



Scottish Environment LINK Economics Group conference

A Sustainable and Low Carbon Scottish Economy: What needs to change and how

28th November, 2016

REPORT

INTRODUCTION

This report summarises notes taken during the above conference. The conference was not recorded and notes were taken by hand, so there will inevitably be gaps. It also provides links to slides used.

CONFERENCE PRESENTATIONS

Matthew Crighton, Friends of the Earth Scotland and Convenor of the LINK Economics Group, welcomed everyone to the conference. He thanked the Royal Society of the Arts and the David Hume Institute for their support in organising this event, explained the context for the day's discussions and Scottish Environment LINK's interest in Economics.

As non-economists talking about the Scottish economy and how it is managed, we can be at a disadvantage. Today we are opening up these discussions to non-economist. *A Sustainable and Low Carbon Economy: What needs to change and how* will not cover everything that needs to change or provide all the answers, but we have very interesting speakers and look forward to hearing their ideas.

LINK has been developing its own capacity to engage with economics as it affects the environment, and to take part in the debate. The economy is very important to our concerns. It is clear that we need to be engaged and articulate an alternative approach. Individually, LINK members are carrying out various aspects of work that relate to the economy: WWF Scotland and Scotland's Way Ahead, the Low Carbon infrastructure task force; SWT and the Natural Capital Forum; LINK itself and its work on the National Performance Framework, its critique of economic policy, and work on the circular economy; FoES's work on a Just Transition, fossil fuel disinvestment and the banking industry. We all have something to say and here are the key points from the narrative that LINK's Economics Group has developed.

The economic system is driving environmental degradation at catastrophic scale and pace.

Runaway climate change is a possibility. The Paris agreement aims to keep temperature rises below 2 degrees. There are doubts that this will be achieved; what is proposed is not enough and the pledges are non-binding. The prospect of a 4 degree rise is terrifying for humanity.

Climate change is not the only planetary limit we are breaking, also biodiversity, nitrogen cycle – see the Oxfam doughnut.

Environmental damage of this kind will cause serious negative economic consequences. Humans and our economy are utterly dependant on the environment. This kind of damage will result in

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serious economic consequences too and even in conventional economic terms, the consequences of not protecting the environment are costly. As Nicolas Sterne said - invest now or pay more later.

Current policy is not effective at limiting damage to the environment. In Scotland we need 3 planets at current rate of consumption. A recent PWC report states that the global economy needs to cut carbon emissions by 5% per year until 2030.

Current policy is not working even on its own terms. Economic growth is not delivering greater wellbeing. There is a lack of correlation between growth and wellbeing borne out by the indicators in the National Performance Framework. Since the 2009 blip in GDP, looking across the NPF indicators some are improving, some are static, some are declining. It is not all bad news - self-assessed general health improved but problem drug use rose. On the environmental indicators, direction is also inconclusive - Carbon footprint was static, there are debates about how biodiversity has been faring, Natural Capital fell but renewable energy production has doubled.

Investment in a low carbon infrastructure now can give us economic and social benefits as well as preventing environmental damage. There is not enough of it - an investment gap exists between what we need and what has been invested so far. We need to be moving faster to close that gap.

Sustainable development and the SDGs offer the framework for the alternative approach. We need to use the framework of sustainable development, the clear hierarchy which sets wellbeing and other measures above economic growth.

GDP only measures the busy-ness of the economy. That is why LINK has been involved in the National Performance Framework roundtable. We are pleased we have started to get our heads around economics, and pleased to be able to contribute to debates with others.

Jamie Cooke, Chief Executive of the Royal Society for the encouragement of Arts, Manufactures and Commerce added what RSA brought to the ambitions of the day. RSA is interested in people and ideas and in changing the world. It is an international organisation with a fellowship of 1,300 in Scotland. It is involved in a very broad range of issues including economic sustainability.

Scotland is a small country, and it is important to have collaborative approaches, to bring people together to share ideas, to have a better chance of making a difference. From RSA's wider work they see the problems. To solve these problems needs new conversations and new thinking. Economics shouldn't be just for economists, no more than politics should be just for politicians. Economics can be difficult for people and organisations to engage in. A key area for RSA now, is a Citizens Economic Council which is getting together randomly selected citizens to look at a future for the economy. We also have an animation by Ha-Joon Chang which is [online](#). Graham Maxton's book is exciting and the proposal within it for a basic citizen income is particularly pertinent. There will be a launch soon of a new national network to drive forward citizen advocacy for a basic citizens income. There is interest from some local authorities in pilot projects within Scotland and it is building momentum across Europe. There is an opportunity for Scotland to be a radical leader in this field. Partnerships and open discussions are among the tools to drive change.

Keynote Address Graham Maxton (Secretary General of the Club of Rome and author) gave his talk via Skype, apologising for not being there in person, due to the extension of the launch of his book, [Reinventing Prosperity](#).

Matthew's introductory points are excellent. The Club of Rome's goal is to take a long term, scientific and holistic perspective to the problems facing humanity. *The Limits to Growth* published in 1972 was a best seller, often criticised for taking a negative approach. It featured 6 positive and 6

negative scenarios for humanity in relation to our ecological footprint. In 1972, the Club of Rome took 5 measures to see how these would develop over 200 years. What is termed Standard Run 3 looks at what would happen if we carried on consuming at 1972's rate. It projected that by 2030-40 the system would collapse through population pressures and decline in natural resources and industrial output would fall away. Reality is playing out exactly as predicted and we are in overshoot and have gone beyond the capacity of the planet to sustain us. Switzerland by a factor of 4, the US by 5 and worldwide by 1.5. If China or India want to live at same standard we have today, we would need 4 planets. We cannot do this for long, we have to move human impact back into balance, otherwise there will be crises and collapse. This has already begun. Usually collapse has its roots decades before the peak and has consequences for decades afterwards. Climate, migration and biodiversity issues are part of our systems coming apart at the seams because of the growth accelerator.

