GREEN EUROPEAN JOURNAL

Volume 6 October 2013

Green industry in a post-industrial society

www.greeneuropeanjournal.eu

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From the green industrial revolution to the ecological revolution

Benoît Lechat

Greening industry is crucial to our ability to combat climate change and maintain a prosperous society. But to achieve this, we need a whole new relationship with the environment.

By the end of the seventies, many European Green parties were created to counter the negative consequences of industrialisation on the environment and on people. The Greens fought against polluting factories and many of their political opponents described them as a threat to employment and the economy, mostly in the old industrial parts of Europe. Thirty years later, the picture might be reversed: a different kind of industrialisation must help us to take on the environmental challenge and deliver a new prosperity for Europe. Even if in 2013, the resistance against this project seems to be growing, the Greens must remain at the forefront of the ecological transformation of European industry. Why and how?

1. Why?

Without falling into the trap of catastrophism, one can never dedicate enough attention to the ecological challenges we are facing in this century: if we want to limit global warming to 2°C, humanity needs to half its total amount of greenhouse gases (GHG) emissions by 50% by 2050. And as we nearly all know, more effort is required from industrialised countries: they need to reduce their emissions by 80%. For Europe, this means a drastic reduction from an average of 10 tonnes per capita in 2008 down to two tonnes of CO_2 (and we should even add 4 tonnes CO_2 per person if we integrate the impact of imported goods). According to the IEA report, in order to reach the 2° target, then the reduction of carbon emitted per unit of GDP should be 2.8 percent a year (which is double the rate of the last decade) reaching an annual rate of 5.5 percent during 2020-2035.

Broader than measures of carbon intensity, the statistics on the Total Material Requirement (TMR) of the EU take into account all material flows generated by European consumption and production patterns. The resource intensity of Europe can make us dizzy: 22 billion tons, which is the equivalent to a freight train about 9 million kilometres long!

We can and must debate the respective shares of increased energy efficiency and reduced consumption that are needed in order to reach our sustainability goals, but it is absolutely obvious that industry will play a key role. Even if in the last few decades the closing of polluting industries and the global recession contributed to the reduction of Europe's GHG emissions, there are many good reasons to think that de-industrialisation is not the way to reach our ecological goals.

The first reason is that we have – at least currently and in the short term – no real idea of how we could finance European welfare states without the tax income coming from the European industry. Strengthening the financing of these welfare states in the long term implies a progressive switch from taxes on labour to other sources of taxation that must take place over many years.

The second reason, closely interconnected with the first, is that the transition to a more resource efficient industrial sector brings hope for the creation of new and sustainable jobs. Even if we know that some existing jobs will also disappear in this process, there are many studies that indicate that the final balance will be positive.

Some very big consumers of energy and resources, for example the steel industry, are key players in the global reduction of consumption. Even the supporters of a zero growth economy must recognise this.

The third reason is that the areas of expertise and products of European industry are absolutely indispensable to the transition to a sustainable way of life. Some very big consumers of energy and resources, for example the steel industry, are key players in the global reduction of consumption. Even the supporters of a zero growth economy must recognise this. We will always need renewable energy sources, better insulated houses and public buildings and radically more resource efficient patterns of production and consumption.

The fourth reason is that it would be ecologically counter-productive to import our industrial goods from other parts of the world where weaker standards are applied.

The fifth reason is that the industrial sector is already a key player in the improvement of resource productivity. In the two last decades CO_2 emissions decreased by 25.1 % in manufacturing and construction and by 12.1 % in the residential, tertiary and agriculture sectors and grew by 23.8 % in the transport sector.

Thus there will be no transition towards sustainability in Europe without a strong and innovative industrial base that is able to lead on resource efficiency.

2. How?

With its triptych of financial regulation, social inclusiveness and industrial transformation, the Green New Deal project must be continued. Many concrete experiences and industrial successes show that this is far from unrealistic. But it is also a difficult and long term process. The resistance that the Greens are facing around Europe – for example with the energy transition – are signs that we are probably in the middle of what some economists call 'innovation conflicts' between potential winners and losers from the transition to the new type of economy. And like in former transitions, the lobbies of the old sectors – this time, the carbon and nuclear industries – often have solid supporters in the political sphere.

This resistance at least partly explains why the required tools for the new economic revolution are still lacking. We need to develop a real industrial policy, not only at the national but also at the European level, which is in contradiction with the neoliberal ideas currently dominating the European institutions. The new European industrial policy must include policies regarding research, procurement, standards and labour market. It must also be supported by completely different social and fiscal policies.

As Roosevelt's New Deal was about internalising the social costs of labour, the Green New Deal is about internalising the external costs to the environment in the production process. Its story will not be finished until we have decoupled the link between economic growth and our ecological footprint. But for the moment, there is absolutely no direct link between improvement of resource efficiency and the reduction of CO_2 emissions, on the contrary. Luxembourg for example is the European champion of resource productivity, but it is the worst performer in terms of per capita CO_2 emissions (in 2009 it was

21.7 tonnes per capita). On the other hand, Bulgaria with its average 6 tonnes of CO_2 per capita, has the weakest resource productivity.

It is obvious that this situation will not change without adequate carbon pricing as it is the only truly efficient way to tackle the famous rebound effect – where resource efficiency does not lead to reduced emissions but to a growth of emissions. However, green taxation is lower in the EU than it was ten years ago. A possible explanation of this evolution is the depletion of non-renewable resources. But we also know that some attempts at introducing or reinforcing ecotaxation have met resistance in various European countries. The context of the rising inequalities of income is not propitious to a real shift in the fiscal policies. So long as we do not make an explicit link between ecotaxation and social justice and a reduction in inequalities, it is dubious that the internalisation of the environmental costs of all production processes will happen. There lies the subject of an important discussion that the Greens should organise, for example, with the trade unions. The good news is that the labour movement is not locked in the industrial society as it was until the 1990s. It could thus be a potential partner for an efficient 'deal' on the global taxation shift needed for the absolute decoupling.

A cultural project?

The transition towards a green economy is not only driven by technological change, for example by the development of renewable energy. It will also be conditioned by fiscal, social and cultural changes. On this level, our main difficulty is perhaps how to change the existing conception of the industrial society and its underlying dream of the domination of nature. The social progress of the new deal society was based on the never ending growth of fossil energy and on the systematic organisation of the rebound effect – and as a consequence on the complete transformation of the natural fundamentals of human life. What we are trying to invent is a completely new kind of relationship with nature. And this brings the project of green industrialisation back to the roots of the Green parties.

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‘Make Do and Mend’: Industrial Conversions and Sustainability Transitions

Molly Scott Cato

Jonathan Essex

Today’s mainstream economic debate around investment vs. austerity is failing, but a truly comprehensive Green New Deal could offer the alternative. The right support from the EU and national governments could encourage different structures of business ownership, focused on sustainability and social ownership that will help the transition to a truly sustainable economy.

In the wider European context the urgent need to respond to climate change has been recognised, but the structural changes to an outmoded economic model that an adequate response requires are slower in coming to fruition.

A Real Green New Deal

The current economic strategy proposed to restart economies across Europe is reflected in two largely disparate policy debates: one around the nature of investment to kickstart growth, and another concerning whether or not there is a need for austerity measures to cut public sector deficits in many European states. Both of these mainstream approaches are failing: not just economically, but socially and environmentally too. In this article we offer a framework that enables both of these challenges to be addressed together. Such a single green economic approach has been considered under the banner of a Green New Deal, but this is often viewed as a specific green employment and energy efficiency investment programme, rather than a wider strategy to transition our economy to a sustainable future. We argue that a real Green New Deal would encompass fundamental structural change to our economy, and we seek inspiration in the particular experience of the LIP and Lucas factories in the 1970s to develop this idea of a 'green conversion' that might be extended to Europe's industries today.

The original New Deal that has provided inspiration in this time of crisis was a wholesale coordinated approach that created employment, built new infrastructure and new industries (through the United States' 1933 National Industrial Recovery Act), alongside reforms to the banking system. While not focused on environmental issues, it did have a coordinated approach to address all the issues of its time together. In contrast, the UK's current economic strategy could be summarised in two words: 'build more'. It aims to restart the existing (unsustainable) economy through a combination of state-funded building[1] and relaxation of planning laws to support a private sector housing boom.[2] This has represented a partial recovery with the benefits skewed to the richest 1%, while underemployment and unemployment persist and inequality between the property-owning and working-classes have increased markedly.

In the wider European context the urgent need to respond to climate change has been recognised, but the structural changes to an outmoded economic model that an adequate response requires are slower in coming to fruition. At the cultural and community level the transition to sustainability expresses itself in the form of community farms, renewable energy co-operatives and some green micro-businesses. At the industrial scale what we urgently need is a conversion programme to shift the focus of production away from energy-intensive decadent consumption and towards the products that will facilitate a resilient future.

1 For example, see http://www.thesundaytimes.co.uk/sto/business/Economy/article1230725.ece
2 For example, see http://www.telegraph.co.uk/finance/budget/9944688/Budget-2013-George-Osborne-pins-hopes-on-housing-boom.html

We must broaden our concept of the Green New Deal beyond just creating employment

Industrial Conversion

In Britain the word 'conversion' evokes the memory of a brave attempt to challenge the power and priorities of capital and replace them with the social priorities of citizens.[3] This was the Lucas Aerospace conversion project.[4] What began as a defence of threatened jobs became a beacon to those who would see industrial policy and industrial organisation beginning from the workers themselves. In the early 1970s the UK defence industry was faced with significant job cuts; Lucas Aerospace, one of the country's largest arms manufacturers, announced plans for 13,000 redundancies across its 17 factories.

The union organisers responded by asking the two obvious questions facing any productive plant: what can we make? And what do people need? They formed the Lucas Shop Stewards Combine Committee[5] and sought suggestions from the workforce. Its engineers came forward with a vast number of creative and imaginative suggestions for what the factory might produce. Meanwhile the Committee undertook an audit of the company's skills and assets. They skilfully kept white-collar and blue-collar workers united and gained overwhelming support for their plan.

As might be expected from such an open process the proposals were wild and varied, ranging from kidney machines and other improvements to medical equipment; renewable energy products including solar collectors and wind generators that were years ahead of their time; electric vehicles. The suggestions for economic and social innovation were equally radical: work organisation would be along democratic lines and social and environmental usefulness was to predominate over profit maximisation.[6] Sadly, the creative and innovative thinking on the part of the workers was not matched in the boardroom or the government offices that also became part of negotiations. There are important lessons for the transition to sustainability here, since workplace innovation, however inspiring, will not be sufficient to enable the conversion that industry must urgently undergo.

3 Räthzel, N., Uzzell, D. and Elliot, D. (2010) 'Can trade unions become environmental innovators?', Soundings, 46, 76-87.
4 Hilary Wainwright and David Elliott, *The Lucas Plan. A new trade unionism in the making?*, Allison & Busby 1989.
5 A 'shop steward' is a lay official of a trade union, elected by employees. The production site is the 'shop', hence the steward organises workers within that shop.
6 H. Wainwright & A. Bowman, 'A real green deal', Red Pepper, October/November 2009: www.redpepper.org.uk/A-real-green-deal

If this sort of support for popular capitalism could be focused in the direction of a sustainable, low-energy economy, how much more rapidly the necessary structural changes to our economy could be achieved.

In similar vein, the experience of the LIP factory in Besancon, eastern France is remembered as an example of enterprise and innovation on the part of workers rather than managers, under the banner of 'auto-gestion' or 'self-management'. Using the slogan 'We make, we sell, we pay!' the workers of the watch factory took control of their workplace, supported by the citizenry of Besançon, more than 100,000 of whom joined a demonstration in support in September 1973.[7] If this sort of support for popular capitalism could be focused in the direction of a sustainable, low-energy economy, how much more rapidly the necessary structural changes to our economy could be achieved.

In the French context, former Green MEP Alain Lipietz has called for a green conversion in an era of high and growing unemployment, especially amongst Europe's young people:

'Trade unions have understood that the conversion will bring more green jobs than maintaining the old system. According to the ETUC, if you replace intensive farming with organic agriculture it will increase employment by 40%. If you expand the public transport to reduce carbon emissions by 30% by 2020, you destroy 4.5 million jobs in the European automotive industry individually, but you create 8 million in the transport sector, through construction and operation. In short, when you reduce pollution you create jobs and increase tax revenue because when you resume activity you can afford to pay for this green conversion.'

As long ago as 2008 Britain's Trade Unions Congress produced a blueprint for *A Just Transition*, inviting the government to become involved in reversing the decline of UK manufacturing by actively supporting the green sectors that need to flourish within a sustainable economy. Such support, they argued, had already created as many as 249,000 new renewable energy jobs in Germany. As employment in the five-energy intensive sectors decline, anticipated losses across Europe could be as high as 50,000 and 8,000 in steel and concrete production respectively.

Clusters of Eco-Social Enterprises

This is an optimistic view of what the conversion of systems can achieve, but what about the energy invested in making these changes, whether we think about building tram systems or redesigning and resiting factories? Shortening supply chains could massively reduce the CO_2 emissions associated with unnecessary transport of components, but we will need to undertake the development of production facilities in communities where they do not currently exist, and that in itself is an energy-intensive process. It is unclear how the aims for a sustainable and resilient economy can be delivered by these measures as an aside, acting alongside continued business-as-usual production and development.

