

Job creation and the political economy of energy

Energy development is not just a technological process. The energy system we have is a product of political and economic arrangements and it serves to perpetuate them. The political dimensions of choices for energy development will continue to shape the decisions made by people, regardless of attempts to set them aside in the name of objectivity. Rather than pretend this is not the case, such dimensions need to be recognised so that new questions can be considered for responsible and publicly-beneficial planning for the energy system we want.

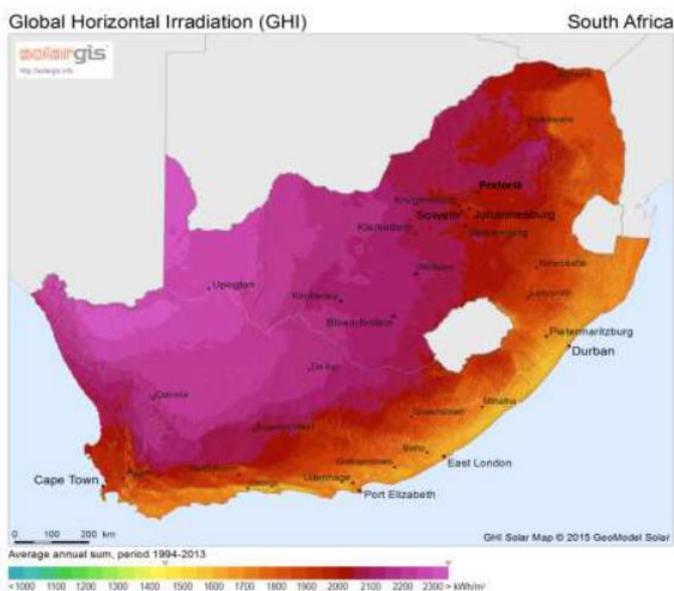
One cannot consider the macro-economics or political economy of energy and ignore the proposed fleet procurement of nuclear power, seeking to start a new nuclear industry. A single investment of such size is not just an energy issue, as it would add to the risk profile of the economy as a whole. It is not that spending a great deal of money on electricity infrastructure is not a good idea – it is absolutely essential. However, making a single decision worth many hundreds of billions of Rands is a risk we simply do not need – whatever it eventually might deliver.

One could consider how best South Africa might spend R1 trillion in the energy sector, on decentralised development – it may lead to better planning than asking how we can get the ‘cheapest’ electricity. However, there is a down-side to modelling a scenario for producing impressive numbers: 100’s of TWh of electricity supply annually; millions of solar water heaters installed; emissions reduction and water savings figures; projections of direct and indirect jobs etc. Competing with the project-specific projections of job creation by the energy incumbency entrenches simplistic quantification, without a holistic picture of a sustainable energy system.

Net social value of an ambitious renewable energy programme could be modelled, but it is a complex and costly undertaking that should be done thoroughly, as approximations or limited scope may give us worse than nothing¹. It is an exercise that government should undertake, with all stakeholders, as envisaged in provisions for Integrated Energy Planning. Our energy planning processes have become dysfunctional, but we could turn over a new leaf, if there is renewed commitment to open-minded, inclusive analysis and transparent decision-making.

In Germany, where solar resources as far weaker, the industry employs over 200 000.

Solar resource in South Africa...



SA's planned PV capacity by 2030: 8.4 GW

... as compared to Germany



Germany's status today: almost 40 GW installed solar PV capacity (roughly one Eskom)

¹ This is arguably the case for a report that was produced as part of a Shell-DOE scenarios project, from consultants commissioned to model socio-economic impacts of electricity supply technologies, which was subsequently considered under the IEP process: Energy and jobs - Outcomes of the socio economic work stream (DOE/Shell, Sept 2014, no authorship)

It would help to have a framework and process that seek to avoid decision-making being either held hostage to or obscured behind number-crunching, and to encourage the promotion of particular values and the exercising of moral judgement. Like energy modelling, socio-economic impact analysis is a tool that can inform and improve decision-making, but not substitute for it. It does not remove or neutralise the political dimension and may be most useful when it brings this to the surface, making the interests of different stakeholders explicit.

Corporatisation of state-owned enterprises seems to have given us in some cases the worst of both worlds: self-serving management focused on financial results, while accountable to political appointees within the state as the notional 'shareholder'. It has served to deepen the co-dependence of the state and concentrated capital.

Whether it is 'white minority capital', or transnational capital, or fully black-owned, is less significant for energy development than its concentration and what it is invested in. Given the co-dependence of concentrated capital and concentrated energy, particularly coal in South Africa, it should come as no surprise that there is opposition to energy alternatives that hold potential for redistributing power.