How did we get here? Firstly, it is because of the economic system which became dominant in the 1970's. The extreme form of neoliberal economic growth, which requires us to use more and more resources and more energy, has created the climate change problem. The economic system is directly responsible for climate change, among other problems. We have been under the wrong impression that it achieves a lot. First, we don't need growth to create jobs. Growth come from population increase and improvements in productivity, doing more with less. It is about becoming more efficient, and means reducing the labour force. It reduces employment in the long term. We see this in the OECD. We need a different approach if we want to focus on job creation.

The second thing we wrongly believe is that growth reduces inequality - the trickle-down effect. As Thomas Piketty made clear in his book *Capital in the Twenty-First Century*, wealth flows in an upward direction from poor to rich. Inequality in the rich world is higher than it was before the First World War, it has increased over the last century. The gap between the developing world and Europe is now 3 times more than at the start of the industrial revolution. Growth increases inequality.

Third, neither does growth reduce absolute poverty. World Bank and IMF figures suggesting that poverty has reduced do not take inflation into account properly. Absolute poverty has gone up rather than down, except in China which has taken a different path.

Fourth, that it is not always true that free trade is good, and essential to maintaining economic development and progress. It is a massive disadvantage for the poorer world, keeping it stuck in an under developed mode as they cannot develop their own competitive industries. It has also undermined jobs in the developed world.

By far the biggest issue is climate change, unless we fix that, nothing else matters. The problem is that it is not well understood by most people and/or they don't care. They do not understand the catastrophic consequences for their grandchildren. A rise of 2 degrees takes us back 10 million years with loss of ice shelves, and if we reach 4 degrees, that takes us back more than 40 million years and there would be no ice at all. It is difficult for human life to continue in those conditions.

The changes needed are large and difficult. But to fix the problem is not that expensive. If we spent 1% of GDP per year shifting from dirty to clean energy we could solve climate change in 20 years. It needs political will. Why are we stuck?

There are 5 reasons. One is that our politics are dominated by an industrial corporate system which favours the status quo and business interests. A lot of politicians understand the problem and feel powerless, others do not understand the problem.

The second barrier is vested interests, the 99% and the 1%. The 1% are incredibly well resourced and it will be difficult to change the system without their acceptance.

The third barrier is short termism which is natural for humans as we fear change and uncertainty. It is easier to live with something bad than to make a shift with its attendant uncertainties.

The fourth barrier is timing. The Limits to Growth report in 1972 was too far ahead of its time. We are certainly now much closer to the time when change can be successful. We are not there yet, timing is key and the closer we get timewise, the greater the chances.

The fifth barrier is cost. There is a cost to shifting to a more sustainable system, and that is often politically difficult.

It is important to understand that defining the problem and what we want is not the difficult part. Where everyone has trouble is working out how to shift the system without the 'wheels coming off'. Interventions tend to end up increasing unemployment, leading to a decline in wellbeing. We need to come up with unconventional policies.

What we don't need is more technological inventions. We now have all the technology we need to solve the problems. Neither will the current economic system find the solution. It is the cause of the problem. Also grassroots initiatives, back to nature, local economies, while very laudable are not big enough in themselves to make the shift. Something bigger and more structured is needed.

It needs politically clever strategies which will shift our economic system to one that is more sustainable. The new book *Reinventing Prosperity* offers a package of 13 solutions which have wide appeal.

One is to share work out more evenly. Keynes anticipated that with increased productivity his grandchildren would work no more than 2 days a week. That has not happened. GDP divided by population means everyone can have an income to live comfortably. It is an issue of distribution. We could find some mechanism to change this, eg by increasing statutory holidays. This would create the space to employ the unemployed. This has many benefits but not for corporations.

Another proposition is to tax fossil fuels and return the tax collected to citizens in equal amounts. That would give a net gain to those that consume less fossil fuels and encourage a shift away from their use.

A third proposal is basic income. The Nordic model show it is possible to tax highly enough to offer those who need it a basic income, set at about one-third of average income. It removes worry about being unemployed, sick or elderly, and enables people to live decently.

We need to act urgently. The economic system is at the root of our problems. We need to work out how to shift the system in a way that appeals to people within our democracies.

Questions:

Basic income can take several different structures. Tax on carbon is one idea. There is concern that benefits for the poor tend to be poor benefits. A top up income that does not have a universal aspect may not be popular.

If we increase leisure time, that also consumes resources. How do we deal with that?

Basic income is an idea whose time has come. It will become critical as robotics develops, which will create high levels of unemployment. It is also a question of mentality - looking back to 1930s and

40s, the concept of Pareto Optimal prevailed, but we have shifted from a mentality of providing for a good society to what is good for corporations. This is an easier shift for Scotland than in other parts of the UK - to be run for the common good, not the elite. On leisure, if everyone jets off for shopping trips we screw up quickly. Because the consequences might be damaging is not a reason not to do it. Do it if it is right, then deal with the consequences. Mindset is an issue here too. We have moved from a society where people wanted to play golf, to one where they feel they need to shop. More learning, exploring the countryside in non-destructive ways, will lead to better and higher quality living.

Repositioning our economy Katherine Trebeck, Senior Researcher, Oxfam GB. Presentation [link here](#)

[Oxfam's Humankind Index](#) came about in response to analysis looking at the change in nature of the Scottish economy. This revealed that the decades of growth did not deliver better lives for many in Scotland. Before the publication of the HKI, Oxfam ran a series of seminars looking at who is winning and who is losing from the prevailing economic model. Inequality in Scotland had been largely static. There is the 'Glasgow effect' of premature mortality and the dynamics of de-industrialisation, stress and the precariousness of peoples' lives harm people's wellbeing and life chances. The conclusion is that our economic model is not up to scratch, is exacerbating inequality, and is not involving communities in discussions of what the economy should be about.

