

# Can we mobilize a Carbon Army?

*Maureen and Stephen Martin highlight the skills gap that threatens delivery of our renewable energy targets*

According to the authors of *A Green New Deal* (published by the New Economics Foundation), the global economy is currently facing a triple crunch – the financial crisis, climate change and peak oil. They claim this triple threat could plunge the world into a recession on a scale akin to that of the 1930s. *A Green New Deal* argues that the government should put in place a national plan for a low energy future and support action to implement it.

But there is no such plan, no contingency for the threat of peak oil, or for security of gas supply. Nor is there a plan to develop the skills needed for a low carbon economy.

The latest assessment by the Intergovernmental Panel on Climate Change (IPCC) and the Stern Review on the economics of climate change has lent a new urgency to these challenges. And a more recent report by the economist Ross Garnaut for the Australian Government has warned that the world has no realistic chance of meeting the ambitious targets set by international agencies as well as those set out in the UK's recent Climate Change Bill because most of the targets are based on outdated data.

*The Green New Deal* identifies a need for a substantial education, training, research and development programme for the 'carbon army' of workers needed to create a low carbon world. The specifics of what is needed are difficult to define but there is a growing realisation that the expertise required covers a wide range of economic activities such as the design and production of high tech renewable energy solutions, including large scale

off-shore wind and wave sources and combined heat and power units, as well as skills to ensure energy efficiency in homes, offices and factories.

It is probable that the speed of green job creation will accelerate in all of our key economic sectors: finance, construction, transport, manufacturing, retail, agriculture and food production. *The Green New Deal*

***'The speed of green job creation will accelerate in all of our key economic sectors'***

envisages that the transition to a low carbon and sustainable economy will create large numbers of new jobs across many sectors, which in themselves will become engines of development. 'Thousands of new and existing businesses and services will benefit, and a large increase in tax revenue will be generated for the government from this new economic activity,' says the report.

The positive result of both environmental benefits and new employment opportunities is referred to as the 'double dividend' - a dividend most of us would welcome to counter the current gloomy economic

predictions.

But what do we know about these so-called green jobs? Are they an illusion? Will they materialise? A recent report from UNEP, *Green Jobs: Towards decent work in a sustainable low carbon world*, suggests that the global market volume for environmental products and services currently amounts to about E1,000 bn which, according to some sources, will grow to E2,200 bn by 2020.

Compared to fossil fuel powered plants, renewable energy generates more jobs per unit of installed capacity and per unit of power generated for every euro invested. In 2006, 2.3 million people were employed globally in the renewable energy sector and, whilst almost half of these were growing and harvesting bio fuel feed stocks, the overall number is still considered to be a conservative estimate (see table 1).

The absence of any reference to employment statistics in the UK in the UNEP report indicate a low priority and limited investment in skills development for renewable energy.

The UNEP report suggest that



*This large pilot biomass plant is in Japan*

## SKILLS TO TACKLE CLIMATE CHANGE

Renewable energy source	World total	Selected countries	
Wind	300,000	Germany	82,100
		USA	36,800
		Spain	35,000
		China	22,200
		Denmark	21,000
		India	10,000
Solar PV	170,000	China	55,000
		Germany	13,300
		Spain	9,142
		USA	15,700
Solar thermal	624,000+	China	600,000
		Germany	13,300
		Spain	9,142
		USA	1,900
Biomass	1,174,000	Brazil	500,000
		USA	312,200
		China	266,000
		Germany	95,400
		Spain	10,349
Hydropower	39,000+	Europe	20,000
		USA	19,000
Geothermal	25,000	USA	21,000
		Germany	4,200
All renewables	2,332,000+		

*2006 estimate of the numbers of people employed globally in the renewable energy sector*

employment will be affected in four distinctive ways as we move towards a low carbon economy:

- Additional jobs will be created as in pollution control, environmental regulation and the manufacture of monitoring and control devices.
- Some jobs will be substituted as in the change from our reliance on fossil fuels to renewable energy sources or from landfill and waste incineration to recycling
- Some jobs will be eliminated without direct replacement as when certain packaging material is banned and production discontinued
- Many jobs particularly in construction and construction crafts e.g. plumbing and electrical

installation will be radically changed as skills and work routines are progressively made more responsive to environmental concerns

Undoubtedly there are huge opportunities for universities, colleges and training providers as well as professional bodies to help build the skills for this growing and important market. The government has exhorted the education and training system to place greater emphasis on developing sustainability literacy in all education and training programmes to support more sustainable production and consumption within the economy. But there is an economy-wide gap in the skills needed to implement this policy. The current courses and specialist training facilities in colleges and training institutions are nowhere

near adequate to meet the agenda being set by *The Green New Deal* the, IPCC and Stern.

Current levels of investment here and globally for the development of green jobs is abysmally low. The Stern Review noted that investment levels in energy saving technology in power generation actually fell by as much as 50% in the last two decades in real terms and energy conservation investment was a paltry \$1.1 bn in 2006. The United Nations Development Programme estimates that an effective global climate adaptation programme will require \$86bn by 2015, a relatively small investment when compared with the hundreds of billions of dollars being poured into our unsustainable and failing global financial systems.

The skills white paper published by the Department for Education and Skills in 2007 emphasised how important the 400 or so further education (FE) colleges are in delivering our current and future skills needs. A recent survey commissioned by the Learning and Skills Council provided few examples of practical training facilities in colleges which focus on the installation and maintenance of micro-generation technologies such as solar water heating, wind turbines or ground-source heat pumps. Very few colleges are offering City and Guilds training in photovoltaic installation. And yet there is growing interest in developing micro-generation as part of a suite of strategies for sustainable energy production and low carbon economies in the UK. Micro-generation could provide 30-40% of electricity demand by 2050 and account for a 15% reduction in household carbon emissions. In 2006 there had only been 80,000 installations (DTI 2006).

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