Rockefeller Foundation Executive Staff

1. What do you see as the problem statement – the critical need – that SEGUE seeks to address?
   Probes:
   a. Is that issue the same now as when the initiative began in 2009? Do you anticipate it will remain constant or change over time?
   b. Is the end goal of the initiative sufficiently broad to meet the changing needs/ issues it seeks to address?

2. How do you define a developmental evaluation? What do you see as the most useful or valuable purpose of Abt's evaluation of the SEGUE initiative in the context of the Foundation's internal strategic planning effort to re-focus the issue areas?

3. Given the developmental stage of the SEGUE initiative, how do you view the Executive Team's role, and your role specifically, how have you helped the SEGUE team in evolving their thinking about SEGUE?
   Probes:
   a. How have you guided, supported or pushed the SEGUE team to figure out what the initiative should be focused on, in clarifying the end goal of the initiative and the appropriate strategy to achieve that goal?

4. Over the two-and-a-half years of exploring sectors of the green economy, describe which sectors have been considered but not pursued for SEGUE, and why?
   Probes:
   a. Were the reasons for not pursuing certain sectors informed by data and trends?
   b. If the decisions were based on certain criteria (e.g. impact on poor and vulnerable populations, or potential for replicating the intervention on a global scale), are those criteria still relevant? Do you anticipate applying these same criteria to whatever form the initiative takes going forward?
   c. What other criteria have you been considering in your recent strategic work to focus the Foundation's issue areas? E.g. Short-term results versus long-term impact.

5. Given the initiative's trajectory and focus to date, in your opinion is SEGUE on the right track in terms of the Foundation's new thinking about its focus areas?
   Probes:
   a. What aspects of the initiative from your perspective have the potential to be most relevant?
   b. Are there any aspects that you think have the potential for transformative change?
   c. If the initiative is not on the right track, what aspects are least relevant or appear to have the least potential for impact?

Rockefeller Foundation Operations Staff

Use of evaluations from an operations perspective

- At what point in its lifespan do you expect an initiative to be evaluated?
- Are there any internal triggers for evaluations?
- What do you do with the findings of evaluations if the findings are: negative, positive, neutral?

Operations of an initiative in development

- Are there unique operations associated with early stage initiatives?
- Do they receive more or less scrutiny?
- What sort of accountability requirements do you impose on grantees?
- What kinds of reporting do you expect from the grantees? From staff?
- Are the operations of a US-focused initiative different from a globally-focused one?

General insight on green economy given personal experiences in NYC

- What was your exposure to green jobs and the green economy during your experience in the Dept of Building and the Mayor's Office?
- SEGUE has focused on both national and local policy efforts. What do you see as the current opportunities in the local policy arena?
- We've identified a number of sectors that we think are relevant for the initiative's target population in the green economy (like entry-level construction and utility technicians) along with entry-level positions that can be greened but might not be part of the formal green economy (like janitors that use eco-friendly cleansers). Are we missing any in your view?

Rockefeller Foundation Evaluation Staff

1. When you think of the concept of "Theory of Change" what models or examples do you use as your reference point?
   a. Are there any organizations, practitioners or thought leaders with whom you've worked or collaborated that have contributed to your understanding of the concept of a Theory of Change, and/or the process for developing one for a program or initiative?

2. Can you describe any previous experiences the Rockefeller Foundation has had in developing or applying a Theory of Change approach to its work?
   a. Can you name any good examples of putting a Theory of Change into practice within the Foundation's past or current work? What makes it an instructive example?
   b. Can you think of any other examples from your own past experiences in working with other philanthropic, social or environmental change initiatives?

3. Drawing from your experience and understanding of what Theory of Change is and what it should be, what has been the most helpful about developing a Theory of Change for the purpose of evaluating a program or initiative? Why?
   a. What was least useful? Why?

4. Given that we are in the developing phase of the SEGUE initiative, the re-focusing of the Foundation's work into four issue areas, and the key task of identifying the most strategic, catalytic and relevant aspects of the SEGUE initiative to carry forward into the implementation phase, what in your mind is the one most important benefit we can derive from undergoing a Theory of Change process at this time?
    a. Why is this an opportune moment (or not) to dig into the rationale for the initiative's strategies?
    b. What do we most need to learn from the process?
    c. What should we expect to get out of this process?
    d. What should we hope to get out of it?

5. How will the current SEGUE grantees benefit from the Foundation's commitment to being intentional in planning and evaluating its investment strategy for the SEGUE initiative?
    a. What do the grantees stand to lose? How can we address their real or perceived concerns?
    b. What pieces of this work do you feel the SEGUE grantees most need?
    c. How can we translate the Theory of Change work at the Foundation level into the grantee learning and capacity building support we will provide later on?

6. How do you think program staff will most benefit from the Theory of Change conversation?
    a. How can we best engage program staff so that they contribute to the conversation in a productive way?
    b. Can you think of any ways of conducting a Theory of Change process that might turn off program staff? What would that look like?