No one asks what sort of wealth we want and who it is for. Mark Anielski's definition: 'The GDP hero is a chain-smoking, terminal cancer patient going through an expensive divorce who crashes his car on the way to his job as an arms dealer because of texting while eating a take away hamburger.' All these actions boost GDP but we do not want this guy in our community, in our work places, let alone making policy decisions. Growth in GDP is not up to the game of progressing good lives.

There is data that supports this. See the slide on Genuine Progress Indicator versus Gross Domestic Product in the US. GDP and GPI followed each other closely until the 1970s since when GDP has continued upwards and GPI has stayed static. This divergence coincides with neoliberalism and market fundamentalism. We see similar trends for several other countries. The Social Progress Imperative defines social progress across 52 indicators and has a [website](#), tools and data you can use. Their measures for 160 countries clearly show that during early stages of development, GDP makes a huge difference, then the effect tails off very quickly.

To create the Humankind Index, Oxfam went out to deprived communities, speaking to nearly 3,000 people, asking what they need to live well in their communities and the responses were weighted according to relative importance. Oxfam's Humankind Index is [online](#), and the results are fairly intuitive. People's priorities are a secure home, good health, pleasant surrounding environment and satisfying work. Sufficiency and security of income come a little lower down, but people are not seeking great riches.

How effective has the Humankind Index been in changing the conversation in Scotland? It got lots of media attention, SPICe did a briefing and Joseph Stiglitz referred to it in the Scottish Parliament. As Finance Minister John Swinney responded to a motion debating the HKI in the Scottish Parliament which led to the National Performance Framework review and there is currently a national discussion around the NPF. There was a good collegiate approach, other organisations piled in behind it, and got a conversation started on the purpose of the economy.

Where are we up to in Scotland? It could be said that 'Scotland is awake, but is hiding under the duvet'. There are lots of good projects emerging from Scotland. When abroad I always talk about

the levels of innovation in Scotland and the great progress, but when back here it feels we could do so much better. Zero Waste Scotland, Fairer Scotland, the decent work agenda, the Equality Commissioner, the talk of inclusive growth, and of course the National Performance Framework are all positive. But then you have Air Passenger Duty cut, support for the 3rd runway at Heathrow, and the stress of having a competitive economy. Shouldn't the economy be more sustainable, cooperative, and humane?

In terms of the beyond GDP agenda, there is progress - years ago one had to spend a great deal of time outlining the faults of GDP. Now this is increasingly widely accepted, for example: an article in the Economist; the IMF recognising that neoliberalism was oversold; the World Economic Forum in 2016 discussing the need for a new economic paradigm; chartered accountants, ICAEW, work on going beyond the bottom line; the OECD's analysis of wellbeing and its recognition that GDP contains a lot of 'regrettables' and that it misses many drivers of wellbeing. Lastly, the Sustainable Development Goals, flawed though they are, open up a different conversation. Things are moving.

Reflecting on the importance of involving people in the conversation about what matters. Experts are having conversations about new measures of progress, but most of them are led by people within positions of power. This is not good enough and it is important to involve people in deliberative conversations as you need to include those people that policies intend to benefit. Beyond policy, there are 'serendipitous benefits'. Empowering people to take action, strengthening democracy etc. There is something really symbolic about taking the time to speak to people, and making sure they are at the forefront of change. If we are just imposing it on them, it won't shift the balance of power we sorely need. Massive imbalances of power is where our problems originate. One thing that struck home during the HKI consultation is the amount of people who said 'thank you for asking' what they thought.

I would depart from Graham Maxton's theory of change in that I think there is a very important role for small scale and niche micro level change, to help move society towards a tipping point. There is a quote - 'Goldman Sachs doesn't care if you raise chickens'. But if more and more people raise chickens then Goldman Sachs would get very interested. It is about creating new norms and pushing towards a tipping point.

Questions:

Micro projects. How do they get started and get momentum as they swim against the tide?

They start in many ways. Currently they exist despite the system. Micros have a feasibility and demonstration role, show policy makers the sort of change we need to see and what needs to be facilitated. Different people have skills at different places on the macro to micro spectrum. Micros show what is possible, are chinks of light. Our job is to do the translation, by telling people about them, and get it translated into policy.

What is driving our economy and why change is needed. George Kerevan MP.

I was part of a group of economists and socialists in the Economic Development department of Edinburgh Council in the 1990s trying to replicate some of the GLC's initiatives, investment and training activities. They made some interventions which show that we can make change at the micro level.

Did anyone disagree with anything heard today so far? Broadly not. Where I disagree is on the political dimension of how ownership structures and power structures will need to be confronted. We will have to socialise much of the economy. Our ability in Scotland to uncouple ourselves from

the broader capitalist economy is very limited, but don't give up. The global economic system is based on profit, concentrating maximum profit, taking it out and reinvesting it. When neoliberal economics came in, capitalism was operating at a global level, largely driven by US technology. It created a system where so much capital was being generated it has no outlets, so is left to be invested in dangerous get rich quick schemes, which create instability. Neoliberalism has not raised living standards but unfortunately the political response is sliding to right wing populism rather than a left wing response. I don't see how the right will change the system fundamentally. The message from Westminster is that Brexit and shifts since are increasingly driving GDP up the agenda.

Interventions at the Scottish level? Can we explore or shape where we can make an intervention.

First we need to impose some kind of social and democratic control over investment flows which is difficult for a small country. There are ways we could try – there is an interesting movement to recreate a social stock exchange. This could start with the social enterprise sector, could mobilise public money and encourage private money too, have social gains as a priority and identify companies which are open to different investment values. This could allow us to break the link between productivity growth and profit growth. We don't want to lose productivity growth but if we can socialise it, it can make lives better. It needs to build on the last generation of new start-ups, link them, and change them into socially viable products and services. One advantage of it is that it can keep circulations of capital within local areas to benefit people locally and be influenced locally.

Second idea: technology innovation hubs, akin to UK Catapult Centres, with research centres attached to manufacturing centres renting out facilities to new start-ups, to remove the need for them to seek funding. Start-ups can lease the equipment and research facilities to work up an idea to viability. We could provide the physical structures for this and allow local groups to have access to them.