Hence our suggestion of the need to revive the slogan 'Make do and mend', which described the approach to an economy based on thrift that characterised Britain during the war years and immediately afterwards. From the European level

7 'Lip Lip Lip hourra!', Liberation, 20 Mar. 2007: http://www.liberation.fr/culture/010197038-lip-lip-lip-hourra

we already have a range of policies aiming to undermine the throwaway culture in the ELV (end-of-life-vehicle) and WEEE (waste electrical and electronic equipment) directives. Both ensure that the cost of disposal of automotive and electronic goods remains with the producer, but both involve throwing away the 'embodied energy' to manufacture the existing product rather than refurbishing it – so only giving a very limited incentive to end the process of built-in obsolescence. Likewise, while in theory the Packaging (Essential Requirements) Regulations that followed the Directive only allows packaging that meets EU eco-design requirements such as in terms of packaging weight and volume not beyond the minimum needed for safety, hygiene and acceptability of the packaged product – it has had only limited impact as the scale and prevalence of plastic packaging has increased across the continent. An alternative approach might mean the reduction in the number of jobs in manufacturing (and wrapping!) new products, while increasing the number of skilled jobs mending and revitalising existing products.

Ecological Enterprise Zones

To really accelerate the conversion of European industry we need to focus government investment in this direction. In the context of a UK parliamentary inquiry into the green economy we proposed the idea of a system of Ecological Enterprise Zones in some of Britain's post-industrial areas: 'These EEZs would be supported by government grants to become hot-houses for the innovation of green technologies and sustainable lifestyles. In return, they would be expected to achieve significant cuts in carbon emissions, resource usage, and levels of waste production. Government should enable local authorities in such areas to experiment with policy tools, such as carbon taxation and import and export duties. The aim would be for the EEZ to become a prototype of the self-reliant local economy that a green economy requires.' [8]

This is similar to the idea of the clusters of eco-social enterprises that industrial ecologists argue are necessary to create a circular economy. If waste from one product or factory is to become the feedstock for the next industrial process it makes sense to have the factories positioned near each other. An example might be a food-processing plant passing its waste to an anaerobic digester which turns it into methane which then becomes the fuel for a factory manufacturing wind turbines. Rather than the economies of scale that drive the energy-intensive production systems of our current economies we would have economies of scope within these clusters of ecologically focused businesses. But to be truly green this also needs to focus at the top of the energy and carbon hierarchies – to link together repair, reuse, energy reduction and energy efficiency – or it is likely to become yet another driver for economic growth, and rebound to sustain rather than reduce our current society's unsustainable levels of material and energy use.

8 House of Commons Environmental Audit Committee: A Green Economy , Twelfth Report of Session 2010-12, Volume I, evidence from Green House.

Combining consumer pressure for lower-impact lifestyles and producer pressure for decent high-quality jobs could help create the rapid industrial conversion that the ecological crisis demands.

Refocus the Cohesion Funding on Sustainability and Social Ownership

Such a strategy to support the transition to a circular economy could form a strategic underpinning for the investment of EU convergence funding. The focus on sustainability that is found in the criteria for EU investment in the Union's poorer regions should be extended and criteria should also be included to encourage workplace innovations along the lines of the Lucas project. In the transition to a sustainable economy the ability to conduct such local experiments is of crucial importance. This would revitalise the link between cohesion policy and sustainable development that, while already present, tends to focus on carbon reduction and habitat conservations rather than the radical socio-economic changes that we need to be making.[9]

In the early days of capitalism trade unions fought hard for both environmental protection, opposing the pollution of their local environments, and global solidarity. The Manchester cotton workers, for example, famously refused to spin cotton grown by American slaves. Given the urgent need for a sustainable transition now is the time for those who work to improve the conditions within workplaces to recognise the need to adopt a broader vision. But this conversion from below must be matched by a framework at the European level that clearly prioritises the shift towards not only zero carbon (and low-energy) production but the sorts of goods and services that a sustainable economy requires.

It also requires us to raise questions about how our productive workplaces are owned and controlled. Because the corporate global economy is driven by the desire to increase speculative profit, and avoid sharing the proceeds, it needs to grow and to expand beyond the size that would enable comfortable lifestyles for all. The extreme incomes of the few drive this growth as well as facilitating the unsustainable lifestyles of the elite. Hence there is a relationship between the nature of ownership of our economy and the possibility of achieving a balanced economic without exponential growth.

Can we find a connection between decent self-managed work and ecological sustainability? Green House believes that we can, and that demonstrating the connection between corporate profit-driven work and environmental destruction is a crucial stage in the evolution to a sustainable economy. In a co-operative the employees are motivated that the business should succeed and should provide them with a lasting and reliable livelihood; this is a quite distinct motivation from the drive for expansion and profit that motivates the global corporate economy. As we have seen the examples of Lucas and Lipp, workers are adaptable to change and capable of creative innovation when they feel they have a stake in the process. Combining consumer pressure for lower-impact lifestyles and producer pressure for decent high-quality jobs could help create the rapid industrial conversion that the ecological crisis demands.

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9 Institute for European Environmental Policy (2011), Cohesion Policy and Sustainable Development: Final Synthesis Report: http://ec.europa.eu/regional_policy/sources/docgener/studies/pdf/sustainable_development/sd_final_report.pdf; European Environmental Bureau (2012), Greening the Cohesion: http://www.eeb.org/?LinkServID=80DB4579-5056-B741-DB1F2835250CC2B9&showMeta=0&aa

European industry needs to RISE!

Reinhard Butikofer

Can Europe's economy remain competitive with a low-carbon transformation? The answer is a clear 'no'. How then can we achieve such a reality? Only through a clear change in Europe's budget priorities and a range of innovative measures.

Europe needs to rise to the occasion with an ambitious industrial policy that leads investments in a low-carbon modernisation offensive encompassing energy and resource efficiency.

Europe's economy is stuck in a troubled state. According to the latest IMF World Economic Outlook, a large number of EU Member States will be in a recession this year.[1] Too much focus has been put on austerity, too little on sustainability and growth. Europe, unsurprisingly, hasn't been able to cut its way to sustainable debt reduction either.

The economic circumstances and the sense of political alarm that comes with them have been put to good use by some conservative voices. They have tried to reverse the judgement on one of the most fundamental economic strategy questions on which a great deal of ink has been shed: Will Europe be capable of reconciling its industrial competitiveness with a switch to a low-carbon economy? Time and time again this question has been answered positively. To counter the voices that are still not willing to reconcile themselves with this perspective, maybe we should radicalise the question: Will Europe in fact remain competitive without a low-carbon transformation? My answer: No.

Low-road to nowhere

Industrial competitiveness won't be gained by taking the low road of an anti-regulation agenda consisting of social and environmental dumping. Neither will it increase via closing our borders with a new protectionism. Instead, Europe needs to rise to the occasion with an ambitious industrial policy that leads investments in a low-carbon modernisation offensive encompassing energy and resource efficiency. The European Commission has acknowledged in its own industrial policy communication of 10 October 2012 the need for a policy framework that increases investments into new technologies and gives 'Europe a competitive lead in the new industrial revolution'.[2]

This will be the basis for our industrial competitiveness and raise European industry from its knees to greater heights. For this to happen, Europe needs a Renaissance of Industry for a Sustainable Europe (RISE) strategy.

In my European Parliament report entitled 'Reindustrialising Europe to promote competitiveness and sustainability', I have put forth a blueprint of a RISE strategy that will bring an industrial renewal with economic dynamism, confidence and competitiveness. Its guiding lights are the principles of fair competition, the internalisation of externalities and an environmentally-conscious *Ordnungspolitik* embedded in a European ecological and social market economy. Such a strategy is based on a number of key pillars.

1 'Growing Pains', World Economic Outlook Update, International Monetary Fund, 9 July 2013, see: http://www.imf.org/external/pubs/ft/weo/2013/update/02/

2 'A Stronger European Industry for Growth and Economic Recovery' – Industrial Policy Communication Update, European Commission, 10 October 2012. See: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52012DC0582:EN:NOT (accessed 5 August 2013).

The port of Antwerp in Belgium; how can Europe become an exporter of the green economy?

The road to RISE

First and foremost, we need an innovation, efficiency and sustainable technology offensive to modernise our industrial base and increase our core strengths. This means investing in renewables in tandem with energy and resource efficiency. The Bank of America Merrill Lynch has already identified energy efficiency as one of the next financial megatrends while the European Commission highlighted in its resource efficiency roadmap that resource efficiency gains in German manufacturing alone could generate cost savings up to 30%.

Renewed energy is required in this field. Innovative policy measures to stimulate efficiency investments could be the introduction of an energy efficiency feed-in tariff as well as the proposal by the German engineering association (VDMA) of eco-efficiency loans that include an advance on the efficiency gains to be realised (i.e. a loan of 120%) which could be used to finance other non-efficiency related investments and be repaid inter alia through the remaining efficiency gains. Creating a state aid block exemption for all energy efficiency schemes within the Member States' Efficiency Action Plans, as suggested in a study on state aid commissioned by the Greens, would also be helpful.

Ecodesign legislation also has a crucial role to play in this field. According to the consultancy Ecofys, ecodesign has the potential to save European consumers and businesses EUR 90 billion per year in 2020, reducing natural gas imports from Russia by 23%.[3] As such, ecodesign legislation could be widened to include recyclability and resource efficiency. Public-private partnerships, such as the industry proposal SPIRE dedicated to innovation in resource and energy efficiency, are also of great importance and help pushing forward this agenda.[4]

Second, European leaders must put our money where their mouth is and start investing in those areas where Europe's competitiveness will get the most

3 Economic Benefits of the EU Ecodesign Directive, Ecofys, 2013, see: http://www.ecofys.com/en/publication/economic-benefits-of-the-eu-ecodesign-directive/
4 See: http://www.spire2030.eu/

bang for our bucks such as innovation and research and development. This is crucial, because as noted by the World Economic Forum, business-as-usual investment will not deliver stable growth and prosperity.[5]

Words, but little action

At the European Council Summit on 27-28 June, the Heads of State and Government proudly launched a new 'Investment Plan for Europe' to support SMEs and kick-start the recovery. But this investment plan is little more than a shiny red herring distracting from the actual cuts the European Council has forced. Together with the majority of the European Parliament, the European Council agreed to an unambitious multi-annual financial framework (MFF) that holds on to the current economic status quo and cuts those strategic areas mentioned above. The SME financing programme COSME was cut by 20 per cent while the research framework programme Horizon 2020 also took a big hit. Meanwhile, billion-dollar graves like the ITER fusion reactor continue to enjoy unabated financing.

A RISE strategy would provide new innovative ways to restore credit in the market. These include, for example, revitalising the asset-backed securities market for SMEs and promoting financing partnerships where public banks invest in private bank issued structured covered bonds linking such investments to increased SME lending targets for the private bank. In the context of increased bank deleveraging, RISE would also support the creation of local bonds markets and establish a European regulatory framework for crowd-funding in order to help businesses access alternative sources of finance.

Third, it is about markets. We need to complete the internal market and have a RISE strategy that leverages our own European home market to foster demand-driven innovation and the uptake of new technologies. This could be done, for example, via reduced VAT rates for particularly innovative goods, privileged access to public procurement for efficient products, as well as standardisation policies. Simultaneously, a RISE strategy also opens up international markets. The EU-US Transatlantic Trade and Investment Partnership (TTIP) plays a key role in this respect and this agreement could endeavour to advance a transatlantic low-carbon transformation by phasing out fossil fuel subsidies. SME desks could be established at the EU Missions and an export strategy for resource and energy efficient technologies and services pursued.

Fourth, we need to win the skills and labour force for the next industrial revolution. This means making workers part of the process by expanding workplace democratisation and innovation as well as providing an individual right to training. Increasing the number of students studying the STEM (science, technology, engineering, mathematics) fields and setting national

5 The Green Investment Report, World Economic Forum, 2013. See: http://www3.weforum.org/docs/WEF_GreenInvestment_Report_2013.pdf

STEM targets in addition to forging partnerships between industry and universities would also be crucial. Furthermore, Member States with strong vocational training systems have had relatively robust employment markets during the crisis. In this context, the Commission should help Member States to introduce such systems. Microcredit facilities promoting entrepreneurship could also be made available for young people in addition to the Youth Guarantee, which is being introduced to alleviate youth unemployment.

Last but not least, we need a strategy for a Southern RISE that gives an economic perspective for the EU's South. Existing industrial strengths need to be promoted via increased innovation and smart specialisation efforts as well as a comprehensive integration of these economies into the global value chains. A microcredit programme funded by the EIB could also help SMEs to process orders and the EU needs a programme that integrates these economies into the single European market. Too often are the Southern regions negatively affected by their peripheral positions and the lack of adequate well-connected infrastructures ranging from energy and ICT to railways. These and many more proposals for a Renaissance of Industry for a Sustainable Europe (RISE) strategy, I have outlined in my parliamentary report.

RISE above the others

Europe is finding itself in an economic storm shaking the very European political foundations. Now is the time to resolutely move forward and RISE towards a low-carbon transformation that will provide industrial strength and economic resilience. Our competitors are hot on our heels. In his second Inaugural Address on January 2013, President Obama stated that the path to such a transition will be long and sometimes difficult. He continued a America cannot resist this transition, we must lead it. We cannot cede to other nations the technology that will power new jobs and new industries, we must claim its promise. That's how we will maintain our economic vitality'. Fortunately, Europe is presently ahead of the game in this race. Let's not rest on our laurels nor dither in our ambition. RISE!

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Adam Ostolski

Black tradition, green future

Ahead of COP 19 which takes place this year in Warsaw, Poland, Adam Ostolski looks at how the green movement in Poland can move forward. Greens may need to forge a broad alliance against neoliberalism with some unexpected allies, such as the coal miners.

In November 2013, we shall witness another climate conference (COP) – this time in Warsaw. It's not hard to see the plan of Poland's Prime Minister Donald Tusk: it's stopping the possibility of a global agreement that would force Poland to switch to renewable energy sources. Is there a chance that we can stop this? Yes, but only if we create a broad alliance against neoliberalism and for a just energy transition. In this endeavour, a crucial partner for ecologists could be miners.

Climate policy is the one policy area in which Donald Tusk's right-wing government is impeccably consistent. Poland vetoed plans for a more ambitious climate policy of the European Union, is hesitant to implement the EU legislation on green energy or energy efficiency, and hampers global agreements regarding this issue. Talking climate to the Polish government is a Sisyphean task.

