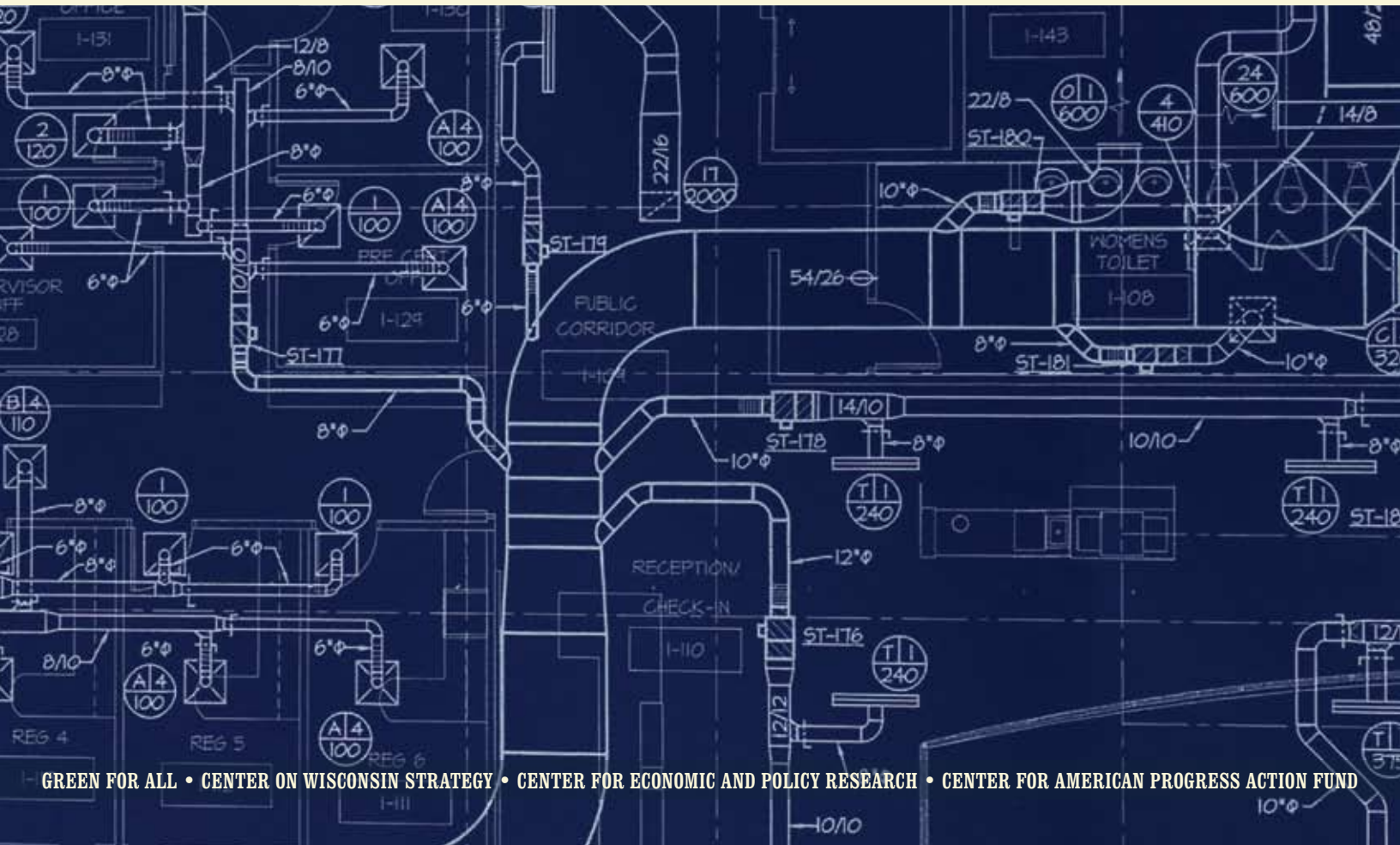
CLEAN ENERGY CORPS

Jobs, Service, and Equal Opportunity in America's Clean Energy Economy

2008



GREEN FOR ALL • CENTER ON WISCONSIN STRATEGY • CENTER FOR ECONOMIC AND POLICY RESEARCH • CENTER FOR AMERICAN PROGRESS ACTION FUND

ACKNOWLEDGEMENTS AND AUTHORSHIP

The Clean Energy Corps is a proposal of the Clean Energy Corps Working Group, first convened in January 2007, which includes representatives of the Apollo Alliance, the Center for American Progress Action Fund, the Center on Wisconsin Strategy, Energy Action Coalition, Green For All, Innovations in Civic Participation, 1sky, and The Corps Network. For more information, contact Billy Parish (billyparish@gmail.com).

This paper was written by Jason Walsh with Lisbeth Shepherd, Dean Baker, Joel Rogers, Benjamin Goldstein and Bracken Hendricks.

We would like to thank the following people who helped us improve this paper and the concepts behind it through their thoughtful comments: Mary Ellen Ardouny, David Bank, Elissa Berger, Eva Blake, Andrea Buffa, Kelly Causey, Amy Cohen, Maurice Emsellem, Kate Gordon, Tricia Griffin, Jeremy Hays, Van Jones, Joanna Lee, Philip Lovell, Billy Parish, Kevin Pranis, Sally Prouty, Debra Rowe, Louis Soares, Gene Sofer, Dorothy Stoneman, Eric Sundquist, Susan Stroud, Susan Tucker, Sarah White, Stockton Williams, and Senator Harris Wofford.

CLEAN ENERGY CORPS

Jobs, Service, and Equal Opportunity in America's Clean Energy Economy

The CEC can capture the imagination of America,
unite key constituencies, and motivate millions to act.

OVERVIEW

Millions of Americans want to serve in the fight against global warming, but lack organized opportunities to do so. Millions of others seek pathways out of poverty or better employment in the clean energy economy, but lack the necessary skills, work experience and connections to unions or employers. Untold numbers of homeowners, businesses, local governments and schools want to reduce the energy costs of the buildings where they live, work, and learn—which would generate hundreds of thousands of "green-collar" jobs—but they lack the financing to do so. America as a whole is suffering through a deep economic recession, with job losses and extreme levels of wealth inequality, rising energy prices and energy insecurity, and an increasing scarcity of hope and common purpose. Americans are looking for solutions on climate, energy and the economy.

To address these intersecting challenges, we propose a national Clean Energy Corps (CEC). The CEC will be a combined service, training, and job creation effort to combat global warming, grow local and regional economies and demonstrate the equity and employment promise of the clean energy economy. The CEC will:

- ***Directly engage millions of Americans*** in diverse service, service-learning, and volunteer work related to climate protection;
- ***Work with employers, unions, educators, and community organizations*** to put more Americans, particularly the low-income and unemployed, on green-collar career pathways—providing them the training, credentials, work experience, job placement, and other essential elements for good and secure jobs in the clean energy economy;
- ***Preserve and enlarge green public spaces,*** strengthen community defenses against climate disruption, and enlist America's public lands in the fight against climate change by planting trees and restoring wetlands and rivers; and
- ***Launch a national effort*** to comprehensively apply cost-effective energy efficiency measures to our nation's building stock. This effort will generate demand for hundreds of thousands of jobs, and significantly reduce our national energy costs and contribution to global warming. It will also more than pay for itself by recovering a portion of the energy savings achieved.

The time is right for such an effort. The public urgently wants action to promote clean energy, increase energy security, and curb global warming. Our ailing economy needs a stimulus that is productive, sustainable, and focused on communities. Low-income communities, both urban and rural, are keenly aware of the economic promise of a clean energy economy, and eager to realize the opportunity it will provide to those who have historically been left behind. Blue-collar workers—including those left on the bench by a stalled construction industry—are looking for a chance to apply their skills to green-collar work that rebuilds our nation. And Americans of all political persuasions support the idea of voluntary national service: young adults of the "greenest generation" are already volunteering in record numbers, and would welcome a chance to contribute to the fight against global warming; so will retiring baby boomers looking to make meaningful contributions in their "encore" careers.

A bold visible national effort like the CEC will bring together Americans across social class, generations, background and experience, and powerfully advance the national effort to stop global warming while widening economic opportunity and promoting active citizenship. CEC's integrated approach to climate protection, job generation, and training will speed America's clean energy transition by demonstrating its welcome and immediate effect on our communities. The CEC is a big idea that is tangible enough to capture the imagination of America, unite key constituencies, and motivate millions to act. Helping to heal the planet, it will also help heal the nation.

The CEC will be a combined service, training, and job creation effort to combat global warming, grow local and regional economies and demonstrate the equity and employment promise of the clean energy economy.

ADMINISTRATION & BUDGET

The CEC is intended as a high-visibility, collaborative, and cost-effective national initiative entailing minimal new bureaucracy. We propose that it be led by the next President of the United States and administered through a new Energy Security Council (ESC)—analogous to the National Security Council (NSC) in flexibility and executive coordination of relevant departments, programs, and cabinet secretaries—with regular independent oversight, evaluation and reporting to Congress on the achievement of program aims.

The real work of the CEC will occur at the state and local levels. The CEC will encourage the alignment and coordination of complementary programs and strategies to realize its ambitious goals, but without imposing new federal limits on state and local innovation consistent with those aims.

The CEC will have three interconnected parts. First, it will create "green-collar" jobs through a variety of energy programs, most ambitiously with a comprehensive application of cost-effective energy efficiency measures to our nation's building stock. Second, it will widen service opportunities in climate mitigation and adaptation, especially those offering pre-apprenticeship type experiences for disadvantaged young people that could lead to career paths in the green economy. Third, it will provide opportunities for job seekers, especially those from disadvantaged communities, to acquire the skills to do this and other green economy work, in the form of demand-driven and credentialed occupational skills training.

These three components will be connected by state and local partnerships that create well-defined career pathways for CEC participants, moving them from the entry-point of service, to training they can access and succeed in, to placement, job retention and careers in energy efficiency, energy service other industries of the green economy. In sum, the CEC seeks no less than an integration of civic, economic and workforce development that creates value for workers, employers, communities, and the planet.

The CEC will primarily require:

1. ***Full appropriation of authorized funding*** for the Green Jobs Act, the Energy Efficiency and Conservation Block Grant Program, and the Weatherization Assistance Program as authorized by the Energy Independence and Security Act of 2007;
2. ***Increased funding*** for the Corporation for National and Community Service to support the Clean Energy Service Corps, Senior Corps, and Learn and Serve programs and for the Department of Labor to support CEC-directed training;
3. ***New funding*** at an estimated cost of less than $3 billion per year over 5 years to underwrite the financing for a $50 billion public revolving loan fund—with tax exemption, credit guarantees, and the ability to package loans for sale to secondary markets—to make investments and leverage private money in the national building retrofit effort. The fund would be replenished both by its proceeds from projects approved for direct investment and through its sale of packaged loans via private investors.

OCTOBER 2008: THE ECONOMIC CRISIS

The country is facing the worst economic crisis since the Great Depression. While stabilizing the credit and financial markets must be the top policy priority at the moment, the economy will desperately need an immediate stimulus to offset the loss of the consumption demand due to the collapse of the housing bubble. The $8 trillion of housing bubble wealth generated between $400 and $480 billion in annual consumption. With the collapse of the bubble, consumption is likely to fall off sharply. The drop in consumption will be even larger if the $7 trillion decline in stock market value over the last year is not reversed.

Ideally, there will be a coordinated international stimulus to boost the economy, just as the financial leaders are coordinating their steps to sustain the financial system. However, regardless of the international response, the United States should move ahead with its own stimulus. This package should be at least $300 billion to $400 billion (2.0-2.7 percent of GDP).[1]

The stimulus should be designed to quickly boost demand in order to counteract the sharp falloff in consumption and it must do so in a way that pairs increased consumption with sustainable growth and carbon reduction. This can best be done by aiding state and local governments; extending unemployment benefits; giving tax rebates to low income families; accelerating infrastructure, particularly "green infrastructure," spending; and supporting energy conserving retrofits of homes, businesses, and schools.

This paper details a proposal that addresses the last component of such a package. It outlines a plan for financing large-scale retrofitting of America's building stock to make it more energy efficient, as a part of a Clean Energy Corps that also mobilizes the nation to service and prepares a skilled workforce at a time when the opportunity costs for pursuing education and training are low. The proposal that follows is premised on the notion that our current economic downturn will not be reversed quickly, given its causes and effects, and that a stimulus, or a broader "green recovery" plan, should include not only a short-term lift but also the foundation for a long-term, sustainable investment in people, production and the planet.

THE OPPORTUNITY

Americans recognize that this country must change the way it produces, distributes, and uses energy. Current policies and behaviors impose too high a cost—to household income, industry competitiveness, national security, and world climate—to be sustained. The economic and security opportunities offered by a smarter energy path are too great to ignore. They require diversification of energy sources, greater national independence in supply, a modernized grid and transportation system, repair of our aging water and other basic infrastructure, environmental restoration, and radical improvements in energy end-use efficiency. Therein lie nearly fantastic opportunities for new wealth, economic security, and a better society.

America's transition to a clean energy economy will be the work of at least a generation and it must begin now. The already registered effects of climate change, the likelihood of our reaching an irreversible tipping point in just a few years time, and our present economic circumstances—historic peaks in oil and gasoline prices, threatening geopolitics in energy supply, collapsing national infrastructure, widespread collapse in our housing and credit markets, rising unemployment, and a recession that could turn into a depression—all mandate action now.

Between our major political parties, we recognize clear disagreement and uncertainty about how best to respond to catastrophic climate change and an economy no longer working well for all. This proposal for a Clean Energy Corps can gain bipartisan, indeed we would hope nearly universal, support. It will be a small, concrete, first step on both our climate and economic problems, and it can unite the country by tapping into both the best impulses and ordinary self-interests of Americans everywhere.

