



NETGREEN

Network for Green Economy Indicators

POLICY BRIEF

Headline indicators of progress for a green economy

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ABSTRACT

This paper is one of four policy briefings delivered as part of the European Commission-funded FP7 project, Network for Green Growth Indicators (NETGREEN). The paper was originally prepared by The New Economics Foundation (NEF) as a briefing paper for those attending the workshop on 16 June on *Headline indicators of progress for a green economy*, and was subsequently revised to reflect the discussion during the workshop. The workshop examined the issue of how a set of headline indicators of progress can help create change towards a green economy from a European perspective, taking the UK as a case study given the various strands of activity on this agenda in the country over recent years.

The aim of NETGREEN is to accelerate the transition to a green economy by creating <http://measuring-progress.eu/> – an open-access, searchable, web-based database that enables those working in the field to identify and compare indicators that can be used to measure progress towards their vision of a green economy.

The first section of this paper sets out the issues to be addressed when developing headline indicators of progress for a green economy and the nature of the challenge as we understand them. In the second section we describe three official indicator initiatives in the UK and ways in which they meet or fail to meet this challenge. In the third section we describe a process for developing headline indicators and set out an indicator set that emerges from this process. In the fourth section we raise some questions about whether or not the challenge we have described is relevant to the European Commission as well as to member states.

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1 : An introduction to the issues

1.1 What do we mean by headline indicators?

What do we mean by ‘headline indicators’ and why are they important? As NEF has explained elsewhere:

In today’s complex societies a huge amount of activity is devoted to measurement, by governments and within organizations, through targets, performance indicators, outcomes frameworks, and so on. But only a few indicators emerge from this noise of information to become the key means by which we judge the progress of, and tell a story about, society overall. These “political indicators” play an important democratic role, helping voters judge the success of those they elect; they thus come to have a strong influence on politics and policy making. They both frame the way voters think about what it means for society to be successful, and create incentives for politicians.¹

GDP is often treated as the most important indicator for judging politicians’ performance, and in this way creates strong incentives to increase it. UK press coverage before the recent general election is a case point.² But it also influences political decisions indirectly. As psychologists Ed Diener and Martin Seligman have pointed out, the ubiquity of indicators of economic activity perform an extremely strong framing role in shaping what we think of the subject of politics.³ Similarly sociologist Elizabeth Popp Berman has explained how headline economic indicators have been an integral part of shaping political focus on ‘the economy’:

A hundred years ago, while politicians talked about economic issues, they did not talk about “the economy.” “The economy” that focal point of so much of

¹ Michaelson J, Seaford C, Abdallah S and Marks N (2014) ‘Measuring what matters’ in FA Huppert and CL Cooper (Eds) *Interventions and Policies to Enhance Well-Being*, Volume VI, Chichester: Wiley-Blackwell.

² <http://www.thetimes.co.uk/tto/news/politics/article4425551.ece>
<http://www.theguardian.com/business/economics-blog/2015/apr/28/gdp-figures-a-blow-for-osborne-austerity-election-budget-deficit> <http://www.independent.co.uk/news/uk/politics/blow-to-tories-economic-credentials-as-ons-cuts-uk-economic-growth-rate-cut-in-half-days-before-election-10208992.html>
<http://www.independent.co.uk/news/business/news/uk-growth-rate-set-to-fall-in-final-official-update-before-election-10200244.html> <http://www.theguardian.com/business/2015/apr/27/gdp-growth-first-quarter-george-osborne-chancellor>
<http://www.telegraph.co.uk/finance/economics/11566370/UKGDPfallstoslowestpaceinthreeyearswithjustninedaysuntilelection.html>

³ Diener, E., & Seligman, M. E. P. (2004). Beyond money: Toward an economy of well-being. *Psychological Science in the Public Interest*, 5, 1–31.

*today's chatter, only emerged when national income and product accounts were created in the mid-20th century.*⁴

Headline indicators can therefore be an important element in shaping the debate which in turn shapes decision making.