Third idea: A basic citizens wage is an idea whose time has come. It would need to be introduced in stages and there is a move into pilot projects. Alongside this, a reduction in the intensity of the working week. Predict that the nature of work would change with a blending of the work/leisure dichotomy.

I slightly disagree with Graham about the nature of where the work force and labour market has gone in the last 30 years. It is too simplistic an analysis. The level of workforce participation is greater than it has ever been, now including women and older people. The work rate has become more intensive, the long struggle to reduce the working week is more or less abandoned. A young person in London works 50-60 hours per week just abiding by norms. We need some way of posing social control over the intensity of the working week. There are ways in which we could provide more time off, or welfare for part-time working, or social enterprise start-ups, which would go a long way to re-socialise the whole work process. I'm not sure it is about being in work or having leisure; we will see change to the nature of work so that it is not just defined by waged labour. More volunteering and social enterprises are mushrooming. We have some ways of pushing in the right direction.

Fourth. SNP has set up a growth commission to look at how to improve our dire productivity record in Scotland? We have specific weaknesses in total factor productivity, not just because we don't invest enough, or have the right skills base, but also because there are some weaknesses in the way different elements of the economy are physically integrated. I think there is a missing layer of medium level enterprises, 200-300 people, family owned, linked to long term horizons. They work

well in Germany and Italy. Scottish Government will have to look at reinforcing that level of organisation.

Fifth. Corporate responsibility is a growing debate and how we redefine it. One example in the banking sector is fair banking. After 2008 hundreds of small companies were forced into bankruptcy by the banks. These bankruptcies could have been avoided if the banks had different legal responsibilities. I've been working to include a duty of care on banks towards their customers. Banks are very resistant. At present the situation is caveat emptor. You are equal with your bank in the contract and if anything goes wrong, if the bank has made a mistake, it is your fault for not noticing. If you go to law, it is not equal. Most solicitors in Scotland have already been signed up by the big banks so you won't even find a solicitor to take up your case. Let's have a duty of care on banks to reset the relationship

At some point we have to think how we confront the global machine, and there is a weakness in the EU left. At the Scottish level we can create some interventions, even if it just creates a parallel space and some excitement that people can run with.

PANEL DISCUSSION

Lady Susan Rice, Richard Leonard MSP, Maurice Golden MSP, James Curran, David Pearson

Chaired by Sarah Boyack

Susan Rice spoke as chair of Scotland's 2020 Climate Group and as chair of Scottish Water. The 2020 Group looks for an economy made strong because it is sustainable, rather than sustainable because it is strong, supporting Scotland's ambitions as a world-leading sustainable country. The 2020 Group focus is with businesses of all sizes, particularly small and medium sized. They need to see sustainability as a way to develop new markets, to expand and diversify, reaching new customers and ultimately ensuring a long-lasting competitive edge. We are not afraid of the words 'competition' or 'profit', but these need to be better tied to the purpose of the business. That is where some have turned a wrong corner. Our view is that sustainability needs to be fundamental to a business's aspirations and strategy. A sensible business will understand the environmental limits of its operations and ensure it operates within them; a clever business will look at the gains for itself and for the environment - it is not a zero sum game and ultimately business has to deliver on sustainability as well as profit. Many businesses need to explore new models – models which pull them away from the assumption that natural and social capital are cheap, readily available and ultimately limitless.

Scottish Water offers some good examples - the business is energy intensive, but SW can generate energy itself, and host renewables for others. It has started turning waste water into heat, though the infrastructure constrains the ability to do much of that currently. It works with suppliers and partners to develop new resource and carbon-efficient technologies. The 2020 group held an event, [Switched On](#), which focussed on renewables for SMEs and heard from 2 small businesses that combine renewable energy use into their business. [Unplugged Earth](#), presented a new business model to tap into the public's respect for renewables to promote their product. In the 2020 group, businesses are influencing other businesses.

Questions:

With hindsight, would Scottish Water have done any of its relevant activities differently or have you made the optimum impact?

Scottish Water is a public corporation, quite unique and has iterative processes. It is hard to use hindsight, typically decisions are made based on conditions at the time.

How to encourage more participation in these types of discussions among the financial sector and business in general?

The [2020 climate group](#) run events. A recent one on carbon capture and storage (CCS) concluded CCS should be at a smaller scale. Contact Fleur Ruckley fleur.ruckley@ed.ac.uk to be involved. It costs small companies to engage. The 2020 events are geared to the needs of SMEs, are well timed with good networking.

James Curran: Scottish Government's main purpose is for Scotland to flourish through sustainable economic growth. I have written a new index ([slide](#)) to track this, showing economic efficiency / social inefficiency x environmental inefficiency based on widely available data from round the world, using GDP and data on unemployment and carbon emissions. It shows Scotland doing well.

However, I am deeply concerned about the lack of urgency around the speed of action needed to tackle climate change. Work published recently suggests planetary ecosystems are beginning to fail to sequester CO₂ emissions, this fall off is the equivalent of adding another China's emissions. The only positive outcome of Brexit and the USA election is the possibility for greater government interventions in the market - allowing a more rapid shift of economic model by supporting radically new business approaches. Exemplars exist: such as the global business, [Interface](#), which produces carpet tiles, a concept that allows you to replace one tile rather than a whole carpet. Some of the products are zero-carbon, most are around 80% recycled content. Company has Mission Zero, to achieve zero environmental impact by 2020, and also offers Evergreen Lease - leasing of a floor cover, rather than purchase. We must act quickly – the USA in WWII increased its defence spending from 2% of GDP to 54%. We need that radical intervention now on climate change and sustainability. It can be done but a fast response can only be driven by regulation.

3 practical suggestions:

Use s.82 of the Scottish Climate Change Act to specify recycled content of products manufactured or purchased in Scotland. It needs careful analysis to specify products that will help grow indigenous businesses. Could start with the construction industry in Scotland, which creates half of the nation's waste.