THE CLEAN ENERGY CORPS

The Clean Energy Corps would be a national initiative, open to contribution from Americans of all ages and backgrounds, that injects badly needed capital into the national economy, while offering opportunities for service, training and family-sustaining work to combat climate change and realize the promise of a more diverse, local, and efficient energy economy. There is much work that needs to be done to achieve that economy, such as:

Upgrading our current building stock to maximize its energy efficiency;

Erecting secure defenses against the threats of climate disruption and associated "extreme weather";

Developing and restoring forests, wetlands, and natural "carbon sinks" for GHG alleviation;

Training and educating homeowners, schools, community organizations, and religious and civic groups on energy-efficiency practices and techniques;

Working with local business, unions, and community advocates to build pathways out of poverty into the new economy, with opportunities for pre-apprenticeship training, skills certification and clear career pathways;

Working with business to provide jobs in the energy efficiency sector (including energy service companies [ESCOs] and construction firms);

Recruiting, as mentors to young people, retirees and other personnel experienced in energy efficiency, clean energy generation, and related fields.

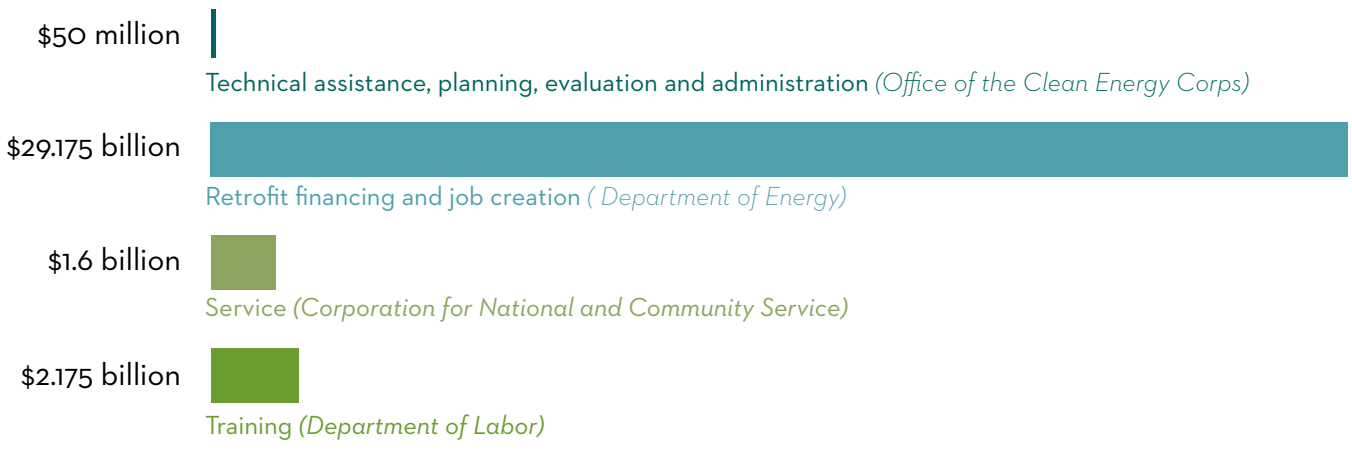
The CEC would have three interconnected parts.

First, it will create "green-collar" jobs through a variety of energy programs, most ambitiously with a comprehensive application of cost-effective energy efficiency measures to our nation's building stock.

Second, it will widen service opportunities in climate mitigation and adaptation, especially those offering pre-apprenticeship type experiences for disadvantaged young people that could lead to career paths in the green economy.

Third, it will provide opportunities for job seekers, especially those from disadvantaged communities, to acquire the education and skills to do this and other green economy work, in the form of demand-driven and credentialed occupational skills training along well-defined career pathways.

We estimate that the three different components of the CEC would require $33 billion over a five year period, distributed as follows:



JOB CREATION

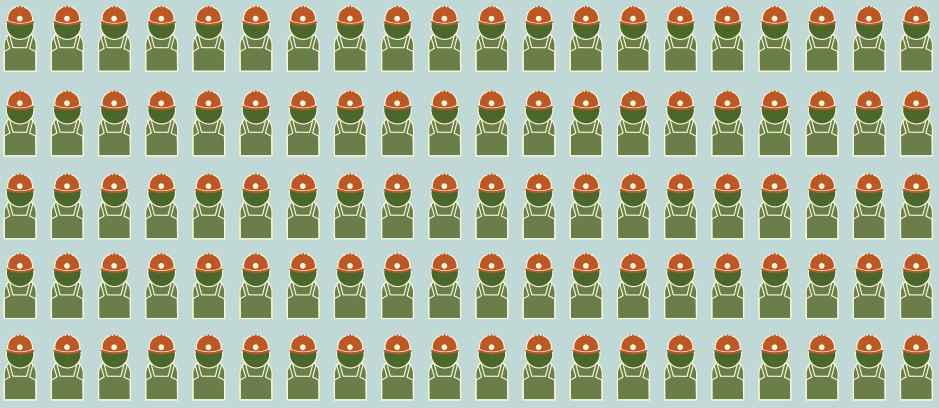
The Clean Energy Corps will create hundreds of thousands of green-collar jobs in a variety of occupations. Green-collar jobs, as we and others have defined them, are family-supporting jobs that contribute significantly to preserving or enhancing environmental quality.[2] Most are middle-skill jobs requiring more than high school, but less than a four-year degree. Clearly many PhDs, architects, and engineers hold green jobs and directly contribute to the building of a green economy. But publicly-funded workforce development projects should promote green-collar jobs accessible to those with less than a four-year college degree. These jobs represent the bulk of employer demand and range from entry-level to high-wage jobs in a multitude of industries.[3] In the renewable energy and energy efficiency industries, for example, green-collar work includes building, construction, assembly, installation, operation, maintenance, transportation, and manufacturing. *(See Appendix A for examples of green-collar jobs in the Residential Building Construction industry.)*

What's particularly important to note about these jobs is that they are familiar occupations. Employers from the energy efficiency industries poised to retrofit our cities are not demanding 'green construction workers'; but workers with traditional construction skills who also have the most up-to-date training on energy efficient construction. And those employers who more narrowly focused on delivering a service centered on a particular green technology, say solar installation and maintenance, will require certified electricians who have received a thorough grounding in broadly-based electrical theory and practice. From a workforce development perspective this means less focus on creating courses of study and curricula from scratch, and more on embedding green curricula for green skills into existing and broader programs or courses of study. A green-collar job training initiative that is separate from existing programs for existing industries will be poorly positioned to respond to this reality.

Central to the CEC proposal is a large-scale program of energy efficient retrofits. This program will provide a large number of good-paying construction and energy service jobs.

How many construction jobs can we reasonably expect to be created by the CEC? A number of studies show that every $1 million invested in retrofits creates approximately 12 jobs.[4] By this estimate, investing on the order of $10 billion a year in retrofits, as proposed here, can be expected to lead to close to 120,000 jobs a year, and 600,000 over five. With a disproportionate share of these jobs in relatively high-paying occupations, many of them union jobs, this program would provide substantial employment opportunities to workers who might otherwise be forced to accept much lower-paying jobs with fewer opportunities for advancement.

Projected outcomes: 600,000 jobs in five years



represents 600 workers

In the short-term, creating jobs in the construction sector is especially desirable because of the fallout from the housing crash. Housing starts nationwide have already fallen by almost 50 percent compared with their peak in 2005. It is likely that they will fall somewhat further before bottoming out. There are few economists who expect this sector to begin to revive before the end of 2009 and most think that it will be well into 2010 before there is any substantial pick-up in housing construction.[5] Consequently employment in construction fell to 7.1 million in October 2008, down from 7.7 million in July 2006.[6] As a result, there are a large number of unemployed construction workers who could be quickly re-employed in an ambitious program promoting building retrofits, just as there are large numbers of job-seekers who are looking to enter construction careers.

POLITICAL APPEAL

We are confident that the CEC will be popular with the public, and not just because it will create thousands of high quality jobs. We know that Americans overwhelmingly support action to promote clean energy and curb global warming[7] and the idea of voluntary national service and a stronger national effort in this area.[8] Moreover, young adults of the "greenest generation" are already volunteering in record numbers and would welcome the opportunity to serve the nation in combating climate change;[9] so will a generation of skilled baby boomers looking to make a meaningful contribution in their retirement.[10]

Photo courtesy of the Ella Baker Center

The Clean Energy Corps will be a combined service, training, job creation and greenhouse gas emissions (GHG) reduction effort, concentrated in cities and struggling suburban and rural communities, to combat global warming, grow local and regional economies and demonstrate the equity and employment promise of the clean energy economy. As a bottom-up rather than top-down effort, it will rely on partnerships at state and local levels—between the public and private sectors and between the key stakeholders of our economy and society—and as such will require more of government, business and civil society at every level. It will create new programmatic capacity and funding mechanisms, but will also rely on an unprecedented alignment of existing programs and funding sources.

GOALS

Launch a national effort for the comprehensive energy retrofit of our country's building stock, responsible for 40 percent of our energy consumption and GHG emissions; this part of the CEC program is largely self-financing and would create an estimated 600,000 local jobs and reduce energy costs and GHG emissions on a vast scale;

Preserve and enlarge green public spaces, strengthen community defenses against climate disruption, and enlist America's public lands in the fight against climate change by planting trees and restoring wetlands and rivers;

Work with a wide array of employers, community organizations, educational institutions and unions to connect workers to high-quality, career track green-collar jobs, and specifically seek to develop "green pathways out of poverty" for low-income and unemployed people—providing them the training, work experience, job placement, and other services needed to gain family-supporting jobs in the green economy;

Directly engage millions of Americans of all ages in diverse service, service-learning, and volunteer work related to climate protection.

FUNDING

FUNDS ALLOCATED for CEC
Total Cost: $33 Billion over five years

$29.175 Billion (88% of total) administered by THE DEPARTMENT OF ENERGY to fund

$13.875 billion ($2.775 billion per year over 5 years) to underwrite a $50 billion public revolving loan fund—with tax exemption, credit guarantees, and the ability to package loans for sale to secondary markets—to make investments and leverage private money in the national building retrofit effort. The fund would be replenished both by its proceeds from projects approved for direct investment and through its sale of packaged loans via private investors;[11]

$10 billion to fund Energy Efficiency and Conservation Block Grant Program part of the Energy Independence and Security Act of 2007 (EISA); and

$5.3 billion for the Weatherization Assistance Program, to fully fund the program under the new authorization levels established by the EISA.

Estimated Results:
Create more than **600,000 jobs** with public loan funds alone, with many more created by leveraged private capital and

Support the retrofitting and weatherization of over **15 million buildings.**[12]

$2.175 Billion (6% of total) for training DEPARTMENT OF LABOR to fund

$625 million for the already authorized Green Jobs Act;
$1.5 billion in new dollars for the WIA Youth, Adult and Dislocated Worker programs, available on a formula basis to states and local areas that form eligible Clean Energy Corps task forces and partnerships, to be used for employment and training services related to the green economy; and
$50 million in new funds available on a competitive basis for YouthBuild programs engaged in green construction and retrofitting training activities.

Estimated Results:
Train 377,500 workers for green-collar jobs and careers and provide support services, labor market information and career guidance to hundreds of thousands more.

$1.6 Billion (5% of total) administered by THE CORPORATION FOR NATIONAL AND COMMUNITY SERVICE to provide:

$1.25 billion in new dollars for the Clean Energy Service Corps;
$250 million in new dollars for Senior Corps; and
$100 million in new dollars for the Learn and Serve program

Estimated Results:
Support the participation of 125,000 youth and young adults as Corpsmembers;
Mobilize 1 million seniors as Corpsmembers and volunteers; and
Engage 3 million students in green service-learning in schools.

$50 Million (<1% of total) OFFICE OF THE CLEAN ENERGY CORPS

Administration of the Clean Energy Corps, technical assistance to state and local Clean Energy Corps efforts, and evaluation; Planning and Implementation (P & I) grants to state task forces and local CEC partnerships.

ADMINISTRATION

The next President must institute a new governance structure to effectively coordinate and implement a broad and ambitious strategy to transition the country to a low-carbon economy. We fully support the creation of an Energy Security Council at the White House to play such a role.[13] This Council will be small, streamlined, but very visible—along the lines of the current National Security Council. Within the Council, an Office of the Clean Energy Corps (OCEC) will have primary responsibility for disseminating best practices among CEC state task forces and CEC local partnerships. The OCEC will add virtually no bureaucracy to the federal government, instead drawing heavily on existing expertise within the Departments of Labor and Energy and the Corporation for National and Community Service, and other agencies as appropriate, in providing technical assistance and in reviewing grant applications and comprehensive plans from CEC state task forces and local CEC partnerships.

The new resources available for CEC activities through existing programs will be administered by their respective federal agencies.

The revolving loan fund and Planning and Implementation grant funds will be awarded in the following manner:

80 percent to CEC task forces formed by states, tribes and territories, which will retain up to 15 percent of funds for statewide initiatives, but regrant the majority (at least 85 percent) of the funds to Local CEC Partnerships;

20 percent directly to Local CEC Partnerships;

By a method that ensures geographic diversity, and proportionality to the density of the sector of the labor force targeted by CEC and available stock for retrofitting.