Of course, the existence of an indicator set does not mean that it will function in this way. To have influence the indicators have to be used by commentators – journalists, academics, politicians – and they have to be accepted as measuring what matters by influential individuals and organisations in business and civil society. Inevitably this is a circular process – as they are used more they will have more influence and as they have more influence they will be used more. The question, as so often, is how to get this cycle going.

1.2 Why headline indicators for the green economy?

Our view is that headline indicators which shape political debate and decision-making in the way just described – which we will refer to as ‘political indicators’ – could influence the decisions needed for any transition to a green economy. This is both because they could create incentives, to the extent that they are used by commentators and voters to judge the performance of decision makers, and because they could help re-frame the issues in the minds of these commentators and voters. For example that they might no longer see economic and environmental progress as conflicting goals requiring a trade-off, but as two components of a successful economy, requiring an integrated approach to policy making.

At this stage we do not know all the decisions that will be required: *new political indicators do not imply a specific programme*. However they could help create political space, room for manoeuvre, for a wider range of options than politicians may feel they now have. Of course as already noted, simply designing or selecting indicators for this role does not mean that they will be embraced by commentators, voters or decision makers – a carefully designed campaign will be needed; the first step, though, is to design or select indicators that have a good chance of performing the desired role.

For example, a set of headline indicators might improve the current policy-making process, by helping policy-makers address the disagreement over the relative importance of technological and socio-economic change in the transition to a green economy (the latter driving consumption and sometimes referred to misleadingly as “behaviour change”), as set out in the NETGREEN “Report on definitions of the Green Economy and progress”⁵. At one end of this spectrum, technological innovation is predicted to be so successful that it allows a transition to a green economy, with

⁴ The influence of economists on public policy, Oxford University Press blog
<http://blog.oup.com/2015/01/economists-public-policy/>

⁵ Jeffrey K., Seaford C. *Report on definitions of the Green Economy and progress towards it* (NETGREEN deliverable 2.1) available at <http://netgreen-project.eu/content/report-definitions-green-economy-and-progress-towards-it>

consumers barely noticing, or at any rate tolerating, any increased cost of living or changes in relative prices. In other words ‘absolute decoupling’ based on new technologies allows increases in living standards to take place without increases in environmental damage.⁶ The view at the other end of the spectrum is that much of the technological change will be either expensive, or may simply not come about. The implication is that living within environmental limits will involve some mixture of much higher prices for some goods and restrictive regulations, with the use of natural resources limited through changes to consumption patterns. This will involve either a reduction in aggregate consumption (in the developed world), or at least a change in what is consumed. However, despite this disagreement, almost everyone agrees that whatever the mix of technological and socio-economic change, government intervention will be needed at local, national and international levels.

There is no conclusive evidence as to which point on the spectrum represents the correct view and therefore what sequence of decisions will be needed. But it is absolutely clear that if economic progress is measured primarily by Gross Domestic Product (GDP), the room for manoeuvre will be very limited. Only options at the technological end of the spectrum will be feasible – and even some of these may fail to get the support they need to the extent that they are at best neutral in their impact on GDP. Hence the need for a set of political indicators which represents the goal of sustainable use of natural resources as well as increasing production to increase this room for manoeuvre. It is not necessary to take a view on where on the spectrum you think we should be to support the need for new indicators, just to accept that some flexibility is desirable.

The EU already has a set of “headline” measures of progress – the nine designed to measure progress towards the Europe 2020 targets (see Table 1). However these are not performing the function we have described for headline indicators – and nor are supporting indicator sets such as the Resource Efficiency Scoreboard.⁷ They are useful bureaucratic tools but are not and are probably not intended to be political indicators: in member states almost no members of the public and very few politicians and officials are aware of them (in the UK we would be confident in saying that no-one without a specialist interest in EU institutions knows what they are). Not surprisingly, they do not create effective political incentives or help to frame the debate. The challenge of creating political indicators remains.

