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GREEN EXPECTATIONS

LESSONS FROM THE US GREEN JOBS MARKET

REPORT

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INTRODUCTION

The growth of clean-energy industries is central to the government's plans to reduce carbon emissions by 34 per cent by 2020 and 80 per cent by 2050, compared with 1990 levels. In order to comply with its obligations to the EU to provide 15 per cent of its electricity through renewable sources by 2020, the UK requires a huge scaling-up in the deployment of renewable technologies (GCN 2009).

As a result of this framework of targets and the wider transition to a low-carbon economy, studies have suggested that employment in the 'low-carbon and environmental goods and services' sector could grow by as much as 400,000 jobs by 2017, an increase of 45 per cent on today's levels (BERR 2009).

The job creation lens is one through which politicians, green businesses and increasingly the environmental movement stress the wider benefits and political value of energy efficiency and renewable energy policies. Chris Huhne, Energy and Climate Change Secretary, has announced that the government's 'Green Deal' home insulation scheme could create 250,000 jobs at its peak[1] and job creation has also been identified as a key benefit of other policies, such as the feed-in tariff and renewable heat incentive.[2]

In Scotland and Wales, the political emphasis has if anything been stronger. Alex Salmond, First Minister in Scotland, has set one of the most ambitious renewables targets for electricity generation of any country in the world – 100 per cent by 2020 – and Scotland has committed to creating 130,000 jobs in the low-carbon economy by 2020 (SNP 2011). In Wales, the Labour government has published a green jobs strategy that aims to stimulate the economic recovery as well as tackling climate change (WAG 2009).

The framing of climate change and energy policy in terms of economic growth has played a key strategic role in the United States. Despite (and perhaps because of) the absence of an overarching policy framework for tackling climate change or reducing emissions at the federal level, the US has invested considerably in clean-energy technology and energy efficiency, with job creation and workforce development as key aims. Because of the federal gridlock, US states have often pushed ahead with their own ambitious efforts to reduce carbon emissions.

Leading these efforts is California, for many decades an 'early mover' in enacting environmental legislation. The state is a pioneer and incubator for innovative policies – in 2010, for example, California's clean air standards were adopted at the federal level. The 2006 Global Warming Solutions Act set California's ambitious 2020 greenhouse gas emissions reduction goal into law. The policy agenda has helped the state to establish a position as a global leader in alternative energy, in turn driving huge levels of investment, with California securing more than 40 per cent of all clean-tech venture capital funding worldwide (Next 10 2010).

The West Coast Green Alliances learning exchange

In March 2011, IPPR took a group of community leaders, trade union and NGO representatives to California to meet with and learn from politicians, business people, academics and civil society leaders engaged in the emerging green economy. The learning exchange followed a scoping report by IPPR (Bird et al 2010) which highlighted pioneering

1 See http://www.decc.gov.uk/en/content/cms/news/pn10_104/pn10_104.aspx

2 See for example http://www.decc.gov.uk/assets/decc/What%20we%20do/UK%20energy%20supply/Energy%20mix/Renewable%20energy/policy/renewableheat/1393-rhi-faqs.pdf

efforts to create job growth in a clean-energy economy through broad-based national and local social partnerships, such as the Apollo Alliance, in the US.[3]

The report identified that, while job creation was as central to the debate on 'green growth' in the UK as it was in the US, policy and grassroots activity to advocate for fairer growth and a more equitable labour market was not as advanced on this side of the Atlantic.[4] The West Coast learning exchange was carried out between 27 March and 1 April 2011 to examine the following questions:

- To what extent has the 'green jobs' policy agenda in the US been successful in terms of job creation, job quality and in creating social and economic as well as environmental value?
- Can innovative, 'bottom-up' approaches to green job creation – such as those undertaken by the Apollo Alliance, which have proven influential with the Obama administration – be replicated successfully in the UK?
- How can a more localised approach to green job creation complement top-down policy activity, particularly in addressing the needs of unemployed workers and those excluded from the labour market?

This paper responds to these questions, drawing together findings from empirical research from the learning exchange with analysis of some of the key literature in this area. The paper also aims to contribute to the wider debate on the future direction of energy and climate change policy in the UK. In particular, we consider how the use of the job creation frame for energy and climate change policy has evolved in the US and the implications of this for UK policy.

A key aim for the exchange was to stimulate collaboration between groups involved and to foster partnerships for the future, both trans-Atlantic and in the UK. We hope the learning exchange was just the start of this process.

UK and US policy contexts

There are any number of political, social and economic differences between the UK and the US which are important for interpreting findings. It is beyond the scope of this paper to explore these in any detail, but the most significant include the different industrial structures of the countries, including the US's stronger manufacturing base and the greater role played there by heavy industry, which will need to adapt in the transition to a low-carbon economy. In relation to governance, the decentralised political structures of the US allow for more legislative and financial freedom than is available at the sub-national level in the UK. The largest single difference on climate change and energy policy is the absence in the US of an overarching policy framework for tackling climate change or reducing emissions at the federal level.

However, there are also many important similarities between the two countries in this context. These include the high incidence of low pay and low skills in both countries, due in part to 'low road' business strategies[5] and the challenges of median wage stagnation.

3 The Apollo Alliance and other coalitions have been influential in making the economic case for federal climate and clean energy measures in the US and driving efforts at state and local levels (see Appendix B for more details).

4 A survey conducted for the report with over 450 organisations from across the UK working on employment, poverty, skills, housing and the environment found, however, that over one-third were interested in principle in partnership-based approaches to maximising opportunities for under-represented groups in the green economy (Bird et al 2010).

5 Low road business strategies lead firms to compete on price, which means keeping costs down and relying on low-skill, low-wage labour – see Luria and Rogers 1999.

Both countries have also seen a growing polarisation of the labour market between low-skilled and high-skilled jobs. Both countries also have very active civil societies.

We highlight differences where relevant throughout this paper, but it is likely that a more detailed understanding of these differences, particularly in policy terms, will emerge in the course of the dissemination of these findings and as the subject of any further work.

Definitions and scope

Categorising and defining 'green jobs' is a vexed issue. For the purposes of this paper, we take the view that the term 'green jobs' or 'green-collar jobs' has considerable resonance in communications terms but is not a meaningful one for policy or an understanding of skills needs. We refer instead to the 'green economy' in its broadest possible sense – that is, to include environmental goods and services as well as low-carbon sectors, to incorporate supply chain jobs and to count 'greener' versions of existing jobs as well.

As our main concern here is how the green economy can provide better opportunities for those groups currently under-represented in the workforce – including younger people, those with fewer skills or qualifications and the long-term unemployed – we focus here particularly on the energy efficiency sector, which offers the greatest opportunities for individuals with lower or intermediate-level skills.

In Chapter 1 we consider the origins of the US 'green jobs' movement, its role in policy and its political value. In Chapter 2 we highlight recent trends in job creation, job quality and work quality and training to gain a sense of the impact of recent legislation meant to create jobs and provide training in the energy efficiency and renewable sectors. In Chapter 3 we highlight some of the strategies that have been used in the US to raise job standards in the energy efficiency and renewable sectors. Finally, in Chapter 4 we consider implications for the UK and highlight challenges and opportunities.

1. ORIGINS OF THE GREEN JOBS AGENDA IN THE UNITED STATES

The term 'green-collar job' was used as early as 1976, derived from existing descriptions of jobs as blue or white-collar, to denote the growing number of jobs in environmental occupations (Segal 2008). The term was popularised from around 2001 onwards by groups like the Apollo Alliance which brought together diverse interests to argue for a 'high road' jobs creation strategy[6] and better opportunities in the green economy for those left behind by previous periods of growth. It was during this time that green-collar jobs were defined as being qualitatively different from 'green jobs' in offering 'well-paid, career track jobs that contribute directly to preserving or enhancing environmental quality'.[7]

The surge of activity in advocating and campaigning for green-collar jobs that followed needs to be seen in its social, political and economic context.

Hurricane Katrina in 2005 played a highly significant role in the climate change debate in the US. Stark media images from the disaster were a powerful illustration of the disproportionate impact of extreme weather events on those from poorer communities and communities of colour. Beyond the human suffering and devastating social impact, however, there was frustration on the political left that progressives had not been able to shift politics further as a result of the epochal event.

Some of that frustration found an outlet in the building of a progressive, political movement to tackle what Van Jones, a key proponent of the green jobs movement, called 'eco-apartheid' (Mirpuri et al 2009). Jones, who went on to become an adviser in the Obama administration, conceived the possibilities of a movement which brought 'mainstream white environmentalists', progressive businesses and trade unions together to harness the momentum of a 'market-based' green movement and entrench its practices in 'underprivileged, historically marginalised, and over-policed communities' (ibid). This movement was imagined as strongly pro-democratic and anti-authoritarian, and as a response to a politics of the left, which Jones felt was failing to engage with the working class in any meaningful way or in the 'field of practical politics' to provide hope to people suffering from social injustices and ecological crises (ibid).

In the US, the green-collar jobs policy agenda and movement was rooted in the efforts of ethnic minorities to achieve greater equality of opportunity and particularly to tackle high levels of incarceration among young ethnic minority groups. But it was also envisaged as a response to the specific economic challenges facing the working class in a country where, now, the majority of workers have seen little or no improvement in the value of their wages for a generation.

The stagnation of median wages in the US has hit those with low skills the hardest, at a time when the value of a high school-only education has dropped off sharply (Plunkett 2011). The impact of deindustrialisation and globalisation, combined with technological advances, has displaced many of the jobs which previously offered good wages and benefits for the working and middle classes.

These conditions have set the context for the framing of the green-collar jobs agenda. Based on evidence that the energy efficiency sector creates more local jobs than many other investments in traditional or renewable energy, and provides the greatest opportunities for low- and middle-skilled workers (see for example Pollin et al 2008), the focus of the movement was on creating green-collar training programmes in trades skills

6 High road business strategies lead firms to continually improve the quality of their output, which requires continual innovation and the application of higher skills – see Luria and Rogers 1999.

7 See http://www.greenforall.org/resources/green-collar-jobs-overview

such as construction and electrical engineering. The key characteristics of green-collar jobs were described as helping to:[8]

- Rebuild the middle class[9] (green-collar jobs are good jobs that would provide family wages)
- Provide pathways out of poverty (green-collar jobs are middle-skilled jobs bucking the trend of labour market polarisation)
- Provide local jobs which strengthen deprived rural and urban communities (green-collar jobs, because they are often about local transformation, cannot be off-shored)
- Provide new skills opportunities (different skill sets and opportunities for advancement along a career track of increasing skills and wages)
- Help reduce unemployment while tackling climate change.

Because it appealed to a broad range of groups with diverse interests, the agenda became hugely popular. It enabled environmentalists to counter arguments that climate change policies are 'job destroyers'; it appealed to trade unions concerned about the outsourcing of jobs, the 'low road' strategy of many firms in the renewable energy/energy efficiency sector, and the decline of manufacturing and energy intensive industries; and it allowed politicians, particularly those on the left, to reach out beyond an 'environmental elite' to convince broader constituencies of the benefits of a green economy.

In 2007, the term was absorbed into the policy mainstream when the Green Jobs Act was passed by the Bush administration. Significantly, support for the bill was bipartisan, sponsored by Democrats and a Republican and championed by Speaker of the House Nancy Pelosi. Interest in the agenda arguably reached a peak during the run-up to the US Presidential election in 2008 as each of the candidates went out of their way to pledge their commitment to the cause: Barack Obama went further than John McCain and Hillary Clinton by pledging to spend $150 billion over 10 years to create 5 million new green-collar jobs.