7. In developing evaluation frameworks such as logic models and theories of change, it is critical that the language we use to define terms and concepts is clear and precise. At the same time, use of technical terms and abstract concepts can be a source of confusion and even alienation for non-technical stakeholders involved in the process. Do you or others within the Foundation have a preference about the use of certain terms or frameworks?
    a. Do certain words convey specific meaning within the Foundation that we should devote careful attention to exploring in greater depth or defining with greater precision?
    b. Are there any specific terms we should avoid using? If so, what are they and why should we avoid them?

8. In a perfect scenario without time or resource constraints, what do you envision as the most productive approach to facilitating a Theory of Change process for the SEGUE initiative?
    a. Are there any limitations or risks that might make it difficult to follow the approach as you envision it?

9. How do you suggest we customize the Theory of Change process for the Foundation, and for the SEGUE initiative specifically?

a. What should we emphasize? Where should we focus our efforts?
b. What aspects of the process – for example, articulating the long-term goal(s) of the initiative or developing specific indicators for each outcome – do you feel do not merit an in-depth discussion? Why?
c. If these aspects are not already well-defined and understood within the Foundation and we do not address them now, when will they be addressed?
d. Do you have any other suggestions or words of wisdom that we should consider as we work with you to develop the Theory of Change approach and conduct the process over the next few weeks?

ANNEX 3. PRELIMINARY GRANTEE OUTREACH – SURVEY INSTRUMENT

SURVEY CATEGORY	QUESTION
Introduction	Thank you for participating in this survey of the Rockefeller Foundation's SEGUE grantees. Your answers will help the Foundation's evaluation grantee, Abt Associates, better understand the knowledge you have created, the challenges you have faced, and the milestones you have achieved during your SEGUE grants. Specifically, this survey will be used: 1) to categorize and describe your grant and organization's activities; 2) to identify the green economy sectors and approaches in your work; and 3) to describe your achievements and challenges as well as the future opportunities you see in the green economy. We estimate this survey will take approximately 10-15 minutes to complete. Only brief answers are necessary, though more comprehensives answers are encouraged and appreciated.
Activities 1	Which of the following best describes the kind of activity that relates to your SEGUE grant? Feel free to select multiple activities provided they were the primary focus of your grant. • Knowledge Creation (Examples: primary research on green employment projections or an evaluation of a green employment program) • Innovative Tools (Examples: a green financial product or a database for public or industrial use, or a workforce training center) • Capacity Development (Examples: stakeholder technical assistance, workshops, or leadership training) • Enabling Policy (Examples: policy analysis, advising, or advocating at the national, state, or local levels) • Alliance-Building and Networking (Examples: on-line communities of practices or peer-to-per conferences) • Other (Specify:)
Activities 2	For each of the activity areas that you selected, what are some of the achievements resulting from your SEGUE grant? Please feel free to provide as many relevant outputs as you see fit. • Knowledge Creation (Examples: Names of research reports or conference presentations) • Innovative Tools (Examples: Dates of release of a tool or database and number of early users.) • Capacity Development (Dates of workshops held, kinds of TA materials produced, or types of support for thought leaders and champions) • Enabling Policy (Examples: Number of city ordinances enacted or public programs started.) • Alliance-Building and Networking (Examples: Dates of forums and key participants) • Other (Examples: Specific events held, programs initiated, etc.):

SURVEY CATEGORY	QUESTION
Activities 3	In which of the following activities is your organization involved *beyond the activities you performed with your SEGUE grant?* Feel free to select multiple categories, including those which you selected earlier provided your organization did additional work under this activity. • Knowledge Creation (Examples: primary research on green employment projections or an evaluation of a green employment program) • Innovative Tools (Examples: a green financial product or a database for public or industrial use, or a workforce training center) • Capacity Development (Examples: stakeholder technical assistance, workshops, or leadership development) • Enabling Policy (Examples: policy analysis and advising at the national, state, or local levels) • Alliance-Building and Networking (Examples: on-line communities of practice or peer-to-peer conferences) • Other (Specify:)
Green Sectors and Approaches 1	In which of the following sectors of the green economy and green employment have you worked through either your SEGUE grant or your general organizational mission? Feel free to select multiple sectors. • Construction of new green buildings • Building retrofits • Water infrastructure • Energy production (including renewable energy installation) at all scales • Energy distribution and infrastructure • Transportation infrastructure • Water quality improvement • Stormwater or wastewater management • Air quality improvement • Land quality improvement and conservation • Land use and planning • Sustainable agriculture or forestry • Material waste and recycling • Manufacturing of green products and equipment (including renewable energy equipment) • Greening manufacturing processes • Environmental regulations compliance • Other (Specify:)
Green Sectors and Approaches 2	Which of the following approaches to the development of the green economy and green employment have been a direct focus of your organization's activities through your SEGUE grant? Feel free to select multiple sectors provided you have direct activities in each. • Development and investment in green small businesses • Transformation of industry tools or services for environmental goals • Environmental technology R&D • Training or training standards for green workforce skills • Improving the quality of green jobs • Direct placements in green jobs • Changing regulations or regulatory structures for green sectors • Market/Consumer demand for specific services or goods • Public awareness campaigns • Other (Specify:)