⁶ Turner, G., Schandl, H., & Doss, T. (2008). *Growing the green collar economy: Skills and labour challenges in reducing our greenhouse emissions and national environmental footprint*. Dusseldrop Skills Forum.

⁷ http://ec.europa.eu/environment/resource_efficiency/targets_indicators/scoreboard/index_en.htm

Table 1: Headline measures of progress towards the Europe 2020 targets for the European Union

Employment	Employment rate, total (% of the population aged 20-64)
R&D	Gross domestic expenditure on R&D (% of GDP)
Climate change & energy	Greenhouse gas emissions (index 1990=100)
	Share of renewable energy in gross final energy consumption (%)
	Primary energy consumption (Million tonnes of oil equivalent)
	Final energy consumption (Million tonnes of oil equivalent)
Education	Early leavers from education & training, total (% of population aged 18-24)
	Tertiary educational attainment, total (% of population aged 30-34)
Poverty or social exclusion	People at risk of poverty or social exclusion (million)

Source: European Commission⁸

⁸ <http://ec.europa.eu/eurostat/web/europe-2020-indicators/europe-2020-strategy>

1.3 What should this set be like?

The indicator set should combine two potentially contradictory qualities:–

1. It should be small
2. It should be comprehensive.

It should be *small* because only a small set will achieve salience with journalists and the public. Research suggests that holding more than five to seven pieces of information in our attention is a very difficult task. For example expert on working memory, Nelson Cowan, summarises the findings on this topic as follows: ‘there are severe limits in how much can be kept in mind at once (~3–5 items)’.⁹ Our consultations with journalists who have worked at the Guardian, Financial Times, and the BBC on the optimal number of indicators to include in such a set, confirmed that the fewer indicators included in a set, the easier it will be for journalists to write headlines about the set. In our view, one reason why many previous indicator initiatives (including the ONS’s Measuring National Well-being initiative described below) have failed to get much traction is that they have included too many indicators to be able to attract sustained public and media attention.

It should be *comprehensive* because the aim of the set is to measure progress broadly and to correct the bias towards increased economic activity that a narrow focus on GDP and other traditional economic indicators creates. This breadth is essential if the transition to the Green Economy is to be seen as progress rather than a process of trade-off between economic and environmental goals.

The set therefore needs to consist of a small number of indicators each of which measures a ‘domain’ (domains may be defined broadly in terms of the topic – e.g. ‘the economy’ – or narrowly in terms of what is measured – e.g. ‘level of economic activity’).

We have developed the following criteria for selecting indicator domains:–

- **Matters to people:** in a set of indicators designed to create political incentives, the domains should resonate with the public’s concerns and aspirations.
- **Clear and easy to communicate:** domains, and what is signified by a change in an indicator representing the domain, should be capable of being discussed clearly and simply.
- **Far-reaching:** given the set needs to be small and comprehensive, issues which are important but narrow should not be included and overlap between domains should be minimised.
- **Influenced by policy:** the domains should cover issues that people feel able to blame or praise politicians for, with changes resulting from politicians’ actions perceptible within an electoral cycle.

⁹ Cowan N (2010) ‘The Magical Mystery Four: How is Working Memory Capacity Limited, and Why?’, *Current Directions in Psychological Science*, 19 (1): 51–57.

- **Measurable:** meaningful changes within the domain should be representable by a single headline indicator.

We have also identified the following criteria for the indicators that measure these domains:-

- **Representative of the overall outcome:** indicators should be representative of the overall outcome being measured –measures which use a narrower outcome to ‘proxy’ for the broader one may be necessary but are undesirable.
- **Easy to interpret:** it should be possible to explain briefly to a lay audience what the direction of movement of an indicator signifies.
- **Comparable:** indicators should be comparable over time, and ideally, between countries. This way, the indicators can be used to identify strong or weak relative performance.
- **Accurate:** indicators should capture what is intended by their use, and should be able to be supported by a robust and impartial methodology.
- **Timely:** it should be possible to collect data for an indicator without too much lag in availability (even if this requires more investment in data collection and presentation) so that policy can be judged in a timely way.