The term 'energy incumbency' conveys some of these dynamics, which Eskom increasingly serves to epitomise, being unusually blunt about how it is threatened by successful renewable energy development. Like the coal industry, Eskom presents its own interests as those of the people and particularly the poor, but this stratagem has diminishing legitimacy, even amongst those who broadly adhere to the neo-liberal narrative. Concentrated energy has been a powerful engine for capitalism, but this symbiotic relationship is changing.

Money

There is not just technological inertia in our energy system, but massive financial inertia. With coal still in the ground treated as 'assets' in the market-place, the early retirement of coal-fired power plants will have a 'cost' in terms of forgone returns on coal, as will any phase-out of fossil fuel use ahead of market expectations². Due to long-standing assumptions about energy development, continually reinforced by institutions like the International Energy Agency (IEA), the long-term savings that renewable energy delivers through having no fuel costs are somebody's anticipated return on investment, i.e. *avoided cost for electricity consumers as a whole is also revenue denied to the energy incumbency*.

When modelling for a least-cost energy system, especially with a supply-side orientation, the two most critical variables are fuel costs³ and the 'cost of capital'. The cost of capital is shorthand for what is deemed by the market to be a sufficient prospect of profit to mobilise investment. But it is in fact an assumption, one over which government does have the power to mediate, if there is the political will. For example, even when it is recognised that solar PV and wind power have achieved grid parity, the effects of 'path dependency' are not just big infrastructure, but include investment in fossil fuel reserves and resources upon which a return is being required, which is what lies behind many pronouncements that a rapid shift to renewable energy is 'unaffordable'. Path dependency is a very real dynamic, but can also operate as a self-serving prognosis. Bold government leadership focused on the long term public interest is an essential part of driving change.

Political will

Breaking away from path dependency requires government to exercise its political power in the interests of the majority, particularly their long term interests. *For energy development this requires unequivocal policy decisions that signal the fact that government will not design or reproduce the nation's energy system in order to indefinitely protect the revenues of those holding energy incumbency assets*. This should include proactive measures to realise the long-term cost-savings that all of society should be achieving by using freely available renewable resources.

² Coal reserves listed as assets on the Johannesburg Stock Exchange, if all burned, when Carbon Tracker counted in 2012, will release about 15 Gt of carbon dioxide – this is a lot more than the total greenhouse gas South Africa would emit to 2050 if serious about a goal of keeping global warming below 2 degrees C.

³ The cost of generation equipment is actually less impactful (in modelling and on real-world decision-making) than the attention it is given in public discourse; this is particularly true regarding benchmark capital costs as used in energy planning.

Transformation of the energy system requires that government serve notice on realising fossil fuel profits, with a timeline for the phase-out of coal combustion, starting with the power sector. The more decisive government is on the desired direction and pace of change in energy development, the better the impacts can be managed and the prospects for stranded assets can be reduced.

A key influence of political will in South Africa is the prospect for employment. A contemporary major issue of contestation is whether ‘cheap’ energy as an input to other production is one of the key drivers, or even a necessary condition for increasing the level of employment. The energy incumbency frequently invokes the fear of job losses to oppose measures that would make market conditions more favourable for more long term labour-intensive options.

In most macro-economic analysis, prospects for employment within the energy sector itself are in fact treated as secondary to the issue of the cost of energy. Furthermore, analysis of job creation prospects of different energy development options usually reach beyond the energy sector in projections of indirect jobs. Thus project-specific job-creation projections have little value for making the big strategic decisions required in energy development.

Renewable energy and jobs

A relatively high requirement for labour used to be noted as a disadvantage or challenge for renewable energy, cited as one of the barriers to investment. As perceptions of labour-intensity have changed, so too has the focus of debate about the socio-economic impacts of choices for energy development, with increasing emphasis on the location as well as the number of direct jobs likely to be generated. This shift highlights a real and pressing challenge for rapid renewable energy development: the availability of a suitable workforce.