UK corporation tax (around £40bn pa) roughly equals all benefits associated with low pay and unemployment (income support, job-seekers allowance, etc). So one could hypothecate this tax to that expenditure. This would incentivise businesses to keep people in productive, well-paid employment and shift businesses to seek their productivity gains through reduced consumption of energy, water, natural resources and raw materials; rather than through traditional approach of laying off labour.

Get businesses paying for use of ecosystems. UK Government recently made £25Bn from the sale of a small part of the electromagnetic spectrum to mobile phone companies. This allows them to emit electromagnetic signals into the atmosphere. There is no conceptual difference to businesses wanting to release gaseous emissions into the atmosphere or waste into rivers. They should pay for use of these ecosystem services - providing a direct incentive to do less of it. "Polluter pays" principle is out-of-date but should be replaced by "ecosystem-user pays".

Richard Leonard MSP: James is right on the 3 suggestions. I keep harping on about economic ownership, industrial policy, unemployment and democratic accountability in the economy. First on the structure of the Scottish economy and looking at economic ownership, between 2007 and 2013 the level of overseas ownership went up from 25% to 35%. This is the highest level in the UK, the next highest being the West Midlands with some regions of England as low as 20%. How have we got here and what challenges does this present? We need to introduce democracy into the mix.

There is complacency in the Scottish Parliament about unemployment. The Scottish Government's stated position is we never had it so good, less than 5% unemployment. Yet Annual Population Survey findings added to the *Labour Force Survey* suggest that the real figure is about 12.5%. This merits discussion about the future of work.

Figures from Credit Suisse show that in the UK, 1% own 24% of the wealth. Half of Scotland's pensioners live in fuel poverty and over 21,000 people are on the housing waiting list in my constituency. There are massive inequalities in money and power, the result of the neoliberal economic model, and we need to have a debate about the extent of more planning in the economy. For example, for SSE's Beatrice project which is largely funded by public money, one third of the business is going to a Fife yard, and two-thirds of it is going beyond the UK. We are not linking our strategies currently. What is good for SSE may not be good for the rest of us. There is a role for government in that level of planning. Visiting an innovation centre recently, I was struck by the extent of contracts being developed that rely on the public sector - defence, street lighting, housing, transport. We need to be honest about the extent of public support here.

There is a Warm Homes bill coming, discussions on the Energy Strategy, also climate change review, industrial strategy, and discussions on Brexit and its implications. The other voice absent today is the trades union movement. We have to look at how best to build these alliances. Many trades unions are still committed to economic transformation, worker ownership and control of the industries they are involved in. We need to win the battle with those sections of the TU movement more conservative in outlook on their role in pushing transformative change. One way is to bring them round the table - they should be part of the alternative, not defending the status quo. As William Morris wrote in *A Dream of John Ball* - hard it is for the old world to see the new.

Maurice Golden MSP: Wants to tackle climate change, protect the environment and promote a low carbon sustainable Scottish economy. I previously worked for Zero Waste Scotland and for Ofgem on transmission. When I joined the environment movement 15 years ago, it was an echo chamber, and I have seen it branch out over the last decade, engaging with wider stakeholders. I consider the circular economy very important in transitioning to a sustainable economy, maximising the value of materials for everyone's benefit. I believe it is what Scotland needs to do in order to prosper. The failure of the linear system, where materials have a high environmental price, and low use, and go quickly to waste; cannot just be improved by using resource efficiency policies, to do the same things slightly better. The circular economy turns it on its head, is a brand new business model, and will ultimately ensure businesses are more sustainable. Think of Scotland as a car hurtling towards a cliff - if we employ resource efficiency it will slow down but still fall, if we transition to a circular economy, we can avoid the cliff. From Scottish Government's perspective, there are lots of ways to promote a circular economy. A great example is a LED lights company, selling the service of light whilst retaining ownership of the hardware. This incentivises them to provide the best means of lighting and for it to be repairable, (which provides more employment). It has got to the market and the NHS was interested, but the company was considered too small, so entailing too big a risk, so did not get the contract - another problem.

David Pearson, Director of Star Renewable Energy. Star Renewable Energy is a spin off from Star refrigeration, the UK's largest industrial cooling company. As Director of Innovation, I picked up on sustainability and suggested the move into industrial heating. In using heat from the surrounding water, the town of Drammen in Norway has reduced its heating footprint by 85%. We have to recalibrate our relationship with energy, and heating is the big chunk we have to tackle. The equipment side has created jobs for the business in Glasgow and heat without burning fossil fuels gives cleaner air. As well as a resource efficiency issue, the conversation has evolved to security of supply, and macro economics. We spend £32 bn on importing fossil fuels which is completely unsustainable. The heating bill is £2.4bn a year. Heating buildings accounts for about 50% of overall emissions. Scottish Government produced a [heat map](#) which shows 50% of built up areas close enough to large water bodies to be suitable for district heating. Its about using local resources to achieve targets, can result in more jobs, less imports, cleaner air. Drammen is 50% owned by the city pension fund. Electricity in Scotland is broadly solved, we now make more from renewables than we use over the course of the year. Local heat recovery is the next big area, for example from sewage treatment plants - there is 10 times as much heat being wasted near to the new Glasgow hospital than it requires.

Questions and comments:

All panellists reference the role of the public sector, either government or agencies that can commission work to drive more circularity within the economy.

Q - On the free trade theme, what can we do as Scotland or UK in terms of regulating or limiting international trade? There are no mentions of limiting trade politically, or problems in exporting carbon use.

James Curran – The one positive from Brexit is the chance to break away from deeply ingrained free trade philosophy. Leaving the EU gives us that opportunity if we want a degree of protectionism during the period of transition to a low carbon economy. James has been nominated to sit on the Green Purposes Company, set up to underpin the articles of the Green Investment Bank and to ensure that post privatisation it remains true to its purpose. Any company could write sustainability into its articles.