Tensions exist between some of the criteria described above. For example, identifying an indicator that is broad enough to be ‘*representative of the overall outcome*’, and at the same time, simple enough to be ‘*easy to interpret*’ may be challenging. We therefore suggest that failure to satisfy one criterion need not rule out consideration of a domain or indicator; instead, the criteria should be used to guide selection, helping to ensure that important characteristics are considered, and strengths and weaknesses of different options are reasonably weighed up.

One question that arises is whether a single composite indicator of progress towards a green economy would be preferable to the dashboard approach we are advocating. This could then be the ‘long term’ economic metric that would sit alongside the ‘short term’ GDP.

Statisticians tend to reject such composites on the grounds that they require ‘arbitrary’ weighting of different elements and that the resulting unit of measurement is obscure (a mixture of apples and oranges). In fact taking a broader perspective neither of these criticisms of composites is really valid: it is true that they require judgement as to weighting, but these need not be arbitrary but can be based on well informed theory about the relative importance of different elements; in addition once you have made these judgements, it is perfectly possible to construct a synthetic unit that represents progress towards a Green Economy – the unit is abstract if you like, but then after all so is money, which is used to composite all the different goods and services represented by GDP. (Of course money is a commodity and to the extent that GDP measures, say, the tax base it is measuring something concrete – but to the extent

that it measures value it is measuring something just as abstract as progress towards the green economy).

The question really turns on whether a robust theory of progress to the Green Economy exists, and whether there is sufficient consensus around this theory. To the extent that there is such a theory and consensus, then the theory will determine the weighting and other aspects of the index design, just as for example broad agreement about a model of deprivation permit an index of multiple deprivation¹⁰. Of course the existence of a headline composite would not remove the need for indicators of the constituent elements, and to the extent that there are trade-offs between these elements, these would be the relevant indicators to refer to. However, while a composite might be desirable in the future, at the moment our feeling is that we do not have the necessary theory and consensus – and perhaps we never will. NEF's Happy Planet Index¹¹ – a ratio with average life satisfaction times life expectancy as the numerator and ecological footprint as the denominator – could provide a model for a future composite, but for now we recommend a dashboard approach.

2 : Existing official initiatives in the UK

In this section we describe three official initiatives and provide a short commentary on them.

The initiatives differ significantly in their status and purpose. The UK Office for National Statistics (ONS) Measuring National Wellbeing programme is an initiative of the ONS itself and as such is simply a source of information. Scotland Performs is an initiative of the Scottish Government, and is designed to help deliver that government's agenda. The Welsh National Indicators are required by statute and are designed to influence the setting of objectives by the Welsh Ministers and other public bodies in Wales.

2.1 The UK Office for National Statistics (ONS) measuring national wellbeing programme

The ONS's Measuring National Wellbeing Programme is an initiative of the statistical office itself. The ONS describes it in the following terms:–

The ONS Measuring National Well-being programme aims to produce accepted and trusted measures of the well-being of the nation. Well-being put simply is about “how we are doing” as individuals, as communities and as a nation and how sustainable this is for the future.

¹⁰ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6320/1870718.pdf

¹¹ www.happyplanetindex.org

Measuring National Well-being is about looking at “GDP and beyond”. It includes headline indicators in areas such as health, relationships, education and skills, what we do, where we live, our finances, the economy, governance, the environment and measures of “personal well-being” (individuals' assessment of their own well-being). The programme started with a national debate that gathered views on what matters to people...Since the debate, there has been intensive development work of new measures of well-being that include – but go beyond – measures of economic performance such as GDP...The programme publishes updates to the national well-being measures every 6 months...¹²

The measures are based on 10 domains and 41 indicators as set out in Table 2.