However, by this time the economic context had changed dramatically, as it became clear the US was in the midst of the deepest and longest recession since the Second World War (Zabin and Chapple 2011). Most significantly for the green-collar jobs agenda, the recession led to levels of unemployment that hovered regularly at over 9 per cent, unprecedented levels of long-term unemployment, and collapses in the construction sector and in consumer spending.

Once elected, President Obama passed the American Recovery and Reinvestment Act (ARRA) which, though primarily an emergency measure to stimulate the US economy, was also seen as a 'down-payment' on investments needed to make the transition to a clean-energy economy (Walsh et al 2011). The ARRA act dedicated more than $90 billion in government investment and tax incentives (one-eighth of the overall spend) to lay the foundation for a clean-energy economy (CEA 2010). As well as investments to promote energy efficiency retrofits and renewable energy generation, $1 billion went into 'green innovation and job training'.

Of this, $400 million was invested in innovation in advanced energy technologies, $500 million in competitive grants to state agencies and not-for-profit organisations for

8 Based on overview at http://www.greenforall.org/resources/green-collar-jobs-overview

9 It is important to note that in the US the understanding of the term 'middle class' is generally broader than in the UK, though the meaning of term is ambiguous in both contexts. Thompson and Hickey have suggested that 32% of Americans are lower middle class, including semi-professionals and craftspeople with some college education (see Thompson and Hickey 2005).

programmes to train workers for jobs in clean energy industries such as energy efficiency, renewable generation and grid modernisation, and $100 million in training and hiring workers in the utility and electrical manufacturing sectors (ibid).

The Obama administration has invested a significant amount of political as well as financial capital in the agenda, betting heavily on short-term employment outcomes as well as longer-term gains from the green energy incentives themselves.

2. SUMMARY OF FINDINGS

Here we examine recent developments in job creation and job and work quality in the green economy in the US generally and California in particular to build up an indicative, if incomplete, picture of the impact of the green jobs agenda in energy and climate change policy in the US.

Jobs and job creation

As in the UK, no official data is collected at federal level on employment in low-carbon sectors in the US and it is only in the last year that a standard definition for 'green jobs' has been agreed (see below). The sheer range of projections, often based on different understandings of how the green economy should be measured, has made it difficult to construct a meaningful debate about the scale of green job creation over the last decade. The US is by no means alone in this respect, but as the debate is more advanced in the US, because the policy agenda is more developed, so the scrutiny of the figures is greater.

In an effort to end the confusion surrounding the definition of a green economy job and to establish a clear baseline to allow for more meaningful comparisons, the US Department of Labor established a project to agree a clear definition for 'green jobs'. After much consultation, a two-part definition was issued in 2010:[10]

Green jobs are either:

a. *jobs in businesses which produce goods or services that benefit the environment or conserve natural resources, or*
b. *jobs where the workers make the production process more environmentally friendly or using fewer natural resources.*

The US Bureau of Labor Statistics is also carrying out a large-scale survey involving a sample of organisations associated with producing green goods and services to build up a detailed picture of employment in these areas. This will offer a more accurate account of the scale of green employment and information on wages, which should help to develop an improved account of job quality in the green economy. This will be hugely valuable in helping to understand the nature and size of the green economy as it grows, although the continuing debate over how to quantify employment in the green economy is unlikely to go away any time soon.

Recent trends

Appendix A shows a range of forecasts for and estimates of job creation in the green economy in the US.

As in the UK, there are few reliable estimates of actual employment in the US, however one of the most comprehensive to date was carried out by the Pew Research Charitable Trusts. It found that, in 2007, there were 770,000 jobs in the clean-energy economy, according to its definition, which represented around 0.5 per cent of all jobs in the US in when the report was written in 2009, and that jobs in the green economy were found to be growing at almost twice the rate of those in the economy as a whole. The authors also compare the figures with other sectors that are the subject of public policy and public investment. Biotechnology, for example, employs fewer than 200,000 workers, or about 0.1 per cent of total US workforce. And the traditional energy sector (including utilities, coal mining and oil and gas extraction) employed approximately 1.27 million workers in 2007, or around one per cent of the total workforce (Pew Center on the States 2009).

10 See http://www.bls.gov/green/

A more recent report by the Brookings Institute (Muro et al 2011) has identified that employment in the clean energy economy now stands at 2.7 million (perhaps suggesting the Pew estimate for 2007 was conservative). Its findings on job growth in different sectors are highly significant. It shows how, during the recession, clean technology has seen far greater growth than the wider clean economy or the economy as a whole. As a result, it argues that emerging energy technologies and not building infrastructure-related sectors are driving the US clean economy.

Of a total of 39 sectors, the eight with the greatest relative job growth between 2003 and 2010 were all energy-related: wave/ocean power, solar thermal, wind, carbon storage and management, solar photovoltaic, fuel cells, biofuels, and smart grid. The 'energy and resource efficiency' segment of the clean economy comprises 13 different sectors as defined in the Brookings report.[11] Sectors in this segment added almost 180,000 jobs. The largest contributors of jobs in absolute terms were public transport (82,601) and energy-saving building materials (25,988).

However, sectors in the energy and resource efficiency segment also lost jobs (almost 40,000 altogether). This segment saw loss of jobs or slow growth in areas related to building infrastructure, such as the energy-saving consumer products, energy efficient appliances and energy efficient lighting. Overall, the buildings retrofit industry only added around 60,000 jobs between 2003 and 2010. The report attributes the slow growth and job losses to the housing-centred recession.

The report also found that the clean economy in the US is manufacturing and export intensive. Roughly 26 per cent of all clean economy jobs lie in manufacturing establishments, compared to just nine per cent in the broader economy.

Measuring President Obama's pledge

Although there remains both uncertainty and definitional ambiguity around the scale of the green economy in general, progress towards achieving President Obama's pledge to create 5 million green jobs can be assessed by looking at the effects of the federal stimulus funding. The employment impacts of the ARRA Act are measured by the Obama administration's Council of Economic Advisers (CEA), the agency which provides objective economic advice on policy. The CEA makes these estimates using existing estimates of the macroeconomic effects of fiscal policy.

The most recent quarterly estimate shows that through the third quarter of 2010, 225,000 jobs had been 'saved or created' since the act was introduced in the first quarter of 2009. This is the result of the investment in clean energy of over $80 billion of the total of $90 billion allocated under the act.

11 See Muro et al 2011: 20 for a full description of which sectors are included in the energy and resource efficiency segment.

Table 2.1
Public investment jobs by category

	CEA Model† Jobs saved or created by public investment outlays		
	(2010:Q1)	(2010:Q2)	(2010:Q3)
Clean energy	141,700	191,100	224,500
Human capital	174,600	222,300	262,900
Construction of transportation infrastructure	87,200	102,000	132,700
Health and health IT	11,000	14,300	70,500
Construction of buildings	60,300	79,700	100,500
Environmental cleanup and preservation	56,900	79,400	104,800
Scientific research	32,900	52,100	67,900
Economic development	14,400	18,600	24,200
Public safety and defense	17,700	18,300	20,100
Broadband	500	700	1,300
Other	30,200	41,100	51,400
Total‡	**627,400**	**819,600**	**1,060,800**

Source: Reproduced from CEA 2010: 19
Notes: CEA analysis of appropriations estimates from the Office of Management and Budget (OMB); agency Financial and Activity Reports to OMB through 30 September 2010; simulations from the Department of the Treasury (Office of Tax Analysis).
† Job numbers are rounded to the nearest 100.
‡ Items may not add to total due to rounding.

It is important to note that this figure includes indirect and induced employment.[12] The stimulus funding may result in some further, small gains in employment, but these are likely to decline as the stimulus funding runs out over this year. Taking a longer view, the CEA expects this to rise to 720,000 by the end of 2012 (CEA 2010).

President Obama's original pledge suggested that stimulus funding should have resulted in more jobs by this stage. A poor recovery and persistently high unemployment have thwarted these ambitions, but policy design has also been a central factor. Heavy investment in an underdeveloped residential retrofit market has been identified as one of the key reasons why employment outcomes have not been greater. One interviewee during the West Coast learning exchange suggested that, as with nation-building, market-building is a long-term process that requires care, and that the administration underestimated the difficulty of this challenge. In the event, ARRA investments too often represented a rapid increase in funds for organisations that did not have the capacity to handle them effectively.

The right market conditions, including low transaction costs, were not in place to allow the market to function properly. It was extremely difficult to persuade homeowners, many of whom were facing far higher mortgage repayments or even the threat of losing their homes, to take on additional debt. Instead of single-family homes, it has been suggested

12 Direct jobs are those created by the initial investment, for example, in industries such as construction or manufacturing; indirect jobs occur in firms providing goods or services to those who received the original investment, and induced jobs are employment across the economy as a result of the original investment.

that commercial, industrial or public properties such as government buildings, universities and schools would have been a better place to focus investment.

Obama administration officials have argued that energy efficiency and other sectors cannot begin to reach their job creation potential without new federal regulations to support the expansion of the industry and boost demand.[13] However, in the context of the continuing national debt crisis and under a Republican-led House of Congress, this regulation appears less likely to be introduced.

'Green jobs' for whom?

Researchers in California argue that a more accurate understanding is needed of the nature of employment that results from energy efficiency policies and programmes in the current economic climate. An in-depth assessment was recently carried out by Zabin and Chapple (2011) at UC Berkeley into skills demand resulting from California's ambitious energy efficiency and greenhouse reduction goals. These goals are generating a total investment of $11.2 billion dollars from ratepayers and state, federal, and private sources up to 2020.

Projections suggest that this will create a total of 211,000 fulltime-equivalent jobs for the year 2020 (including direct, indirect and induced jobs), providing a significant stimulus to the Californian economy. The number of directly generated fulltime-equivalent jobs in energy efficiency and related activities alone is projected at 52,371.

However, using empirical data, the authors show that the number of new workers who will require specific training in energy efficiency and related sectors is just 5,262 – from a total job creation forecast of 211,000 workers in 2020, the number of new slots available for workers needing specific skills in energy efficiency and related activities is comparatively tiny.

See Table 2.2 over.

Furthermore, they show how in any given year the number of unemployed workers in energy efficiency-related occupations will greatly exceed the number of new jobs created. California has an unemployment rate of 11.9 per cent and employment is unlikely to reach pre-recession levels until around 2015. This means that any newly trained worker would face considerable competition for work, not only from existing workers but also from the pool of unemployed workers.

In terms of skills and training requirements, therefore, Zabin and Chapple conclude that the need for energy efficiency training is largely for existing workers, who will need some training to upgrade their skills as industry practices change and new technologies are introduced.

13 'Retrained for green jobs, but still waiting on work', *Washington Post*, 22 November 2010. http://www.washingtonpost.com/wp-dyn/content/article/2010/11/22/AR2010112207583.html

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Table 2.2: Energy efficiency incremental worker training projections, medium scenario, by occupational group, total and per year

	Total direct new workers (net of 2009)		Direct new workers per year (net)	
Occupational group	2015	2020	2015	2020
Administration	2,205	3,798	104	319
Administration (sales-related)	3,110	4,961	195	370
Architecture and engineering	2,812	4,748	—	387
Building envelope (construction trades)	27,452	37,282	1,145	1,966
Building envelope (performance trades)	1,004	1,487	39	96
Management (blue-collar)	5,883	8,395	173	502
Management (white-collar)	1,096	1,855	62	152
Manufacturing	48	97	—	10
Mechanical and electrical trades	8,286	15,582	628	1,459
Total	**51,896**	**78,205**	**2,301**	**5,262**

Source: Reproduced from Zabin and Chapple 2011: 75

Clean energy, dirty politics?