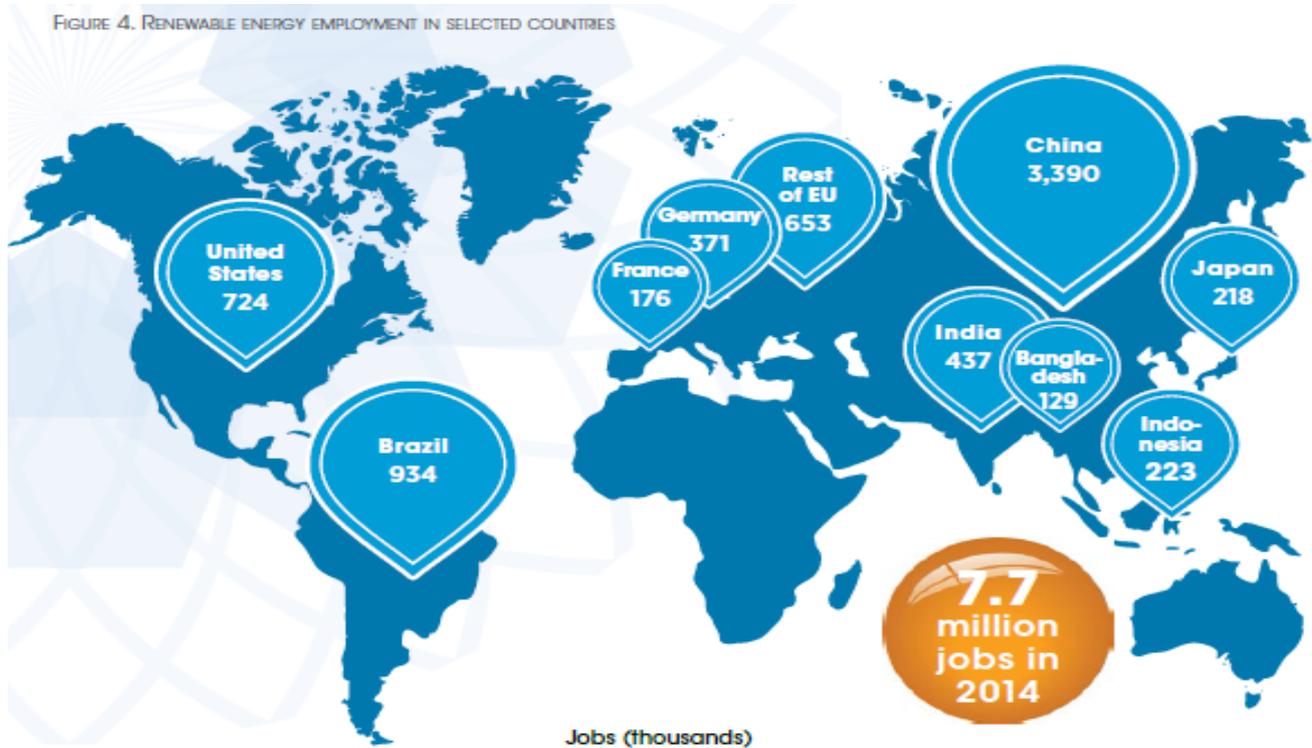
There is no question that massive scaling up of renewable energy technologies (RETs) will require mass manufacturing and many workers. In assessing how many RET-related jobs could be created in South Africa the two main determinants are whether we commit to the deployment of RETs at a scale and pace that will justify localisation of manufacturing, and the availability of suitably educated and trained workers.

Work has been done to understand the labour requirements of RE development, including under the Solar Technology Road Maps initiative, which highlighted the urgent need to educate and train the required workforce. The Renewable Energy Independent Power Producer Procurement Programme (REI4P) has already shown what is possible with wind and solar power, even with an incremental approach to deployment, as shown in the graphics from the DOE report (State of Renewable Energy in South Africa 2015) is applied. A total of 25 562 jobs were created over 3 years of policy-driven renewables development.



The employment potential of renewable energy is greatest in use of biomass. There are challenging questions regarding sustainability of production for commercial biofuels, but small-scale and decentralised use will add value to local economies. There are also issues around ‘decent jobs’ versus work opportunities as provided under the Expanded Public Works Programmes that inhibit the promotion of biomass use as a social good. These challenges could be addressed with a well-resourced and programmatic approach to realising the potential for renewable biomass use, including for biogas production.

International experience has shown the clear trend of job creation through renewable energy development. Bangladesh, with almost three times the population of South Africa, but only 69% of our GDP⁴, provides an inspiring example: In the decade up to March 2015, 3.8 million Solar Home Systems (SHS) were installed, with employment in this state-driven programme reaching 115 000 jobs in 2014. This is documented by the International Renewable Energy Agency⁵, which also provides the following snapshot of global developments:



In South Africa: “In June 2013, Cabinet adopted the New Household National Electrification Strategy, which targets 10% of the national backlog for off-grid electrification through SHS installations, or any other non-grid RE technology that is cost effective (e.g. mini-grid or hybrid systems). ...300 000 households ...by 2025”, as noted in DOE State of Renewable Energy report of 2015.

The employment impacts have not been directly assessed within Department of Energy planning processes⁶, in deference to the premise that cost-optimisation in energy supply will deliver the most positive net employment impacts for the economy as a whole.

There is no definitive way to establish through research and analysis which energy development options will have a more positive employment impact. In energy, as elsewhere, *the rate of employment in energy supply will be determined more by the rate of return required by capital and /or the willingness of other elements of society to apply democracy to the operation of the economy.*

⁴ This from figures for 2014 in the IEA Key World Energy Statistics 2016

⁵ IRENA - Renewable Energy and Jobs – Annual Review 2015 (p.8)

⁶ Not, at least in such documents have been seen by the public - Reports on both Integrated Energy Planning (IEP) and electricity Integrated Resource Planning (IRP2016) were in October 2016 diverted from Parliament for Cabinet review.