80 PERCENT FUNDS

The OCEC will award on a competitive basis 80 percent of P & I grant funds and CEC revolving loan funds, in coordination with the Department of Energy, and coordinate with the Department of Labor to award a corresponding percentage of supplementary WIA formula funds, to states, tribes and territories that:

Establish an inter-agency CEC task force that includes representatives from: the Governor's office; the state commission for national service; the state workforce investment board; the state apprenticeship council or the Office of Apprenticeship Training, Employer and Labor Services; the state agencies that administer the Workforce Investment Act, the Weatherization Assistance Program, affordable housing finance and Economic Development Administration programs; the state's community and technical college system office; the Public Utilities Commission or equivalent agency, if one exists; a state agency qualified to administer the revolving loan fund; and at least two of the state's largest cities and counties;[14]

Submit a comprehensive state plan to align—where appropriate and in a manner that does not compromise the broader goals of the respective programs—the strategies of the state's Clean Energy Service Corps, YouthBuild, WAP, workforce development programs, affordable housing finance programs, Renewable Energy and Energy Efficiency Program

training partnerships, if they exist, Energy Efficiency and Conservation Block Grants, new CEC loan funds, and other state energy efficiency programs toward the end of: retrofitting and reducing the energy consumption and GHG emissions of the state's public and private building stock and reducing energy costs for the state's residents; creating family-supporting jobs in energy efficiency and related green industries; using labor market analysis to determine current and future employer demand and skill requirements in these industries; training the state's workforce, particularly in disadvantaged communities, for energy efficiency, energy service and related green jobs; preserving and enlarging green spaces and restoring wetlands, rivers and forests; and engaging a diverse cross-section of the state's population in volunteer, service, and service-learning efforts related to energy independence, environmental restoration and climate protection;

Include within the plan how the state will facilitate the discounted bulk purchase of energy efficiency materials, appliances and fixtures, and how these products will be purchased, to the extent possible, from in-state, regional, or domestic manufacturers that provide good wages and benefits to their workers and use energy efficient processes and environmentally safe and sustainable chemicals and resources;

Demonstrate the state's commitment to energy efficiency and climate protection through state investments and policies, such as Renewable Portfolio or Electricity Standards, Energy Efficiency Resource Standards, Public Benefits Funds, rate decoupling, and policies to cap carbon emissions;

Develop for both statewide and local CEC activities (a) safeguards to ensure that incumbent or recently laid off workers are not displaced by participants in the service and training components of the CEC; and (b) fair procedures whereby CEC participants with criminal records are not arbitrarily denied employment or advancement in the industries for which they're trained; and

Match the loan funds at a minimum level of 20 percent, using new state resources that are not supplanted from existing programs (this state match requirement may be waived under extraordinary circumstances, such as natural disasters).

States may retain up to 15 percent of their P & I, WIA and loan funds for: convening the state task force, recouping costs associated with developing the comprehensive state plan and for ongoing planning; costs associated with administering the revolving loan fund; statewide initiatives like the retrofitting of state buildings, including college and university buildings; and WIA statewide activities and labor market analysis that support the goals of the comprehensive state plan.

The CEC task force will re-grant at least 85 percent of P & I, loan and WIA funds to eligible CEC partnerships at the local or regional level. The Department of Labor will award competitive grants directly to YouthBuild programs that are integral to the partnerships. The Local CEC partnerships must include representation from each of entities administering the federal programs that the comprehensive state plan seeks to align and coordinate in communities within which the partnership proposes to operate; a financing/certification agency that manages the retrofitting work; representatives from public utilities and city and county governments; and representatives from energy efficiency industries and unions representing workers in energy efficiency industries, where applicable; and may include other relevant stakeholders.

The supplementary WIA Adult and Youth funds will be allocated to the local workforce investment boards in the partnership, according to state formula. The loan funds will be granted to the financing/certification agency in the local partnership. The P & I funds will be granted to the lead intermediary in the partnership.

The CEC state task force will award grant funds to local CEC partnerships to implement integrated strategies, consistent with the goals of the comprehensive state plan, specifically to:

Offer an entry point adapted to young people through expanded opportunities in team-based service and conservation corps or other programs operating on a corps model, with capacity to engage disconnected youth and provide them with basic education and life skills, wrap-around services, training and experience in green jobs, and to connect them to further education toward the attainment of a high school diploma, training or employment in energy efficiency and related green industries, while bringing them together with other young people of different backgrounds in a spirit of service;

Expose children and young people, especially those who are economically disadvantaged, to sustainable living practices and career paths into the green economy, through "green" service-learning in schools and college campuses, supporting learning and community engagement around greening schools, campuses and cities;

Engage the support and skills of baby boomers and older Americans, through the mobilization of retirees and others as mentors, educators, and volunteers, particularly in support of youth in service or in pre-apprenticeship programs;

Recruit graduates of national service programs and educational and youth development programs serving youth and young adults, and other jobseekers from disadvantaged communities, into training programs that result in industry-recognized credentials and placement in well paid, career-track jobs – including those created by the financing component of the CEC -- in energy efficiency, energy service and related green industries;

Use loan funds to deliver an energy efficiency service made available to home and business owners and school districts, using loan funds and leveraged private funds to cover the costs of needed retrofit work, with a mechanism to pay back the loaned capital out of recovered savings.

A member of the partnership should serve as lead intermediary for the partnership effort, responsible for providing overall leadership, using labor market data that tracks current and future industry demand and skill requirements to guide partnership planning and work, reporting outcomes, and serving as the point of contact with the CEC state task force. The intermediary should receive administrative funds of an amount determined by the state task force. The recipient must demonstrate the ability to:

Leverage other public and private funds;

Convene and plan strategies with key stakeholders; and

Compile and report on performance outcomes of the different CEC components.

Total Investment = $33 Billion over five years

WHITE HOUSE

ENERGY SECURITY COUNCIL • OFFICE OF THE CLEAN ENERGY CORPS

$50 million to fund administration of the Clean Energy Corps (CEC)
Technical assistance to state and local CEC efforts, and evaluation
Planning and Implementation grants to state task forces and local CEC partnerships

80% of funds awarded to State Task Forces

DEPARTMENT OF ENERGY

Administer $29.175 billion to fund:

$13.875 billion to underwrite a $50 billion public revolving loan fund to spur the national building retrofit effort;

$10 billion to fund the Energy Efficiency and Conservation Block Grant Program, part of the Energy Independence and Security Act of 2007 (EISA); and

$5.3 billion for the Weatherization Assistance Program (WAP) to fully fund the program under the new authorization levels established by the EISA.

DEPARTMENT OF LABOR

Administer $2.175 billion to fund:

$625 million for the Green Jobs Act (part of the EISA);

$1.5 billion in new funds for the WIA Youth, Adult and Dislocated Worker programs, available on a formula basis to states and local areas that form eligible CEC task forces and partnerships, to be used for employment and training services related to the green economy; and

$50 million in new funds available on a competitive basis for YouthBuild programs engaged in green construction and retrofitting training activities.

CORPORATION FOR NATIONAL & COMMUNITY SERVICE

Administer $1.6 billion to provide:

$1.25 billion in new funds for the Clean Energy Service Corps;

$250 million in new funds for the Senior Corps; and

$100 million in new funds for the Learn and Serve program.

20% of Federal Funds competitively awarded directly to local partnerships

STATE TASK FORCES—15% of funds stay at state level for statewide activities

State task forces must include a range of public and private partners.

State Task Forces will:

Submit a comprehensive state plan to align the strategies of key programs;

Demonstrate the state's commitment to energy efficiency and climate protection through state investments and policies;

Match the loan funds at a minimum of 20% using new state resources that are not supplanted from existing programs;

Facilitate the discounted bulk purchase of energy efficiency materials, appliances and fixtures; and

Ensure worker safeguards and fair treatment for ex-offenders.

85% of State Task Force Funds transfer to local partnerships

LOCAL PARTNERSHIPS

Local partnerships must include representatives from key public and private partners.

Local Partnerships will:

Offer an entry point for young people in job market through expanded opportunities in team based Clean Energy Service Corps;

Prepare children and young people for sustainable living and employment in the green economy;

Engage the support and skills of baby boomers and older Americans; and

Recruit graduates of the Clean Energy Service Corps into training programs that result in industry-recognized credentials and placement in well paid, career-track jobs.

Use loan funds to deliver an energy efficiency service made available to home and business owners and school districts.

leveraged private funds

BANK

RESULTS

GOOD JOBS & CAREERS
PUBLIC HEALTH
COMMUNITY WEALTH

ENERGY COSTS
GREENHOUSE GASES

ENERGY SAVINGS

Energy-saving benefits paid back through on-bill mechanism, replenishing the loan fund through the savings achieved.

Removing the Barriers to Financing Retrofits

The financing and payback mechanism for retrofits proposed here may sound complicated; it's not. Here's how it would work: all utility customers in communities where the CEC operates would have the opportunity to buy and install cost-effective energy efficiency retrofits in their homes, businesses, and buildings (both owners and renters would be eligible) with no up-front payment and no new debt. They would receive assurances that their utility costs will be lower than they otherwise would have been, and that they will only make monthly payments for as long as they are at that location and the retrofits continue to work. Customers at the location where the measures are installed will pay for the energy-saving benefits of the retrofits through a charge on their utility bill,[15] municipal services bill, or another reliable mechanism, but on a schedule that ensures immediate savings. If a customer leaves the property, responsibility for remaining payments will transfer to the new occupants.

In this way the direct project investments of the revolving loan fund can be largely self-financed through the savings it helps achieve. Let's assume energy improvements that cost a total of $3,000. If retrofits result in a 20 percent improvement for a family or business spending $3,000 annually on household energy costs they would save $600 annually. Using all those savings to pay for the retrofits over time would permit a full payback of the $3,000 over 5 years, after which the family or business pockets the $600 annually.

PRIORITY

In awarding funds under this program, priority will be given to Local CEC partnerships that demonstrate the ability to:

Ensure that their national service, job training and financing components are integrated, with particular attention to linking the supply side of the labor market—graduates of service and training programs prepared with accredited skills for green jobs—with the demand side—jobs created by investments in energy efficiency retrofits;

Promote the quality of jobs trained for and created by the CEC, through, e.g., wage and benefit standards and similar measures;

Work collaboratively among the mandated partners in the CEC partnership; and

Leverage additional public and private resources.

Priorities for the different components of the CEC partnership should include the ability to:

For programs engaging youth and young adults:

Engage young people, especially those who are economically disadvantaged, in comprehensive, full-time team-based service, education and skills training programs for terms of at least 6 and up to 24 months in length;

Ensure high-quality service-learning, including the involvement of participants in the design and planning of projects;

Ensure that projects are visible and valued improvements to the community;

Provide education and training, including basic education designed to lead to the attainment of a secondary school diploma or GED or other state-recognized equivalent (including recognized alternative standards for individuals with disabilities), language instruction for people with limited English proficiency, leadership development, life skills, financial education, and work readiness training, including on-site supervised team-based experiential skills training and paid or unpaid internships with potential employers;

Provide career and educational guidance, including mentoring, job search assistance, counseling, and wrap-around services, including access to health care, child care, housing, transportation, and drug treatment services, that enable the participant to succeed in academic, service and workforce preparation activities as well as subsequent placements;

Provide a stipend or salary to participants for services performed and to cover food and transportation costs, that may include incentives and bonuses for high attendance and performance;

Provide eligibility for Segal Education Awards for participants, for the time spent in service provided they otherwise meet the criteria for such awards;

Partner with training providers to ensure transition into ongoing occupational skills training in green occupations that results in industry-recognized credentials and careers in the green economy;

Provide job retention services for six months to those participants who transition immediately to employment; and

Track data towards outcomes, including engagement of employers and educational providers, educational gains, social/life skill gains, and gains in and through post-secondary certification and education.

For service programs engaging student volunteers:

Engage students in meaningful service projects related to energy conservation and climate change;

Connect projects to curricula in high quality service-learning related to the green economy;

Build community engagement and problem-solving capacity;

Create infrastructure to support ongoing green service-learning; and

Work with CEC partners to educate communities about retrofit services and job opportunities available through the CEC.

For service programs engaging seniors:

Enable participants to put their relevant professional and life skills to use working with young people as trainers, mentors, advisors and team leaders, through a variety of paid and volunteer service opportunities related to the green economy;

Enable participants to volunteer in schools to teach or otherwise support environmental education and energy conservation education for elementary and secondary school students and the public;

Enable participants to assist in such other activities as the national Senior Service Corps may identify; and

Work with CEC partners to educate communities about retrofit services and job opportunities available through the CEC.

For workforce development programs:

Use industry or labor market analysis to determine occupations for which to train workers in energy efficiency and energy service sectors;

Leverage additional private resources, including labor-management funds, cash or in-kind payments from employers, and foundation grants;

Develop curricula in alternative formats and deliver courses at alternative times and sites most convenient and accessible to participants;

Ensure that the training results in an industry-recognized certificate or credential, and/or credits, and/or a degree relevant to the targeted industry sectors;

Develop strategies for trainees to support themselves financially while enrolled in training and to balance work, education and parenting responsibilities, if any, in a manner that allows for persistence and success;

Develop strategies to serve hard-to-employ populations, including transitional jobs strategies;

Deliver wrap-around supportive services and job retention services to participants. This may include re-granting to partners with more direct access and experience with the targeted population; and

Track performance outcome data, including entered employment, earnings gain, certification attainment, job retention, and a job quality measure that takes into account factors such as working conditions and benefits.

For financing/certification agencies:

Certify contractors that are qualified to perform the retrofit work;

Certify that the retrofit work is done to quality standards, drawing on knowledge of energy efficiency measure diagnostics and installation;

Manage and account for large volumes of funds;

Work closely with utility companies;

Connect graduates of service and training programs to employment with contractors and energy efficiency industry more broadly;

Market program services, in particular innovative financing, to home and building owners, using CEC service partners to do so; and

Track outcome data on jobs created by financing, buildings retrofitted, and energy costs saved.