With US unemployment at 9.1 per cent and long-term unemployment at its highest level in the post-war period (US BLS 2011), the Obama administration has declared itself to be focused squarely on the need to create more jobs (Obama 2010b). Scrutiny of the administration's growth and job creation strategy has intensified, with unemployment now the number one concern among US voters.[14]

The Obama administration has continued to present clean energy and energy efficiency as the key to the country's economic recovery – 'Building a robust clean energy sector is how we will create the jobs of the future - jobs that pay well and can't be outsourced' (Obama 2010a) – though less prominently than before. But the agenda has looked increasingly vulnerable, and its bipartisan origins have faltered. The right has launched numerous attacks on the clean energy measures in the stimulus bill, a policy which was entirely unsupported by Republicans.[15]

14 Respondents to an American Pulse survey in March 2011 conducted by BIGresearch identified unemployment as their number one concern, followed by rising gas prices and the weak economy. For more information, see: http://www.bigresearch.com/news/big030811.htm

15 The economic stimulus measure passed without a single Republican vote, see: http://www.nytimes.com/2009/02/14/us/politics/14web-stim.html

But criticisms have not only come from those on the right. Some supporters of the clean-energy revolution have argued that the administration bet too heavily on short-term job growth from energy efficiency schemes and that ARRA support for housing retrofits and short-term funds for green training programs were wrongly prioritised over longer-term public investments in green innovation and manufacturing. These would, they argue, have provided the innovation spur for accelerated growth in the development of clean-energy technologies, ultimately leading to many more jobs (Shellenburg and Nordhaus 2010).

There is some concern that a lack of tangible, local evidence of job growth is weakening arguments made for the employment and wider economic benefits of climate and energy policy among the public. However, evidence of the promise of the green economy for the US, such as the recent Brookings Institute report showing strong growth in the clean-technology sector and good prospects for manufacturing, may help to ameliorate these concerns.

Job quality

The quality of green economy jobs has received less attention than the quantity, particularly in the UK, but as noted earlier the hope for green economy jobs was that they would be locally-based, middle-skill jobs that could provide a pathway for low-income workers out of poverty and into decent wages.

The BlueGreen Alliance, a US national partnership between trade unions and environmental organisations, has reviewed the labour market impact of the green investments contained in the recovery act (Walsh et al 2011), providing some indication of the profile of the workforce that has resulted from these investments.

See Table 2.3 over.

Occupations

The table shows that the overwhelming number of jobs directly created by ARRA investment are in construction. Employment in this sector is dominated by intermediate or middle-level jobs, the vast majority of which are skilled trades occupations. In the US, construction has historically provided opportunities for many blue-collar workers to earn 'middle-class' wages. The typical construction trade union member earned a weekly wage of $993 in 2007 (Mattera 2009).

We were, however, reminded by one interviewee during the West Coast learning exchange of the largely temporary and insecure nature of construction-related work:

> **'Construction work is temporary and these green jobs are temporary … the agreement is not that you go to work at the same place every day. It's temporary work and the other agreement is you can be laid off at one hour's notice ... and that is also true of solar installation and water efficiency.'**

Table 2.3
Job impact of ARRA green investment

Broad Industry/Occupations	Green jobs		
	Direct	Indirect	Total
BROAD INDUSTRIES			
Natural resources and mining	4,411	8,765	13,175
Construction	259,062	2,490	261,552
Manufacturing – total	20,769	56,092	76,861
Wholesale trade	0	17,255	17,255
Retail trade	0	23,586	23,586
Information	11,347	11,965	23,312
Financial activities	1,419	15,413	16,832
Professional and business services	19,081	41,698	60,778
Education services	0	524	524
Leisure and hospitality	0	17,101	17,101
Other services	35,635	36,234	71,869
Utilities	3,724	1,339	5,062
Transportation and warehousing	11,367	16,766	28,133
Government – total	0	12,508	12,508
BROAD OCCUPATIONS			
Management, business and finance	40,188	42,834	83,022
Professional	24,092	37,349	61,441
Service	4,568	26,254	30,822
Sales and related	5,578	28,476	34,054
Office and admin support	28,434	43,062	71,496
Farm, fish, forest	425	3,591	4,017
Construction and extraction	185,502	7,960	193,462
Installation, maintenance and repair	21,871	12,646	34,518
Production	18,293	33,253	51,546
Transport	37,862	31,477	69,339

Source: Reproduced from Walsh et al 2011: 19

Skills

The BlueGreen Alliance report also characterises the types of jobs created as a result of ARRA investments, with a breakdown by gender, race, education and pay. See Table 2.4 over.

While 65 per cent of directly created jobs went to workers with a high school or some college education, 21 per cent went to workers with less than a high school education. Only 15 per cent of jobs went to workers with a college education.

Table 2.4
Job impact of ARRA green investment

Job characteristics	Green jobs			Induced jobs	Total job impact	Direct	Indirect	Green jobs total	Overall economy
	Direct	Indirect	Total						
Totals	**366,814**	**268,483**	**635,297**	**362,119**	**997,416**	**58%**	**42%**	**100%**	
GENDER									
Male	311,956	167,915	479,871	*	*	85%	63%	76%	60%
Female	54,858	100,568	155,426	*	*	15%	37%	24%	40%
RACE									
White	237,744	183,624	421,368	*	*	65%	68%	66%	67%
Black	29,090	29,363	58,453	*	*	8%	11%	9%	11%
Hispanic	85,988	39,918	125,906	*	*	23%	15%	20%	15%
Asian	7,565	11,054	18,619	*	*	2%	4%	3%	4%
Other	6,428	4,523	10,951	*	*	2%	2%	2%	2%
UNION STATUS									
Covered	57,622	24,269	81,890	*	*	16%	9%	13%	12%
Non-covered	309,192	244,214	553,406	*	*	84%	91%	87%	88%
EDUCATION									
Less than high school	76,013	31,342	107,355	*	*	21%	12%	17%	11%
High school only	146,542	87,376	233,919	*	*	40%	33%	37%	31%
Some college	91,031	77,485	168,516	*	*	25%	29%	27%	30%
BA or greater	53,227	72,280	125,507	*	*	15%	27%	20%	28%
WAGE QUINTILES									
First (lowest)	46,586	51,677	98,263	*	*	13%	19%	15%	19%
Second	80,422	53,848	134,269	*	*	22%	20%	21%	21%
Third	88,037	54,948	142,985	*	*	24%	20%	23%	20%
Fourth	84,285	54,503	138,788	*	*	23%	20%	22%	20%
Fifth (highest)	67,485	53,507	120,991	*	*	18%	20%	19%	20%

Source: Reproduced from Walsh et al 2011: 21
Note: Induced job characteristics are not included because the input/output model only predicts direct and indirect job characteristics. However, they would likely mirror the overall economy.

So, jobs associated with ARRA clean-energy investment are providing good opportunities for lower- and middle-skilled workers. However, as the authors point out, ARRA-funded projects were often aimed intentionally at workers traditionally under-represented in the labour market, so it cannot be assumed that this offers a reliable guide to the profile of these sectors in the wider green economy (Walsh et al 2011).

Pay

The BlueGreen Alliance report shows that fewer green jobs fall into the very lowest wage quintile – 15 per cent overall, and 13 per cent for directly-created jobs – than in the economy as a whole (19 per cent), and slightly more than on average fall into the middle of the wage distribution.

However, a different picture is presented by some studies of pay conditions in the wider green economy. For example, a 2009 report that studied the quality of green economy jobs across wind and solar energy component manufacturers, green buildings construction companies and materials recycling facilities found that pay varied considerably between industries (Mattera 2009). It found that among non-unionised construction workers, such as labourers, carpenters, painters and roofers, the majority are paid less than $12.50 an hour and one-third are paid less than the federal poverty wage for a family of four ($10.19 an hour). Wage rates at many wind and solar manufacturing facilities were below the national average for workers employed in the manufacture of durable goods.

Our interviews with skills providers and those involved in the construction sector confirmed a substantial difference in pay between union and non-union workplaces. At Richmond Build, a training and pre-apprenticeship programme, we were told that in addition to high unemployment, one of the reasons the scheme placed fewer graduates with green employers was because the wages tended to be lower – the workplaces were less often unionised, paying an average of $14–16 an hour in comparison to unionised construction jobs, which paid around $17–20 an hour. Table 2.4 suggests that levels of unionised employers associated with ARRA investments are at the national average.

It cannot be assumed that the UK will see the same incidence of low pay in the construction sector as the US. At 15 per cent, the proportion of workers who are lowly paid in the construction sector is below the UK average of just under 22 per cent. An IPPR survey of 39 low-carbon employers conducted in 2009 showed that only three reported paying staff an average of less than £15,000 a year (Bird et al 2010).

Race and gender

Table 2.4 shows that Hispanics constitute 20 per cent of the ARRA green economy workforce, as opposed to 15 per cent in the economy overall. However, only eight per cent of directly created jobs went to African Americans, in contrast to 11 per cent in the workforce overall. The authors suggest that this reflects the under-representation of this group in the construction sector generally.

The picture on gender is highly polarised. Only 15 per cent of directly created jobs went to women, and for indirect jobs the figure, at 37 per cent, is still below the national average of 40 per cent. Again, this is likely to reflect general under-representation of women in the trades.

Case study: Energy efficiency work quality, skills and training in California

The assessment by Zabin and Chapple (2011) of California's scaling-up of efforts to meet its long-term energy efficiency goals provides a detailed and insightful picture of work quality (as opposed to job quality). By implication, this also provides an indication of the quality of training and accreditation standards.

Their report identifies a high incidence of work that does not meet quality standards for the installation, maintenance and operation of energy-efficient equipment and materials. It shows that, in one part of the energy efficiency sector in California, 30–50 per cent of installations were found to have been done incorrectly. Across the sector as a whole, poor-quality installation meant that expected energy savings were not delivered, which undermined market growth and investment.

BOXED TEXT CONTINUED

In the same study, interviews revealed that most jobs in the energy efficiency sector provided low wage floors and limited career ladders. The authors argue that these two findings are not unrelated. They suggest that poor training was the result of market dynamics in the residential and small commercial energy efficiency sector, where competition was on the basis of cost rather than quality. Where contractors compete on low costs, they are less likely to pay decent wages and or to reward workers for higher levels of competency. This 'low road' strategy can result in high staff turnover, which in turn makes it less likely that employers will invest in skills and training.

The strong public policy focus on green jobs appeared to have creating lots of new, short green skills training programmes, which did not always provide the wider set of skills needed to build a career. There was a risk of some employers seeking to 'de-skill' green employment, creating a sector where only basic training – and the minimum wage – is required.

The authors recommended that training should be embedded in wider educational and vocational training programmes, with a strong focus on up-skilling incumbent workers. It was also suggested that more investment should be channelled into employer-led apprenticeship programmes, which can incorporate a range of certifications, provide strong prospects for job placement, and result in the best outcomes for wages.