There is a good side to this – ecological circles seem to now understand that there is no use in trying to make the government change its mind. In effect they are starting talks with the miners. One striking example was a conference held in March 2012, called Black-Green Round Table, organised by Zielony Instytut (Green Institute) and the Trade Union of Miners in Poland (ZZG). Experts from both sides talked about Poland's climate policy – a discussion which achieved some common ground.

An unlikely alliance

I believe that an alliance of miners and Greens can be something more than just a compromise somewhere 'in between' our current stances. A common ground can be achieved that is not a result of moderating ones opinions, but on the contrary – in their mutual radicalisation. To make this happen, we need to remove the ways of thinking that are preventing such an alliance. This implies serious intellectual effort on both sides. Here I would like to focus on the ecological side, with which I am more familiar with. In our way of thinking, I discern three strongly rooted dogmas which need to be overcome if this alliance is to succeed.

Mining is about more than jobs.

Jobs are one of the main topics of discussions related to climate policies. The opponents of EU climate policies argue that reductions in CO_2 emissions would mean an end to tens of thousands of jobs in coal mining. Enthusiasts reply that this process will mean new working opportunities in the green economy: energy generation from renewables, insulating family homes etc. They also focus on the fact that Poland already imports coal, so limiting the reliance of the Polish economy on coal imports wouldn't have any short-term effect on the levels of employment in the national mining sector. The money saved in this way could be invested in job creation.

From the green point of view jobs are probably the only virtue of mining. Otherwise coal extraction means health problems, accidents at work, landscape destruction, pollution etc. But from the perspective of

We are all children of the coal-based civilisation, and we should not make ourselves its adversaries.

miners and their communities, mining gives them an identity from which they have a sense of dignity. It's a type of work that bonds people together and makes them responsible for one another and their common safety. It's a way of life and a coal-based civilisation.

Greenpeace activists project a message to the climate summit talks, taking place in the nearby city of Poznan, on the side of the Pątnów power coal fired power station.

Greens like to underline only the dark sides of this civilization, and too easily they forget about its accomplishments. Not so long ago it was coal that allowed people to rise from misery, allowed workers to organise and fight for their rights. Theirs was the struggle that gave us all voting rights, social insurance, work safety legislation and other labour regulations. We are all children of the coal-based civilisation, and we should not make ourselves its adversaries.

We have good reasons to make this type of civilisation history. There is no doubt that further reliance on coal poses a danger for our future. But painting this civilisation only in dark colours does not help us with finishing our addiction to coal. If we want to see a green shift we should have gratitude for its achievements, feel pride in them and allow people to mourn the world that is starting be a thing of the past.

Renewable energy = democracy?

A promise of more democracy is one of the strongest arguments in favour of a switch to renewables. They allow energy to be generated in a decentralised fashion, uniting the role of a consumer and a producer and giving independence from big energy companies. But the vision of 'energy democracy'– appealing as it is – is also risky because of its technological determinism. It's strikingly similar to the discussions related to the internet and 'network democracy' in the 1990s. Then, it was the internet that was supposed to bring genuine democracy into politics and social life almost automatically. We were also told that the internet era will, by definition, be a time of full freedom of speech. It was presumed obvious that censorship on the internet was impossible.

The reality has been much more complex. Today, we know that the internet generates both new opportunities and new dangers for us and our fellow citizens. It turned out that it can be censored after all, and even used to track us by governments and corporations on an unprecedented scale. The democratic potential of the internet is not a mere fantasy, but we have to struggle for it. The emergence of the Pirate movement was a sign that the concept

The EU stance on climate change leaves a lot to be desired. It represents a narrow, technocratic vision of ecology, all too often conceived as separate from social justice issues.

of web democracy just came of age. We realised that democracy is not a child of technology; it only comes with people rising to struggle for their rights.

The same is true with renewables. The enthusiasts of energy democracy put a lot of faith in a 'smart grid' that would allow a decentralised production of energy. Households and workplaces connected by such a network would be both consumers and producers of energy and would be independent from one, central energy source. This network can become both ways of empowering the independence of people and an instrument of control and spying on them by the state or energy companies. They give us just a chance – not a guarantee – of more democracy. The same comes from energy decentralisation – it doesn't exactly equal democracy. Decentralisation can both decrease and increase the power that the state can have on our lives. It all depends on the bargaining power of people – workers, consumers, and small entrepreneurs – *vis-à-vis* the state and corporations.

In a coal-based economy the bargaining power of miners is large, and they may use it in the interest of labour as a whole (of course it's not always the case). What will be the sources of bottom-up political power in the era of decentralised energy generation? What will be the aims and tasks of ecological movements, when the vision of energy democracy will be as mature as network democracy already is? We don't have to abandon our dreams, yet it is advisable to start thinking about problems.

Beyond EU energy policies

In discussion, green-minded people have a tendency to act as advocates of EU climate policies. It's understandable in a situation where the Polish government, with a part of the opposition, ignores the reality of the climate crisis and the threat that it poses to Poland, and when it is so intent on ignoring how green modernisation would be a chance for the country. The problem is that from the point of view of green ideals the EU stance on climate change leaves a lot to be desired. It represents a narrow, technocratic vision of ecology, all too often conceived as separate from social justice issues.

The alternative to simply supporting the EU climate policy in its current form could be a demand for its democratisation. The issues of social justice are not an add-on to ecology, but constitute an integral part. Climate policies need to include some guarantees and obligations, e.g. regarding preventing fuel poverty, investing in social development of regions transitioning from coal extraction, guarantees of workers' and social rights, right to privacy for users of smart grids etc. The list is far from finished – new ideas may arise only along with an in-depth, open discussion. Both in ecological and social policies the Polish government will only give us what we will fight hard for. Together, we may achieve more.

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Patrick Verley

Damien Demailly

The aspirations of the green industrial revolution: a historical perspective

The Green Industrial Revolution is clearly a positive and inspiring story, but there is room for doubting the ability of green technologies to stimulate a new wave of growth comparable to the industrial revolutions of the nineteenth and twentieth centuries. The technologies that have shaped history didn't just allow business as usual at a lower cost, but they enabled things to be done in a completely different way. One may doubt the ability of current green technologies to pave the way for such a reorganisation. The hope for a green industrial revolution and a new wave of growth is then based on technological breakthroughs and innovations of a different nature, such as the functionality economy.

While local and global environmental challenges are continuing to grow, many industrialised countries have been facing lower productivity gains since the end of the period of high growth in the 1960s, along with a serious economic crisis in recent years. In this context, many advocates of an increase in environmental protection emphasise the positive economic effects of the measures they propose. Authors such as Jeremy Rifkin and Nicholas Stern even predict a new industrial revolution with a strong ecological content, based on green technology and which we refer to herein as the 'green industrial revolution' (GIR). Making reference to the history of the industrial revolution in the nineteenth and twentieth centuries, these authors, raise hopes – voluntarily or not – for a burst of economic activity that will last for several decades and will generate a new wave of productivity gains and therefore growth, 'comparable, or superior, to those generated by the introduction of the steam engine, railways, electricity or information technology'.

The promise of the GIR is not to protect the economy and its growth potential from resource scarcity and environmental degradation, but to trigger a new wave of growth that will get industrialised countries out of their current low growth situation. Under what conditions would this new wave of green growth be credible? Is the GIR anything other than a positive and inspiring story, which focuses on opportunities rather than on the dangers of environmental degradation?

We have addressed this question through the adoption of a historical perspective, an approach motivated by the fact that GIR proponents directly or indirectly invoke history to support their narrative of a new wave of growth driven by green technology.

1. Technologies that have left their marks on industrial revolutions

The history of the industrial revolution is much richer than that of technology: it is accompanied by drastic changes in the organisation of work and business, of social compromise, or of consumers' behaviour. Like GIR promoters, we nevertheless focus here solely on the role of technologies. Can green technologies induce productivity gains comparable to the mechanisation of the textile industry or to the dissemination of innovations such as the steam engine, electricity, the steel industry, the combustion engine, synthetic chemistry, telegraphy or telephony?

1.1. Productivity gains

Firstly, although fairly evident, it is worth remembering that the great innovations of the past have led to increased productivity, i.e. to the provision of goods or services at a much lower cost than previously possible through other techniques. The fundamental innovation at the origin of such advances was not necessarily intended to deliver the eventual outcome (the examples of the transistor and the laser are emblematic in this regard). At its 'beginnings', a new technology may rely on non-cost benefits to create a niche market, such as electric lighting, which was readily taken up by high-end

The technologies that have made history have not only lowered the price of certain goods or services, but have also – often – opened the door to economic reorganisations that have generated significant productivity gains.

department stores due to the luxurious image it conveyed. Technology must gradually generate significant productivity gains if it is to extend beyond its niche and have a lasting impact on its areas of application. How do technologies that influence economic history generate productivity gains? This can be in a fairly simple and direct way, such as for example the of the textile industry that increased worker productivity within a few decades and brought down the price of yarn and fabrics.

The 'major technologies' have, more indirectly, opened the door to profound economic reorganisation. The steam engine for example, through the substitution of hydropower derived from water courses, not only provided a cheaper energy source, it also made possible the geographical concentration of factories and allowed them to be located nearer to primary resources and/or to places of consumption. The advent of electricity meant that the link between the energy source and industrial locations could be extended even further, and the electric motor opened the door to a reorganisation and greater efficiency within factories.

Finally, as regards 'reorganisation', we must not forget to mention the role of network technologies, i.e. technologies to transport goods or information: vehicles and roads, trains and railways, telegraph, telephone and now the new tools of information and communications technology (ICT).

Railways have enabled the expansion of markets, the exploitation of economies of scale and comparative advantage, of territories, etc. Similarly, information and communications technologies, new or not, have facilitated international trade, just-in-time production, coordination within networked companies and of very large companies. Reorganisations are not always deep, and the border between 'direct' and 'indirect' productivity gains is very indistinct.

But it should be noted that the technologies that have made history have not only lowered the price of certain goods or services, but have also – often – opened the door to economic reorganisations that have generated significant productivity gains.

1.2. The potential market

The technologies that have shaped history have had an impact in the major sectors of final or intermediate consumption. Fabric, for clothing and furniture, was traditionally an important part of most household budgets, typically constituting the second highest sector of expenditure after food with a share of 12% to 16% throughout the nineteenth century. The decline in the price of fabrics, a product with a high price elasticity of demand, has consistently expanded the market for this product in terms of volume – socially and spatially across the world. It was only later that a tendency towards market saturation became apparent. The first industrialisation was led by textiles, which accounted for about one third of industrial production.

Obviously, a consumption sector can represent a small share of household expenditure and yet be

the engine of an 'industrial revolution'. The railway and automotive industries stimulated, or even created, their own market, uncovering needs that contemporaries had not identified. The promoters of railways expected to greatly reduce the cost of transporting goods and therefore stimulate trade; they had no idea that the demand for travel would grow exponentially. For example, in the early nineteenth century, a French Minister, Adolphe Thiers, joked about the influx of Parisians wanting to make the train journey between Paris and Saint Germain, declaring it to be a toy that Parisians would quickly tire of.

The key technologies in economic history have also impacted on intermediate consumption. In this category belong the steam engine, the train, synthetic chemistry, metallurgy, electricity and ICT. All these technologies have had wide-ranging impacts across many sectors to varying degrees. Transport networks of goods and information concern all sectors. The steam engine, which was first applied in the coal mines, went on to revolutionise transport and became integrated into factories.

In summary, while their non-cost benefits enabled them to develop initially in specific niches, technologies that have had an impact on history have mainly spread through the generation of significant, direct or indirect, productivity gains. They have touched upon major sectors of consumption or have spread to the whole economy.

2. Comparing green technologies to the major innovations of yesterday

Do green technologies correspond to the same 'profile' as major innovations of economic history? Let us begin by discussing the size of the potential market.

2.1. The potential market for green technologies

The steam engine changed utterly the shape of our economy, but can renewables have a similar impact?

The market for green technologies is booming. The market for renewable energy reached $260 billion in 2011 (Bloomberg, 2012), twice as much as in 2007. Admittedly, this represents only 15% to 30% of investments in the energy market, and between 0.5% and 2.5% of total investments. However, the aforementioned technological revolutions were initially related to consumption niches and segments of industry, traditional technologies and sectors remaining dominant over a long period in quantitative terms. In the infancy of the steam engine, its low energy productivity and the pumping

Whether countries decouple their energy consumption from GDP or not, in relative or absolute terms, it is a safe bet that our societies will continue to need 'energy services' at least as much as they do today.

nature of its movement (rather than a rotary movement) restricted its use to the removal of water from coal mines. Around eight decades elapsed between Newcomen's patents (1710-1712) and the steam engine's escape from this economic 'niche'. It is therefore difficult to draw conclusions from the size of the current market for green technologies.

But what can we say about their potential market? From the perspective of intermediate consumption, green technologies can be considered as generic. All sectors consume energy for their heating or mobility needs, and some more than others, such as transport, agriculture and manufacturing. In macroeconomic terms, energy costs in the United States are of the order of 8% of GDP, with levels of around 10% or greater during oil peaks (EIA).

The size of the potential market for green technologies is therefore substantial – comparable to fabric in the nineteenth century – and the outlook is anything but bleak. Whether countries decouple their energy consumption from GDP or not, in relative or absolute terms, it is a safe bet that our societies will continue to need 'energy services' at least as much as they do today. Whether the heating of houses becomes more ecological, or is replaced by improved insulation, there remains a large market for green technologies.