Richard Leonard - Discussions in the Scottish Parliament are about how we secure free trade and free movement of capital and people. With regard to import substitution - what could we produce locally, that could be part of a more planned approach. It's not heretical, 20 years ago Highlands and Islands looked at ways the highland economy could be more self-sufficient. It's important that HIE still remains to allow for regional thinking. It's worthwhile having that broader discussion. The one thing the neoliberals will hold on to, above any other concept, is free trade.

Maurice Golden - Whatever model, the devil will be in the detail. If you put up tariffs that in theory will encourage production and if we can make sensible intervention we should look at that. I have been pushing Scottish Government on energy and labour costs which are often our limiting factors and we need to look at places government can intervene. One possibility is funding an electric arc furnace, using the overcapacity of grid energy, with feedstock for steel from old North Sea rigs. This could get energy costs down and create manufacturing jobs, with intervention.

Q - Has Star Energy done an exercise on Natural Capital Accounting (broadly the process of accounting for impacts on and dependency on the natural world). Has NCA's time come, and can public sector take the lead to normalise it?

David Pearson – By nature of what we are doing this is not creating a drain on the natural capital. Also need to look at dependency, we are aware of their dependence on the water cycle so will not negatively impact it. In Norway they collect snow in the winter, making hydroelectricity and uses natural resources in the cooling system of a new hospital. In a miniscule way helping to balance some negatives of climate change, taking the heat back out. Germans refer to it as zero operational cost, a similar theme without a drain on resources going forward. Using sunlight and wind.

Maurice Golden - need to focus on how you influence business. Language is important - I tend not to mention the term circular economy, instead talking about a sustainable business model. If NCA can be a mechanism, like Corporate Social Responsibility, which has been embedded and drives change, it can be positive. Too often green infrastructure, such as green corridors in new housing developments, are dropped when they do not show a return to the developer.

James Curran - believes in putting a monetary value on ecosystem services, for example a past report valued what nature provides for free at £25bn a year. Ecosystem services can be thought of as the interest you can withdraw without reducing the (natural) capital. It is a new kind of accounting which should be mainstreamed. We know that its fundamental to sustainability that we must live within the limits of the planet.

Q - The idea of workers owning the means of production can be widened to the concept of the public owning the infrastructure of a country.

Why are heatpumps a hard sell?

Why cannot excess electricity load be given away free, eg in heating immersions?

With foreign ownership, value disappears from the local economy.

On the arc furnace, what is the financial value of Scotland's energy generation which is mostly in the north where value goes out of Scotland? Would subsidies not be better in supporting high demand or later generation, or ammonia for fertiliser, all high energy. Iceland uses its resources to support industry, aluminium smelter. Should we be not be thinking about using power more locally instead of curtailing it?

David Pearson - Probably need to curtail it first. There are some simple barriers. Gas is too cheap and easily available and there are no plans to stop using it. We need new business models and funding. People don't want to be poorer for 7 years in order to benefit later. We need to have an alternative to gas, such as a heat pump with consumers buying heat from the supplier rather than the gas. Give them the business of supplying heat to drive out the inefficiencies. When are we going to stop installing gas boilers? All new housing estates being built have them with housing companies getting a subsidy for this from the gas companies. There is no connection with climate change needs. Local planning should think about it and we should basically decide to stop doing the things which cause the problem.

Maurice Golden – A huge amount was invested in rolling out onshore wind power, but the benefits have largely gone to 2 companies and to landowners. To make it worse, most of the jobs in renewable energy are outside of the UK - lots of companies made lots of money selling us the turbines. Before embarking on the policy you have to make sure you have the capacity to gain some of the benefits. In terms of transmission, it's a very small part of the costs. Regulation in planning is a good thing.

Richard Leonard - The Dalziel works had the capacity to make steel for wind turbines, yet none were manufactured using its steel. Ownership is power, and while it rests outside public accountability we will continue to see impacts that are not good for people. The Scottish Government has said when it looks at the next generation of renewable energy, it will support local ownership. We must hold them to that and make it the norm. There is no reason not to.

James Curran - Air source heat pumps are easy to install, why is it so difficult? At the moment who would bother as gas is so cheap. We need to get out of fossil fuels in a planned way. We don't want these companies falling asunder and causing chaos. We want to capture every bit of electricity we can. It is an enormous business opportunity for us. What do we use it for when peaks and troughs occur? There are lots of things we can use it for. There will be a demand if we move to electric transport - there is a commitment to an electric rail network. We could be planning for a hydrogen fuelled economy. Need to plan it, not let it happen by chance.

Sarah Boyack summed up: There are challenge here and opportunities. NHS procurement, what Scottish Water delivers in terms of its day to day work, what local government procures. There are many policy levers. Money will be short over the next few years. We can get more climate friendly and social benefits from public spending too.

Think about networks you are all involved in and what could you do to move beyond some of these barriers.

LUNCH BREAK

TOOLS FOR TRANSITION

There were short presentations of the main points to be discussed in the breakout groups. There will be additional points in the slides, linked.

Circular Economy

Fraser Scott, Zero Waste Scotland [presentation on the circular economy](#). The context is the ambitious climate targets we have in global terms and the impacts we want to have need to be transformative. The Ellen McArther Foundation diagram shows the principles of the circular economy. The key is to have the smallest circular loops for best outcomes. The Government's strategy Making Things Last is the first time a national government has put its thoughts on paper and it is widely acknowledged for knowing what needs to be done and having a plan. There are very few examples of companies putting this into practice yet. ZWS is supporting projects with some funding - city and regional approaches, and working with priority sectors, manufacturing, food and drink. Conversations about the new CE bill will be starting in 2017.