Summary

This data only offers selective insights into recent developments in the US green jobs policy agenda and the impact of legislation in this area, but it offers some important indications.

At a national level, the heavy focus of public policy on green jobs and the clean-energy investments of the stimulus package have created high expectations. In the estimates of the Council of Economic Advisers, these expectations are not yet being met. However, the promise of the green economy is real and growing – at 2.7 million jobs, it is larger than the fossil-fuel industry and twice the size of the bioscience sector (Muro et al 2011).

Most surprising perhaps is the finding that employment in energy efficiency and green construction-related services – upon which hopes for 'shovel-ready jobs' were pinned by President Obama and the green jobs movement more widely – has lagged behind that in other sectors in terms of jobs growth between 2003 and 2010. While the impact of the 2008 recession was severe, the market for residential retrofits was simply not sufficiently well developed to deliver jobs in the numbers expected, despite considerable investment. It would seem that the job creation potential of investments in energy efficiency has been undermined by wider economic and market uncertainties.

One positive finding is the fact that the clean economy is offering greater opportunities for lower- and middle-skilled workers. But analysis from California has shown how high unemployment is making it difficult for groups currently under-represented in the workforce to compete. Job projections and analysis of skills demands in the energy efficiency

sector – which is among those offering the most opportunities for lower- and middle-skilled workers – shows that existing workers and unemployed workers with the required skills are most likely to benefit. This suggests that concerted efforts are needed through pre-apprenticeship programmes and other training opportunities to widen the range of openings for under-represented groups.

In terms of the nature of jobs, it does appear that the ARRA's green jobs and training investments, which were made primarily in the energy efficiency sector, are offering good prospects for lower- and middle-skilled workers, with the vast majority of jobs coming in the building and electrical trades. However, there are significant challenges in improving gender and ethnic minority employment rates in these trades.

The picture on pay is mixed, with large disparities between unionised and non-unionised sectors. Again, this reflects general challenges around pay in the construction-related trades in the US. The UC Berkeley study suggests that the key driver of lower pay was the focus of competition in the small and residential energy efficiency markets on cost rather than quality (Zabin and Chapple 2011). And though some jobs in building and electrical trades are undoubtedly well-paid, offering 'middle-class wages' even, this requires high-quality apprenticeship-based training with wage increases tied to a career path, opportunities that are not widely available.

A key focus of organisations such as the Apollo Alliance is therefore on increasing the number of manufacturing jobs that tend to be higher paying and to provide a ladder to the middle class. For example, in the ARRA Act, Apollo helped secure an advanced energy manufacturing tax credit to boost employment in this area. Advocating for federal transportation initiatives to improve the use of public transport is another key strategic priority.

One of the most prominent findings from California was that without a stable and professionalised workforce to carry out energy efficiency retrofits, both good quality outcomes for consumers and energy savings targets were compromised (Zabin and Chapple 2011). Solutions have been identified in training that is integrated into sector strategies with a strong employer commitment, strong pre-apprenticeship programmes to provide pipelines into the skilled trades for disadvantaged groups, the adoption of certifications tied to wage ladders, and wider efforts to improve job quality standards.

3. STRATEGIES TO IMPROVE JOB CREATION AND QUALITY IN THE GREEN ECONOMY

There are several reasons why, despite the challenges identified above, the green economy is an important test bed for demand-side strategies for improving employment conditions and progression opportunities for individuals.

Firstly, the green economy, particularly the energy efficiency and renewable energy sectors, is heavily policy-driven, which provides some leverage to influence the development of markets in their infancy. It is also, to some extent, values-based in aiming to tackle a climate crisis which threatens to contribute to the problems of inequality and poverty. Equally these are sectors with considerable growth potential, with more obvious links to economic development and global competitiveness than other sectors which may employ more people or generate more jobs.

Despite the likely small size of net job creation in low-carbon sectors, employment growth is projected to buck the trend of increased polarisation in the labour market, between 'lovely and lousy' jobs (those requiring fewer skills or higher skills), by offering opportunities for those in semi-skilled occupations (Muro et al 2011). There is also a strong link between the quality of work and training and the quality of consumer outcomes in energy efficiency and the installation of renewable energy sources, which offers strong grounds for raising standards and creating better markets.

These factors offer some advantages to the green economy over sector-specific strategies to improve job quality standards in other sectors. Civil society groups and the green-collar jobs movement in the US have recognised this and have achieved some strong results in seizing the opportunities this presents. Three excellent examples of this are highlighted in the boxed text below.

Case study 1: Community workforce agreements – Clean Energy Works Oregon

In 2010, Green For All, a leading organisation in the movement for an equitable green economy, together with a diverse group of other stakeholders, including unions, contractors, and community organisations, partnered with the City of Portland using ARRA funding to create the first large-scale residential retrofit program in the US to use on-bill financing. This scheme allows residents to upgrade their homes with no upfront costs and to pay for the retrofits over time through a charge on their utility bills. Clean Energy Works Oregon (CEWO), the non-profit organisation that runs the scheme, plans to transform at least 6,000 homes in three years.

CEWO is a market-based programme formed of partnerships between public, private and non-profit interests, including utility companies, local lenders, local governments, the Energy Trust of Oregon, the Oregon Department of Energy and the US Department of Energy. What is groundbreaking about the scheme is the community workforce agreement it has managed to get contractors to sign up to. The community workforce agreement reflects a strong partnership between union apprenticeships, community-based pre-apprenticeship programmes, contractors, and organisations representing people of colour and low-income communities. It establishes several goals and targets for the CEWO program, which include:

- Hiring at least 80 per cent of the project's employees from the local workforce
- Ensuring that workers earn no less than 180 per cent of the state minimum wage
- Offering workers access to adequate and affordable health insurance

- Mandating that people of colour, women and low-income residents perform at least 30 per cent of total trades and technical project hours in the pilot programme
- Ensuring diverse business participation (minority ethnic and female owned)
- Offering resources for continuing education and certification for those new to the industry, as well as for workers seeking career advancement opportunities
- Requiring that new hires have completed a certified training programme.

The scheme has managed to secure the workforce agreement with contractors because it has created higher demand among consumers by improving the market mechanism. Such improvements include keeping the loans low-interest and providing more consumer protection than is available through the private market – for example there are 'energy advocates' who visit homes with the contractor with the task of protecting the consumer and ensuring they get the best deal. CEWO is a point of entry into the industry for lots of contractors; none can make CEWO their entire focus, but it gives them a boost. Ultimately, CEWO aims to leverage private finance 10:1 to develop a sustainable, self-financing model. They have formed partnerships with private financial institutions like Shorebank Enterprise Cascadia, a bank that engages in a lot of green financing schemes.

Case study 2: Community mobilisation initiatives – Green Justice Coalition, a Massachussetts-based chapter of the Apollo Alliance

Community mobilisation initiatives (CMIs) represent a new approach to securing equity in the energy efficiency industry. A crucial component of a CMI is a commitment by utilities companies, with support from state regulators, to create pilot projects on the model of the Green Justice Coalition's community-led approach to energy efficiency.

This model includes (1) a lead community base-building partner who is already established and trusted in the neighbourhood or city where the pilot will be taking place, to coordinate the initial outreach and education on energy efficiency, organise other groups on the ground to support the work, and bundle residential homes, multi-unit buildings and small businesses interested in implementing energy efficiency measures, and (2) a lead union or community-based cooperative, to bring in a responsible contractor committed to local hiring and establishing career pathways for new workers.

The Green Justice Coalition (GJC) advocates for the following equity measures in energy efficiency programmes:

1. High road jobs: Rather than advocating for job training alone, or accepting low-wage dead-end jobs as 'better than nothing', the GJC demands good jobs, including family-sustaining wages, benefits, safe working conditions, and opportunities for career advancement.
2. Community access to jobs: The GJC demands that working class communities and communities of colour – who have been traditionally excluded from economic opportunities, and who have experienced the most severe impacts of environmental injustices – have first access to the jobs created with energy efficiency funding.
3. Greenhouse gas emissions reduction: Part of the reason the GJC chose energy efficiency is its potential to create significant reductions in greenhouse gas emissions – something the coalition considers to be important from the perspective of environmental and intergenerational justice. As such, the GCJ pushed for more aggressive statewide energy efficiency goals as part of the utilities' new three-year energy efficiency plan.

4. Community access to energy efficiency resources: Having access to resources to make homes energy efficient is an important equity issue, for not only will those communities with access be able to reduce their greenhouse gas emissions but they will also be able to save money on utility bills – money that working class communities could use to meet many other important needs.

GJC has secured pilots which will incorporate the above aspects in several working class neighbourhoods across Massachusetts. An estimated six to eight new workers will be hired per pilot, plus additional local hires for the community outreach work. Once the pilots are completed, the coalition plans to push for an expansion of the model (high road jobs, community mobilisation outreach, bundling, tenant protections) into the overall energy efficiency programs in the state. GJC have described their campaign as groundbreaking in that no other state has agreed to this combination of demands before.

Source: GJC 2010

Case study 3: Industry partnerships for 'high road' business strategies – California Advanced Lighting Controls Program

Recognising the quality installation problems that plagued the deployment of advanced lighting technologies, utility companies in California collaborated with the International Brotherhood of Electrical Workers union (IBEW) and the National Electrical Contractors' Association (NECA) to develop 'journey upgrade' training. In a relatively short period of time, this training has been disseminated throughout the network of electrical apprenticeship programmes, community college programmes and utility training centres.

Early on, electricity provider Southern California Edison funded the curriculum development, while the apprenticeship programmes and community colleges funded the training. The advantage of working with the apprenticeship system is that it represents an existing industry partnership, with employers at the table – a key characteristic of successful sector initiatives and one necessary to ensure that the training is put into practice in the field. In this way, partners and mechanisms are already in place to facilitate agreements about skill standards and to provide access to a stable, professionalised incumbent workforce that can integrate new knowledge into a base of solid occupational training.

Targeting training to electricians, who must be licensed in California, and limiting participation in incentive programs to those who have achieved this standard of training has paved the way for contractors in this industry to compete on the basis of quality. The simultaneous training of both contractors and workers means that as contractors are able to gain business in advanced lighting controls in new construction and retrofits, their workforce will be ready and able to carry out the work.

Source: Zabin and Chapple 2011

Summary

In each of these examples, different strategies are used. But each has been highly successful in improving the quality of jobs created in the green economy and in influencing their nature. What is most surprising is the strong culture of attaching job quality standards to public and private investment. There is a widespread recognition that simply creating jobs is not enough – jobs have to be of sufficient quality to boost the economy. The practice is not limited to progressive states such as California: job quality standards can be found in 43 states, 41 cities and five counties. Overall, some 116 state subsidy programs have been found to contain job standards (Mattera 2009).

4. CONCLUSION

Caution is always needed in drawing lessons from the experiences of another country and more in-depth comparative analysis would be needed to fully understand the implications of the US findings for the UK. However, the experiences of the US offer a chance for useful reflection on the UK's green policy agenda and on where it should be headed.

It is important to recognise the specific context in which a strong policy focus on the economic growth potential of the transition to a clean economy as developed in the US. In part, this is due to the fact that the Obama administration is restricted politically in its ability to act in other areas of energy and climate change policy, as evidenced by the failure to build a bipartisan coalition around a carbon price mechanism. The national debt crisis is a powerful limiting factor here, as is the constituency within US politics that remains sceptical about the nature of climate change.