Table 2: Domains and indicators included in the Office for National Statistics’ Measuring National Wellbeing Programme

Personal well-being	Very high rating of satisfaction with their lives overall
	Very high rating of how worthwhile the things they do are
	Rated their happiness yesterday as very high
	Rated their anxiety yesterday as very low
	Population mental well-being
Our relationships	Average rating of satisfaction with family life
	Average rating of satisfaction with social life
	Has a spouse, family member or friend to rely on if they have a serious problem
Health	Healthy life expectancy at birth (male/female)
	Reported a long term illness and a disability
	Somewhat, mostly or completely satisfied with their health
	Some evidence indicating depression or anxiety
What we do	Unemployment rate
	Somewhat, mostly or completely satisfied with their job
	Somewhat, mostly or completely satisfied with their amount of leisure time
	Volunteered more than once in the last 12 months
	Engaged with/participated in arts or cultural activity at least 3 times in last year
	Adult participation in 30 mins of moderate intensity sport, once per week.
Where we live	Crimes against the person (per 1,000 adults)
	Felt fairly/very safe walking alone after dark (men/women)
	Accessed natural environment at least once a week in the last 12

¹² <http://www.ons.gov.uk/ons/guide-method/user-guidance/well-being/about-the-programme/index.html>

	months
	Agreed/agreed strongly they felt they belonged to their neighbourhood
	Households with good transport access to key services or work (2010 = 100)
	Fairly/very satisfied with their accommodation
Personal finance	Individuals in households with less than 60% of median income after housing costs
	Median wealth per household, including pension wealth
	Real median household income
	Somewhat, mostly or completely satisfied with the income of their household
	Report finding it quite or very difficult to get by financially
The economy	Real net national disposable income per head
	UK public sector net debt as a percentage of Gross Domestic Product
	Inflation rate (as measured by the Consumer Price Index)
Education and skills	Human capital – the value of individuals' skills, knowledge and competences in labour market
	Five or more GCSEs A* to C including English and Maths
	UK residents aged 16 to 64 with no qualifications
Governance	Voter turnout (at UK General Elections)
	Those who have trust in national Government
The natural environment	Total greenhouse gas emissions (millions of tonnes)
	Protected areas in the UK (Millions hectares)
	Energy consumed within the UK from renewable sources
	Household waste that is recycled

Source: Office for National Statistics¹³

It is important to remember that this is an initiative of the ONS, and is part of a wider programme designed to make wellbeing evidence accessible to policy makers and others – it is a kind of portal to that evidence. In these terms it has been successful: we understand it is used in Whitehall and it has helped shape the framework for the What Works Centre for Well-being evidence programmes, a major new government

¹³ <http://www.ons.gov.uk/ons/publications/re-reference-tables.html?edition=tcn%3A77-367945>

investment in the research base. The scheme is notably comprehensive and coherent, perhaps because it is based on a public consultation. Key results – particularly the personal wellbeing results – do get press coverage. It is not, however, designed to work as a set of ‘political indicators’ in the way described above, nor is it a way of communicating and assessing progress against the government’s agenda. So, for example, performance against these indicators did not play a significant part in the recent general election campaign. It has therefore not had influence in these ways.

Could things have been different? Could an indicator set of this kind have been used as a set of ‘political indicators’? Clearly a set of 41 indicators cannot achieve the salience of the handful of major economic indicators, but a headline sub-set could have been created which were then communicated with the same frequency and vigour as the GDP estimates. For example with a bit of investment or resource re-allocation the median household income numbers could be published with the same frequency and prominence as the GDP estimates, and with a much shorter lag than now, and this could have a significant influence on political discourse – put simply income distribution would become more important. As an independent national statistics office, the ONS cannot act politically on its own account of course, but it can and does respond to the external pressures that it faces, including of course political pressures. The ONS, like other statistical offices, may not be political in its own right but it does form a transmission mechanism for political influence.

An additional issue is the extent to which commentators and voters feel that subjective wellbeing numbers (which *have* received some attention in the press and amongst members of the public) are a useful way of holding the government to account. As yet, they have not been taken seriously in this respect – although there is evidence that they may be a better predictor of voting behaviour than any of the three main economic indicators (unemployment, GDP per head and inflation)¹⁴ and indeed opinion polls (they rose in the UK over the two years before the recent general election). Similarly, the Arab spring was preceded by falling life satisfaction levels and rising GDP in Egypt. So even if voters are not using the numbers, politicians might do well to study them.