SECTORS AND PATHWAYS

A particularly important component of the CEC is the entry points and advancement pathways that it offers within specific industry sectors of the green economy. In this sense it centers on what's often referred to as a "sectoral employment" strategy, by focusing on a particular industry sector, and within that sector explicitly linking education and training to employer demand in regional labor markets. At the same time it is creating that demand by providing capital to finance retrofit work, which generates jobs for those with access to the industry and the skills to fill them. And it relies on partnerships of key stakeholders to ensure that these linkages are made, with an intermediary organization to bring everyone to the table and keep them there. The bottom line: an integration of civic, workforce and economic development that creates value for workers, employers, communities, and the planet.

The education and training offered by the CEC is positioned within a career pathways framework, a strategy—often designed to go hand-in-hand with sectoral employment approaches—that provides stepping stones to progressively higher levels of skill and advancement to better, more highly paid jobs. The service component is the first step, offering an entry point to job seekers, providing them with valuable work experience, basic or remedial education to prepare them for more advanced skill attainment, and preliminary training that readies them for entry-level employment within the green economy.

We expect that some service graduates would then move immediately into employment, but a significant proportion will take the second step to the occupational skills-focused training component in, most typically, a union apprenticeship or community college program that their service experience has prepared them to succeed in, and which results in an industry-recognized credential. The third step is into jobs and, more importantly, careers. To the extent possible—though labor markets are too fluid to ensure such a linkage—the workers prepared for work by the CEC will be funneled into employment created by the CEC, which has a charge to ensure that these are quality jobs with family-sustaining wages and benefits and career tracks.

The pathways between each of these steps are created and sustained by the local CEC partnership, by virtue of the stakeholder relationships it facilitates, the labor market and industry data it uses, and the programs it aligns. This will not be easy work—in fact it will often be messy—but it will be central to ensuring that the CEC connects skilled workers—drawn from communities at the margins and smokestack end of the fossil fuel-based economy—with sustainable careers as we retrofit and green the nation.

20 Percent Funds

The OCEC will award on a competitive basis 20 percent of P & I grant funds, coordinate with the Department of Energy to award 20 percent of CEC revolving loan funds, and with the Department of Labor to award a corresponding percentage of supplementary WIA formula funds and competitive YouthBuild funds directly to local CEC partnerships that can implement the strategies and meet the priority criteria listed above. These local partnerships must also demonstrate their participating local governments' commitment to energy efficiency and climate protection through policy and investment, and must provide matching funds of 20 percent.

Evaluation

Every two years, the OCEC will contract with a third-party organization to evaluate the effectiveness of the CEC, which should include analysis of the performance outcomes against established benchmarks, and the effectiveness of the OCEC in administering the program and the local CEC partnerships. The evaluator should also develop or select an existing "return-on-investment" measure to assess the cost-effectiveness of the program, including measuring increased tax revenue and decreased use of public programs and the reduction of energy costs and GHG emissions.

Having described how the full Clean Energy Corps will work, the remainder of this paper is devoted to providing more background on its three major components:

Energy Efficiency Retrofits • Green National Service • Green Job Training

For each part, we review existing programs and initiatives, to what extent these match up with need and, correspondingly, why we believe a Clean Energy Corps initiative is necessary, as well as our expectations in terms of the costs and outcomes of these different components.

The U.S. contributes disproportionately to global warming. With less than 5 percent of the world's population, we account for a fifth of the world's 8 billion in annual carbon emissions. Our end-use efficiency, measured as pounds of emitted carbon per dollars of GDP, is half that other rich counties like the EU nations and Japan. Our annual per capita CO2 emissions are 20 tons, twice that of residents of the EU and Japan, 5 times those of China, nearly 20 times those of India and poorer countries.[16] What may be most impressive about the U.S. case is our waste. Overall, some 55 percent of all U.S. energy is wasted. Nearly 75 percent of energy used in transportation is lost to heat or emissions. Nearly 70 percent of energy used for electricity is lost in its generation, transmission, or distribution. Utility companies lose enough energy each year to power all of Japan.[17]

Experts agree that to mitigate climate change and improve its own national security and competitiveness, the U.S. needs to develop domestic sources of non-carbon-emitting fuels and reduce demand for energy through smart growth, and support both with a modernized and "smarter" electricity grid and transportation system. Above all, however, it needs to improve the efficiency by which we generate energy and consume it in end-use products and services. We need to improve our energy productivity.

BUILDINGS

Consider the efficiency opportunity in buildings, widely identified as the most obvious starting point, with greatest immediate potential for gain, in both combating global warming and generating jobs in the process.

America's 300 billion square feet of building stock account for two-fifths of U.S. energy consumption and GHG emissions, a larger share than either transportation or industry.[18] Americans spend more than 5 percent of their income on home energy costs, with low-income households (i.e., those at 150% or less of the poverty line) spending 16 percent.[19]

As with the U.S. energy system generally, however, buildings are also grossly inefficient consumers of energy, and the application of cost-effective (meaning more than paying for themselves out of realized savings) efficiency measures to them can cut these costs dramatically. The US Department of Energy Weatherization Assistance Program (WAP), which retrofits low-income residences, reports saving consumers more than 20 percent on their annual energy bill on average (or $358), and gaining $1.53 in energy-related benefits for every $1 invested.[20] State efficiency programs report comparable or better rates of return.[21] The Business Roundtable estimates that we could save 3.5 quadrillion BTUs of energy (equivalent to 1.65 million barrels of oil/day) by 2025, through wide upgrading of our building stock, again in ways that would more than pay for themselves.[22]

But if building energy efficiency is such an obvious winner, why haven't market actors already exploited this opportunity? The answer is that some market actors have—the U.S. has a good-sized ESCO industry that does this a line of work. But such ESCOs tend (reasonably enough) to cherry pick the most obvious and easiest sources of energy savings, and then typically only in large commercial buildings with long term owners. But that leaves many available savings in those buildings unclaimed, and leaves most buildings out entirely.

For this much larger class of buildings, a variety of barriers typically stand between their tenants or owners and full-scale energy retrofits, and between private capital markets and the financing of retrofit costs. Among tenants and owners, these barriers include poor information about real costs and benefits and rates of return; agency problems (split incentives between them); high transactions costs in overseeing multiple contractors; uncertain or limited-term tenancy or ownership (and thus the fear of not getting invested money back out in savings); fear of disruption (or work, or home life); and lack of capital or access to capital. Among potential suppliers of that capital (banks, insurance companies, pension funds, individual investors, etc.) there are the problems of highly disaggregated savings opportunities (implying high transactions costs relative to loaned capital), natural risks of creditor default, and the lack of standardized debt instruments that can be securitized (bundled and resold).[23]

THE INADEQUACY OF RESPONSE THUS FAR

The measures that have been put forward to date for promoting building retrofits and other energy conservation measures have been relatively limited in scale. While these measures have helped to establish a basis for larger actions, they do not come close to meeting the country's energy and environmental challenges.

At the Federal level, the most important residential energy efficiency incentives were a suite of tax credits passed in the Energy Policy Act of 2005. Yet many of these expired in December 2007, and their renewal in the 110th Congress was uncertain. Ultimately the tax credits were salvaged by being tacked on to the Emergency Economic Stabilization Act of 2008 (the "bailout bill").

The specific credits include the residential energy efficiency tax credit for building insulation, windows, doors, roofs, and efficient appliances (water heaters, furnaces, boilers, heat pumps, and air conditioners).[24] However, the maximum credit for these efficiency upgrades is only $500, a figure not quite high enough to leverage large-scale investments in building retrofits.

One very positive note is that tax credits for qualified solar water heating and solar photovoltaic systems were extended through 2016. The credit for solar heating is for 30% of the cost of the system, up to $2,000, while the $2,000 cap on solar photovoltaic was lifted altogether.

Homeowners also have access to "energy improvement" or "energy efficient" mortgages (EEM) to finance efficiency upgrades and installation of renewable energy technologies in existing homes. The Federal Housing Authority (FHA) and Veterans Affairs (VA) programs are insured by the federal government, allowing borrowers who might otherwise be denied loans to pursue energy efficiency improvements and securing lenders against loan default. FHA EEMs will finance 5% of the property value (up to $8,000), while VA EEMs will finance up to $6,000 in upgrades if these are deemed cost effective.[25]

Some private lenders also provide energy efficient mortgages through the federal Energy Star program, offering Home Energy Rating assistance, special financing, and other support to applicants buying homes with the Energy Star rating. Finally, Fannie Mae and Freddie Mac offer EEMs through private lenders. According to HUD, "Fannie Mae secondary market guidelines permit approved lenders to increase ratios two percent on the debt-to-income requirements for Energy Efficient Mortgages. An expanded qualifying ratio helps purchasers who are "maxed-out" on their income ratios. Freddie Mac allows a lender to use the projected utility savings as a 'compensating factor.'"[26]

The efficacy of these mortgage financing and refinancing options in enabling efficiency upgrades is hampered both by a lack of knowledge of these programs and the limited number of borrowers to whom this issue is relevant. The benefits of energy efficient mortgages will only accrue to homebuyers who are already buying a home at the limit of their borrowing capacity. It offers no benefit to those who are borrowing lower amounts than their income can sustain or who don't want to press their borrowing limits.

Perhaps the most successful Federal efficiency retrofit program is the Weatherization Assistance Program for low-income homes, administered by the Department of Energy. WAP has provided weatherization retrofits to 5.6 million low-income families over the past 29 years; yet there are still an additional 34 million families whose income levels make them eligible with 15 million of these estimated by DOE to be good candidates for cost-effective weatherization. By the Department of Energy's calculations, WAP produces enormous benefits: an estimated $1.53 in energy-related benefits, plus $1.16 in ancillary benefits (for a total of $2.69), for every $1.00 in federal funds invested. WAP reduces low-income energy bills by an average of 21% (or $358 per year, based on 2005 spending levels).[27] However, WAP is consistently underfunded. The Energy Independence and Security Act of 2007 (EISA) raised the authorization level of the WAP to $750 million in Fiscal Year 2008,[28] but it's current funded at only $227.2 million.[29] Fortunately, the continuing resolution signed into law on September 30th includes an additional $250 million for the WAP, which more than doubles their funding for the coming year.

Finally, a very promising new program, the Energy Efficiency and Conservation Block Grant Program, was authorized at $2 billion per year in the EISA, but has not yet had any funds appropriated to it. It's administered by the Department of Energy (DOE), which makes allocations to state and local governments to develop energy and conservation strategies to reduce fossil fuel emissions and energy use and to achieve greater energy efficiency in the building, transportation and other appropriate sectors. These grants could be used for building and home energy conservation programs, energy audits, fuel conservation programs, planning and zoning to promote energy efficiency, and the use of renewable energy resources for government buildings. In addition, subgrants could be made to nonprofit organizations and governmental agencies for the purpose of performing energy efficiency retrofits.

PRIVATE STRATEGIES AND PUBLIC/PRIVATE PARTNERSHIPS

Various innovative public-private partnership programs have emerged in recent years and have begun to leverage low-cost capital into the building retrofit market. The Clinton Climate Initiative's (CCI) Energy Efficiency Building Retrofit Program is aggregating and expanding the retrofit market by bringing together cities, building owners, banks, and ESCOs to perform energy efficiency retrofits that guarantee both energy and cost-savings. First, ESCOs enter into agreements with the CCI to perform the retrofits under contracting terms to reduce cost and risk. Then, banks agree to finance the project (often at 100%), with pay-back guaranteed by the energy savings delivered over a number of years. Overall costs are brought down even further by CCI-negotiated discounts on a host of energy-efficient and clean energy products and technologies (including lighting, solar control window films, and "cool" roofing).[30] Over 200 million square feet of building retrofits are in motion under the CCI program.

A similar public-private partnership, focusing exclusively on the greater Washington region, was announced in April 2008. Maryland, Virginia, Washington, D.C., and the General Services Administration (GSA) have committed more than 400 federal, state and local commercial buildings—encompassing 74 million square feet of space—to energy efficiency retrofits. Financing will come from $175 million in public sector commitments, complimented by $500 million in private financing for office buildings, with audits and retrofits performed by PEPCO energy services. It is estimated that the retrofits, once complete, will result in 324 million kilowatt hours, worth $37 million, in annual energy savings in the region.[31]

PATHS FOR FINANCING OF BUILDING EFFICIENCY RETROFITS

There are several different ways a Clean Energy Corps could be funded including a revolving loan fund, income tax credit, or clean energy corps bond systems. We describe the latter two in detail in Appendix B. In the financing mechanism we recommend for the CEC, the federal government establishes a tax-exempt revolving loan fund that is administered by state and local governments, or their designee, as part of an energy efficiency service made available to area home and business owners and public buildings like schools. Operators of such a service—we call them financing/certification agencies as part of a Local CEC Partnership—would use loan funds to cover the costs of needed retrofit work, with a mechanism to pay back the loaned capital out of recovered savings. This payment would typically be achieved through an assessment on some bill regularly paid by property owners or tenants—an electricity or natural gas bill, or a municipal service bill, or a property service bill—the non-payment of which is coupled with sufficient penalty to ensure low default. Apart from such assurance to creditors, two things are especially important in the design of such programs. One is that service costs be set at rates lower than expected savings, thus giving tenants or property owners immediate benefit from acquiring the service. Two is that service costs be attached to the relevant property, not the current tenant or owner, and continued with the next tenant or owner if not fully paid off at the time of the present tenant or owner quitting or selling the property. The Me2 model in Milwaukee provides an example *(see case study)*.