Despite the considerable size of the overall 'green economy' in the US, at 2.7 million jobs, one of the most striking findings in the recent comprehensive report by the Brookings Institute is the small increase in jobs in the buildings retrofit industry between 2003 and 2010 (around 60,000 jobs) despite at least $5.5 billion being spent on buildings retrofit specifically and $20 billion overall on energy efficiency through the stimulus act (CEA 2010).

The report attributes the losses to the 'housing-centred recession'. However the underdeveloped nature of the residential retrofit market has also significantly undermined the job creation potential of the sector. The Obama administration underestimated the difficulty of building the residential retrofit market and creating jobs. This underlines how vital it is for policymakers to get the market conditions right to allow clean energy policies to be effective and their economic and employment potential to be realised.

The success of emerging energy technologies, which have shown the greatest job creation potential in the US, should increase debate about the role of government in economic activism. In the US, as in the UK, there is an incipient but still marginal debate about the level of government intervention needed to spur the low-carbon transition. Aghion et al (2011) have recently shown how, in the absence of this intervention, path-dependence and the historical dominance of innovation in fossil fuels mean that governments will, by default, encourage investment in dirtier technologies. Arguments such as these are fundamental and need to be debated more fully in accounts of job creation and the low-carbon transition.

Finally, it is clear that, as in many other sectors, jobs in the green economy will only be good jobs through the improvements in pay and working conditions necessary to provide workers with a decent standard of living and progression opportunities. However, the US experience has shown the very real gains that can be made in these areas through strategic, local, bottom-up initiatives that combine strong policy knowledge with grassroots activism. The results that have been achieved in attaching job quality standards to public and private investment in green sectors were impressive. Generally, this is a practice which is accepted and widespread in the US, seen in 43 states and 41 cities.

Implications for the UK

These findings should strongly encourage efforts in the UK to secure good social and economic outcomes from the UK's ambitious climate change policy framework. The green economy is likely to mimic existing inequalities and failings in labour markets unless alternative models are sought.

The US experience shows that the green economy can be an important test bed for strategies to stimulate job creation, improve job quality and provide progression opportunities for workers. 'Bottom-up' approaches were most successful where they formed broad-based partnerships, had a detailed understanding of local potential for the green economy and worked to combine strategic policy and grassroots activity.

The green jobs 'framing' for environmental policy can be effective in uniting a diverse range of interests behind the changes needed for the transition to a low-carbon economy. It can also broaden the appeal of the transition to a green economy for the public. In the UK, where there is a considerable challenge in getting the public to engage with climate change (Platt and Retallack 2009) and where the success of policies such as the Green Deal home insulation scheme rely on the enthusiasm and interest of the public and a willingness to change behaviour, there are important lessons to be learnt from this.[16]

However, once won, this support can be easily lost. The US experience shows how failure to meet job creation targets can dent faith among the public and media in government energy and climate change policy and so threaten the government's credibility in this area.

The government's Green Deal home insulation policy has been billed as having the potential to create 250,000 jobs, making it the largest single opportunity for job creation in UK energy and climate change policy. But the difficulties experienced in the US in creating jobs in this sector underline the challenge the Green Deal faces in realising this estimate and achieving wider policy success.

The Green Deal does have the potential to create jobs in local communities and to strengthen local economies. In the UK, as in the US, the existing workforce is likely to benefit most from these opportunities. Those without the required skills will face stiff competition from a large pool of unemployed workers with the required skills. Therefore ways must be found to open up opportunities to groups currently under-represented in the workforce.

Greater clarity and stability around the policy is needed for local communities to maximise the social and economic benefits the Green Deal could offer. This would also enable those organisations wishing to become Green Deal providers to make the necessary investment in time for the Green Deal programme coming on stream, enabling more equitable access and take-up of Green Deal funding across the UK.

Finally, US findings have highlighted how important a stable and professionalised workforce is to securing energy savings and quality for consumers. A robust skills accreditation system will be central to securing the Green Deal's policy goals.

Key implications

- The US experience shows energy efficiency schemes have struggled to create 'green jobs', both in quantity and quality.
- US findings highlight the risks of poor outcomes for consumers if skills accreditation and work quality standards are lacking in the energy efficiency sector: wasted investment, low energy savings and low take-up by consumers. A robust skills accreditation system is needed for the Green Deal to provide clarity on skills needs and ensure work quality.

16 Though it may help engage the public, it needs clear and effective communication – previous research by IPPR shows the UK public do not easily reconcile tackling climate change with economic growth (Platt and Retallack 2009).

- To open up employment opportunities generated through the Green Deal to groups currently under-represented in the workforce, community training and skills pipelines will be need to established to feed through from pre-apprenticeship level into employer-led or college-based vocational training and into employment.
- The Green Deal Competency Framework[17] needs to be in place in time to allow training pipelines to be established. If skills are not available at the right time there is a real chance that local communities will lose out on employment opportunities, with workers being moved in from other locations within the UK or from outside of the UK.
- Green Deal policy design should include a commitment to local contracting. This could allow Green Deal providers – whether private utility companies, social housing providers or local authorities – to deliver the scheme while drawing on a pool of local talent. It could also open up opportunities for the voluntary sector, social enterprises and welfare-to-work providers to offer much-needed training and employment opportunities to local unemployed workers.
- The US experience demonstrates how strength emerges from a broad base: strong coalitions are needed between the government, trade unions, employers and environmental and community groups to build a 'just transition' to a low-carbon economy, to advocate for greater policy stability and to defend existing policy.

17 This is an integrated portfolio of National Occupational Standards and Green Deal-ready qualifications. See http://www.decc.gov.uk/assets/decc/11/meeting-energy-demand/microgeneration/2015-microgeneration-strategy.pdf

References

Aghion P, Boulanger J and Cohen E (2011) *Rethinking industrial policy*, Brussels: Bruegel. http://www.bruegel.org/publications/publication-detail/publication/566-rethinking-industrial-policy/

Department for Business, Enterprise and Regulatory Reform [BERR] (2009) *Low Carbon and Environmental Goods and Services: an industry analysis*, London: BERR

Bird J, Lawton K and Purnell K (2010) *Green and Decent jobs: the case for local action*, London: IPPR. http://www.ippr.org/publications/55/1782/green-and-decent-jobs-the-case-for-local-action

Council of Economic Advisers [CEA] (2010) *The ARRA and the Clean Energy Transformation*, supplement to *The Economic Impact of the American Recovery and Reinvestment Act of 2009 Third Quarterly Report*. http://www.whitehouse.gov/sites/default/files/image/arra_%20and_clean_energy_transformation_3Q_supplement.pdf

Global Climate Network [GCN] (2009) *Creating opportunity: Low carbon jobs in an interconnected world*, London: GCN. http://www.ippr.org/publications/55/1726/creating-opportunity-low-carbon-jobs-in-an-interconnected-world

Green Justice Coalition [GJC] (2010) *Who's got the power?* http://massclu.org/sites/clud6.prometheuslabor.com/files/Whos_Got_the_Power.pdf

Luria D and Rogers J (1999) *Metro Futures* Wisconsin: Center for Wisconsin Strategy

Mattera P (2009) *High road or low road: job quality in the new green economy*. http://www.apolloalliance.org/downloads/gjfgreenjobsrpt.pdf

Mirpuri A, Feldman K and Roberts G (2009) 'Antiracism and Environmental Justice in an Age of Neoliberalism: An Interview with Van Jones', *Antipode* 41(3): 401–415

Muro M, Rothwell J and Saha D (2011) *Sizing the clean economy: a national and regional green jobs assessment*, Washington DC: Brookings Institute. http://www.brookings.edu/~/media/Files/Programs/Metro/clean_economy/0713_clean_economy.pdf

Next 10 (2011) *Many Shades of Green: Regional Distribution and Trends in California's Green Economy*. http://www.next10.org/next10/publications/green_jobs/2011.html

Obama B (2010a) 'Remarks by the President on Jobs and Clean Energy Investments', speech, 8 January 2010. http://www.whitehouse.gov/the-press-office/remarks-president-jobs-and-clean-energy-investments

Obama B (2010b) 'State of the Union address', speech, 27 January 2010. http://www.whitehouse.gov/the-press-office/remarks-president-state-union-address

Pew Center on the States (2009) *The Clean Energy Economy: Repowering Jobs, Businesses and Investments Across America*. http://www.pewcenteronthestates.org/uploadedFiles/Clean_Economy_Report_Web.pdf

Platt R and Retallack S (2009) *Consumer Power: How the public thinks lower-carbon behaviour could be made mainstream*, London: IPPR. http://www.ippr.org/publications/55/1723/consumer-powerhow-the-public-thinks-lower-carbon-behaviour-could-be-made-mainstream

Plunkett J (2011) *Growth without gain? The faltering living standards of people on low-to-middle incomes*, London: Resolution Foundation. http://www.resolutionfoundation.org/media/media/downloads/Growth_without_gain_-_Web.pdf

Pollin R, Garrett-Peltier H, Heintz J and Scharber H (2008) *Green Recovery: A programme to create good jobs and start building a low carbon economy*, Washington DC: Center for American Progress/PERI. www.peri.umass.edu/fileadmin/pdf/other_publication_types/peri_report.pdf

Segal N (2008) 'Green Collar Jobs: The Alternative Energy Industry and Labor Markets' in R Natanson and S Stetter (eds) *Renewing The Middle East*, Tel Aviv: Friedrich-Ebert-Stiftung

Scottish National Party [SNP] (2011) *Scottish National Party Manifesto 2011*. http://manifesto.votesnp.com/

Shellenburg M and Nordhaus T (2010) *Green Jobs for Janitors: How Neoliberals and Green Keynesians Wrecked Obama's Promise of a Clean Energy Economy*. http://thebreakthrough.org/blog/2010/10/green_jobs_for_janitors.shtml

Thompson W and Hickey J (2005) *Society in Focus*, Boston MA: Pearson, Allyn and Bacon

United States Bureau of Labor Statistics [US BLS] (2011) 'The employment situation – May 2011', press release, 3 June 2011. http://www.bls.gov/bls/newsrels.htm

Walsh J, Bivens J and Pollack E (2011) *Rebuilding Green: The American Recovery and Reinvestment Act and the Green Economy*, BlueGreen Alliance/Economic Policy Institute. http://www.bluegreenalliance.org/admin/publications/files/BGA-EPI-Report-vFINAL-MEDIA.pdf

Welsh Assembly Government [WAG] (2009) *Capturing the potential: a green jobs strategy for Wales*. http://wales.gov.uk/topics/businessandeconomy/publications/greenjobs/?lang=en

Zabin C and Chapple K (2011) *California Workforce Education and Training Needs Assessment*, University of California, Berkeley, Institute for Research on Labor and Employment. http://www.irle.berkeley.edu/vial/publications/WE%26T_Part1.pdf

APPENDIX A
US GREEN ECONOMY JOB PROJECTIONS AND ESTIMATES

National projections

Obama election campaign
Year: 2008
Projection: 5,000,000 by 2018
Definition: Jobs created from investment in the following sectors:

- Hybrid cars
- Renewable energy
- Energy efficiency
- Low-emissions coal plants
- Next-generation biofuels and fuel infrastructure
- Digital electricity grid

Methodology: Based on assumption that strategically investing $150 billion (generated from a cap-and-trade permit auction) over 10 years will catalyse private investment in the clean energy sector.