Authors within the ecological economics movement emphasise that the role of energy in the functioning of the economy is underestimated (e.g. Ayres and Warr, 2009). Living standards and energy consumption are closely linked: without energy, there is no food, no mobility, no heating, no industrial processing and no computers. We can compare this observation to the work of certain historians that consider energy to be at the heart of industrial revolutions. Thus, for R.J. Forbes (1958), the invention of the steam engine in the eighteenth century is the central feature of the industrial revolution, followed by the introduction of new driving forces: the hydraulic turbine, the combustion engine and the steam turbine in the nineteenth century, followed by the gas turbine in the twentieth. For Wrigley (1988), it is the emergence of energy sources and raw materials independent from land production and the mineral-based energy economy which is at the heart of the industrial revolution. While these works do not receive unanimous acceptance among historians, no more than those of ecological economics receive from economists, we can however draw from this analysis the conclusion that green technologies seem to fulfil the criterion of 'market size', making it a potential successor to the steam engine.

2.2. 'Direct' productivity gains

However it remains necessary for green technology to be able to generate productivity gains. It is obviously very difficult to make projections of the costs of green technologies over ten, twenty or thirty years. Given the present state of knowledge and by limiting ourselves to technologies that are at the heart of energy transition today, we must be cautious. The costs of renewable energies and electric vehicles are decreasing, and some hope that the renewable mix will be competitive in the short or medium-terms compared to fossil fuels and conventional internal

If we limit ourselves to green technologies that are already available and growing, we can therefore be sceptical about the potential of growth through 'direct' productivity gains.

combustion engines, even when taking into account the necessary changes to various networks. But even for green tech promoters (Fraunhofer, 2012), it is difficult to imagine a drastic drop in the price of energy or mobility compared to the current situation.

In the future, energy is likely to become more expensive rather than the opposite. Surely energy-saving technologies would be able to soften or even counteract this trend, but the role of energy transition and green technologies seems to be to protect the global economy from oil shocks rather than to drive down the price of energy. If we limit ourselves to green technologies that are already available and growing, we can therefore be sceptical about the potential of growth through 'direct' productivity gains. Can they induce a profound reorganisation of the economy?

3. Must we be deterministic in order to be optimistic?

Green technologies can profoundly transform the way energy is produced. Instead of a centralised energy system we can imagine one that is completely decentralised, where every consumer and every industrial site is a producer of energy. The question we ask here is whether green technologies can induce a deeper change in the consumer sectors and the rest of the economy, as did the steam engine, electricity and transport networks. Stern (2012) is not explicit on this point; the heart of his analysis is based on the addition of green technologies to the current technological revolution identified by Perez (2002). The latter, in the Schumpeterian tradition, considers the emergence of a new wave of growth thanks to a new technological 'constellation' which strongly 'interacts' with the organisation of the economy.

For Perez this new constellation is based primarily on ICT. Green growth is a direction for the deployment of the information revolution; it is not a revolution in itself.

J. Rifkin displays a strong technological determinism, making the assumption that energy technology determines not only the organisation of consumer sectors, but more generally the economy and society. As fossil fuels were centralised, they would have led to major vertical businesses and to the Taylorisation of factories as well as schools. As he sees renewable energies as decentralised, they would then lead to a distributed, lateralised economy.

There is a great temptation to regard the nineteenth century phenomenon of the concentration of workers into factories on a growing scale and on an increasingly hierarchical basis as the logical consequence of mechanisation and the use of 'centralised' energy sources. It is indeed machinery and a concentration of economic activity that have been the most striking impacts experienced by the people that lived through the beginning of the industrial revolution. Yet the process of concentration has very different origins, starting with the willingness of entrepreneurs to specialise and, in particular, to have better control over their workers (to monitor the quality of work, to have control over working time, for the protection of trade secrets, etc.). Decentralised proto-industry had already started to decline before the steam engine

began to transform industry. While the concentration of economic activity continued after the adoption of electricity, even though it carried the promise of the revitalisation of trades and home production in rural areas – which were in decline but regarded with nostalgia since they helped to ensure social order. Historically, technological developments have been accompanied by a substantial reorganisation of the economy and society. The existence and direction of causal links, and whether their characteristics were unique and mechanical or imprecise and conditional, is a debate that divides historians. Unlike Rifkin, our analysis is that technologies do not determine the organisation of the economy, but open doors to its reorganisation; the path to be taken is as much a matter of political and economic power relations. By 'opening doors' technology is not neutral. While no one is forced to enter through an open door, it is however very attractive and it is not clear whether we can ever go back.

Without prejudging the future outcome of such power relations, we ask the question: which doors do green technologies open? Without starting from the assumption that the economy is organised according to its energy system, through which process can green technologies influence consumers and other sectors of the economy?

Following the logic of Rifkin, let us imagine a completely different organisation of energy production, with a boom in the development of renewables and the domination of electric vehicles. Electricity would no longer be produced in large power plants, each building would be a source of energy, and the use of a smart grid would facilitate electricity exchanges. This decentralised scenario is possible, as is a centralised renewable scenario. How does it transform the organisation of the production of other goods and services in the economy?

Renewable energies transform energy production but do not provide a new energy vector. Surely the electric grid would become smarter, but ultimately it is always about a 'switch' that is turned on or off, in a factory or a building. Who can differentiate between an electron derived from a coal plant or one from a solar panel, between an electron transported by an old electric grid or one carried by a super-smart grid? What difference does it make to the consumer? Electrons may be 'green' instead of 'brow', but they are still electrons. The same is true for the electric car: it is a car with a different engine, which we may refer to as green, but it remains a car that will be driven on the same roads as today and will be used in the same way.

The reorganisation enabled by green technologies already seems to have been 'exploited' by the twentieth century diffusion of electricity, automobiles and their respective networks. We can therefore remain sceptical about the potential indirect productivity gains of such technologies. Economic organisation is certainly likely to change in the coming decades, especially with the spread of ICT that will open doors, but it is difficult to see green technology as having a leading role in this transformation.

4. Do we need green technology to reorganise the economy?

Technology does not seem to open the door to profound reorganisations of the economy, except possibly within the energy sector. As we have seen above, history has been marked by reorganisations that were autonomous in relation to technological developments, along the lines of the Taylorisation of work.

Let's take the example of car sharing, or more generally the collective use of private cars. It should be noted that this can be achieved using electric vehicles, such as the AutoLib' in Paris, but it can also be done with conventional cars. Car sharing is only one example of what we usually call the functionality economy. The functionality economy is a new economic organisation which - in a very broad definition - considers usage to be more important than ownership and favours service providers over the producers of goods. Thus, rather than buying a car – electric or not – a consumer can buy a mobility service: the right vehicle to suit a particular requirement can be accessed as needed. Such a system can be extended to a large quantity of goods, from household appliances to photocopiers, through carpets and industrial solvents. Such a system is supposed to be resource-efficient because the goods are likely to be more durable, better maintained, repaired, recycled and/or fewer in number.

Can this 'green' economic reorganisation sustain the hope of a GIR by generating major productivity gains? The current economic system leads to the production of goods that rapidly become obsolete, and to the possession of underused goods: a car costs around 6,000 euros per year, all expenses included, and spends 95% of its time in a car park. The functionality economy, by organising the collective use of individual goods, enables the division of these costs and the realisation of productivity gains that are potentially immense.

5. Conclusion

The academic literature is full of arguments in favour of a compatibility between growth and environmental protection, which are grouped under the term 'green growth'. The strongest of these arguments remains that of environmental damages that must be avoided, particularly the impact of abrupt climate change, 'tipping points', or future energy shocks, therefore environmental protection is a necessity. Can we go further and, as GIR proposes, hope for a real growth 'wave' that lasts several decades as a result of new green technologies?

We have seen that the hope for a GIR is fragile if we consider the green technologies that are at the heart of today's energy transition. This is because they concern only a small part of the economy, but also due to the doubts over their ability to generate significant productivity gains: directly, by lowering the price of energy or mobility; or indirectly by opening the door to profound economic reorganisation.

Technologies that have shaped history have enabled such reorganisations, such as electricity, and supporters of the GIR must specify how green

technologies can do the same. Surely the energy system can evolve dramatically with the emergence of renewable energy, electric vehicles and the development of smart grids, and it can shift from a centralised system to one that is completely decentralised. But how could the rest of the economy be encouraged to reorganise itself? If we do not want to give in to technological determinism, then it is clear that green technologies will not deliver an obvious reorganisation.

To realise the hopes of a new wave of green growth, we must rely on major breakthroughs in green technologies or in green and 'techno-autonomous' economic reorganisations.

If the expansion of knowledge is at the heart of the industrial revolution (Mokyr, 2002), then we can anticipate technological breakthroughs. These would include the development of nanobatteries, biofuel production by novel bacteria or from algae, cement that captures CO_2 and all the technologies promised by Biomimicry: why not produce hydrogen in a process that draws inspiration from photosynthesis? Why not imitate marine sponges in their ability to build their silicon skeletons at 4°C? Such breakthroughs remain hypothetical. The functionality economy and more generally the circular economy are green reorganisations that do not necessarily imply new green technologies but still contain the potential for significant productivity gains.

However, surprises are always possible, whether technological or organisational. After all, those who lived during the previous industrial revolutions were not aware of the transformations underway and of what they would bring in terms of living standards. The best approach therefore is to achieve green technological and organisational transformation, to avoid environmental degradation – and its impacts, whether economic or otherwise. Whether this will lead to a new wave of growth will be left for history to decide.

The GIR is clearly a positive and inspiring story, but there is room for doubt on the ability of green technologies to stimulate a new wave of growth comparable to the industrial revolutions of the nineteenth and twentieth centuries. We must be aware that unfulfilled aspirations can lead to major steps backwards.

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Natalie Bennett

Reinhard Bütikofer

Towards a Green renaissance of European industry

Green industrialisation is not only about developing green jobs in some well delimitated sectors. It is about transforming and reinvigorating the whole European industry. True, the future competitiveness for European industry will be built on sustainability. But how much re-localisation and globalisation will this imply? A debate between Natalie Bennett, leader of the Green Party of England and Wales, and Reinhard Bütikofer, MEP and co-chair of the European Green Party.

GEJ: In 2009 the Greens were really successful with the Green New Deal as a concrete answer to the economic crisis. Four years later, this story seems slightly less attractive. A possible explanation is that we were maybe not clear enough on the kind of social relations induced by the Green New Deal and the way we wanted to finance it. Do you share this analysis?

NB: To start off with the Green New Deal was the right approach around the time of the last European election and we certainly need to continue to talk about 'green jobs'. In the British context we need to do a vast amount in terms of insulating homes, investing in renewable energy, investing in public transport and indeed in essential public services. But in 2013, we also need to have a much bigger transformation of the way the whole economy works. This is particularly extreme in the UK because we have an economy that is even more exposed than most of the rest of Europe to the global economy. In terms of food and manufacturing, for example, we rely very heavily on imports. So the next step is to recognise that globalisation has hit the buffers, both economically and environmentally and that we need to re-localise our economies. In my context, that means bringing manufacturing and food production back to Britain and creating strong local economies in which the money goes round and round locally. In terms of the social structure, it means an economy built around small business and cooperatives. It is an economy where the multinationals do not reign over everything and a society in which inequality is dramatically reduced.

Holding on to the Green New Deal

GEJ: Reinhard, do you agree and hopefully not or we don't have a debate?

RB: Look, I always love to pick an argument, but let me start by saying that I strongly believe that we should stick to the Green New Deal paradigm. The three different dimensions which we set out to promote under this policy, namely, macroeconomic reregulation; social inclusiveness and a new development for the real economy, are still pertinent. However, I would hold that we have made some progress and we should show that in the upcoming European elections, with regard to how we deal with industry as such. A lot of work has been done by Greens – more than in the past – to really sit down with industrial actors and to come up with new ideas regarding the real economy i.e. manufacturing, or what we call in Germany 'Industrie'. There is a different usage of the word in the UK.

NB: Indeed.

RB: There is a dual task of reinvigorating industry and at the same time changing the growth paradigm. This is not a simple task, but we have to deal with both at the same time. I see a window of political opportunity in discussing industrial policy for a couple of reasons; 1) The crisis has demonstrated that in some of the member countries of the EU where policy makers have been able to hold on to manufacturing sectors of the economy better than in others the ability to get safely through the crisis has been stronger. 2) Europe finds itself confronted with increasing

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Reinhard Bütikofer

competition by newly emerging industrial powers. We used to speak about threshold economies. But this no longer is an adequate description. They are newly emerging industrial powers and they do apply strong industrial policies of their own. So Europe has to step up to the plate and acknowledge: we have to develop a common industrial policy, too. It has been very important for us Greens to stay away from a false definition of what a green economy would be or what green jobs would be. Green jobs are not just jobs in rehabilitating our housing stock or building windmills or putting solar panels on the roofs. Green industry isn't just renewables and LED lights. Any industry has the potential to transform into a green industry if it changes its energy source away from nuclear and fossil fuels, and improves its resource and energy efficiency through continual innovation and R&D. For example, the chemical sector – a traditional industry with which we Greens have fought many battles – could become a green industry by moving away from petroleum-based production towards sustainable bio-based feedstock and recycled materials. And we also have to confront the rebound-effect and the need to move away from our GDP-centric, quantitative growth models and instead move towards qualitative growth or green growth.

A mix of globalisation and localisation

NB: I entirely agree: every industry needs to be a green industry. The phone industry is a good example for this. I was horrified recently in London to see adverts like 'You can change your phone whenever you like'. We need to make things to last. This doesn't mean you can't upgrade your phone every six months by downloading some new software. Therefore we need to move towards a different kind of structure where things are made to last. It's worth remembering that historically this isn't an unusual or new thing. When they got married my grandparents bought a suite of furniture for their house and they were expecting to pass that suite of furniture on to their children. But one of the points we differ on is the issue of re-localising. For me, globalisation clearly has hits its limits. China really starts to focus on developing its own internal markets and developing a much more localised economy. There is a term appearing increasingly in the Financial Times, 're-shoring', the opposite of off-shoring. It is also happening in my country: my favourite example, although it is not a very green example, is the pot noodles, a plastic bowl with some instant noodles in it and you pour boiling water on it and you have a meal, where the production of one brand moved back from China to Britain, not for environmental reasons but financial ones.