Case Study: Milwaukee Energy Efficiency (Me2)

The Center on Wisconsin Strategy (COWS) and the City of Milwaukee are working with local political, labor, community, and business leaders to retrofit much of the city's building stock. The project, called Milwaukee Energy Efficiency (Me2), allows property owners and renters to implement energy efficiency measures with immediate savings and no upfront costs. It saves customers money, helps reduce GHG emissions, and generates local employment.

ON-BILL PAYBACK

Me2 will use both public monies and private capital for the work involved in the project. Costs will be fully repaid by program participants via charges on their utility or municipal services bills, but on a schedule that allows them immediate savings. The example to the right assumes Me2 efficiency measures have reduced a customer's energy use by 25%, saving her $50 on what had been a $200 monthly bill. Monthly repayment for the work would then be set at less than $50 (here, at $35) to assure immediate savings; when the work was paid off completely, the customer would keep the full $50. If a participating tenant leaves the property before repayment is complete, the remaining obligation goes to the next tenant. If a participating owner sells the property, the obligation goes to the new owner or is wrapped into the sales price. This design minimizes risk to both participants and creditors.

CREATING JOBS

Me2 will create jobs—ranging from entry level to highly skilled—and fill them locally. Preliminary estimates suggest that the project will generate thousands of person-years of employment for installation work. These will be good jobs with real opportunities for advancement. Me2 is working with local labor and community leaders and training providers to make sure the program is open to those who are often excluded from the workforce.

THE FLOW OF MONEY AND WORK

The figure to the right indicates the work and money flow for Me2. A source of capital, or "bank," loans money to the program, upon agreement from an energy customer to have work done. The program hires an auditor to recommend efficiency measures and a contractor to do work that the customer approves. Work is done, and on-bill charges for the service begin. The utility collects the charges from all participants and repays the "bank."

SAMPLE ME2 MONTHLY STATEMENT

PRE ME2 ENERGY CONSUMPTION	$200
ESTIMATED ME2 ENERGY SAVINGS	$ 50
YOUR CONSUMPTION THIS MONTH	$150
ME2 REPAYMENT CHARGE	$ 35
YOU OWE THIS MONTH	$185

Figure 2

ME2 WORK AND MONEY FLOW

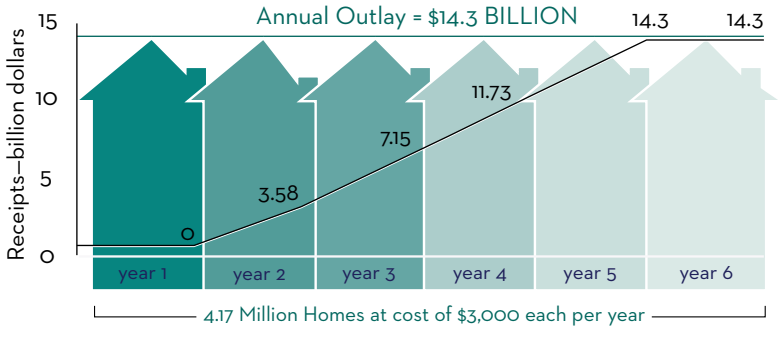
The hypothetical finances for a revolving fund are shown in Figure 2. The assumption in the table is that all loans are repaid in full over a four year period, following a one year grace period. By year five, the loan fund becomes self-sustaining, with the amount of repayments each year matching the money being paid out. We are also assuming here, for the purposes of simplicity and demonstration, that only homes are being retrofitted, whereas the CEC would be retrofitting commercial and public buildings as well.

In the scenario described in Figure 1, the program would retrofit 20.85 million homes over 5 years at an initial cost of $50.0 billion ($71.5 billion spent by the beginning of year 5, minus $22.46 billion received back by the end of year 4). In subsequent years, the amount paid back will be equal to the amount expended, so there will be no additional net outlay required.[32]

Figure 1

HYPOTHETICAL HOME RETROFIT REVOLVING LOAN FUND

The figure at the right illustrates how the fund first becomes self-sustaining, with annual payback equal to annual outlays, in year five.



COSTS AND OUTCOMES

A number of studies have concluded that investing $10 billion a year in retrofits, as proposed here, can be expected to create close to 120,000 jobs annually and 600,000 jobs over five years.

We estimate that the same $50 billion investment can support the retrofitting and weatherization of over 15 million buildings.[33]

GREEN NATIONAL SERVICE TODAY

What has been lacking from current national service programs is a unifying, mobilizing call to join the urgent effort to curb global warming and help build a green economy, supported by adequate funds to ramp up models that have proven their effectiveness and develop new ones where necessary. More than that, national service programs have not been recognized for and adequately supported in the unique role that they can play as job readiness programs, and particularly in building pathways to prosperity for poor people and communities. Through its Clean Energy Service Corps, the centerpiece of the national service component of the CEC, the Clean Energy Corps would provide such support, deliberately creating clear and consistent pathways for a generation of young people from a full-time, stipended service experience to ongoing workforce education and training that result in credentials for green jobs and careers. In addition, the CEC would stimulate green service-learning in schools and universities, and engage baby boomers seeking meaningful volunteer opportunities, in support of these pathways and building an inclusive green economy.

Seventy-five years ago, at the height of the Depression, the Civilian Conservation Corps (CCC) employed three million unemployed young men to build critical infrastructure that has endured for generations, enabling them to escape poverty and contribute to the public good. The CCC is often pointed to as the country's most significant and effective national service program at scale. In the 1960's, the nation's youthful energies were mobilized by creating the Peace Corps and VISTA to address poverty abroad and at home. Then in 1993, the Corporation for National and Community Service (CNCS)[34] was created as the umbrella supporting the full range of civic engagement, service and volunteer programs in the country, ranging from full or part-time service, targeting younger or older people and providing them with a living allowance, to casual or more sustained volunteering and service-learning in schools. The major programs of the CNCS are AmeriCorps, Senior Corps and Learn and Serve America. Since its creation, the AmeriCorps program has grown incrementally and in total engages 75,000 young people annually, counting 500,000 among its alumni.

Over the past year, a movement has emerged to take national service to scale.[35] The ServeAmerica Act[36], co-sponsored by Senators Kennedy (D-MA) and Hatch (R-UT), would support the service component of the CEC by creating a Clean Energy Service Corps as one of four issue-related corps alongside AmeriCorps. In this time of crisis for young people, and especially young people of color, launching a national service initiative with potential to impact disadvantaged young people at a large scale is urgent. Consider the dire lack of skills, education and opportunity of our nation's youth:

> A 2004 study estimated that **3.8 million youth,** ages 18 to 24—roughly 15% of all young adults—**were neither in work nor in school.** Since 2000, the number had increased by 19%.[37]
>
> **One in three youth who start high school will not graduate four years later.** More than half of youth of color in low-income communities will drop out.[38]
>
> **Three fourths of the people in state prisons and 59% of federal prisoners did not complete high school.**[39]
>
> **In 2003, high school graduates earned 50% more than dropouts** and college grads earned three times as much.[40]
>
> **Teen employment is at its lowest level in 57 years.** At any given time, about 50% of young black men ages 16 to 24 who are not enrolled in school are unemployed.

With support from AmeriCorps, the nation's service and conservation corps—the modern descendant of the CCC—are serving low-income youth, sometimes bringing them together with more privileged youth in teams. This is the largest and greenest national service system for young people, counting 136 corps in 42 states. There are over 26,000 full or part-time corps members, 44% of whom are people of color, nearly 60% of whom have no high school diploma, and 53% of whom come from families who earn less than $15,000 a year. Terms of engagement range from 4 to 24 months. Activities vary with local needs, from conservation work, such as building paths and clearing brush to prevent forest fires, to operating city recycling programs and weatherizing homes. Corps members receive a stipend and can work towards an educational award for further training or education at the end of their service.

Service and conservation corps play a unique and complex role for young people and for communities. They offer a rigorous service experience that teaches basic work skills: showing up on time, basic project management, accountability, teamwork. At the same time, most corps operate charter high schools, through which corps members can earn their high school diploma in a supportive environment that is adapted to their needs. These high schools send instructors to the field, to educate through experiential service-learning, while some provide computer-based coursework so that individuals can learn at their own pace. Corps provide stipends, so that corps members can support themselves and their

families while they are learning and serving, and an array of support services, ranging from child care, to coordination with parole officers, counseling for substance abuse and other needs. Finally, corps provide training and connect graduates to internships, pre-apprenticeship programs, and work opportunities, providing follow-up services for months after graduation. Since 2007, roughly 20 corps have piloted the Civic Justice Corps, affirmatively recruiting formerly incarcerated and court-involved young people, and providing them with additional support while in the corps *(see case study)*.

Service and conservation corps have engaged more than 600,000 young people since 1985—a tremendous achievement. But corps, of which the largest enroll between 100 and 200 corps members, engage only a fraction of the young people who are eligible for and could benefit from the experience. Corps generally have between 2 and 5 applicants per spot. There is also huge demand for YouthBuild programs, which also combine education, service and on-the-job training and are increasingly training participants in green construction technologies. Many service and conservation corps operate YouthBuild programs.

CEC would vastly expand these opportunities, while strengthening their ties to green-collar job training programs. Through the Clean Energy Service Corps, national service can offer the rite of passage lacking for so many young people, engaging those living in poverty, and more privileged youth, to work together to green the nation. The CEC would tap young peoples' desire for action, while ensuring that the service experience leads to education and a career path for those who most need it. As such, CEC's deliberate approach to linking service, job training and job creation would seek to ensure that the green economy isn't being built purely through temporary youth work that doesn't connect young people to larger career pathways.

Harris Wofford, first CEO of the CNCS, says "We can launch a Clean Energy Corps on the scale of the Civilian Conservation Corps. In the words of the World War II song, "We did it before, we can do it again."

A CALL TO GREEN SERVICE FOR ALL AGES

CEC would also draw on the established infrastructure within the CNCS to mobilize people of all ages to join in building an inclusive green economy.

We have discussed above how CEC could mobilize young people by building on current AmeriCorps programs. There is also a role to play for younger and older Americans in supporting green pathways to prosperity, by increasing knowledge and understanding of the green economy and healthy and sustainable living practices among low-income youth, stimulating the demand for green jobs by expanding community demand for green infrastructure, and supporting young corps members in their training and service.

Older Americans are a tremendous force for volunteerism in this country, and should be tapped in greater numbers to take part in building the green economy. Senior Corps counts 500,000 participants in its programs, whose offerings range from sporadic or short-term volunteering, to more sustained commitments and full or part-time stipended service. Through the Environmental Alliance for Senior Involvement (EASI), which operates Senior Environmental Corps around the country in partnership with R.S.V.P. volunteer centers, older volunteers provide public education around energy conservation and efficiency, build green affordable housing and weatherize homes. While there are over 10,000 EASI volunteers around the country, the potential to ramp up ways for retirees to mentor and share skills and expertise with younger generations, as well as support job creation efforts by educating communities about retrofit services and job opportunities available through the CEC, is tremendous, particularly as the baby-boom generation enters retirement and seeks meaningful service opportunities.

Service-learning is an avenue for engaging children and youth in K-12 schools, and students in community colleges and higher education, in green service. Learn and Serve America promotes service-learning through grants to educational institutions of all levels, but there is currently no dedicated stream of funding to encourage green service-learning in schools.

Case Study: *National service for green jobs, not jails*

Civic Justice Corps is the first ever national service initiative to focus on high incarceration communities and affirmatively recruit people with criminal convictions to public service, with a focus on green energy service projects and preparation for employment or entrepreneurship in green business. Civic Justice Corps, piloted by The Corps Network and The After-Prison Initiative of the Open Society Institute, is an innovative approach to creating pathways into prosperity for people who are formerly incarcerated, out of work, out of school, or exiting foster care, through national service, and aims to green high-incarceration communities and re-orient the criminal justice system towards education and community-building.

In the United States, incarceration is no longer an experience for the few. Today, there are over 2.3 million people behind bars (compared to 200,000 in 1970), approximately 1 million for non-violent offenses, because of harsher punishment policies enacted over the past 35 years. The US imprisons 1 out of 136 people—the highest documented per capita rate of incarceration in the world.

Because of a multiplicity of factors—from targeted policing and sentencing disparities to the legacy of structural social injustice—African-American men (and increasingly women) are over-represented: only 13% of the U.S. population, African-Americans are 51% of the prison population.

Young people coming home after juvenile detention are marked by the perpetual stigma of incarceration and the trauma of separation and isolation from family and community. Having missed out on the typical rites of passage from adolescence to young adulthood—school graduation, work and starting a family—they also confront a myriad of daunting legal and practical barriers—to family reunification and accessing public housing, healthcare, education and especially employment.

CJC recruits currently or formerly incarcerated men, women and young people, providing them with green pathways to prosperity through team-based education, work and service. Experiential, service-based learning, designed and taught in partnership with local community colleges and green businesses, links rigorous academics to concrete projects that are visible and valuable to the community. Through exposing CJC members to people who are experts in and passionate about community development and the growing green economy, CJC prepares them for careers in a high-growth sector and inspires members to become active citizens. CJC offers members support services, and connects graduates to employers, post-secondary education or entrepreneurship opportunities. Establishing the necessary funding and partnerships supports individual trajectories and change within the criminal justice system and in high-incarceration communities.

Since 2007, 22 CJCs are up and running from California to Wisconsin to Florida. Participants in the Low Country CJC, part of a work-release program, build green homes while learning skills for life and for employment. Civicorps corps members, with a 99% participation and 1% recidivism rate, run the Berkeley municipal recycling program while earning a high school diploma.

A large-scale pilot, the Conservation Corps of Greater New Orleans, is underway with 800 participants, including formerly incarcerated and court-involved youth, engaged in environmental restoration, energy conservation and restoration of historic structures. Six different sites are operated by diverse hosts, including faith-based organizations, community-based non-profits, and educational organizations. Corpsmembers work with the community to design service-learning projects focused on environmental community and sustainability. Corps members serve a brief green economy internship at the end of their service, with six-month follow-up following program participation.