Source: Obama B (2008) *Barack Obama's New Energy Plan For America*. http://www.scribd.com/doc/4481665/Barack-Obamas-New-Energy-Plan-For-America

Center for American Progress
Year: 2009
Projection: 1,700,000 per year for next 10 years
Definition: Jobs created from investment in the energy efficiency and renewable energy sectors, including the following sub-sectors:

- Building retrofits
- Smart grid
- Public transportation
- Cogeneration
- On-grid renewable energy
- Off-grid renewable energy
- Alternative motor fuels

Methodology: The employment estimates are derived from the most recent 2007 input-output model of the US economy, based on data generated by the US Commerce Department's industrial census. The projections are based on the assumption that the set of clean-energy provisions incorporated within the American Recovery and Reinvestment Act and the proposed American Clean Energy and Security Act would generate roughly $150 billion per year in new clean-energy investments in the United States over the next decade. This estimated $150 billion in new spending annually includes government funding but is notably dominated by private sector investments.

Source: Pollin R, Heintz J and Heidi Garrett-Peltier H (2009) *The Economic Benefits of Investing in Clean Energy: How the economic stimulus program and new legislation can boost U.S. economic growth and employment*, Center for American Progress and Department of Economics and Political Economy Research Institute [PERI], University of Massachussetts, Amherst. http://www.americanprogress.org/issues/2009/06/clean_energy.html

Wei, Patadia and Kammen

Year: 2010
Projection: 4,000,000 fulltime-equivalent job-years by 2030
Definition: Jobs created from investment in the following sectors:

- Renewable energy
- Energy efficiency
- Carbon capture and storage
- Nuclear power

Methodology: The model synthesises data from 15 job studies and uses this to estimate average employment per unit energy produced over plant lifetime. The resulting model is used for job projections under various renewable portfolio standards, energy efficiency, and low-carbon energy scenarios.

Source: Wei M, Patadia S and Kammen DM (2010) 'Putting renewables and energy efficiency to work: How many jobs can the clean energy industry generate in the U.S.?' *Energy Policy* 2010 38: 919–931

University of California Berkeley

Year: 2004
Projection: Average employment over the life of the first set of energy facilities built under given policy scenarios could be up to 240,850 by 2020
Definition: Jobs created from investment in the renewable energy sector, including the following sub-sectors:

- Manufacturing
- Construction
- Installation
- Operations and maintenance
- Fuel processing

Methodology: The model synthesises data from 13 job studies. The resulting model is used for job projections under various renewable portfolio standards, BAU, and gas-intensive scenarios.

Source: Kammen DM, Kapadia K and Fripp M (2004) *Putting Renewables to Work: How Many Jobs Can the Clean Energy Industry Generate?* RAEL Report, University of California, Berkeley. http://rael.berkeley.edu/sites/default/files/very-old-site/renewables.jobs.2006.pdf

Solar Foundation

Year: 2010
Projection: 24,000 by 2011
Definition: Jobs created by investment in the solar energy sector, including the following sub-sectors:

- Installation
- Manufacturing
- Wholesale trade
- Utilities

Methodology: The data contained in this report includes information gathered from approximately 2,500 employers drawn from every US state, from those who manufacture solar components to those who install them. The employers were drawn from a census of known employers and a random sample of companies from relevant industries. The one exception is the utility data, which used a sample of utilities known to have integrated

solar technology. The research team also selected specific occupations or job areas for more in-depth analysis, based on a literature review and discussion with industry experts.

Source: Solar Foundation (2010) *National Solar Jobs Census 2010: A Review of the U.S. Solar Workforce*. http://www.thesolarfoundation.org/sites/thesolarfoundation.org/files/Final%20TSF%20National%20Solar%20Jobs%20Census%202010%20Web%20Version.pdf

The United States Conference of Mayors

Year: 2010
Projection: 4,214,700 by 2038
Definition: Jobs created by investment in the following sectors:

- Renewable power generation (including nuclear power)
- Residential and commercial retrofitting
- Renewable transportation fuels

Methodology: Job projections are based on the forecast for total net energy generation that comes from the Global Insight Energy Group, which assumes that there will be a linear trajectory to the US generating 40 per cent of its energy from renewable sources by 2038. The report assumes a distribution among resources within renewable generation, which is: wind 30%, solar 20%, incremental hydropower 10%, geothermal 10% and biomass 30%.

Source: Global Insight for the United States Conference of Mayors and the Mayors Climate Protection Center (2008) *Current and Potential Green Jobs in the U.S. Economy*. http://www.usmayors.org/pressreleases/uploads/greenjobsreport.pdf

Lawrence Berkeley National Lab

Year: 2010
Projection: Up to 380,000 fulltime-equivalent job-years by 2020
Definition: Jobs created by investment in the energy efficiency sector, including the following sub-sectors:

- Planning and project management
- Consulting and auditing
- Construction and installation
- Evaluation, monitoring and verification

Methodology: Job projections are based on an analysis of the current relationship between energy efficiency spending/investment and employment in different parts of the energy efficiency services sector.

Source: Goldman C et al (2010) *Energy Efficiency Services Sector: Workforce Education and Training Needs*, Ernest Orlando Lawrence Berkeley National Laboratory. http://eetd.lbl.gov/ea/ems/reports/lbnl-3163e.pdf

National estimates

American Solar Energy Society

Year: 2008
Existing green jobs: 8,500,000 in 2006
Definition: Jobs that exist in the following sectors:

- Renewable energy
- Energy efficiency

Methodology: Job figures are based on industry sales in both the public and private sectors. The report does not state where their data has been obtained.

Source: American Solar Energy Society (2008) *Defining, Estimating, and Forecasting the Renewable Energy and Energy Efficiency Industries in the U.S. and in Colorado*. http://www.ases.org/images/stories/ASES/pdfs/CO_Jobs_Final_Report_December2008.pdf

Pew Center

Year: 2009
Existing green jobs: 770,385 in 2007
Definition: Jobs that exist in the following sectors:

- Clean energy
- Energy efficiency
- Environmentally friendly production
- Conservation and pollution mitigation
- Training and support

Methodology: This report counts jobs, companies, patent registrations and venture capital investments that are part of the clean energy economy, as Pew defines it, across all 50 states and the District of Columbia. Pew used data that provide detailed information on 68,203 individual companies. They counted only businesses and jobs supplying products and services generated by the clean energy economy, not the companies using these products and services to make themselves 'greener'.

Source: Pew Center (2009) *The Clean Energy Economy: Repowering Jobs, Businesses and Investments Across America*. http://www.pewcenteronthestates.org/uploadedFiles/Clean_Economy_Report_Web.pdf

American Wind Energy Association

Year: 2009
Green job creation: 35,000 from 2008–09
Definition: Jobs created in the wind energy sector, including the following sub-sectors:

- Manufacturing
- Construction
- Financial
- Development
- Legal

Methodology: The American Wind Energy Association obtained their figures through a survey of their 2500 member associations.

Source: American Wind Energy Association (2009) *U.S. Wind Industry Annual Market Report*. http://www.awea.org/learnabout/publications/reports/AWEA-US-Wind-Industry-Market-Reports.cfm

California projections

UC Berkeley Labor Center

Year: 2009
Projection: 99,000–120,000 by 2020
Definition: Jobs created as a result of the California Global Warming Solutions Act of 2006 across the industrial sector.

Methodology: This report used forecasts from the E-DRAM and BEAR models, the macroeconomic models commissioned by the California Air Resources Board to assess the economic impact of the scoping plan measures that will be used to meet California's 2020 goal to reduce GHG emissions by 169 million metric tons CO2 equivalent (MMTCO2e). Such models are commonly used to forecast the economic impact of alternative policy scenarios in a particular state or nation. The models divide the overall economy into a large number of production and consumption sectors that interact with

one another, and can trace the effects of a policy change in one sector on the other sectors, and ultimately the economy as a whole.

Source: Zabin C and Buffa A (2009) *Addressing the Employment Impacts of AB 32, California's Global Warming Solutions Act*, UC Berkeley Center for Labor Research and Education. http://laborcenter.berkeley.edu/greenjobs/AB32_policy_brief09.pdf

California estimates

Pew Center

Year: 2009
Existing green jobs: 125,390 in 2007
Definition: Jobs that exist in the following sectors:

- Clean energy
- Energy efficiency
- Environmentally friendly production
- Conservation and pollution mitigation
- Training and support

Methodology: This report counts jobs, companies, patent registrations and venture capital investments that are part of the clean energy economy, as Pew defines it, across California. They counted only businesses and jobs supplying products and services generated by the clean energy economy, not the companies using these products and services to make themselves 'greener'.

Source: Pew Center (2009) *The Clean Energy Economy: Repowering Jobs, Businesses and Investments Across America*. http://www.pewcenteronthestates.org/uploadedFiles/Clean_Economy_Report_Web.pdf

Next10

Year: 2011
Existing green jobs: 174,000 in 2009
Definition: Jobs that exist in the following sectors:

- Energy generation
- Energy efficiency
- Clean transportation
- Energy storage
- Air and environment
- Recycling and waste
- Water and wastewater
- Agriculture support
- Research and advocacy
- Business services
- Finance and investment
- Advanced materials
- Green building
- Manufacturing and industrial support
- Energy infrastructure

Methodology: The report used multiple data sources (including New Energy Finance and the Cleantech Group LLC) for the identification and classification of green businesses and also leveraged an internet search process. Collaborative Economics designed the parameters of the internet search platform and the National Establishments Time-Series (NETS) database based on Dun & Bradstreet business-unit data was sourced to extract business information such as jobs.

Source: Next 10 (2011) *Many Shades of Green: Regional Distribution and Trends in California's Green Economy*. http://www.next10.org/next10/publications/pdf/2011_Many_Shades_of_Green_FINAL.pdf

APPENDIX B
CASE STUDIES: US GREEN ECONOMY COALITIONS AND ORGANISATIONS

Apollo Alliance

The Apollo Alliance, founded in 2003, is a coalition of business, trade union, environmental and community leaders that focuses on policy work to drive the creation of high-quality, green-collar jobs. Inspired by the Apollo space program, the Apollo Alliance promotes investment in energy efficiency, clean power, mass transit, next-generation vehicles and emerging technology, as well as in education and training. In May 2011, the Apollo Alliance merged with the BlueGreen Alliance, and will continue to operate as a project of the BlueGreen Alliance.

The Apollo Alliance project convenes a national coalition, and also supports 18 state and city-based "franchises" that are staffed and coordinated by a locally-based organisation and provided with guidance and technical support from the national Apollo Alliance.

Operating within local franchises enables the Apollo Alliance to be very targeted in their work. Each local franchise conducts an analysis of the opportunities that are specific to their area and will modify their work accordingly. For example, the franchise in Pennsylvania identified an opportunity in the state's declining steel industry. By recruiting the Spanish wind turbine manufacturer Gamesa to locate their first North American plant in the state, they were able to revive their old factories and place local people in green employment.

Apollo has been very successful in laying out comprehensive investment strategies, with many of their recommendations being taken on by the Obama administration as part of the American Recovery and Reinvestment (ARRA) Act of 2009. Cathy Calfo, executive director of the Apollo Alliance, even called the ARRA Act a 'down payment on Apollo', since the bill provided a vast amount of money for green jobs programmes in the US. Other sources of funding for Apollo include foundations, unions, companies and individual donors.