NB: But re-localising is going to happen, regardless of any policy decisions. Wages are rising very fast in the newly industrialising countries, and transport costs have soared and in the era of Peak Oil will not come down. And there's an increasing recognition in the business community that long fragile global supply chains are not really secure. Globalisation has hit its limits and we're seeing a natural reshaping as a result of that – what we have to do is encourage and develop that tendency.

RB: I do not agree with the prediction that globalisation has run into the wall and has to be rewinded. I do see the reality of re-shoring in the US. But it is happening for reasons that as environmentalists we deplore. Some of it is happening because they have extremely low energy prices due to shale gas. Re-shoring is by far not an equivalent to localising or re-localising. And for China it is a bit difficult to talk about localisation because they are building major industrial conglomerates that are not very local. If I may use the example of the renewables industry, I would argue that an over emphasis on localisation could even run counter to environmental goals, because it would undermine and limit the efficiency of the transition. We have some experience in Germany with promoting the renewable sector. We have come to the conclusion that we need a good mix of decentralised local energy production and a fair integration with a pan-European grid. Without this large scale integration the volatility of the energy generation depending on whether the wind blows or whether the sun shines would necessitate the building of huge back up capacities, – fossil back up capacities. Whereas, if we have a well-integrated grid and rely on the ability to transport energy generated let us say along the Scottish or the Spanish Atlantic coast into the pan-European grid, that would help us creating efficiencies in combination with the decentralised energy. This is for me a good example of a fair balance between players on different levels. Small companies, SMEs, family owned businesses are very important and I do agree with putting an emphasis on local or regional value chains. Where we can, we should preserve them or re-establish them.

GEJ: But are they really able to export goods beyond Europe?

RB: Look at the most successful SME in Germany, a lot of them are known as the so-called hidden champions – small family owned businesses, headquartered in villages – that have a share of 30, 40, 50 per cent of the global market in a very small niche. Their particular strength and their contribution to the local and regional economy depends on their interwovenness with the global market and if they were to be cut off of, immediately that successful economy would completely crumble. So I think it's the balance that we have to promote.

NB: I would not disagree with that at all. I'm not talking about autarky or anything like that, but about making goods at the appropriate level of localisation. My focus is particularly on the basic essentials, food, clothing, furniture, building supplies…
At the other level, for example for some complex medical machinery, there might be one factory in the world that makes it. In terms of energy, I entirely agree with the need for the pan-European grid. But in Britain what we have a lot at the moment is a multinational company – very often a French multinational company – coming in and saying to the people in a village 'We're going to build a wind farm on your hill' and people in the village aren't going to benefit at all and understandably they get upset

about it and there's huge protests. Whereas if you have that wind farm on the hill owned by the village there's a whole different reaction.

RB: That's exactly the same in Germany. But you can entertain good hopes because in Bavaria – which is not the most progressive of all the German states – this philosophy has been adopted fully, even by the CSU grassroots.

How do we finance the green industrialisation?

RB: I think in the short term this is probably the most important hurdle for reindustrialising some of our regions in Europe. Many businesses do not have access to finance.

NB: Yes. In Britain we have an extremely dysfunctional financial sector that's focused on speculation and not on the real economy at all.

GEJ: And do you think that this financial sector can be re-orientated in order to finance all the sectors you mentioned, re-shoring of food, clothing, furniture, industry, is it possible or is it complete utopia?
NB: Well I think one of the things we have to tackle first is the political influence of the financial industries, which are particularly relevant to the Westminster situation. There is increasing public disquiet on this.

RB: We should be realistic in reckoning that the deleveraging in the banking sector that we've seen recently is going to continue. If we want to make our banks safer they have to underpin their lending with more capital which limits their ability to lend. So certainly there's going to be a problem. Some business lobby organisations have even advocated stopping the process of reforming our banking sector in order to make sure there would be enough lending to SMEs. In Germany we do not have a credit crunch. But in a couple other European countries like in the South it really exists. And if they do get access to a loan at all they will pay an interest rate that exceeds the German rate for a similar company by two, three, four per cent maybe. It is obviously pretty hard under such circumstances to restart the real economy. Therefore we have to come up with a couple of new instruments. In a very small segment for instance the crowdfunding strategy that has been successful for different project financing strategies in the US could be a part.

GEJ: For Green industrialisation?

RB: Look, you have a small carpenter or you have a trade in your neighbourhood and they want to invest in energy efficiency, they don't have the money to finance the up-front investment and they are asking their neighbours to crowd finance.

This is really happening and it's working. Mosaic, for example, is a unique crowdfunding platform that allows people to invest in solar power. Of course there has to be regulation to make sure the investment is protected, but these are strategies where we have to apply new thinking. Another element could be structured covered bonds supported with SME assets. There have been projects where for instance public infrastructure banks

Another form of re-shoring is trying to catch that capital and bring it back into a place where it's useful and available to small businesses and cooperatives.

Natalie Bennett

teamed up with private sector banks. The private sector banks refinance themselves selling on these SME bond packages and the public sector banks pledged to take up some of the bond emission while the private sector bank pledged to increase its SME lending. This is really important and we have to show to the actors in the business community that Greens are willing to deal with these issues.

NB: We have to focus on the fact that we can't afford another crash. We have not yet done anything like enough to insulate ourselves against another 2007/8. Before we get to industrial policy we have to get to the point where we don't crash the global economy again… That's where things like the financial transaction tax and fight against tax havens are so important.

GEJ: That's for the next edition of the journal!

NB: Another form of re-shoring is trying to catch that capital and bring it back into a place where it's useful and available to small businesses and cooperatives. There's plenty of money being lent out in entirely the wrong directions. In the Green Party of England and Wales we're very much focused on the fact that Britain effectively has two nationalised banks and they should be investing to actually support an industrial policy.

The role of the European Union

GEJ: I want to come back to the discussion with the industrial sector today, which is and will remain a huge part of the European economy. What are the ways of dialogue with these sectors in order to completely transform them and how is the European Union able to do that?

RB: The European Union has limited competency with regard to industrial policy. Basically we are what Hollywood would call 'best supporting character'. The main actor is still the nation state. But Europe can frame the discussion. My contribution is trying to convince people that future competitiveness for European industry has to be built on the basis of sustainability. So in the industrial policy report in my parliamentary committee I created the acronym RISE or 'Renaissance of Industry for a Sustainable Europe'. It resonates with a lot of industrial actors, but runs into stiff opposition from a lot of lobbying

organisations. We have a few friends, strong opponents and most importantly a vast majority of interlocutors that could be won over. Of course if we're not preaching to the choir we have to use a language and a rationale that resonates with our audience. So, if I try to convince a company that they should invest in resource efficiency and they object to that because of the economic crisis they can invest at best if they have a return on investment within two years, then maybe we have to find an insurance mechanism to help them facilitate more long term investment. Of an average industrial product 2-5% of the cost is energy, 15-20% of the cost is labour, 40-50% of the cost is raw materials. Obviously, it would pay to pursue a raw materials and resource efficiency strategy. But unfortunately the European Union has been slow in acknowledging this. We have energy efficiency goals, but we do not have resource efficiency goals. The German material efficiency agency in Berlin calculated that if the best available resource efficiency technologies would be applied by German industry, it would save 100€ billion a year in production costs!

NB: We also have to look at ensuring that the shelf price of products reflect the actual, real cost of the products. To get to that point eventually, we probably need to change the value added tax away from being a simple gross figure towards one that rises or falls according to the environmental and social costs of products. It would allow 'good companies' compete with those not doing the right thing by the environment or society. The company that is trading fairly with the developing world, that is investing in environmental sustainability and human resources, too often is still disadvantaged in trying to compete against the company that's cutting every corner that it possibly can and doing all sorts of uncounted damage to the environment and society.

The TTIP should phase out the fossil fuel subsidies

RB: I completely agree with that. But we see presently that the emissions trading system which was originally invented to deal exactly with that problem is being destroyed. It will be very hard to offset the negative impact of the low CO_2 price in the European market by positively motivating industrial policy. If we cannot set the basic competition rules right and if we keep subsidising emissions and fossil industries then it is very hard to see how a positive development could take off. The negotiations about the 'Transatlantic Trade and Investment Partnership' (TTIP) could offer an interesting opportunity in this context, because the G20 countries have agreed years ago to phase out fossil subsidies. Why couldn't the US and the Europeans – representing 50% of global trade – come up with a common agenda of phasing out fossil subsidies just like the WTO did in the past with phasing out some agricultural subsidies step by step. That would be a great achievement in promoting green industry.

GEJ: The problem is that people do not consider the subsidies to fossil fuels as real subsidies.

The other argument was the anti-oligopolies argument. We found that the interwoven character of the energy market, where a few major players basically control everything was standing in the way of the development of energy alternatives.
Reinhard Bütikofer

NB: But this is a struggle that can be done. In Britain we have the fracking debate at the moment. What the government did was basically slash the tax on shale gas. I have been to Balcombe (a village in Sussex opposed to fracking) and listened to members of the Tory party who were there supporting the protest camp. There is actually a political opportunity to win that argument. There is a figure put on global fossil fuel subsides of half a trillion dollars a year.

RB: In Saarland – one of the smaller German states – that has been dependent on the coal industry for a long time, there was a public referendum in which a clear majority of the population voted against opening a new coal fired power plant, because they had had enough of all the negative impacts and of the coal dependency of their state. This is not easy and our good Social Democratic friends are not much of a help in this. But one of the issues that helped us in Germany was again the jobs factor. We demonstrated that the renewable energy industry had a higher jobs potential than the old, dying, coal industry. The other argument was the anti-oligopolies argument. We found that the interwoven character of the energy market, where a few major players basically control everything was standing in the way of the development of energy alternatives. So we were the only party in Germany that supported the European Commission's unbundling strategy. We were pro-market, because we knew that to cut down on the privileges of fossil industries and of the major players would enhance the opportunities for renewable industries. How do we use the market mechanism to really help transforming our economies? This could be a very important discussion, for example between the French and the Germans.

Back to the discussion on eco-taxation

NB: The Green party in England and Wales is leading the way in promoting a levy on major supermarkets. Unfortunately we didn't succeed in winning the argument in Bristol, which is both the most supermarket-dominated city in Britain, and also has a very strong small shop retail sector. The Bristol Greens were proposing a levy reflecting the damage the supermarkets do to the local economy: increasing traffic, low pay and putting very little money back into the local economy. That money would be used to promote local shopping centres. It's rebalancing the competition. We didn't win in Bristol, but we've seen enthusiasm from the small business sector in Yorkshire – it's an argument that has great force.

GEJ: Eco-taxation remains a huge debate for the Greens.

NB: An academic said to me yesterday that instead of talking about eco-taxes we should be talking about damage taxes.

RB: We introduced an eco-tax when we entered the German federal government in 1999. Our experience is that you cannot rely on the positive effects of an eco-tax alone. You cannot raise it to the degree where you would have immediate effects,

because the opposition to that would outbalance any positive effect. So, yes the eco-tax can contribute in setting the market conditions right, in levelling the playing field and internalising some of the external cost, but we need more specific policies on top of that. Sometimes people from the business community say: 'look you're doing these eco tax policies; you're doing the CO_2 market, 'so why do you have specific policies supporting renewables or opposing nuclear, let the market do it'. I do not want to be misunderstood in that regard. Well, fact is without specific support for the nascent industry of renewables it wouldn't have taken off in Germany.

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Government procurement: how the EU is giving away a fundamental industrial policy tool

Chiara Miglioli

Government procurement has long been used to help further public policy goals and European countries such as Italy and France are willing to still use it today to support renewable industries. However, at the European level something quite different is afoot that threatens the ability of procurement to be used to develop industry.

Recent developments in the World Trade Organisation (WTO) have been further challenging the role of GP as a public policy tool and even such controversial developments have generated no debate in the EU.

Amid the protracted economic crisis of the Eurozone and the continuation of austerity policies, it appears very difficult for Member States governments to re-launch national economies and challenge unemployment. Government procurement (GP) is traditionally an instrument of economic policy and, in the present context it has the potential to support the expansion and development of new and innovative sectors as a way to build a sustainable way out of the crisis.

However, the EU clearly lacks a strategic approach to industrial policy and, in spite of the several reforms and initiatives related to GP[1] featuring now on the legislative agenda, there is no political debate on its role as a policy tool. Moreover, recent developments in the World Trade Organisation (WTO) have been further challenging the role of GP as a public policy tool and even such controversial developments have generated no debate in the EU. This article aims to outline the approach of the EU to GP so far and on the conflicting trends at the EU and international levels on the one hand and at national levels on the other. Two clearly distinct policy choices have been emerging: it is therefore high time for the EU to decide which way to go, for the benefit of its economic recovery and future industrial development.

A useful tool

Government procurement (GP) has been, throughout history, a key instrument to steer industrial development and innovation, as well as an economic policy tool to foster demand in times of economic crisis. According to past experience in industrialised countries, GP has long been part of the toolbox of industrialisation strategies; the idea of creating first domestic markets for infant industries via tariffs, regulation, licensing and other measures dominated the post-WW2 development consensus.[2]

More recently however, the neo-liberal conception of GP has gained ground, based on the assumption that any kind of steered industrial development leads to the sub-optimal allocation of resources and to the development of inefficient industrial sectors. Moreover, as GP policy is public spending, the rhetoric of giving the utmost value to taxpayers' money has contributed to de-legitimising the public-policy function of GP. Therefore, the main policy approach today is to think of GP like of any other economic sector where efficiency is maximised by opening up to international competition. Consequently, GP is treated like any other area under international trade rules[3], where such principles as national treatment – whereby all business from outside the country must be treated in the same

1 EU Classical and Utilities Directives are being revised; moreover, the EU has proposed an instrument to regulate access to EU GP for third countries' goods and services (COM(2012) 124 final); also the Government Procurement Agreement (GPA) has been recenlty revised and is now undergoing the ratification process.