Through the CEC, the CJC could grow to become a natural step from prison onto a path to education, civic engagement, and family supporting work, embodying the vision of green pathways out of prison and poverty, to prosperity.

Photo by Patricia Gill of The Corps Network

OUTCOMES AND COSTS

A report by Innovations in Civic Participation found that "service and conservation corps help re-engage society's most vulnerable youth and provide a proven and effective pathway for transitioning this population out of poverty and into higher education and careers with long-term potential."[41]

"YOUTH CORPS: Promising Strategies for Young People and Their Communities," a rigorous multi-site control group evaluation conducted by Abt Associates/Brandeis University, underscored the value of Corps for communities and participants. The report documents that:

Significant employment and earnings gains accrue to young people who join a Corps;

Positive outcomes are particularly striking for young African-American men;

Arrest rates drop by one third among all Corpsmembers; and

Out-of-wedlock pregnancy rates drop among female Corpsmembers.[42]

First year results for the Civic Justice Corps pilot within the Corps Network, targeting out of work, out of school youth, in particular those who are formerly incarcerated, court-involved or exiting foster care, (see sidebar) have exceeded the goals for the program. Out of 400 enrolled:

9.2% recidivism;

over 90% participation;

96% retention in job/college placements; and

high growth employers engaged.

Not only are Corps effective in engaging young people and providing them with education and skills, but they are getting real results in energy conservation:

In Wisconsin, Operation Fresh Start crews build or rehabilitate homes that meet or exceed Wisconsin Energy Star standards on average, 25% more efficient than homes built to already tough Wisconsin building codes;

In Denver, Corpsmembers at Mile High Youth Corps install fluorescent lights, showerheads, a carbon monoxide/smoke detector, adjust thermostats, replace toilets with high efficiency tanks, put aerators on faucets, and educate residents about energy conservation. The state estimates average annual energy savings at $109.90 per home, annual water conservation equivalent to 40 Olympic-size swimming pools, and air pollution reduction equivalent to 222 cars removed from the road for a year.

Based on the experience of service and conservation corps and of the Civic Justice Corps, we are estimating the cost of the federal share of engaging a young person as a full-time, 6 month Clean Energy Corps member at $10,000. This includes a weekly stipend, access to health care, wrap-around services, educational programming, and training. Participants would also be eligible for a Segal Education Award.[43] Additional monies would need to be raised from local, state and private sources to cover the full cost, including the additional costs of starting a new corps. Using these projections, we estimate that the Clean Energy Service Corps could mobilize 125,000 people over 5 years, at a cost of $1.25 billion.

There are two major categories of Senior Corps participants: those who serve full or part-time and receive stipends, and those who volunteer, receiving minimal support to cover expenses incurred through their activities. Currently, there are around 30,000 stipended Senior Corps members, at an average cost of $5,000 per participant. There are approximately 450,000 volunteers through R.S.V.P., at an average cost of $150 per member. Over the course of 5 years, CEC will mobilize 1 million people through Senior Corps, RSVP and full or part-time corps members combined, for an overall cost of $0.25 billion.

Learn and Serve brings service-learning to students through grants to schools and teachers, who in turn often engage community volunteers. Based on current figures, we project that with $0.1 billion in new money for green service-learning in schools, CEC could reach 3 million students.

A significant number of high-demand, good-paying jobs in this country are going unfilled because there are not enough skilled workers to meet employer demand, particularly in industry sectors that are central to creating a new energy economy. For example, in a 2005 survey by the National Association of Manufacturers, 90 percent of respondents indicated a moderate to severe shortage of qualified skilled production employees such as machinists and technicians.[44] This challenge will only get more severe as baby-boomers retire. In a recent power sector survey, nearly 50 percentof respondents said that more than 20 percent of their work force—mostly skilled tradespeople—would retire within the next five to seven years.[45] Many of these current and future jobs require a significant amount of postsecondary education, but not a four-year degree. This makes them a great opportunity for marginally attached, low-skilled workers—for whom a college degree may not be a realistic or desired option—to move into living wage jobs.

Any consideration of existing programs to train workers for green-collar jobs cannot ignore how the nation's broader workforce development system meets—or falls short of meeting—industry demand for skilled workers in today's economy. The nation's primary job training system—and its largest single source of funding for federal workforce development activities—is the Workforce Investment Act (WIA), which Congress passed in 1998 to streamline and coordinate various federal employment and training programs. Title I of WIA addresses the needs of youth, dislocated workers and adults. Federal funds are allocated to states on a formula basis. After 15 percent of funds are set aside for statewide activities and administration, the remainder is allocated in turn to local workforce investment areas, administered by employer-led workforce investment boards. Services are delivered at the community level through "one-stop centers," where jobseekers are intended to have universal access to a range of employment and training programs. Jobseekers who want to get training must go through a defined "sequence of services" before being eligible for Individual Training Accounts (ITAs), vouchers that allow them to choose training from a list of eligible training providers maintained by the local workforce board.

Any consideration of existing programs to train workers for green-collar jobs cannot ignore how the nation's broader workforce development system meets–or falls short of meeting–industry demand for skilled workers in today's economy.

WIA's emphasis on coordination among programs, explicit links to employers, accountability for performance, and a single point of access for services and information often results in an extremely responsive and effective workforce system in local areas. But invariably all local areas suffer from having to do too much with too little: they are expected to develop and maintain a one-stop infrastructure while delivering services to anyone who walks through the door of its career centers—neither of which was a goal of its predecessor, the Job Training Partnership Act—with funding that has gone down since WIA's inception 10 years ago, when the national economy was in far better shape than it is in today.

Indeed what is striking to note is the level of federal disinvestment in workforce development in recent years. Over the course of the Bush administration key workforce training programs at the Departments of Labor and Education have suffered more than $2 billion in funding cuts.

Since the first budget submitted by the Bush Administration, funding for key employment and training programs at DOL—of which WIA represents the lion's share—has been cut 27% in constant dollars through FY2008.[46]

Beyond insufficient funding, the policy structure of WIA also constrains the ability of the nation's workforce system to meet the increased demand for skilled workers that a Clean Energy Corps would require. The requirement that job seekers go through a defined sequence of services, and then still fail to find a job, before accessing training services has resulted in less training as compared to previous federal training programs. And the mandate to provide services universally rather than in a more targeted way—without increased (indeed lower) funding levels—has resulted in fewer low-income people receiving training.

DEPARTMENT OF LABOR: KEY TRAINING & EMPLOYMENT PROGRAMS

Bush vs. Congress (in constant 2008 dollars)

Only 189,000 individuals exited Title I training programs in 2006, a decline of 26% from 1998. The number of low-income adults who exited Title I training programs declined by almost half from 1998 to 2007—from 96 percent to 53.7 percent.[47]

In addition, WIA is largely a voucher-based system, providing ITA's to individuals on a person-by-person basis. There is limited ability, under current law, for a local workforce board to respond to demand for skilled workers from a particular industry sector that drives local economic development and provides career-path employment. In the case of energy efficiency, a local workforce board by itself, under current funding constraints, with scarce and triaged resources, would not have the capacity to develop a sufficiently scaled pipeline of workers to meet the needs of rapid market expansion in the industry.

There are smaller federal programs that train workers for green jobs in specific areas. They include:

As detailed above, **the Weatherization Assistance Program (WAP)** is the largest residential energy conservation program in the nation. Under the program's regulations, 10% of allocations may be directed to the training of workers for these jobs. How this training is done and who does it varies greatly from state to state.

The National Institute of Environmental Health Services (NIEHS) Hazardous Waste Worker Training Program provides education and training to workers engaged in activities related to hazardous waste removal, containment and emergency response. Training providers are typically unions, universities or consortia with demonstrated access to appropriate worker populations and experience in implementing and operating model worker health and safety education training programs for hazardous materials or waste workers.

The NIEHS Minority Worker Training Program (MWTP) recruits and trains young people who live near hazardous waste sites or in a community at risk of exposure to contaminated properties with the specific focus of obtaining work in the environmental field.

The NIEHS/EPA Brownfields Minority Worker Training Program broadens the MWTP to include a new component on Brownfields Worker Training, addressing the need for a more comprehensive training program to foster economic and environmental restoration of identified Brownfields sites.

The Department of Labor has funded notably few training efforts focused on green jobs with its discretionary grant programs. An exception to that trend is the Workforce Innovation through Regional Economic Development (WIRED) initiative, which has funded a series of regional partnerships in emerging clean energy clusters.

The Department of Labor also funds YouthBuild programs. YouthBuild USA has begun roll-out of a green construction initiative to train participants for jobs building energy efficient buildings with sustainable materials. This program builds on the traditional YouthBuild model, a 9 to 24 month, full-time program that combines training in construction trade skills, with time in the classroom working towards a GED or high school diploma, youth leadership and civic engagement skills-building. YouthBuild currently engages 8,000 young people a year, but receives between 2 and 10 applications per opening.

An important new program at the Department of Labor, the Energy Efficiency and Renewable Energy Worker Training Program was created by the Green Jobs Act, Title X of the Energy Independence and Security Act, and authorized at $125 million per year. The Green Jobs Act, which is amended to WIA, funds labor market research and training partnerships at the national and state levels. It targets a broad range of energy efficiency and renewable energy industries and populations eligible for training. It requires that 20 percent of appropriated funds be directed to a Pathways Out of Poverty demonstration program that funds partnerships which provide training and wrap-around support services to low-income people seeking family supporting careers in those industries.

Despite the passage and authorization of the Green Jobs Act, Congress has not yet appropriated money for the program, and the Department of Labor has not yet established it with existing discretionary grant funds.

In sum, the current federal workforce development system doesn't have the capacity to train the workers needed by industries poised to retrofit and green the nation. Chronically underfunded, it strains to meet the demands of jobseekers and employers in the current labor market, and is ill-suited to train workers at scale for specific industry sectors. Small-scale and targeted programs do exist, and have a proven track record of success, while the newly created Green Jobs Act holds promise as a vehicle for training workers for a range of renewable energy and energy efficiency industries. The challenge, then, is to: (1) leverage and build on existing training programs and strategies that work; (2) develop a training capacity commensurate with the demand for skilled workers required by a substantially increased investment in retrofitting and greening the nation; and (3) link that training capacity directly to the jobs created by this investment.

OUTCOMES AND COSTS

There exists a broad range of evaluations of job training programs across the country, with outcomes that vary greatly depending on length of training, the population served, and the kinds of jobs for which people are trained. Because the kind of training proposed for the CEC is fundamentally a sectoral workforce development approach—in that it focuses on particular industry sectors, relies on partnerships, and has the dual goals of promoting the competitiveness of industries and advancing the employment of workers—it is instructive to look at the results of the two most comprehensive longitudinal studies of sectoral employment programs, one conducted by the Aspen Institute, the other by Public/Private Ventures, each of which examined the outcomes of six training programs in different regions and industries. One study found that 84% of participants were employed one year after training, with median earnings gains that increased from a baseline of $8,580 to $17,732; the other found that 93% of participants were employed one year after training, with median earnings gains that increased from $10,485 to $18,865. Both studies found that participants had greater access to health insurance and paid sick leave after participation in the training programs.[48]

Government evaluations of workforce training programs are various. Perhaps the most rigorous and useful is done by the state of Washington, which issues a report on the outcomes of all of its major education and training programs every two years. In addition to summarizing typical outcome data—e.g., job retention and earnings—they perform a cost-benefit analysis to estimate the return on investment from the state's programs, using a quasi-experimental design in comparing the outcomes of individuals who participated in these programs with similar individuals who did not. The employment impacts of all the programs are positive, but it is the ratios of participant benefits to program costs—even without including increased tax receipts—that are particularly striking: all three WIA programs, for example, show ratios of approximately 5:1 to 7:1. The best performer on this measure is the state's registered apprenticeship program, which shows a benefit to cost ratio comfortably over 100:1.[49]

Because we expect many of the training providers in the CEC to be joint labor management partnerships, it's important to note the difference in quality between programs that involve both industry

and labor compared to those that are industry run. A definitive 2005 Government Accountability Office report showed that average completion rates for apprenticeship programs jointly sponsored by unions and employers were more than fifty percent higher than programs sponsored solely by employers. In addition, joint labor-management apprenticeships yielded average wage rates $6 more per hour versus those run solely by employers.[50]

Using the costs of existing training programs to estimate the costs of CEC training is a difficult exercise. The training partnerships of the Green Jobs Act have not yet been funded. The cost of the WIA Youth program hovers around $3,000 per participant and the WIA Adult program around $4,000 per participant, depending on the year examined. These programs, however, often involve short-term training and don't make extensive use of support services for participants in training and job retention services once they are employed. At the same time, we expect substantial use of existing public and private funds, particularly labor-management funds, by trainees, and many will carry Segal Education Awards forward from their Corps service. Acknowledging that this breadth of variables makes any cost estimation largely speculative, we think it's fair to estimate a $4,000 training cost per participant across WIA and Green Jobs Act Programs.

In allocating additional funds through the WIA system, the CEC will mandate that the funds may only be spent on employment and training services related to the energy efficiency and energy service industries, and industries that provide materials and services to that industry. Moreover, the CEC will require that at least two-thirds of the allocation be spent on providing training services, to avoid an excessive portion of funds being used to support infrastructure and other costs, however pressing those needs remain. Therefore, a $1.5 billion investment in a green-collar workforce through WIA could train an estimated 250,000 workers over a five year period, as well as providing labor market information, employment counseling, and other support services.