2.2 Scotland Performs

‘Scotland Performs’ is an initiative of The Scottish Government and forms part of the National Performance Framework which ‘underpins delivery of the Scottish Government’s agenda’ and ‘supports the outcomes approach to performance’. It is based on one core Purpose for the Scottish Government, which its various other layers

¹⁴ Research by George Ward using Eurobarometer data, quoted by O’Donnell, G. in *We are happier than you think* Prospect (May 2015).

aim to support. The layers of targets, outcomes and indicators themselves – i.e. ‘Scotland Performs’ – are described as follow by the Government:-

Scotland Performs measures and reports on progress of government in Scotland in creating a more successful country, with opportunities for all to flourish through increasing sustainable economic growth. Progress towards the Purpose is tracked by 7 Purpose Targets and it is supported by 16 National Outcomes - describing the kind of Scotland we want to be - and 50 National Indicators, covering key areas of health, justice, environment, economy, and education measure progress. Scotland Performs offers accountability based on national priorities set out in the National Performance Framework.¹⁵

In addition to these targets, outcomes, and indicators the ‘Core Purpose’ and ‘five Strategic Objectives’ also form part of the National Performance Framework.

The purpose targets, which translate straightforwardly into indicators, are as set out in Table 3.

Table 3: The 16 purpose targets and indicators of Scotland Performs

Economic Growth (GDP)	To raise the GDP growth rate to the UK level by 2011
	To match the GDP growth rate of the small independent EU countries by 2017
Productivity	To rank in the top quartile for productivity against our key trading partners in the OECD by 2017
Participation	To maintain our position on labour market participation as the top performing country in the UK
	To close the gap with the top five OECD economies by 2017
Population	To match average European (EU15) population growth over the period from 2007 to 2017
	Supported by increased healthy life expectancy in Scotland over the period from 2007 to 2017
Solidarity	To increase overall income and the proportion of income earned by the three lowest income deciles as a group by 2017
Cohesion	To narrow the gap in participation between Scotland’s best and worst performing regions by 2017
Sustainability	To reduce emissions over the period to 2011
	To reduce emissions by 80 percent by 2050

¹⁵ <http://www.gov.scot/About/Performance/scotPerforms>
<http://www.gov.scot/About/Performance/scotPerforms>

The 16 National Outcomes do not translate straightforwardly into indicators. The 50 National Indicators used to measure progress according to these outcomes are set out in Table 4, though it is interesting to note that they are in fact expressed as objectives rather than as indicators.

We are only giving a very limited commentary on Scotland Performs in this draft. There will be a presentation at the workshop from Carnegie, which has been involved in the process more closely than us. We will just make a few preliminary remarks.

First, unlike the ONS's Measuring National Well-being programme, the indicators were designed to reflect the Government's agenda, transmit priority outcomes and allow all involved to evaluate progress against this. That at least is the very clear messaging surrounding the indicator set. In line with this, conversations with officials in the Scottish Government suggest that the indicators have contributed to some extent to the more joined up policy making that the Scottish Government has achieved. In this respect they are more like the Public Service Agreements that the UK Treasury introduced under Gordon Brown – to specify performance levels for public services – than the informational role of ONS's Measuring National Wellbeing set.

Table 4: The 50 National Indicators used to measure progress towards the National Outcomes of Scotland Performs

Increase the number of businesses	Increase exports
Improve digital infrastructure	Reduce traffic congestion
Improve Scotland's reputation	Improve the skill profile of the population
Improve knowledge exchange from university research	Increase research and development spending
Increase the proportion of pre-school centres receiving positive inspection reports	Increase the proportion of schools receiving positive inspection reports
Increase the proportion of graduates in positive destinations	Increase the proportion of young people in learning, training or work
Improve levels of educational attainment	Improve children's services
Increase the proportion of healthy weight children	Increase the proportion of babies with a healthy birth weight
Improve children's dental health	Increase physical activity
Improve self-assessed general health	Improve mental wellbeing