National Performance Framework

Anne Marie Conlong, Scottish Government [presentation](#) on the National Performance Framework. The NPF is an outcomes framework used by the Scottish Government, where we measure national wellbeing as a whole. In 2007 this was a very new way of doing government. It was based on Virginia Performs. It is about aligning how the public sector works together, getting public servants to work in a cross cutting manner and it has the single purpose at its heart. Joseph Stiglitz has endorsed the framework as a very strong approach. It's also endorsed by Carnegie UK Trust. Some areas are not represented strongly enough, and better indicators are needed. Parliament is becoming more interested in using it as a tool for scrutiny and accountability. It needs to be known and valued by Scottish people and there is work to do there. We are now taking forward the Community Empowerment Act, which put an outcomes approach in legislation in Scotland. This will give

longevity to the crossing silos approach. The Performance unit is working with parliament to develop and improve the information we provide for parliamentary scrutiny. It can also be a key measure of progress on the Sustainable Development Goals.

Natural Capital Approach

Jonny Hughes, SWT, presentation on National Capital. The definition of natural capital is the stock of natural assets that supply us with essential goods and services. NC is thus the stocks of natural ecosystems that yield flows of valuable goods or services. It is really just an exercise to show that the value of nature is uncosted across the world. Example of a tool: the Natural Capital Protocol, developed by range of different organisations including big eNGOs, accountancy firms, public sector bodies and academics. It is a standardized framework for business to identify, measure and value its direct and indirect impact and dependency on nature. It can be expressed in monetary or non-monetary units. Once that exercise is done a business can understand its impacts and dependence and take it through a time line. How to change your business models to decrease the bad impacts and increase the good impacts, example from the Kering Group in 2014 which totalled their externalities at 800m per year. The Scottish Forum on Natural Capital has a [website](#), a one stop shop with resources.

Woodland Carbon Code

Pat Snowden, Forestry Commission [presentation](#) on the Woodland Carbon Code. You can think of it as a mix of carrots, sticks and sermons, you need to have incentives, standards and information. Arguably you need all these if you want markets to change. The code was launched in the UK in 2011 to encourage more private investment into new planting. In its early days it had some dodgy schemes and it was decided that the Forestry Commission would lead on it. Private investors need to trust the scheme. It needs to follow the UK Forestry Standard. A key thing to any such market in ecosystem services is additionality, going beyond what is required under law; also transparency, degree of permanence, ability to predict and monitor what you are going to deliver, and to be independently certified. About 240 projects are registered and in the process of being validated. Buyers are all UK corporates, and 60% have been sold up front. Carbon is priced at £7 to £15 per ton, closer to £7. Investors like the tangibility of trees.

Some pointers of what to do to develop new markets for ecosystem services. Need sound science, and to establish what the value of it is. You don't need to monetise everything but you do need to have elements of it monetised. Carbon credits is a market in revenue but you could equally have savings, eg cleaner water. It needs leadership from public, private, NGOs; and a clear product, and accounting procedure. For carbon it is quite complex. Needs infrastructure: registry, monitoring and verification etc; you need demand (price) - a problem with the carbon market is the continuing low price; and marketing strategies to appeal to landowners as well as business. And finally you need to be adaptable. Not just carbon focus only. Finance and natural capital need to go hand in hand.

BREAKOUT DISCUSSION GROUPS

Main points from Natural Capital Group

- The more economic thinking behind the whole natural capital approach is not widely known or understood.
- The principles behind natural capital based thinking are complex and there is a danger that it could be seen as only having relevance to business facing audiences (rather than for government/NGO/academic etc...)

- Can natural capital advocates learn from the circular economy proponents
- Does natural capital fit within the circular economy approach? – it can be seen as a subset of Natural Capital thinking.
- It is still a real struggle to get business to engage or care
- What is the role for natural capital in regulation vs incentivisation? Can natural capital thinking persuade business without the need for the regulatory stick – feeling of the group was that both have a role to play
- There was a feeling that the NGO community needs to be bold in suggesting natural capital based regulation
- It was discussed that the leading companies are actually calling for stronger regulation to level the playing field and weed out cowboys
- The NC Protocol was seen as a very useful step in mainstreaming natural capital thinking within business
- There was a feeling that the language of natural capital provided a common language to get people with opposing views round the table
- There was a feeling that some things e.g. national parks, endangered species are always going to be too valuable to society to expose to market forces
- There were concerns around some of the ethical aspects e.g. Chinese government using imperfect valuations

Main points from National Performance Framework Group

Workshop participants asked for more details on the framework, its structure, content and review. Anne-Marie went back to the slides and discussed them in some detail.

Recent developments to the framework are:

- Now about half the indicators can be filtered by different dimensions of inequality
- There are 5 new indicators relating to the environment and work

Strengths of the NPF

- Can lead to policy coherence
- Gets policy development out of silos
- Will be tied to SDGs and used to measure (in part) our progress towards the SDGs
- Where it has been embedded, it has changed the process of policy development. The Justice Department is the most developed example, where they have developed a large evidence base and logic modelling to assist them in both working towards their outcomes and assessing progress. More and more public bodies are asking for advice on how to embed an outcomes approach.
- It is also becoming better known in procurement. Local Authorities are putting the NPF into a local context – ‘Single Outcome Agreements’ against which they need to report under procurement legislation. The feeling was that people involved in procurement are becoming more familiar with the NPF.

Constraints of NPF

- It was felt that the main constraint of the NPF was that it needs to be more widely known and that people need to take ownership of it and use it to hold the Government to account. It was anticipated that the upcoming public review of National Outcomes would assist this.
- It would be nice if it had more clout.
- The NPF and budget are not aligned, which limits its usefulness in budget scrutiny.
- It does not make use of qualitative data.