Although eliminating the "sequences of services" requirement of WIA will have to await the program's reauthorization, the CEC will direct the DOL to provide guidance to the state and local workforce investment boards participating in the CEC that they should also take full advantage of their authority under current law to provide training services under contract with training providers for on-the-job and customized training and for training for special populations with multiple barriers to employment, rather than relying only on ITA's to deliver training.

A full appropriation of the Green Jobs Act, $625 million over five years, would provide $500 million for training partnerships, with the remainder going to labor market analysis and labor exchange services at the national and state levels. Therefore, an estimated 125,000 workers could be trained through the Energy Efficiency and Renewable Energy Worker Training Program created by the Green Jobs Act, many in the energy efficiency industry, employers from which would be aligned with the CEC partnerships at the local level.

YouthBuild programs work with a high-barrier population and provide them with a richer array of services than typical training programs, at an average cost per participant of $20,000. More than half of the YouthBuild students who complete the program receive their GEDs or high school diplomats, and 73% are placed in jobs or go on to higher education, including 15% who enroll in community or four-year colleges. The recidivism rate for those formerly convicted of felonies ranges from 5 to 28% in various studies, compared to a national rate of 67% rearrested and 51% reincarcerated within three years. A $50 million supplemental appropriation for YouthBuild programs to train youth and young adults in green construction and retrofitting skills should result in an estimated 2,500 workers.

In allocating additional funds through the WIA system, the CEC will mandate that the funds may only be spent on employment and training services related to the energy efficiency and energy service industries, and industries that provide materials and services to that industry.

Photo courtesy of Solar Richmond, GRID Alternatives and Richmond Build

Case Study: *Apprenticeship for Green-Collar Skills*

The International Brotherhood of Electrical Workers Local 569 (IBEW Local 569) represents over 2,000 electrical workers in San Diego and Imperial Counties and, with its affiliate the San Diego Electrical Training Center (SDETT), has been training electricians in renewable energy skills for the past 10 years. The Local supplies workers to 24 contractors installing solar (photovoltaic, or PV) panels on a range of buildings. The Local's leadership estimates that the relatively low rate of unemployment in the Local (9%) would be as high as 25%, given the state of the real estate market, if it were not for the pipeline they have created to these jobs.

All apprentices, of whom there are about 350-400 at any time, get some exposure to renewables during the course of the 5-year program. Electricians will work on brand new construction one day and PV the next, so they need a broad range of foundational electrical skills in addition to training in clean energy technologies. Apprentices work for contractors and receive on-the-job (OJT) training during the day while taking classes at night. SDETT is associated with Palomar Community College, and apprentices can choose to work towards an AA degree.

Over the course of the apprenticeship program, apprentices double their pay from $14.16/hour to $29.03, before graduating to journeyman inside wireman, journeyman sound technician or journeyman residential wireman. A journeyman inside wireman, for example, starts at $35.40/hour. Apprentices have no tuition fees (which are paid by the labor management fund that is negotiated as part of union contracts) and their hours worked count towards qualification for health care and pension plans. SDETT has its program fine-tuned to a 3-year core curriculum that covers series circuit, parallel circuit, Ohms law, electrical theory, DC/AC, before progressing into motor control, telecommunications systems, fiber optics, and PLC (Programmable Logic Controllers). Their aim is to touch on the hard core nuts and bolts of how electricity works, then branch out into career paths to give apprentices flexibility in the last two years to pursue an elective track. Currently, thirty students are enrolled in the four classes being offered in energy efficiency and renewables: Lighting Controls, Building Automation, Power Quality and PV.

SDETT is training for the growing energy efficiency market. For example, a state rebate for lighting controls for commercial installations is stimulating demand in the market. While SDETT trains for the full range of buildings, there's an enormous market opportunity in lighting retrofits in commercial buildings. Using lighting controls and building automation to increase energy efficiency starts with an analysis of how people use the building and changes that can be made to maintain the occupants' comfort level while reducing energy consumption. Dimmers can reduce fluorescent use by 40% without people noticing any change, and can be further supplemented by task lighting with occupancy sensors. Automated systems can reduce waste by sensing the right times to heat and cool a building. Reducing energy consumption and upgrading energy use in buildings also requires workers versed in power quality. Electricians must also be trained to address complex configuration issues when advanced building automation systems are installed.

Local 569's membership is 40-45% Hispanic, but women and African-Americans are under-represented. For six years, Local 569 partnered with the San Diego and Imperial County Labor Council and the Building Trades Association on a pre-apprenticeship program designed to get inner-city young people and women into union apprenticeships. It was a 10-week program providing remedial education to pass the exam necessary to enter the apprenticeship program, as well as job readiness skills and exposure to the work of the trades. The program ran for six years on foundation grants, and was discontinued when the funding dried up. Union leaders say they got some "dynamite" journeymen out of it and have not found substitute programs that create effective pipelines for low-income people and women into their trade and union. The Labor Council, whose 250 students are overwhelmingly low-income people of color (40% African-American, 40% Hispanic) and include many with felony backgrounds, is keen to develop targeted green jobs training along with Local 569 and SDETT—but thus far has not found the funding to do so.

CONCLUSION

A Clean Energy Corps can provide our nation with badly need investment and jobs, while reducing energy costs and GHG emissions. We have detailed the federal investment, innovative financing mechanism and collaboration at the national, state and local levels that the CEC would require. All that's lacking is political will. The 44th President and 111th Congress can provide it.

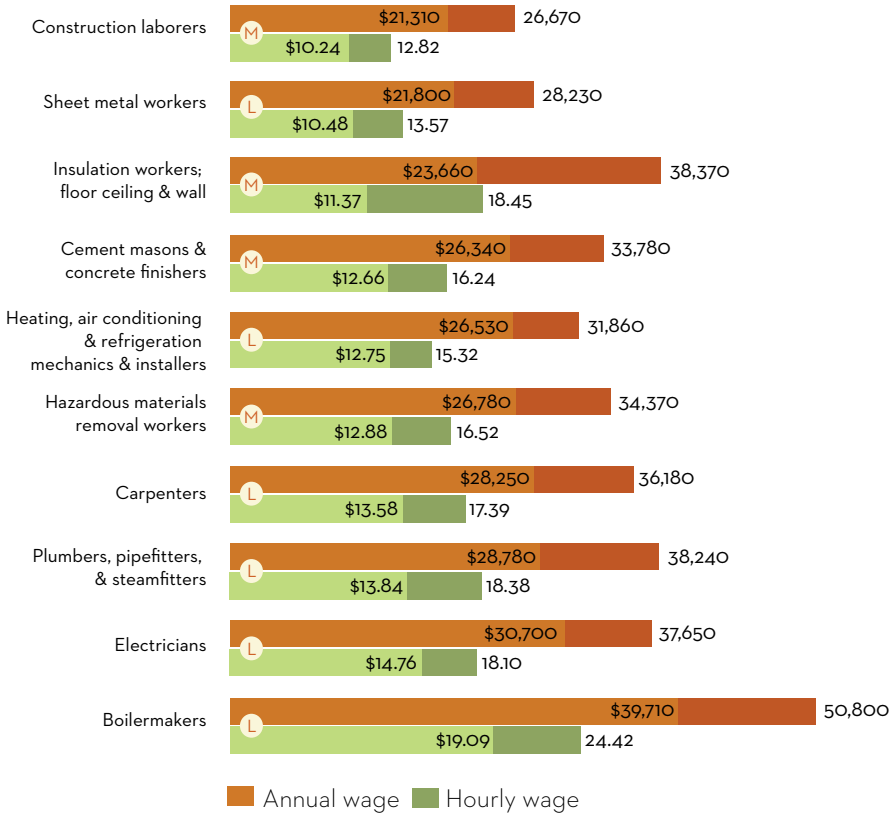
On Day One of his presidency, Franklin D. Roosevelt told a nation that fear was the only thing we had to fear and promised "action and action now." On that first day FDR heard reports of half a million young men, out of school, out of work, languishing on the streets of America, in towns large and small. Parks and public lands had long been neglected, and lands in many states were plagued by erosion. He decided to confront both problems with one initiative: a Civilian Conservation Corps that put young men to work and restored our public lands. Within twenty-one days the legislation for the CCC was enacted. By the end of July that year there were more than 300,000 Corps members at work in 1600 camps. By the start of World War II, more than three million Corps members had planted three billion trees in the process of revitalizing our public lands, while at the same time turning their own lives around.[51]

Now, on its 75th anniversary, the Civilian Conservation Corps challenges our imagination in a new era where crisis and opportunity both loom large. Indeed, the opportunities we create can help solve the triple crisis—on emissions, energy and the economy—that we face. We can provide workers, business and government with the tools to retrofit and green this nation, beating poverty, pollution, and global warming at the same time. With the leadership of a new President and Congress, we can create a Clean Energy Corps, powered by the American people, to help repower America.

What do green middle-skill jobs look like? We can refer to national data for a representative cross-section of family-supporting occupations in the energy efficiency industry sectors. Wages vary across industry and region, and "green jobs" don't fit neatly into federal statistical categories, but the information gives some sense of the breadth and scope of job opportunities that would result from the ambitious investment proposed here in retrofitting the nation.

ENERGY EFFICIENCY JOBS AT A GLANCE

This chart depicts national wage data for selected middle-skill occupations in the Residential Building Construction industry.



NOTES

This chart depicts national wage data for selected middle-skill occupations in the residential building construction industry.

The 25th percentile describes wages at the lower end of the labor market.

Median wage marks the center of the wage distribution in a given occupation.

Regional wage ranges and more precise occupational projections by industry can be run on a state-by-state basis.

Typical education and training path:

(M) Moderate-term on-the-job training: Requires from one to twelve months of training, which typically occurs at the workplace.

(L) Long-term on-the-job training: Requires more than one year of on-the-job training, or combined work experience and classroom instruction, and may include apprenticeships of up to five years.

Source: U.S. Bureau of Labor Statistics

Jobs to Watch

Some high-demand energy-efficiency jobs are relatively new; we do not have good wage and employment data because they are not yet tracked by the U.S. Bureau of Labor Statistics (BLS). Local research is the most fruitful source of information about these sorts of jobs.

The New York State Energy Research and Development Authority, for example, is in the process of standardizing job titles and skill requirements for energy auditors. And the Regional Economic Development Institute at Los Angeles Trade-Technical College identifies several emerging middle-skill occupations among green construction jobs with highest employment potential:

Energy and indoor air quality auditor • Deconstruction worker HVAC operations and maintenance technician Systems technician • Solar installer and technician

APPENDIX B: OTHER FINANCING MECHANISMS FOR THE CEC

Photo courtesy of Martijn Mollet

While we recommend a revolving loan fund to fund the CEC, in fact there are several different ways that building efficiency retrofits could be financed. The two additional mechanisms outlined here are an income tax credit and a clean energy corps bond system. Each is briefly described below.

The tax credit route would provide a credit to home and business owners for energy conservation improvements. There would be a cap for the amount of the credit that should be scaled to the plausible cost range for such improvements. This would be in the range of $2,500 to $3,000 for homeowners.[52] The appropriate limit on the size of the credit for businesses would have to be set relative to their size, although an exact formula is likely to prove complicated.

The credit could then be paid back over a number of years with the terms of the repayment varying by income category.[53] For example, for higher-end taxpayers, the credit could effectively take the form of a zero interest loan repaid over a four or five year period. For more middle income taxpayers, there could be a somewhat larger subsidy. This could mean either a longer repayment period and/or an additional subsidy that does not require that the loan be repaid in full.

In this scenario, taxpayers at all three income levels should end up better off as a result of the loan to retrofit their home, since the energy savings should far exceed the cost of the retrofit even within the five year pay-back period. However, families with more moderate incomes would come out even more ahead since they are having the cost of their retrofit subsidized further because they are not expected to repay the full value of the loan. This additional subsidy will provide moderate income families with more incentive to retrofit their homes than would be the case with an interest-free loan. This should substantially increase the take-up rate. If 30 million homeowners or businesses took advantage of this program over a 10-year period, with an average subsidy of $1,000, then the cost would be $30 billion or $3 billion per year.

It is also possible that by increasing the number of people opting to take advantage of the program and retrofit their homes, there will be a bandwagon effect. If home retrofits become the norm, rather than the exception, it is likely that more people would opt to install energy-saving retrofits even without help from the government.

Even without a subsidy, homeowners should come out far ahead by retrofitting their homes. Pollin et al. cite an analysis from the Energy Department that estimates that a typical homeowner will save approximately 30 percent on their annual energy bill, or $900 a year, from retrofitting their home at a cost of $2500. This would allow the cost of the retrofit to be paid from energy savings in approximately three years.

The main advantage of the tax credit system over the other two mechanisms is that it can be put in place very quickly. As soon as the law was passed, private contractors could begin soliciting business by encouraging homeowners and small businesses to take advantage of the credit. The tax credit also would not require a new government agency (either at the federal or state level) to administer, as it is handled by the IRS.

The lack of administration is also a serious disadvantage. With little oversight over how the money is being spent, it is virtually certain that much of the money distributed through this sort of tax credit will be used on items that do not improve energy efficiency. There will be no way of preventing homeowners or businesses from using their tax credit to do other improvements to their homes or businesses that do not improve energy efficiency. While some random audits may limit the extent to which this sort of cheating occurs, undoubtedly many homeowners will view this credit as an opportunity to do repairs or renovations that do not affect their energy consumption.

Another problem with the tax credit route is that it offers no benefit to tens of millions of low and moderate income families unless it is refundable, because they actually owe little or no income tax. While in principle it is possible to make a tax credit refundable (the first-time homebuyer credit is refundable), there is always considerable political opposition to the establishment of refundable tax credits. If the credit was not refundable, then a large portion of the population who the program is intended to benefit would not be eligible for it.