Apollo's future plans include 'Make It In America', a programme to rebuild US manufacturing and improve public transit and infrastructure. Inner cities are also a new area of focus as Apollo, together with the Initiative for a Competitive Inner City (ICIC) and Green for All, is researching the growth of clean energy jobs in inner cities, starting with the case study of Flint, Michigan.

The Apollo Alliance provides excellent lessons in coalition-building for the UK green jobs sector:

- The 'four legs of the table' – ensure that trade unions, business, environmental and community leaders are all represented within the coalition. This has been key to Apollo's success.
- An opportunity for progressive business – having business representatives fully involved in the coalition is especially critical. The Apollo Alliance has found that as well as lending legitimacy to their cause and garnering the attention of legislators, including business also gives voice to those companies who believe in a progressive agenda.
- 'Ask for the pie to get bigger, rather than a bigger share' – compromise is at the heart of any coalition and it is unremarkable that environmental groups and unions will not always see eye-to-eye. Finding solutions that will benefit all stakeholders will keep the coalition united around its common goal. For instance, when a national transportation bill came under review in the US, it was important for the unions that Apollo didn't lobby for a decrease in funding for road-building but instead for an increase in spending overall towards public transportation.

- Logistics – the Apollo Alliance is made up of 18 local franchise representatives, who coordinate through monthly conference calls and twice-yearly meetings in person. Should a national UK coalition be born in the near future, we should take comfort in the fact that it is much easier to coordinate within our relatively small island.

See: http://apolloalliance.org/

Emerald Cities

Established in 2009, the Emerald Cities Collaborative (ECC) is a consortium of diverse organisations: businesses, unions, community organisations, development intermediaries, social justice advocates, research and technical assistance providers. Their creation was led by Policy Link, MIT, the trade unions and Green for All, among others.

Based in Washington, they operate 10 affiliate offices across the country. Their three goals are to 'green our cities', 'build our communities' and 'strengthen our democracy'. They aim to reach these goals through promoting a large-scale reduction in CO2; healthy and sustainable communities; community, city and trade union civic engagement; collective bargaining practice; and pathways to good jobs and lifetime careers. ECC's first project is the comprehensive retrofit of America's urban building stock. It proposes to do this city-by-city, while realising as many gains as possible from joint and mutual assistance and learning.

ECC distinguishes itself by underpinning all their work with theories of community organising and democratic capacity-building. These theories come to life in ECC's work, which includes increasing opportunities for minority and women-owned contractors to administer and carry out green construction projects and providing financial incentives and extensive training to enable community groups to support resident organising around efficient and sustainable communities.

They are funded through foundations, the 2009 Recovery Act, and the Public Goods Charge, which is a small charge on public utility bills that gets funneled back into renewable energy and energy efficiency projects.

Since ECC are a very new organisation, most of their work to date has been in establishing their goals and creating partnerships. Over the next three years, they aim to train 160 young people in green employment skills as well as focusing on the following programmes:

- Targeted energy-efficiency upgrades – providing 'deep' retrofits to municipal, university, school and hospital buildings and providing financial incentives for renters, moderate income homeowners, and businesses in neighbourhoods of need.
- New opportunities for minority- and women-owned businesses – creating additional employment opportunity for minority, low-income communities for retrofit building and other sectors.
- Partnerships to facilitate strategic, equitable growth of local green economies – leveraging environmental education projects with other capital investments to improve public housing and multi-family affordable housing.

The UK green jobs field can learn a great deal from the challenges that ECC has already faced, or anticipates facing:

- Economic climate – the current climate is creating a reluctance to engage among communities and the city government, who are cynical that the money and assistance will be readily available to help them retrofit. There is also an anticipation of the

recession affecting partners of ECC and consequently their capacity to engage with the programme.

- Trade-offs – paying green employees a decent wage presents its own challenges. Some employers are seeking to 'deskill' green employment, creating a sector where only basic training and the minimum wage is required. The challenge lies in ensuring people get substantial training, with wrap-around skills, and a potential career path. At the same time, there is a trade-off between the public budget and the minimum wage – a higher wage means fewer buildings are retrofitted.
- Root causes – focus and funding needs to be placed on the root causes of the problems that face low-income communities, communities of colour and the chronically unemployed. In California, one in four high school students do not graduate from high school. This issue must be addressed independently.

See: http://www.emeraldcities.org/

Richmond BUILD

> **'I'm on my first job ever, I'm happy. I'm a little nervous but I feel like if I need some advice I can always come back, it's a family, so I can call them and say "Hey, I've got a problem here, a problem there." I know they'll always be there for me. It's a good thing, a good thing.'**
> Kevin, Richmond BUILD trainee, ex-offender, age 45

Richmond BUILD, established in 1997, is a job-training programme of the City of Richmond's Employment and Training Department offering transitional employment and placement services to its clients. Richmond was one of America's most violent cities five years ago and Richmond BUILD was established in response to help get people off the streets and into meaningful work. The target population are people from low-income communities aged 17 to 35 years, although there is no upper age limit. Richmond BUILD was first established as a construction-training programme but partnered with Solar Richmond in 2008, added training components in solar installation and energy efficiency and becoming a 'green jobs academy'.

They take three 'cohorts' of approximately 30 people every year, who receive training for 15 weeks. Training includes construction skills, energy efficiency and solar installation skills, basic math and literacy, CV preparation, job-readiness and environmental literacy. Alongside this, participants have constant access to a counsellor who can help them with any personal issues that they might have, such as childcare, anger management, substance abuse and so on.

For the first few years, Richmond BUILD was placing 90 per cent of graduates into paid employment, although this has now dropped to around 70 per cent, a fact attributed to the economic climate. Most graduates are going into regular construction jobs, with around 15–20 per cent of graduates going into energy efficiency or solar installation jobs. Out of 100 students last year, only three were placed in green jobs.

Richmond BUILD is largely funded by state and federal grant, using stimulus package dollars. It also gets private funding from Chevron, and is seeking more funding from them. In addition, their building is owned by the city government from whom they rent it for the sum of $1 a year.

There are potential challenges facing organisations wishing to replicate Richmond BUILD's work in the UK:

- Community workforce agreements – local employers are bound by the Richmond authority to hire at least 25 per cent of employees from the local workforce, so it is in their interest to have strong connections with Richmond BUILD.
- Welfare to work – participants are able to continue receiving welfare payments while in training, under the US welfare to work scheme. The UK benefits system, although recently modified, still presents obstacles for people who receive benefits but have an opportunity to attend a training course or take part in fulltime volunteering.
- Outreach – as a fairly small city, it is easy for Richmond BUILD to build strong relationships and partnerships, and for word of mouth to spread to attract participants.
- Non-union wages – one reason that the number graduating into green jobs is low is because green employers tend not to be unionised. They pay around $14–16 an hour, compared to traditional construction employers that are unionised and pay around $17–20 an hour.

Other lessons include:

- Richmond BUILD has added to the requirements of entering the programme every year, as a result of learning more about employer needs. Before entering, participants must have graduated from high school, have a driver's license, and have passed an 'agility' test. They must leave the programme with a clean drugs test.

See: http://www.ci.richmond.ca.us/index.aspx?nid=1243

Green For All

Green For All (GFA) is a national organisation building the national movement for an equitable green economy. In January 2008, Green For All spun out of the Ella Baker Center and is now a totally separate organisation. Van Jones was co-founder of both the Ella Baker Center (1996) and Green For All (2008).

Green For All focuses on Washington DC but also provides support in 'the 49 states' excepting California. It is funded by a mixture of corporations, foundations, organisations and individual donors, and currently operates on an annual budget of $6 million.

Green For All's three primary tasks are to:

- Innovate policy – developing and advocating for innovative policies that promote a clean energy economy and enable governments at the federal, state and local levels to expand access and opportunity in the clean-energy economy.
- Develop capacity – helping to develop and strengthen the capacity of – and partnerships among – business, government, labour, not-for-profit and grassroots communities. These groups, sectors and partnerships leverage public and private investment to sustain a clean-energy economy and create green jobs.
- Build a movement – engaging and equipping diverse and unlikely national and regional networks of leaders, organisations, coalitions and communities to build awareness and increase demand for policies and infrastructure that create clean-energy jobs and investment in green industries. Green For All works to strengthen this popular movement's ability to organise and effect change at the local, state and national levels.

Green For All sees their role as one of 'convenor', pushing for progressive policy and demonstrating practical models. They support the replication of these models by connecting other green jobs programmes with each other, giving advice on funding sources, and other practical support. One of these practical models is Clean Energy Works Oregon (see p19).

Other future plans involve exploring employment opportunities presented by the food and water sector. Their report, *Green Jobs in a Sustainable Food System*, was released in April 2011 (see: http://www.greenforall.org/resources/reports-research/green-jobs-in-a-sustainable-food-system).

The UK can learn from Green For All in some key respects:

- Media – Green For All are particularly good at gaining media coverage and public support. This ability has given them legitimacy in the eyes of government and credibility in the eyes of young environmental justice activists – for example, the Black Eyed Peas toured the US to help promote GFA's 'Green the Block' programme.
- Linking policy with grassroots – along with Emerald Cities, it successfully combines national policy work with practical action. In the UK, Capacity Global operates on a similar model (see Appendix C) but the UK green jobs field could benefit from expanding this approach by promoting practical examples that prove the value of certain policy proposals.

See: http://www.greenforall.org/

Ella Baker Center

The Ella Baker Center's Green-Collar Jobs campaign focuses on the state of California. The campaign advocates for the creation of 'green-collar' jobs (defined as quality, career-track, skilled, hands-on jobs in industries like renewable energy, water- and energy-efficiency, green building, habitat restoration and sustainable agriculture), especially for low-income communities and communities of colour. The Ella Baker Center works state-wide in California, as well as in Oakland and the surrounding Bay Area. In 2008, they were granted $250,000 in seed funding from the City of Oakland to start the Oakland Green Jobs Corp.

The Green-Collar Jobs campaign work has 'Three P's':

- Partnerships – they build vibrant, cross-sector coalitions that include leaders from unions, green businesses, environmental organisations, social justice groups, and education and training institutions.
- Policy – they craft and win cutting-edge policy solutions.
- Pilot programmes – they champion groundbreaking demonstration projects that prove what's possible.

The Ella Baker Center has had great success in influencing city policy. When they heard the City of Oakland was developing an Energy and Climate Action Plan, they built a cross-sector coalition of community-based organisations, environmental experts and advocates, labour unions and green businesses to lobby for an equitable and just plan for the city's most disadvantaged populations.

The coalition wrote their own plan together in consultation with impacted local communities and gave it to the public works department. As a result of this pre-emptive action, the final Energy and Climate Action Plan ended up lifting a third of the proposed plan verbatim, and the City of Oakland Council passed the plan to include some of the

highest GHG emissions reductions targets of any city in the country (36 per cent below 2005 levels by 2020 and 85 per cent below 2005 levels by 2050) as well as plenty of measures related to equity and affordable housing, tenant protection and transportation.

The Ella Baker Center has also had success on the ground, organising with the Asian Communities for Reproductive Justice to 'green' California's nail salons, to minimise health impacts on salon workers.