- The National Planning Framework is not well linked to the National Performance Framework

Main points from Circular Economy Group

- Organisations that want to deliver a circular economy model are fighting against the flow of current thinking and practice. They are disrupters, which can make things very difficult – although also provide opportunities
- There is a need to try and change mindsets in producers and consumers to shift away from disposable to repairable products
- There is a need to make it harder/more expensive to dispose of items/landfill
- Distance and other barriers may be more significant than cost for some products
- Cost is a critical issue though
- For some items, there will be a need to continue to develop models across Europe, in spite of Brexit
- Public sector procurement can be a barrier but also a massive opportunity
- The forthcoming Climate Change Act could be a good opportunity for new legislation, also the Circular Economy bill
- Information provision could be key – a fair trade equivalent badge is required
- Need to think about low impact materials – more reusable, less toxic, easier to deconstruct, etc as part of good design
- Need to consider transition implications
- There is a need to help finance new models – eg long lasting products may be more expensive up front
- There is a need for culture change on ownership – eg cars, power tools

Main points from investment mechanisms group

- The session started with an overview of the Woodland Carbon Code from Pat Snowdon: how it has developed, what it is starting to deliver and its limitations.
- In essence the Code aims to increase woodland creation and contribute to climate change mitigation.
- It is a domestic initiative and credits can't be traded.
- It was noted that ahead of its launch, a lot of evidence was collected regarding its use and purpose. During implementation a number of issues needed to be addressed such as potential "double-counting". Initially, it was challenging to get sign-up to the initiative, primarily due to limited resources and lack of marketing skills. At the same time, carbon markets gained in credibility, which helped the scheme.
- The Commission also realised that signing-up to the scheme was a long-term commitment and only profitable for bigger areas. As such the Forestry Commission is adopting a "lighter touch" approach to help launch smaller projects.
- The session then moved on to discussing different businesses that promote products that can contribute to a low carbon and sustainable future. A representative from Star Renewables provided an overview of the difficulties in generating investment for specific technologies. In his case, he experienced difficulties in financing heat pumps; in contrast, in his experience other technologies such as wind farms are more easily financed.

- This led to a discussion about potential gaps in our finance structures to promote low carbon and sustainable technologies.
- One potential solution that could help address this was suggested which involves the creation of a fund that would help finance such projects. Shares of this fund would then be sold back to the people of Scotland. This would ensure that the money stays within Scotland and that people are made increasingly aware of the technology and infrastructure needed. This idea has been developed by a representative of Snell Bridge and discussed with the renewables industry in Scotland.

FINAL SESSION: SUMMING UP AND THOUGHTS FROM THE FLOOR.

In context of Climate Change Act and Brexit, opportunity to look afresh at land use and use NC thinking to buy optimal services – rather than being seen as source of commodities, land should be viewed as supplying a range of services. SWT is developing a blueprint.

Continue to seek to integrate discussion – avoid duplication of events and work together.

As part of the Climate Change Act, we could suggest we need a Climate Change Committee which would bring together thinking on ‘what and how’. (As opposed to UK Climate Change Committee which has focused on monitoring).

Upcoming Climate Plan – think of ways in which carbon emissions can be reduced and put forward ideas with regard to planning, forestry etc.

City Deals currently aim to ‘accelerate growth’. Need to reorient.

Scotland to embrace and lead on SDGs. Press for Scottish Government to take responsibility for delivery of SDGs.

The power of narrative - we need to have facts and figures to support a positive and shared narrative. Where it increases impact, we need to collaborate. We need to be both radical and pragmatic in our approach.

Participants (list of those who registered, in addition to the speakers).

Charity	Alesi	MSc Student Environmental Partnership Management
Ruth	Apps	SSE
Deborah	Ariong	MSc Student Environmental Partnership Management
Lloyd	Austin	RSPA
Nina	Ballantyne	CAS
Dan	Barlow	Scottish Parliament
Katharina	Bouchar	
Louisa	Brown	Scottish Government
Julia	Brown	Pinsent Masons
Mary	Christie	SNH

George	Cobb	SSE
David	Comerford	University of Stirling
Elizabeth	Dirth	Chair of 2050 Climate Group
Diane	Duncan	Highlands and Islands Enterprise
Jim	Duncan	
Mike	Elm	SWT
Ishani	Erasmus	Scottish Parliament
Joel	Evans	MSc Student Environmental Partnership Management
John	Ferguson	EcoldeaM
Cora	Gebel	MSc Student Environmental Partnership Management
Keith	Geddes	Pagoda PR
Gary	Gillespie	Scottish Government
Dave	Gorman	University of Edinburgh
Keith	Griffiths	
Diarmid	Hearns	NTS
James	Henderson	What Works Scotland
Caroline	Hickling	Scottish Parliament
Silke	Isbrand	COSLA
Ifeyinwa	Kanu	Heriot Watt University
Mark	Lazarowicz	LINK Honorary Fellow
Ragne	Low	ClimateXChange
Bernardita	Mancilla	Chilean Consultant: Sustainable Economic Models
Lesley	Martin	RSA Inclusive Growth Commission
Gina	Martin	Scotland's Rural College
Ian	McDonald	Scottish Enterprise
Denis	Mollison	Hebridean Whale & Dolphin Trust
Barbara	Morton	Sustainable Procurement
Matthew	Murray	MSc Student Environmental Partnership Management
Piotr	Niewiadomski	MSc Student Environmental Partnership Management
Kitty	O'Connor	
Mofi	Olawumi	MSc Student Environmental Partnership Management
Ann	Packard	
Crawford	Paris	MSc Student Environmental Partnership Management
Julian	Parrott	Ethical Futures
Tavis	Potts	Aberdeen University
Oscar	Rico	
Simon	Robinson	Snell Bridge

Fleur	Ruckley	2020 Climate Group
Lorna	Scott	RSPB
Sonali	Seth	Scottish Parliament
Aedan	Smith	RSPB
David	Somervell	University of Edinburgh
Jim	Stout	ScreeTech
Charles	Strang	Scottish Council for National Parks
Ewan	Tennant	Buchanan Institute
Vhaira	Tollan	Scottish Parliament
Sophie	Unwin	Remade in Edinburgh
Charlotte	Waugh	University of Edinburgh
Bruce	Wilson	SWT
Caroline	Winchester	European Commission Scotland Office
Iain	Wright	
Allan	Young	SCVO
Helen	Zealley	Central Scotland Green Network