2 R. Kattel and V. Lamber, Public Procurement *As An Industrial Policy Tool: An Option for Developing Countries?*, Journal of Public Procurement, Vo. 10, No. 3, pp. 368-404, p. 371.

3 There is also an underlying economic interest to treat trade like any other economic sector in trade policy, this being the fact that in industrialised countries many sectors supply products that are procurable, whereas this is not the case for developing countries where agriculture remains the big chunk of their economy. As a consequence, in industrialised countries there is not enough domestic demand coming from government procurement matching with the potential supply, hence the interest of exporting products onto third countries' procurement markets.

way as a business from inside the country – and non-discrimination apply. The EU seems to have fully endorsed this policy choice: in its legislative proposal for a reciprocity instrument for procurement to regulate access of third countries goods and services[4], for instance, the EU has adopted the principle of GP being open to third countries by default, whereas in other major industrialised countries, such as the US or Japan, closure is the rule and openness the exception. There are therefore two contradicting realities; on the one hand, governments' ability to regulate GP is being tightened by the international rules of the General Agreement on Tariffs and Trade (GATT) or the Government Procurement Agreement (GPA); at the same time however, GP continues to absorb a major proportion of GDP, averaging 20% in most industrialised countries, thus one of the few significant economic policy instruments remaining for national governments in the present context of budgetary constraints.[5]

The liberal revolution hits procurement

When the GATT was negotiated at the end of the 1940s, the parties decided to not include GP[6] as, at the time, this was still part of that post-WW2 consensus putting procurement right at the centre of re-industrialisation policies. There was no will to apply principles such as national treatment and non-discrimination to GP, and national governments were therefore free to apply local content requirements in their procurement policies in order to discriminate in favour of domestic goods and services. In the 1970s however, GATT members agreed to negotiate a new GPA, which would extend the scope of national treatment to GP. This coincided with the shift towards a neo-liberal approach to procurement; the GPA however, did not apply national treatment across the board, but only to those sectors the parties had agreed to commit under the agreement. The EU for instance agreed to commit 85% of its procurement, the broadest commitment among GPA partners, the US committed only 32% and Japan only 25%. Moreover, signatories to the GPA that have a federal structure of the state have generally carved local governmental levels out of the coverage; the US and Canada have for instance excluded States and Provinces from the scope of the GPA. It is important to notice that GPA membership remains limited mainly to industrialised countries. Although China is in the process of negotiating its accession and India has an observer status, so far the GPA has not been able to attract major emerging economies, which generally remain reluctant to open up their national GP to international competition. Brazil for instance has not approached the issue of GPA membership so far and it is not a coincidence that, in emerging

4 COM(2012) 124 final

5 L. Weiss and E. Thurbon, *The business of buying American: public procurement as a trade strategy in the USA*, Review of International Political Economy, December 2006, pp. 701-724, p. 703.

6 GATT Article III.8 explicitely excludes GP from the scope of application of the national treatment principle of the GATT.

economies, GP is still being used as an important instrument for national industrialisation.[7]

The enormous purchasing power of governments has the potential to act as a coherent industrial policy, but international trade rules are undermining this.

Undermining green energy

Notwithstanding the limited scope of the application of national treatment obligations under GPA, this is being broadened through the attempt to reduce the definition of GP, thereby broadening the scope of the application of the GATT, where national treatment applies across the board. The recent WTO dispute settlement case concerning the Canadian Province of Ontario has created a very important precedent in this respect.

The Ontario province of Canada had put in place a feed-in tariff (FIT) system to incentivise the production of renewable energy, based on a local content requirement for equipment used to produce electricity from renewable sources. The measure got challenged by the EU and Japan for alleged incompatibility with GATT, TRIMs[8] and ASCM[9] provisions. This turned out to be a key case because for the first time a WTO Panel was due to interpret Article III:8(a) GATT providing for the exemption from GATT Article III's national treatment rules for measures falling within GP.[10] It then appears that the interpretation of the Panel – but, even more so, of the Appellate Body – have set the precedent for the definition of GP's policy scope under international trade rules.

7 **Brazil** adopted a new national industrialisation plan in 2011 (*'Plano Brasil Maior'*) a package of measures aimed at fostering industrial production. As part of the package, the Government announced that the 25% price preference for domestic products would apply to public purchases in the area of health, defence, communications and high-tech equipment. This preference margin of 25% is amongst the highest ever adopted in the country. This was soon after followed by a *Plano Brasil Maior II*, which included measures for stimulating the national industry through government procurement and on which bases the government will be investing BRL 3.5 billion on medications, pharmaceuticals and biopharmaceuticals in the following 5 years. China adopted in 2012 lists for official government automotive fleet purchases that only featured local Chinese car brands. That catalogue listed 412 domestically produced automotive models exclusively built under local Chinese brands. The government automotive purchases in China were estimated at around 10 % of the auto market (14 million passenger vehicles sold in 2011).

8 WTO Agreement on Trade-related Investment Measures.

9 WTO Agreement on Subsidies and Countervailing Measures.

10 Article III:8(a) GATT reads: 'The provisions of [Article III GATT, i.e. national treatment, hence prohibition of discrimination on the basis of local content requirements] shall not apply to laws, regulations or requirements governing the procurement by governmental agencies of products purchased for governmental purposes and not with a view to commercial resale [...]'.

According to the Canadian authorities, the FIT programme - together with its local content requirements – was pursuing a public policy purpose, since the Ontario Province Agency's purchase of renewable electricity furthered the local government's aim to secure the supply of adequate and reliable electricity from clean sources; and local content would be a necessary requirement in order to reach adequate and reliable supply of clean energy. Moreover, Ontario's authorities were also aiming at creating local jobs through long-term investment in renewable energy-generation facilities with local resources, where local content requirements give a particular incentive to generate. All in all, the local content policy of Ontario was pursuing a clear purpose of economic reconversion and job creation in an innovative sector[11], while also responding – it goes without saying - to the global challenge of climate change.

Whereas the WTO Panel did uphold that Ontario's local content requirements were falling within the scope of Article III.8's exemptions, as being necessary requirements for procurement to take place, the Appellate Body (AB) reversed this interpretation by substantially narrowing down the scope of such exemptions. The AB indeed ruled that Article III.8(a) could not be applied to the case in question, since the product of foreign origin being discriminated against was not in direct competition with the product purchased by the government, which was in that case electricity, hence the incompatibility of local content requirements with Article III GATT. The AB did not consider local content as 'requirements governing the procurement by governmental agencies of products purchases for governmental purposes' as provided for by Article III.8(a); however, according to Ontario's legislation, as well as to the Panel, local content had been interpreted as clearly the requirement for procurement to take place under the FIT programme. It is at least puzzling how the AB completely reversed the interpretation of the Panel.

The AB also provided a very restrictive interpretation of the 'governmental purpose' concept, by ruling that, in the specific case of GATT article III.8, purpose means 'need', meaning that goods and services purchased by governmental authorities must only be consumed directly by them in the framework of their ordinary governmental functions. This definition of governmental purpose provides a clear indication of what GP should be used for by public authorities: while Canada had argued that a governmental purpose could also be a public policy purpose, the AB ruled that a governmental purpose is merely an execution of governmental functions related to functional needs of governmental authorities, without there being a clear linkage to specific public purposes to be pursued. This conclusion fully denies a public policy function for GP.

11 The broader context is also the economic crisis that particularly affected the automotive sectors, which was of particularly relevant size in the province of Ontario.

In spite of the EU's high level of commitment under the GPA and in spite of its pro-activism in initiating the Ontario Case, some EU Member States have recently introduced local content requirements in their legislation to promote renewable energy, with a view to incentivising the transition to clean energy and making progress in meeting EU targets, while at the same time pursuing clear industrial policy purposes. France recently adopted legislation[12] aiming at doubling the yearly volume of electricity produced from solar energy; the plan clearly pursues an industrial policy objective, to relaunch the French photovoltaic sector. It provides for measures to be taken via government procurement and a 5% to 10% higher feed-in tariff is to be applied only to electricity produced from photovoltaic installations that are made in the EU. The main argument of governmental authorities is that without a local content requirement, a huge amount of public money would be spent without benefitting the local economic development. Also Italy recently adopted implementing measures on incentives for the production of electricity from photovoltaic installations[13] also containing local content requirements. The decree precisely lays down which production steps have to be executed in the EU or in the European Economic Area (EEA) in order for photovoltaic components to be considered of EU and EEA origin and for premiums on the feed in tariffs to be granted.

The EU is faced with clearly contradicting policy preferences internally. While, the EU level pursues the choice of full liberalisation of GP and commits to the fundamental principle of national treatment in international instances, Member States often have a clear preference for keeping GP as a tool of industrial policy. Moreover, the fact that the EU continues to support the development of international rules broadening the application of national treatment to GP through jurisprudence, hence in an undemocratic way, cannot remain unnoticed. The EU is giving up the opportunity to repossess GP to pursue its industrial development in a time when this is very much needed and this cannot be ignored by the public debate any longer.

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12 Arrêté du 7 janvier 2013 portant majoration des tarifs de l'électricité produite par certaines installations utilisant l'énergie radiative du soleil telles que visées au 3o de l'article 2 du décret no 2000-1196 du 6 décembre 2000.

13 Decreto 5 Luglio 2012, Attuazione dell'art. 25 del decreto legislativo 3 marzo 2011, n. 28, recante incentivazione della produzione di energia elettrica da impianti solari fotovoltaici (c.d. Quinto Conto Energia).

Cities as Eco-factories of the Future

Dirk Holemans

As the world rapidly continues to urbanise, cities will have to play a progressively greater role in the move towards a low carbon economy. By working towards the creation of a closed circular economy and a slow economy cities could be well placed to lead the transition.

In search of a new economic model

Our society is facing a multiple crises and the challenges are known. Our current economic model of Take-Make-Use-Waste is no longer viable since it exceeds the carrying capacity of the earth and generates more inequality. The European Greens have formulated a Green New Deal (GND) as an integrated answer to the crises at the European and national level. At the same time, economic innovation is more and more connected with creative cities and urban regions. Therefore, the economic revival of Europe could partly be found in a network of European cities and urban regions that, as gathering places of knowledge and innovation, become frontrunners in the field of an ecological economy. The first case study below gives a good idea of what can be done if two creative cities join expertise and ideas.

To develop this *urban GND*, a project was set up between the Green European Foundation and the green foundations of Catalonia and Flanders, Nous Horitzons and Oikos. To initiate a debate, Oikos wrote a discussion paper that explores the scenario of an ecological re-industrialisation of European cities. In what follows, the contours of this vision are briefly described.

The transition: a double movement required

The base line for the scenario is that a transition towards a socio-ecological economy requires a double movement: *If urban economies worldwide develop in an ecological way into circular economies, the global economy can become smaller and greener.* The latter is necessary and desirable: our current global economy consumes too many resources and fossil fuels, a re-localisation of production can generate new employment opportunities. This is especially important for our cities, which are confronted with a structural decline in the number of jobs available for low skilled people. The loss of opportunities for this group can not be seen as separate from other phenomena such as the rise of the extreme right.

This perspective should not be mistaken for a naive argument for 'everything local'. The smart way is to think in different scales: there will still be global trade, high tech companies developing for instance satellite technology will still work in a global market. In contrast, everything that is heavy and carbon-intensive should, if possible, be produced at the most local level. Finally, everything that is light, especially ideas and knowledge, should be shared globally!

If re-industrialisation is the goal, it is important to understand that the industry of the 21st century will be not the same as the mass production model throwaway economy of the 20th century. The latter is out-dated, and the promise of re-industrialisation lies in customised production as part of a circular economy (including new business models with product-service combinations including leasing and sharing).

The changes to the economic system explored in the paper consist of two building blocks. The first is the development of an urban circular economy. Just as crucial is the second: slow economy. Because a circular economy still can be unsustainable if the circles are run through too fast (e.g. recycling metals is very energy intensive and is polluting).

A circular economy in itself is neutral towards social goals and the quest for a better life.

Also, a circular economy in itself is neutral towards social goals and the quest for a better life.

The first building block: the urban closed circle economy

An ecological economy keeps resources within the economic circuit as an answer to resource scarcity and the waste problem. Some things that are presently obvious (e.g. mining for resources, waste incineration) will mostly belong to the past. The closed circle is however only as strong as it weakest part. At least three radical challenges have to be dealt with.

1. Designing closed cycle products: ecodesign

The ecological economy starts with ecodesign, where the impacts are analysed upstream of production as well as downstream. This leads to products that are produced in a sustainable way, last long and with a modular design to easily allow disassembling or replace parts. So instead of throwing your office chair away after first use, there is now a model on the market (Herman Miller) that can be totally disassembled and is 99% recyclable.

2. Cities as the new source of resources: urban mining

Instead of dumping or exporting used products, in a closed cycle the task is to keep all valuable resources that circulate in the city. In this concept of urban mining scarce resources are being reused: from disassembling and reusing to re-melting. As a certain scale is necessary, this can be organised in regional networks of cities that each specialise in specific forms of 'regeneration'. In Belgium, the company Umicore has reinvented itself from a mining company into the world leader in the field of recycling metals (see case 2 below).

3. New urban production: high tech small scale manufactures

With new technologies and business models coming together, such as 3D-printing, smart software and fabrication laboratories, the future can be one of high tech small scale production in micro factories. This allows mass customisation: e.g. a Belgian company that used to have teeth prostheses produced in China because of the high labour costs, re-shored the production by introducing a 3D-production plant. This new way of production offers incredible possibilities for maintenance and repair, as small parts can be made on demand. The Internet and open source software also allows peer-to-peer design and production, where experts from all over the world can collaborate on the design of new products (such as a eco-efficient car: the Wikispeed).

The second building block: the slow economy

Building a closed cycle economy is great, but not enough. Economic cycles can have a big impact on the environment and consume large amounts of energy. Recycling can also sometimes result in lower quality outputs. Therefore, a sustainable economy slows down the circles as much as possible. At the same time, this slow economy integrates the quest for a better and more sustainable way of life in a more equal society. Four elements are crucial here.