Key aspects that the UK can learn from Ella Baker Center include:

- Small gains – out of the initial class of 40 green jobs trainees in 2005, half got job placements and a handful of those were in green jobs. In 2011, they are finding that green jobs are an even harder sell because of the recession – apprenticeship programmes that were taking 50 participants are now taking 10.
- Long game – the numbers may be small, but the Ella Baker Center recognises that it is a false economy to create green jobs for the sake of it. Ensuring that the jobs they do create are decent, unionised and provide a career track is a much more challenging objective than simply teaching someone how to install a solar panel.
- More than green skills – if trainees are to have a decent, well-paid career, it is not enough to provide training in clean technology or energy efficiency: they need a skill set that goes beyond installation or insulation.

See: http://www.ellabakercenter.org/index.php?p=gcjc

APPENDIX C
CASE STUDIES: UK GREEN ECONOMY COALITIONS AND ORGANISATIONS

East London Green Jobs Alliance

The East London Green Jobs Alliance is a coalition of trade unions, NGOs, community-based organisations and green businesses working together to create green and decent jobs for East London citizens. Starting within the five boroughs of Tower Hamlets, Hackney, Newham, Waltham Forest and Greenwich, the alliance seeks to stimulate the local green economy and provide training and job opportunities for local people – especially the young and unemployed.

The alliance grew out of a series of roundtable discussions convened by the Otesha Project in November 2010, which brought together organisations as diverse as Tower Hamlets council, Unionlearn, IPPR, Friends of the Earth, the London Development Agency, Bikeworks, YouDev, The Young Foundation, Hackney City Farm, Aspire, the Skills Development Agency, the UK Youth Climate Coalition, Tower Hamlets College, Fairbridge, Capacity Global, and the UNITE and UCU trade unions, all with the aim of identifying green employment opportunities in the East London area. The alliance is currently chaired by Otesha's director Liz McDowell.

Their pilot project, the East London Greener Jobs Pipeline, will prepare young people who face barriers to employment for entry-level jobs in the energy efficiency industry. They will do this by taking participants through a training programme that encompasses pre-employment skills, vocational skills, financial literacy, wraparound support services, environmental literacy, and an apprenticeship placement in either solar installation or insulation. They aim for this 'jobs pipeline' to create a bridge into decent, well-paid work and a promising future career.

They hope that this pilot will be a groundbreaking demonstration – reducing youth unemployment in East London, having a positive environmental impact, building capacity within local organisations and businesses and putting green jobs higher up the political agenda.

The East London Green Jobs Alliance recognises the importance of alliances, and strong cross-sectoral relationships, to the green jobs agenda. No organisation can single-handedly prepare for the new, green economy and so they are looking to the examples of successful partnership working that they saw on the US West Coast Green Alliances exchange for inspiration. For instance, they are seeking to replicate Apollo Alliance's 'four legs of the table' model in East London.

For the pilot project in particular, they are modelling their jobs pipeline on successful case studies from the United States, such as Richmond BUILD and Rising Sun Energy Center (http://www.risingsunenergy.org/). Both these organisations have used the Roots of Success environmental literacy curriculum as a module in their pipeline to take unemployed young people into green and decent jobs, and the East London Green Jobs Alliance will be the first UK-based organisation to do so. They anticipate that the UK landscape will throw up some differences, and recognise that they will have to be flexible enough to adapt the curriculum as required.

See: http://www.otesha.org.uk/programmes/east-london-green-jobs-alliance

Global Action Plan

Global Action Plan uses its practical experience, knowledge and credibility to help thousands of people and organisations make environmental and financial savings, with a supportive, structured approach that tailors projects to the priorities and cultures of individual communities.

The worldwide organisation started in the Netherlands and the United States following the Rio Earth Summit. The summit inspired an American called David Gershon to create an organisation to involve everyday people in creating solutions to environmental problems.

Global Action Plan works in partnership with businesses, communities, young people and schools to encourage behaviour change and reduce environmental impacts. Their Youth Volunteering Team offers accredited training and volunteering opportunities via the Climate Squad programme to over 3,000 registered young people nationally.

In taking lessons forward from the West Coast Green Alliances exchange, Global Action Plan has developed a training and work placement course for NEET young people, which is BTEC accredited and will allow young people to use the training and work experience as a pre-apprenticeship course. They then hope to link this course through to the government's Green Deal apprenticeship scheme. They are working with a number of different corporations to ensure that there are tangible job opportunities at the end of the scheme.

They are also designing a course with two major retailers to help their young frontline staff understand how to work more sustainably.

They will also be continuing their green entrepreneurship training, aimed at students and graduates who want to set up their own green social enterprise.

See: http://www.globalactionplan.org.uk/

TUC GreenWorkplaces

The TUC's GreenWorkplaces project aspires to show how unions are leading the way with a wide range of imaginative initiatives on energy saving at work, waste reduction, recycling, green travel plans and many other ideas.

The TUC is currently working with unions and management to deliver training and support in projects at, for example, Great Ormond Street Hospital for Children, Leicester City Council, The National Library of Scotland, Corus, the National Union of Teachers (who are greening their own workplace), and a major initiative at United Utilities. The union network of GreenWorkplace projects is expanding through the South West TUC's GreenWorkplaces project, now well underway in that region. Also, a successful bid by a consortium of four unions (PCS, UCU, CWU and NUT) for Defra funding has led to the Climate Solidarity project, which aims to build community/workplace links for greening working and living.

The West Coast Green Alliances exchange has helped the TUC develop its thinking on building links between stakeholders at a local level. It was particularly encouraging for them to see those instances where there was an active role played by the trade unions, and there are opportunities for projects in the UK to have strong union involvement. The TUC is keen to explore opportunities to coordinate union input into green initiatives with their affiliates and community contacts, such as trade union councils, local authorities, training colleges, local employers and community organisations.

Other lessons learned from the exchange:

- It was notable that many of the jobs created were largely retrofitting jobs that were entry level and short term, with no monitoring of participants' further employment or career pathways.

- The exchange confirmed that it is crucial that green jobs are also decent jobs that are accessible to all, with good wages and safe working conditions. Equality and diversity issues are central to projects if we are to fulfil the trade union commitment to a 'just transition'.
- Concerns over the quality of work (and therefore the quality of the training) must be a priority – after all, the work must deliver the reduction in resource use and greenhouse gas emissions we need to avert catastrophic climate change.
- Challenges in the UK will undoubtedly include accessing funds for green jobs projects and promoting green jobs in the current climate of job losses.

See: http://www.tuc.org.uk/workplace/index.cfm?mins=87&minors=4&majorsubjectID=2

Claverhouse Group

Claverhouse is Tayside's leading provider of government funded training programmes. Claverhouse is committed to providing high-quality guidance and support to unemployed adults, enabling them to access sustainable employment opportunities, thus having a positive impact on the local community. Established in 1983, their vision is to be recognised as the best provider of employment guidance and support services in Scotland.

They are one of a number of social enterprises in Scotland that has commissioned a scoping study around taking a consortium approach to installation of home insulation and micro-generation measures. They have taken a similar approach in the past, training unemployed entrants in draught-proofing, loft insulation and cavity wall insulation, and achieving a good track record in job retention, with many graduates gaining permanent contracts.

Claverhouse employed over 140 people under the Future Jobs Fund scheme and will be improving the training elements to include more sustainability and preparation for the greening of jobs, in preparaton for the Scottish government's introduction of the Community Jobs Scotland scheme in August 2011.

As a result of the West Coast Green Alliances exchange, Claverhouse are looking to embed the concept of environmental literacy into a range of employability services they provide. They had already secured funding from Scottish Power to work with people on practical actions for saving energy and reducing consumption in the home and the programme is now being extended to incorporate the wider themes of environmental literacy as advocated for by the US curriculum, Roots of Success.

They have also made a bid together with Skills Development Scotland for pre-apprenticeship training along with an emphasis on environmental literacy alongside traditional vocational skills, preparing for future jobs.

See: http://www.claverhouse.co.uk/

Greener Jobs Alliance

The Greener Jobs Alliance promotes skills training and job creation to meet the needs of Britain's rapidly growing low-carbon sectors and to green the whole economy. The alliance is made up of UCU, Greenpeace, Friends of the Earth, TUC, and IPPR, and will liaise at a national and local level to build the broadest possible support for the policies, investment, partnerships and commitments needed to drive the transition to a low-carbon economy.

As well as trying to influence national policy, the Greener Jobs Alliance also hopes to create local models of how the further and higher education (FHE) sector needs to engage

with local communities. They are in the process of doing the groundwork of establishing a Low Carbon Zone in Tooting, south London, so that the link between unions and training opportunities can be demonstrated.

At a time when existing jobs are threatened, the Greener Jobs Alliance are as concerned with job protection as job creation. Employers will not be able to take advantage of the opportunities presented by the green economy if their current workforce is not up-skilled. Taking this into account, the Greener Jobs Alliance will look to train construction and building technology lecturers within the FHE sector to deliver low-carbon skills, while ensuring that the course offer reflects this. They will support and extend the current training provision rather than setting up new private providers and courses, which are likely to be non-union staffed and may offer a more limited educational experience. While the FHE sector needs to look at a relationship with external agencies, as there are issues around access, a plethora of new providers coming on board could undermine existing public sector provision.

For the Greener Jobs Alliance, the West Coast Green Alliances exchange highlighted the relative lack of capacity and resources amongst trade unions and NGOs in the UK. The issue of trying to increase capacity for trade union and NGO engagement with local and regional communities and organisations is therefore crucial for the alliance. They are currently meeting with student organisation Student Force for Sustainability to scope the viability of FHE cluster workers and also student campaigning organisation People & Planet to discuss establishing a Green League table for FE. The Green League would rate FE institutions on the basis of performance in relation to staff, student and community engagement with the low-carbon agenda, and the incorporation of green skills into the curriculum.

See: http://www.ucu.org.uk/index.cfm?articleid=5269

Capacity Global's Greener Jobs Programme

Capacity Global is running a Greener Jobs programme to support a fair and just transition to a low-carbon green economy, with the belief that this transition will require everyone to be able to have a green or greener job. These are jobs that reduce carbon, provide prospects for upward career mobility and support a fair and decent wage across all sectors of the economy, from hairdressing to solar panel installation.

The Academy has been established to support 'non-green' and 'green' sector transition to a green and fair economy. Two projects are presently run under The Academy: The London Greener Jobs Hub and Skin.

The hub has been set up to provide the first central network for greening jobs initiatives that are taking place across sectors in London. It includes founding members UCU, TUC, The Otesha Project, Green Job Alliance and Global Action Plan. The hub will be advocating for greener jobs, setting up collaborative projects, developing policy and providing information.

Skin is a project working in the hair and beauty sector. There are 31,000 hair and beauty businesses in the UK that provide an estimated 205,000 jobs, but there concerns about low pay, use of hazardous products and high water and electricity consumption. Skin will offer ways to green jobs in the sector, improving profits and informing clients and customers. It starts with four pilot projects that will work hair and beauty trainers,

hairdressers, beauty salons and apprentices to explore greener and fairer ways of working in the sector.

These projects build on the work achieved under the TEN project which was set up in 2006 to provide graduates and non-graduates from diverse backgrounds with opportunities for training and work placements in the environmental sector. Participants receive a package of training and support including a six-month placement within an environmental organisation and a senior-level mentor in that organisation. The work supports Capacity Global's 2009 Hard to Reach? Diversity and Environment Manifesto.

See: http://www.capacity.org.uk/greenerjobs/index.html