SURVEY CATEGORY	QUESTION
Challenges and Opportunities	We would like to hear your stories about the contexts and achievements you have faced to date during your grant(s) timeframe, as well as hear about future opportunities in the green economy from your perspective. Please be as specific as possible. • What are some of the contextual factors that have shaped your grant? (Examples: Financial resources, economic environment, partnerships.) • Are there any long-term achievements that have come from your grant? (Examples: Growth in local green businesses or green jobs.) • Which future opportunities do you see for your organization and its work in the green economy? (Examples: New activities, growing industry sectors, or innovative approaches)
Thanks and Contact Information	Thank you for participating in our introductory survey. We may contact you directly with any questions or clarifications by early June. We also may contact you for a longer discussion later in the summer. Please feel free to contact us at stephen_whitlow@abtassoc.com if you have any other questions.

ANNEX 4. SEGUE GRANTEE INTERVIEWS: SAMPLING PLAN

After additional reviews of the grantee documents held by the Foundation, the grantees' survey responses, and informal clarifications with some grantees regarding their activities, Abt proposes further, more detailed interviews with the following ten SEGUE grantees:

1. Progressive America Fund/Center for Working Families
2. Green for All
3. CNT Energy
4. Nature Conservancy
5. NYCEEC (NRDC)
6. Partnership for Working Families
7. Emerald Cities
8. GAIA (Pesticide Action)
9. Workers Defense Project
10. The State of Pennsylvania Treasury Department
11. Clean Energy Works Oregon

In the evaluation grant's terms of references, the original number of grantees to be contacted was limited to a maximum of five. However, the evaluation team believes that the grantee activities, green economic sectors, and approaches to green economic growth are sufficiently diverse to warrant an expanded sampling plan. We purposively selected grantees using nine criteria:

1. **NUMBER OF GRANTS:** Grantees with multiple awards are likely to have had more influence on SEGUE's development as well as a wider perspective on green employment.
2. **TOTAL GRANT SIZE ($):** Grantees with large grant values reflect SEGUE's primary thinking and have more achievements from which to recommend future directions.
3. **ACTIVITY (INNOVATIVE TOOLS):** SEGUE has stated an explicit strategy focus on industrial sector growth. So, grants undertaking "tools and services" activities are oversampled with two grantees.
4. **ACTIVITY (ENABLING POLICY):** Policy inhibitors were noted by SEGUE staff and all grantees as a primary contextual characteristic. While most grantees noted some work in policy activities, those grantees focused exclusively or largely on policy formed the sub-population for this sample.
5. **GREEN SECTORS (RETROFITS):** A grantee working on building energy-retrofits was selected to better document SEGUE early focus.
6. **GREEN SECTORS (WATER & WASTE):** As SEGUE evolved, grants in other green economy sectors were awarded. The evaluation includes one grantee to capture this evolution.
7. **INDUSTRY APPROACH (JOB QUALITY AND JOB ACCESS):** SEGUE specifically focused on sector growth as its primary strategy, though many grantees were focused exclusively on job quality and job access issues. The evaluation team wants to sample one such grantee.

8. **INDUSTRY APPROACH (CAPITAL ACCESS AND ENTREPRENEURIALISM):** Because the investment in key industries is an explicit SEGUE strategy, the criterion allows the evaluation team to further explore investment methods.
9. **INDUSTRY APPROACH (MARKET AND CONSUMER BARRIERS):** Like capital access, market demand was defined by many SEGUE grantees as a critical challenge for industry growth. An exploration of grantees that focused on this will provide richer insight.

Abt developed the list of relevant grantees for each criterion, and selected one grantee for each criterion as documented in the attached exhibit. Please note that grantees were not double-counted in the final selection, though many obviously are listed for multiple criteria. In selecting the grantee for each category, we focused on excluding grantees with the following elements:

1. A focus on knowledge creation activities since their knowledge products would already provide sufficient and robust information;
2. A focus on capacity building activities that involved workshops or forums for which agendas, notes, and other deliverables could provide a ready documentation;
3. A focus on alliance-building since all grantees noted this as an activity;
4. A focus on the key sectors selected by SEGUE (there are two grantees focused exclusively at renewable energy and transportation sectors: BlueGreen Alliance Foundation and Institute for Sustainable Communities);
5. A limited history of working on the topic or in the activity in question (some grantees noted that they were still in early stages and had no insights to share);
6. Minimal notable achievements or deliverables related to the project thus far;
7. Were only partially funded by SEGUE within the Rockefeller Foundation;
8. Were unresponsive to the earlier outreach survey (including Lehigh Carbon Community College, Living Cities, and the DC Project).