The third financing route would be to create an Energy Efficiency Bond, modeled on the Clean Renewable Energy Bonds program (CREBS). Under the CREBS program, state and local governments and various public and cooperative utilities can apply to the Internal Revenue Service for authority to issue CREBS bonds. The interest on these bonds is tax free to the holder. The interest rate is set by the Treasury so that the price of the bond will be competitive with interest bearing bonds.[54] The interest paid out by the issuing entity is reimbursed each quarter by the federal government, so that the federal government is effectively giving out interest-free loans.

In most respects the bond program is equivalent to the revolving loan fund program described above. State and local governments, or public and cooperative utilities, would use the funds from such bond issues to finance retrofitting for homes and small businesses. As in the case described above, they would have to get approval for their plan from the federal government. This system would also allow for funds to be used to retrofit state and local government buildings. And, this system would put in a place a structure that would allow for spending to be monitored to ensure that it was actually being used for energy saving retrofits.

The difference with the system described above is that the bond program would create a new type of bond that would be the immediate source of financing for the program. This could help create awareness of the program and it would also have the advantage of setting up a designated funding stream. This could be important since it will help protect the flow of funding for the program. In a period of substantial budgetary pressure at all levels, a dedicated funding stream could prove important. It should ensure that the finances of the program in place for a substantial period of time. Otherwise, there could be uncertainty as to whether the program will remain funded throughout its scheduled life. Uncertainty around funding could, in turn, make the private sector less willing to make investments (e.g. in developing new and better forms of insulation) in developing better technologies for conservation.

The bond system, like the revolving loan fund, would require some time to put in place. However, building on the experience with CREBS, the issuance of bonds should not increase the lead time needed to get the program in place.

[1] A number of economists have written about the need for a stimulus of this size. See, for example, http://www.cepr.net/index.php/press-releases/press-releases/statement-on-the-need-for-coordinated-stimulus/

[2] Kate Gordon and Jeremy Hays, "Green-Collar Jobs in America's Cities: Building Pathways Out of Poverty and Careers in the Clean Energy Economy," Apollo Alliance and Green For All, 2008.

[3] See Harry J. Holzer & Robert I. Lerman, "America's Forgotten Middle-Skill Jobs: Education and Training Requirements in the Next Decade and Beyond" (The Workforce Alliance, November 2007).

[4] Robert Pollin et al., "Green Growth and Good Jobs: A Unified Program for Employment Creation and a Clean Energy Economy," Political Economy Research Institute and Center for American Progress, 2008 (Table 4.1).

[5] The Bureau of Labor Statistics data on employment in the construction sector almost certainly understates job loss. Many of the workers in residential construction are undocumented. They likely never showed up on payrolls during the boom and therefore when the sector contracted, their layoff was also not picked up in the data.

[6] Bureau of Labor Statistics, "Industries at a Glance: Construction", U.S. Department of Labor, http://www.bls.gov/news.release/pdf/empsit.pdf

[7] Among the public's top two priorities for national action, Greenberg Quinlan Rosner Research reports that energy independence and stopping global warming now ranks a close second to health care reform (29 vs. 32 percent). See: Al Quinlan, Stan Greenberg, and John Podesta, "Dramatic Transformation in Energy, Global Warming Debate: America Must Take the Lead in New Energy Future," Greenberg Quinlan Rosner Research, May 9, 2007.

[8] Harris Interactive reports that while 64 percent of Americans oppose reinstating a military draft, 73 percent believe national service to be important and 55 percent favor increasing federal spending to satisfy the demand for service opportunities. See: Harris Interactive, "U.S. Adults Do Not Support Draft for Military or Civilian Service, But Favor Voluntary Service to Support Country," Harris Poll #17, February 23, 2007.

[9] "The National Survey on Service-Learning and Transitioning to Adulthood," a joint effort of Harris Interactive and the National Youth Leadership Council, reports that 55 percent of Americans aged 12-18 years (or 15.5 million person) currently volunteer, while 70 percent of college freshman report having done so during their last year of high school. See: Harris Interactive, "The National Survey on Service-Learning and Transitioning to Adulthood," National Youth Leadership Council, November 2, 2006.

[10] Harvard School of Public Health-MetLife Foundation Initiative on Retirement and Civic Engagement, "Reinventing Aging: Baby Boomers and Civic Engagement," Center for Health Communication, Harvard School of Public Health, 2004.

[11] Because the loan fund is "revolving," i.e. will be paid back, the $13.875 billion is the cost of the interest rate subsidy and the credit guarantee from the federal government for underwriting the loan. The cost of that guarantee depends on the risk of default associated with it. We are proposing a very reliable mechanism for the CEC whereby customers pay back the cost of retrofits on their utility, property tax, or municipal services bill, with usual penalties for nonpayment, and therefore we project the risk of default to be very low (0.25 percent). We add this cost to the projected long-term Treasury rate (5.3 percent). The annual cost is then 5.3 percent of the outstanding amount ($2.65 billion) plus the credit guarantee for the default risk ($0.125 billion), resulting in a total of $2.775 billion per year.

[12] This is a very rough estimate based on retrofit costs of $3,000 per home, generated from public loan fund capital, and not including buildings retrofitted by the WAP and EECBG programs. Of course, a number of buildings retrofitted by the CEC will be larger commercial and public properties. These buildings will vary so greatly in size that it's impossible to include them in any estimate.

[13] There have been multiple proposals related to this. See, for example, John Podesta, Todd Stern, and Kit Batten, "Capturing the Energy Opportunity: Creating a Low-Carbon Economy," Center for American Progress, November 2007.

[14] In the case of tribes and territories, representation should include analogous leadership, public agencies, and local municipalities.

[15] Under the CEC, customers in the residential market can and will frequently need to use a "fuel blind tariff," which allows the costs for measures saving, for example, fuel oil, gas, sewer or water to be charged on the electric bill.

[16] James Russell, "Vital Signs Online: Carbon Emissions on the Rise, but Policies Growing Too," Worldwatch Institute, August, 2008

[17] Energy flow data from Lawrence Livermore National Laboratory energy flow chart, last updated in January 2006 (http://eed.llnl.gov/flow/images/LLNL_Energy_Chart300.jpg). The striking figure on U.S. electric utility waste and Japanese power needs is reported in Lisa Margonelli, "Waste Not," The Atlantic, May 2008.

[18] Marilyn Brown, Frank Southworth, and Therese Stovall, "Towards a Climate-Friendly Built Environment," Pew Center on Global Climate Change, 2005.

[19] Weatherization Assistance Program Technical Assistance Center, "Questions and Answers," US Department of Energy, http://www.waptac.org/si.asp?id=1029.

[20] Ibid.

[21] See http://www.aceee.org/pubs/e075.htm.

[22] The Business Roundtable, "More Diverse, More Domestic, More Efficient: A Vision for America's Energy Future," June 2007, available at: http://www.businessroundtable.org/pdf/Energy/Business_Roundtable_Energy_Report_06062007.pdf.

[23] Joel Rogers, "Seizing the Opportunity (For Climate Jobs, and Equity) in Building Energy Efficiency," Center on Wisconsin Strategy, available at: http://www.cows.org/pdf/rp-seizing-07.pdf)

[24] Energy Star Program, "Federal Tax Credits for Energy Efficiency," Environmental Protection Agency and US Department of Energy, http://www.energystar.gov/index.cfm?c=products.pr_tax_credits#s2

[25] U.S. Department of Housing and Urban Development, "Energy Efficient Mortgage Home Owner Guide," http://www.hud.gov/offices/hsg/sfh/eem/eemhog96.cfm

[26] Ibid.

[27] Weatherization Assistance Program Technical Assistance Center, "Questions and Answers," US Department of Energy, http://www.waptac.org/si.asp?id=1029.

[28] The EISA raises the authorization level to $1.4 billion for Fiscal Year 2012.

[29] Energy Efficiency and Renewable Energy Program, "Weatherization Assistance Program: Sources of Funding for the Weatherization Assistance Program," US Department of Energy, http://www.eere.energy.gov/weatherization/source_fund.cfm.

[30] Clinton Climate Initiative, "Making Buildings Green," William J. Clinton Foundation, http://www.clintonfoundation.org/what-we-do/clinton-climate-initiative/our-approach/major-programs/making-buildings-green.

[31] Chesapeake Crescent, "Leading Research Universities Across the Chesapeake Crescent Join to Advance Regional Innovation and Global Competitiveness," June 2, 2008. http://www.reuters.com/article/pressRelease/idUS209110+02-Jun-2008+PRN20080602

[32] The net increase in the amount of money outstanding is equal to the annual outlay, minus the amount being repaid. The program is structured so that there is no payback for the first year, and then the loan is paid back in four equal segments over the next four years. This means the payback in year t (PBt) will be equal to one fourth of the outlay in years t-2, t-3, t-4, and t-5 (O). Or $PBt = \frac{1}{4} O_{t-1} + \frac{1}{4} O_{t-2} + \frac{1}{4} O_{t-3} + \frac{1}{4} O_{t-4}$. It is easy to see that the fund first becomes self-sustaining, with annual payback equal to annual outlays, in year five.

[33] Again, as noted on page 10, this is a very rough estimate based on retrofit costs of $3,000 per home, generated from public loan fund capital, and not including buildings retrofitted by the WAP and EECBG programs. Of course, a number of buildings retrofitted by the CEC will be larger commercial and public properties. These buildings will vary so greatly in size that it's impossible to include them in any estimate.

[34] The CNCS is an independent agency of the federal government. It has a Chief Executive Officer and a Board of Trustees who are confirmed by the Senate. Each state has a state commission on national service appointed by the governor of the state, staffed by state appointees. CNCS also has offices in States (or regions) to administer Senior Corps programs and the AmeriCorps*VISTA program. By statute, CNCS is funded by annual appropriations (funding comes from the Labor-HHS-Education bill) and there are three basic funding streams. After small set-asides for tribes and territories, one-third of funds is allocated to states by formula (with a small state minimum currently set at $500,000), one-third available to the states on a competitive basis with grants awarded by the Corporation, and one-third is administered by CNCS and is reserved for applicants who are operating programs in more than one state.

[35] www.bethechangeinc.org/servicenation

[36] http://www.voicesforservice.org/news/ServeAmerAct_billLanguage.pdf

[37] Annie E. Casey Foundation, "2004 Kids Count Data Book," http://www.aecf.org/upload/publicationfiles/da0000k218.pdf.

[38] Gary Orfield et al., "Losing Our Future: How Minority Youths are Being Left Behind by the Graduation Rate Crisis" The Civil Rights Project at Harvard University, 2004.

[39] Caroline W. Harlow, Education and Correctional Populations, Bureau of Justice Statistics Special Report, US Dept. of Justice. 2003.

[40] Jennifer Cheeseman Day and Eric C. Newburger, "The Big Payoff: Educational Attainment and Synthetic Estimates of Work-Life Earnings," Current Population Reports, United States Census Bureau, 2002.

[41] Brett Alessi, "Pathways to a New Future: Service as a Strategy for Re-Engaging At-Risk Youth," Innovations in Civic Participation, July 2005.

[42] JoAnn Jasztrob et al., "Youth Corps: Promising Strategies for Young People and their Communities," ABT Associates, February 1997. A new random assignment evaluation is underway that completed enrollment in May, 2007, for which first wave results are expected in spring, 2009.

[43] By law, any participant who completes a term of service in AmeriCorps is entitled to a Segal Education Award. A full-time Ed Award (for 1700 hours of service) is worth $4725 and awards are pro-rated according to how much service one does. A one-year half-time or part-time Ed Award (for 900 hours of service) is $2362.50. Recipients of Ed Awards have 7 years within with to access their awards from the National Service trust, are eligible for a maximum of two awards ($9450), can only use them to pay tuition, pay down student loans, or purchase job training.

[44] National Association of Manufacturers et al., "2005 Skills Gap Report — A Survey of the American Manufacturing Workforce," 2005.

[45] American Public Power Association, "Workforce Planning for Public Power Utilities: Ensuring Resources to Meet Projected Needs," 2005.

[46] Calculations by The Workforce Alliance using Department of Labor data.

[47] National Commission on Adult Literacy, "Reach Higher America: Overcoming Crisis in the U.S. Workforce," 2008

[48] Maureen Conway et al, "Sectoral Strategies for Low-Income Workers: Lessons from the Field," Aspen Institute, 2007

[49] Washington Workforce Training and Education Coordinating Board. 2006 Workforce Training Results. Olympia, WA: 2006

[50] Government Accountability Office. Registered Apprenticeship Programs: Labor Programs Can Better Use Data to Target Oversight. Washington, DC: August, 2005

[51] We thank Senator Harris Wofford for his contribution to this conclusion.

[52] Robert Pollin et al., "Green Growth and Good Jobs: A Unified Program for Employment Creation and a Clean Energy Economy," Political Economy Research Institute and Center for American Progress, 2008.

[53] The first-time homebuyer's tax credit recently approved by Congress provides a useful model for the sort of repayable credit envisioned here. This provided first-time homebuyers with a credit of up to $7,500 on purchasing a new home. The credit would be repaid over a 15-year period.

[54] For a discussion of the CREBS system see the website at http://www.crebs.org/

The Clean Energy Corps is a proposal of the Clean Energy Corps Working Group, first convened in January 2007, which includes representatives of the Apollo Alliance, the Center for American Progress Action Fund, the Center on Wisconsin Strategy, Energy Action Coalition, Green For All, Innovations in Civic Participation, 1sky, and The Corps Network. For more information, contact Billy Parish (billyparish@gmail.com)

greenforall.org