1. Buy less (or nothing), and share, swap or give

Buying nothing: it sounds like the worst business

This illustrates that an ecological economy is not just about other production modes and products, but also about sustainable lifestyles and societies sustaining them.

proposal. But things are changing: companies such as Patagonia encourage their customers not to buy something when they don't need it! If we buy products, we can share them: collaborative consumption is on the rise, creating more sustainable lifestyles and making the cycle slower and lighter. This illustrates that an ecological economy is not just about other production modes and products, but also about sustainable lifestyles and societies sustaining them. It comes to citizens considering how to have a good life without being a slave of the throw away consumption society. So, by sharing their cars and tools, they can save money and have a good life with less purchasing power. Maybe they will work a day less in the week, and spend their free time volunteering and acquiring high tech knowledge in a fablab. This gives ways to what could be described as *high tech low budget urbanity.*

2. New business models: The Leasing Society
With the leasing-model, a new relationship between producers and consumers is created. As producers stay owner of the products, there are stimulated to make them more resource-efficient, prolong product life, optimise utilisation and enable easier remanufacturing or recycling. Accurate regulations are however necessary to prevent unintended consequences such as the rebound effect of the rebound-effect and a potential negative social impact. As case 3 shows, the company Xerox had remarkable results by leasing instead of selling their photocopiers.

3. An urban repair network
It sounds obvious, but is the opposite of the current situation: repair broken products. So the challenge for a city is to build the capacity to repair all the products used on its territory. This entails the build up of an urban repair network (as can be found in Vienna). This creates new jobs for technical skilled people (or training unskilled people) and leads to a new relationship with goods.

4. Slowing the circle by speeding up technological innovation: intellectual property rights
It is clear that useful developments like urban mining need a lot of technological innovation, e.g. to melt precious metals out of electronic scrap. Intellectual property rights (IP) can protect the investment costs, but are at the same time a burden for new innovation business and prevents the sharing of knowledge. So new ways for sharing knowledge, such as knowledge cooperatives, could be an innovative way forward.

Jobs for everyone
An urban circular economy offers opportunities for employment, although job losses can occur as well. In the sector of raw materials the main opportunity lies in the processing of already-used resources (urban mining, clothes). In the production industry the market for remanufacturing and refurbishing will increase. For the service sector, product-service combinations can provide extra jobs for lower skilled people, just as is the case for the social economy.

Financing the transition

The market and public finance cannot always meet the needs of financing the transition. Therefore other ways have to be considered. First, the cooperative sector is flourishing again. Cooperatives are financed through subscriptions to capital shares and/or regular contributions by citizens. There are co-operative banks, as well as cooperatives in the fields of renewable energy, housing, agriculture and food.

The internet has created means to fund projects via crowd funding. This is mostly meant for small one-off projects that draw in small donations from large numbers of people. City governments can also mobilise money to finance the transition, by providing cheap loans or creating loan guarantee programs. And big cities could consider issuing their own bonds, so the savings of citizens can be mobilised for building a sustainable economy. One final possibility is the introduction of a complementary or regional currency, as for instance has happened in Bristol, with the 'Bristol Pound'.

Policies for the urban ecological economy

Different political levels can take diverse measures to stimulate the transition. At the national level, a fiscal system that shifts taxes from labour to the use of energy and resources is an important driver. Cities can provide grants and loans, act as an intermediary between local initiatives and lending institutions, and offer city-owned land to cooperatives. As important as money, is providing the infrastructure for urban innovation: shared workspaces, community-owned commercial centres and space for emerging businesses. Also an expert centre for setting up cooperatives can be key for steering economic development in the right direction.

Thinking out of the box

Economy is about satisfying our needs, as we learned in the basic course of economy. This shows that the economy is broader than what happens on the market. So-called *soft-structures* (places of exchange, sharing and solidarity) make sure that a lot of needs in the city are met in a non-classic-economical way. If people from a district start up a 'library for tools', they need less purchasing power to have the equipment they sometimes need at their disposal. The best way to comprehend these ways of organising is with the term *urban commons*. Another example of this, where a lot of needs and skills can be exchanged are systems such as LETS (Local Exchange Trade System). As Wikipedia shows on a global level, open peer-to-peer production may produce unexpected results.

Conclusion; No time to waste

The philosopher Benjamin Barber writes in his recent book *If Mayors Ruled the World*, that cities are moving into policy fields where nations are sabotaging each other. So while international climate talks result in almost no progress, more and more cities are striving to become climate neutral. They can also take the lead and become the place where an ecological economy is part of the urban renaissance of the 21th century.

Case 1 Almere and Prato: a textile recycling connection

September 2012, a letter of intent was signed by the mayors of Prato and Almere to establish an innovative collaboration. Wasted clothing, mostly post-consumer, is collected in the Netherlands from different sources. Then a local firm has the necessary equipment to sort the garments according to type of fibre and colour. Afterwards, the clothing is cut into pieces and pulled through separate toothed cylinders, non-textile parts are removed. The fibres are then tested for composition and hazardous waste before they are pressed into bales and shipped to the spinners in Prato. During the spinning process, the fibres are mixed with other fibres to increase the product quality. The yarn is used by the weaver to make cloth and is later on sent to the retailer as a garment. As Prato is a hometown of fashion, recycled textiles are introduced in the heart of the clothing industry. One of the innovations included is a quality mark in the form of a washing label, which indicates the amount of recycled fibres. The company that provides this uses a track-and-trace system. In this way, a retail chain can order a guaranteed percentage of recycled fibre.

Case 2 Urban mining

In Antwerp the company Umicore has reinvented itself from a century-old mining company into the world leader in the field of recycling metals from cell phones and batteries from electric cars. Cities in this way become the new source for resources (urban mining). Umicore dedicates most of its R&D efforts to clean technologies. They focus on emission control catalysts, materials for rechargeable batteries (to store energy) and photovoltaic's (to generate clean energy), fuel cells (generating energy using hydrogen), and the recovery of scarce metals from end-of-life products such as batteries. Closing the materials loop is a principal part of their business strategy. 'It offers a vital service to many customers and offers us a key competitive advantage.'

Case 3 Leasing: a new way of buying in the city

A smarter use of products is an important step towards a circular economy. Leasing is an example of this. However, the investment can be huge and the existing interest and behaviour of consumers are factors that cannot be ignored. Mud Jeans proves that despite these challenges it is possible for a start up company to be successful. In Amsterdam and Ghent, Mud Jeans started to lease jeans: the customer pays a fixed amount upfront and pays a small amount per month for a jeans made from biological and recycled cotton. Repairs are made for free and after a year you can trade it in again for a new model.

Another example is the product-service system of Xerox, delivering 'document-management services'. The lease includes full-service maintenance and a customer satisfaction guarantee regarding functioning machines. The customer pays a fixed price per copy. After the lease contract ends, Xerox takes the product back to remanufacture it in respective facilities. Xerox then recovers the products' materials, to use it again within used, remanufactured and newly manufactured equipment. For this, Xerox established a product design that allows easy disassembling and thus remanufacturing and

material recovery. The numbers are impressive: half of their revenue is currently generated by renting and leasing, 94 % non-hazardous solid waste is recycled, more than 2.2 million cartridges and containers are returned and 1.3 million pounds of toner are re-used every year.

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Andrea Gandiglio

Industry meets Green Economy: real potential for reconversion

Italy may be in the news for its economic and political uncertainty, but beneath the radar many manufacturing companies are making the necessary conversion to a sustainable and ecological future.

Can Italy be home to an industrial reconversion towards the green economy like we have seen in the most advanced countries, including Germany? Surely the answer is yes, even if two major barriers, namely lack of political will and entrepreneurial foresight continue to exist. How many ruling political parties have the courage to take on tax reform to incentivise the green economy (or more importantly to explain that it's not more taxes but a different distribution of tax burden)? How many entrepreneurs are open-minded enough to see the opportunity in what is commonly perceived as a problem?

Currently in Italy, there are only a handful of medium-large sized companies that have made the jump. One example is **the Mossi & Ghisolfi Group**, a 'family' multinational from Tortona. The company is a leader in PET manufacturing and is beginning to forge its own path – through significant investment in research and development – towards second-generation biofuels or 'green chemistry.' Another promising development is the recent inauguration of the bio-refinery in Crescentino, in the province of Vercelli. It is owned by Beta Renewables, a joint venture of Biochemtex (engineering firm of Mossi & Ghisolfi), the American Fund Texas Pacific Group (TPG), and the Danish Novozymes, a giant of the biotech industry. It's the first in the world to produce bioethanol from non-food biomass.

A concrete factory outside of Milan. Can Italy transform its mighty industry to adapt to the green economy?

Another is the famed compostable bio-plastics manufacturer **Novamont** of Novara. In 2011 it launched **Matrìca**, a joint venture with Polimeri Europe of the Eni group. **Matrìca** targets the progressive transformation of the Porto Torres industrial plant in Sardinia into a green chemical hub for the manufacturing from vegetal raw materials of biochemicals (bio-intermediates, bio-plastics, bio-lubricants and bio-additives). With an investment of 500 million Euros the transformation will take six years.

Finally, there is **T.E.R.N.I. Research** an umbrella group for complementary firms including TERNI Green, TERNI Energia, and GreenLed. It has the ambitious strategy of tapping stock market investors to establish a veritable '**Italian Green Industry Hub**.'

Will they be able to pave the way for other Italian examples? It's hard to say, especially considering the complexity of the current political, economic and social situation.

T.E.R.N.I. Research is becoming a reference in energy and material recycling (transformation of garbage into secondary raw materials), decommissioning, recovery of infrastructure, industrial sites, industrial products, and the development/production of new technologies.

These are all examples of companies that have figured out how to make the most of government assistance (including in finding funding) and to enter international markets. Will they be able to pave the way for other Italian examples? It's hard to say, especially considering the complexity of the current political, economic and social situation. One thing is sure; Italy has ample creativity and entrepreunial know-how. Now all it needs is the right mix of laws and encouragement to release its full potential.

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A sustainable welfare state

Jasper Blom

The welfare state is no longer affordable, we are told from all sides – neither in the Netherlands, nor in Europe as a whole. Cuts must be made in the social services, the argument runs, to rescue the economy. But it doesn't have to be like that. Here is a green vision.

Public debate on the European social model is intense. Under the guise of the solidity of public finances, of the importance of agreements under the Stability and Growth Pact, and of 'retaining the confidence of the financial markets', the on-going financial and economic crisis is being used to push through a policy of fiscal consolidation ('austerity'). Especially in the countries on the periphery of Europe which are supervised by the 'troika' of the ECB, the European Commission and the IMF, provisions for pensions, unemployment and health care are under heavy strain; and at the same time unemployment has risen to historic levels.

Austerity

This acute pressure on the welfare state comes on top of a longer-standing debate about whether the relatively high level of social services in continental Europe is tenable in a globally integrated economy. International competition and capital mobility are seen as curbs on the taxation of labour and capital, and hence on the social services financed by this taxation. Due to the logic behind this 'external pressure', discussion on welfare state reform is framed as a question of austerity. Besides the 'external pressure', internal factors are also hotly debated: are the traditional arrangements of the welfare state compatible with the far-reaching changes taking place in society, in the labour market? Examples of these internal factors are demographic ageing, the increasing participation of women in the workforce, and the rising proportions of workers in flexible employment contracts or self-employment. This issue too is sometimes framed as a question of affordability: 'we don't have the money to keep paying state pensions to the growing mass of retirees. 'But this is too narrow a standpoint, for the discussion ought to be about the outlook on the ideal society of different political parties. What basic principles underlie the reform measures that politicians propose? What views do they hold on the role of the family, on gender equality etc? The present article aims to provide a rough sketch of a welfare state based on green principles, for which I would like to coin the term a Sustainable Welfare State (SWS).

Sensible discussion of an SWS will only be possible, however, once it is clear what external forces are really acting on the welfare state. I will therefore first try to address the question of whether austerity is inevitable in a globally integrated economy. Here is a spoiler: the answer is an unequivocal no. Global economic integration does not have to lead to austerity, just as a full-fledged welfare state is not necessarily detrimental to growth and employment opportunities. Next I will discuss the connection between current social services and the changing society and labour market. I will also discuss the principles that must underlie reform of the welfare state from a Green perspective: room for individual diversity and a laidback society. Together this will provide the contours of a Sustainable Welfare State, for which I will build on the discussion that took place within GroenLinks last summer.

Straitjacket

The economic logic behind external pressure is relatively simple to explain, and at first sight it looks

convincing. Social services are funded by taxation, so an advanced welfare state inevitably means higher taxes. In a world of free trade and high capital mobility, it is attractive to import cheaper goods from countries with a relatively low fiscal burden on production factors, and to outsource manufacturing to those countries. This produces an unsustainable situation for a welfare state: the country must either cut the level of benefits to match the shortfalls in tax income; or pull out of the global economy altogether. The journalist Thomas Friedman called this quandary the 'golden straitjacket' of globalisation. If we are to pluck the fruits of global economic integration, he argues, then government policy options are bound to be severely limited. In reality the situation is more complex, however, as Prof. Brian Burgoon argued earlier this year in his inaugural address to the University of Amsterdam.

First of all, public expenditures on social services have been reasonably stable in industrialised countries since the 1980s, a period of progressive global economic integration. For the OECD countries social expenditures amounted to 15.5 percent of GDP in 1980 and 19.7 percent in 2005. This has several causes, but there is thus no obvious sign of widespread retrenchment of the welfare state. Looking more specifically at the connection between free trade and social expenditure, we may even observe a positive correlation (Burgoon 2013). The reason for this must be sought in politics, which functions as a mediating variable. It is a political choice whether to cut back, or to offer citizens continuing protection in a globalised economy.

Related to this is the question of whether the choice is in fact illusory, considering the supposed negative economic consequences. Doesn't a high level of social services automatically lead to lower growth and higher unemployment? Here too, the facts do not provide an unequivocal answer. Differing socioeconomic models can produce similar economic outcomes. Hall & Soskice (2001; Table 1.1) looked at the period 1985–1997 and calculated that that there was no great difference in per capita income and unemployment in the Anglo-Saxon countries (Liberal Market Economies in the typology of Hall & Soskice) and in continental Europe plus Japan (Coordinated Market Economies). The comprehensive welfare states of continental Europe can thus stand up perfectly well to international competition.

But doesn't the on-going crisis in the European Monetary Union at least make austerity necessary at present? Didn't public finances in continental Europe, and especially in the European periphery, get out of control because of generous social benefits? Not at all. Mark Blyth's recent book Austerity: *The History of a Dangerous Idea* magnificently trashes this notion. The real cause of the crisis in Europe was the implosion of the financial sector. In Ireland, Portugal, Spain and Cyprus, the structural basis of government finances was not problematic. (Greece is the sorry exception here.) Only when the banks collapsed did governments run into fiscal problems. The idea that the European crisis was one of national debt (and hence of excessive government expenditure) simply distracts attention from its real cause, and has the cynical consequence that the cost of rescuing

The main traditional social services are the outcome of compromises made between the classic political families before the greens became a political force.

the banks is shifted onto the recipients of social benefits – precisely during a recession, when social security is a necessity. It would have been better to let automatic stabilisers do their work (i.e. through the fiscal deficit), if necessary with support from the European Union. Furthermore the impact of the bank rescues on the fiscal balances of Member States could have been reduced through forcing the banks' private financiers to share a bigger part of the burden, as has reluctantly been implemented in Cyprus.

Work or retire: how do we get the balance right?

Change

The conclusion must be that external pressure does not have to lead to the slashing of social services. However, there are changes taking place in society that make a reform of European welfare states desirable. I will mention three of them: the ageing population, changing gender patterns and increased flexibility of labour contracts (see also Hemerijck 2013). The ageing population is due to rising life expectancies and fewer children per family. The rising number of elderly people will put pressure on pension systems and will also lead to a further increase in the demand for health care. The second societal change concerns the desirable (but still far from complete) tendency towards the equality of men and women. The labour market participation of women has increased steeply since the 1970s (from roughly 30 percent in the Netherlands in 1970 to roughly 70 percent in 2010). In the process, new ground has been won for self-fulfilment, which is a good thing. This means simultaneously that the sharing of care duties within the family must be renegotiated. The third societal change concerns increased labour market flexibility. The level of dismissal protection began declining as long ago as the mid-1980s in continental Europe (Hemerijck 2013). Figures from Statistics Netherlands show a steep rise in the number of flexible jobs in the Netherlands since the start of the millennium, largely as a result of temporary contracts. (As an aside: this contradicts the idea that more people would be able to find permanent jobs if it were easier to sack them later). A consequence of greater flexibility is thus that people change jobs more often.

Green welfare

Reforms of the social services in response to these societal changes bring with them the additional opportunity to base the welfare state on green principles. The main traditional social services are the outcome of compromises made between the

Reforms ought to lead to a Sustainable Welfare State which not only keeps social services up to scratch but also takes account of the sustainability of economic developments.

classic political families (social democrats, Christian democrats and liberals) before the greens became a political force. It is therefore worth looking critically at the welfare state from the viewpoint of the green political tradition. Reforms ought to lead to a Sustainable Welfare State which not only keeps social services up to scratch but also takes account of the sustainability of economic developments.

From the standpoint of the green political tradition, we can state two important principles: room for individual diversity, and a easygoing society. The former principle means, in this context, having room for a diverse range of lifestyles (for example in an employment relationship, as a volunteer worker or as an informal caregiver) and family structures. To achieve this, the greens traditionally strive for empowerment of the individual in relation to employer, government and collective arrangements. The second principle emphasises that maximising income and material consumption are not the sole keys to happiness, and that a job is not the only way of contributing to society. The industrialised countries are a long way along the curve of diminishing marginal utility from income. Not only does the environmental pressure created by our consumption probably decline when more time is devoted to culture, leisure and spending time with friends and family; it may also contribute to our happiness (as Dunn & Norton 2013 suggests). These two principles for a green reform of the welfare state are mutually complementary and reinforcing. They can form the basis of a coherent social model: the Sustainable Welfare State. In that respect they satisfy the core condition for a successful Hall & Soskice social model, namely institutional complementarity.

Autonomy

Reforms based on these principles seem at first sight perfectly consistent with the actual changes taking place in society. For example, a easygoing society would imply the state aiming for a shorter working week in the labour market. Less time at work makes it easier to share domestic duties better within families, and to provide informal care to the elderly. A shorter working week might also facilitate delayed retirement to cope with the greying population. Furthermore, good child day care facilities give those who have care duties more opportunity to study or do paid or volunteer jobs. This enables them to develop in areas other than those of a parent.

Room for individual diversity means that people gain more autonomy with regard to jobs on the labour market (ranging from 'traditional' fixed contracts to self-employed individuals). Social security benefits should therefore not be based solely on employment: if people contribute to society in some other way (for example volunteer work) they should not be forced onto the labour market. In this manner we can create room for diversity. Giving employees more say in how they spend their time through a legal entitlement to flexible work allows the creation of made-to-measure jobs. Empowerment with regard to power blocks such as the state and industry can mean that employees can more often make their own decisions about social services. A change of job would not mean moving from one collective agreement to another,

if pension accounts are linked to individuals instead of employers. That makes it easier for someone to opt for a different job.

These are just some concrete examples of reforms that would be apt to a Sustainable Welfare State. They are not merely utopian green answers. Now that youth unemployment is rising rapidly due to the crisis, shortening the working week could give young people opportunities to gain work experience, so preventing them from becoming scarred with respect to the labour market. So when greens across Europe think about the future of the welfare state in the face of the crisis, I would suggest them to keep the principles of room for diversity and the easygoing society at the front of their mind and from there develop and propose concrete agendas for reform towards a Sustainable Welfare State.

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Europe of Knowledge: Paradoxes and Challenges

Jana Bacevic

The Bologna process was a step towards creating a "Europe of Knowledge" where ideas and people could travel freely throughout Europe. Yet, this goal is threatened by changes to the structure of the higher education sector and perhaps by the nature of academia itself.

This article originally appeared in the Federation of Young European Greens' 'Youth Emancipation' *publication*

'The Europe of knowledge' is a sentence one can hardly avoid hearing today. It includes the goal of building the European higher education area through the Bologna process; the aim of making mobility a reality for many young (and not only young) people through programs of the European Commission such as Erasmus; and numerous scientific cooperation programmes aimed at boosting research and innovation. The European Commission has committed to assuring that up to 20% young people in the European Union will be academically mobile by 2020.[1] The number of universities, research institutes, think tanks and other organizations whose mission is to generate, spread and apply knowledge seems to be growing by the minute. As information technologies continue to develop, knowledge becomes more readily available to a growing number of individuals across the world. In a certain sense, Europe is today arguably more 'knowledgeable' than it ever was in the past.

And yet, this picture masks deeper tensions below the surface. Repeated students' protests across Europe show that the transformation of European higher education and research entails, as Guy Neave[2] once diplomatically put it, an 'inspiring number of contradictions'. This text will proceed to outline some of these contradictions or, as I prefer to call them, paradoxes, and then point to the main challenges generated by these paradoxes – challenges that will not only have to be answered if the 'Europe of knowledge' is ever to become anything but a catchy slogan, but will also continue to pop up in the long process of transforming it into a political reality for all Europeans.

Paradoxes: Commercialisation, Borders and the Democratic Deficit

Although a 'Europe of knowledge' hints at a shared space where everyone has the same (or similar) access and right to participate in the creation and transmission of knowledge, this is hardly the case. To begin with, Europe is not without borders; some of them are towards the outside, but many are also inside. A number of education and research initiatives distinguish between people and institutions based on whether they are from the EU – despite the fact that 20 out of 47 countries that make up the European Higher Education Area are not EU member states. European integration in higher education and research has maybe simplified, but did not remove obstacles to free circulation of knowledge: for many students, researchers and scholars who are not citizens of the EU, mobility entails lengthy visa procedures, stringent criteria for obtaining residence permits, and reporting requirements that not only resemble surveillance, but also can directly interfere with their learning processes.

1 European Commission. (2010). Europe 2020: A Strategy for Smart, Sustainable and Inclusive Growth. http://ec.europa.eu/europe2020/index_en.htm

2 Neave, G. 2002. (2002) Anything Goes: Or, How the Accommodation of Europe's Universities to European Integration Integrates an Inspiring Number of Contradictions. Tertiary Education and Management, 8 (3). pp. 181-197. ISSN 1358-3883

Another paradox of the Europe of knowledge is that the massification and globalization of higher education have, in many cases, led to the growing construction of knowledge as a commodity – something that can be bought or sold.

Another paradox of the Europe of knowledge is that the massification and globalization of higher education have, in many cases, led to the growing construction of knowledge as a commodity – something that can be bought or sold. The privatisation of education and researched has not only changed the entire ethos related to knowledge production, it also brought very tangible consequences for financing of higher education (with tuition fees becoming at the same time higher and more prominent way of paying for education), access to knowledge (with scholarly publishers increasingly charging exorbitant prices both for access and publishing), and changing working conditions for those in the academia (with short-term and precarious modes of employment becoming more prominent). On a more paradigmatic level, it led to the instrumentalisation of knowledge – its valorisation only or primarily in terms of its contribution to economic growth, and the consequent devaluation of other, more 'traditional' purposes, such as self-awareness, development and intellectual pursuit for its own sake, which some critics associate with the Humboldtian model of university.

Regardless of whether education and research actually ever resembled the Humboldtian ideal of 'disinterested inquiry', today it is certainly very far from being true – for the majority of educational and research institutions, at least. Of course, it makes a lot of sense to argue that education and research should not be separated from the society in the proverbial 'ivory tower'. However, it is highly disputable whether the current mechanisms of accountability, performance measurement and quality assurance have actually led to the democratisation of knowledge. On the one hand, the number of 'stakeholders' who have the opportunity to influence decision-making and policies related to education and research has definitely increased. Besides governments and academic institutions, those who have a say in deciding how higher education will be run now include businesses, international or supranational organisations, think tanks and policy institutes, etc. However, the bureaucratic multiplication of higher education and research governance has not necessarily improved the access that most people have to the processes of knowledge production, nor, for that matter, to its results. To mention two recent examples, the new student movements in Europe based on principles of direct democracy directly point to the limits of 'institutional' student representation, while open access initiatives draw attention to the fact that knowledge is hardly accessible to everyone under the same conditions and terms. This means that many citizens still are (or feel) excluded from discussions and debates concerning the role of knowledge in the society and its uses, thus implying that the 'Europe of

Sociologists of education have shown that one of the main purposes of education – and especially higher education – is to distinguishing between those who have it and those who don't, bestowing the former with higher economic and social status.

knowledge' is a far less inclusive concept than it may at first appear.

It is possible to see these paradoxes and contradictions as inevitable parts of global transformations, and thus accept their consequences as unavoidable. However, this text wants to argue that it is still possible to use knowledge in order to fight for a better world, but that this process entails a number of tough challenges. The ensuing section will outline some of them.

Challenges: Equality and the Conservatism of Academia

Probably the biggest challenge is to ensure that knowledge contributes to the equality of opportunities and chances for everyone. This should not translate into political clichés, or remain limited to policies that try to raise the presence or visibility of underrepresented populations in education and research. Recognizing inequalities is a first step, but changing them is a far more complex endeavour than it may at first appear. Sociologists of education have shown that one of the main purposes of education – and especially higher education – is to distinguishing between those who have it and those who don't, bestowing the former with higher economic and social status. In other words, education reproduces social inequalities not only because it is unfair at the point of entry, but also because it is supposed to create social stratification. Subverting social inequalities in education, thus, can only work if becomes a part of a greater effort to eliminate or minimise inequalities based on class, status, income or power. Similarly, research that is aimed only at economic competitiveness – not to mention military supremacy – can hardly contribute to making a more equal or peaceful world. As long as knowledge remains a medium of power, it will continue to serve the purposes of maintaining the status quo.

This brings us to the key challenge in thinking about knowledge. In theory as well as in practice, knowledge always rests somewhere on the slippery ground between reproduction and innovation. On the one hand, one of the primary tasks of education as the main form of knowledge transmission is to integrate people into the society – e.g. teaching them to read, write and count, as well as to 'fit' within the broader social structure. In this sense, all education is, essentially, conservative: it is focused on preserving human societies, rather than changing them. On the other hand, knowledge is also there to change the world: both in the conventional sense of the development of science and technology, but also in the more challenging sense of awareness of what it means to be human, and what are the implications and consequences – including, but not limited to, the consequences of technological development. The latter task, traditionally entrusted to the social sciences and humanities, is to always doubt, challenge, and 'disrupt' the dominant or accepted modes of thinking.

The balance between these two 'faces' of knowledge is very delicate. In times of scarcity or crisis, the uses of knowledge too easily slip into the confines of reproduction – assuring that human societies

preserve themselves, usually with the power relationships and inequalities intact, and not infrequently at the expense of others, including our own environment. On the other hand, one-sided emphasis on the uses of knowledge for development can obscure the conditions of sustainability, as insights from environmental research and activism have displayed numerous times. The challenge, thus, is in maintaining both of these aspects, while not allowing only one to assume a dominant role.

Conclusion

These paradoxes and challenges are just a fraction of the changes that are now facing higher education and research in Europe. Yet, without knowing what they and their consequences are, action will remain lost in the woods of technical jargon and petty 'turf wars' between different movements, fractions, disciplines and institutions. The higher education and research policies developed in Europe today to a large extent try to smooth over these conflicts and tensions by coating them in a neutral language that promises equality, efficiency and prosperity. Checking and probing the meaning of these terms is a task for the future.

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