¹⁶ <http://www.gov.scot/About/Performance/scotPerforms>

Reduce premature mortality	Improve end of life care
Improve support for people with care needs	Reduce emergency admissions to hospital
Reduce the percentage of adults who smoke	Reduce alcohol related hospital admissions
Reduce the number of individuals with problem drug use	Improve people's perceptions about the crime rate in their area
Reduce reconviction rates	Reduce crime victimisation rates
Reduce deaths on Scotland's roads	Improve the responsiveness of public services
Improve people's perceptions of the quality of public services	Reduce the proportion of individuals living in poverty
Reduce children's deprivation	Increase cultural engagement
Increase the number of new homes	Widen use of the Internet
Improve people's perceptions of their neighbourhood	Improve access to suitable housing options for those in housing need
Improve the state of Scotland's historic sites	Increase people's use of Scotland's outdoors
Improve the condition of protected nature sites	Increase the abundance of terrestrial breeding birds: biodiversity
Improve the state of Scotland's marine environment	Increase the proportion of journeys to work made by public or active transport
Reduce Scotland's carbon footprint	Reduce waste generated
Increase renewable electricity production	Improve the quality of healthcare experience

Source: Scottish Government¹⁷

Second, clearly the 50 National Indicators could never have acted as political indicators any more than the 41 ONS indicators could. They are far too numerous to play this role. However Scotland Performs also has 7 purpose targets which might have played this role – they form a small enough set and are at a sufficiently broad level. However we have seen no evidence that they have shaped political debate in Scotland. Indeed

¹⁷ <http://www.gov.scot/About/Performance/scotPerforms>

much of the information available on the website is out of date, suggesting they have fallen into desuetude.

We do not have a definitive view as to why this is. However we note that the overall structure (the ‘National Performance Framework’) – with its one core purpose, five objectives, seven purpose targets, 16 national outcomes and 51 national indicators – is extremely confusing. For example the relationship between the elements is not at all clear. On this basis we suspect that communication and resonance with the public was not a priority when this was developed. However indicators have to resonate with the public if they are to provide incentives to politicians or to reframe issues, i.e. if they are to be political indicators.

2.3 Welsh National Indicators

The Well-being of Future Generations (Wales) Act, which became law in April 2015, requires Welsh Ministers to publish indicators designed to measure ‘progress towards the achievement of [seven] well-being goals’ set out in the Act. These indicators are referred to as National Indicators. The indicators and their purpose were described as follows in a discussion document published by the Public Policy Institute for Wales for the Welsh Government:–

Ministers and public bodies specified in the Bill will be required to set well-being objectives designed to maximise their individual contribution to achieving the well-being goals, and to publish annual reports of the progress they have made towards meeting these objectives....The National Indicators, by specifying how progress towards achieving the goals is understood, are likely to inform the development of these well-being objectives, and any indicators used to measure performance against these objectives. Unlike the Welsh Government’s existing Sustainable Development Indicator set, the use of which is voluntary, they have a central, statutory role in policy development.... [However] because the National Indicators will measure progress towards the goals for Wales as opposed to the objectives of particular organisations they will not constitute performance targets and should not be interpreted as defining the immediate objectives of particular policies or programmes.¹⁸

The ultimate aim of the indicators is to improve the quality of policy making and service delivery by making it more joined up and ensuring that it conforms to the sustainable development principle.

The indicators have not yet been developed (they are likely to be published next spring) but they will be based on the goals (set out below as in the Act) and on a ‘conceptual framework’, that is to say a set of desired outcomes and the presumed

¹⁸ http://ppiw.org.uk/files/2015/02/Measuring-progress-towards-achievement-of-Wales-Wellbeing-goals_a-discussion-paper.pdf

relationships between them. It is likely that there will be around 40 indicators, together with a set of comparison indicators for some of the variables between different areas and groups within Wales. There is also likely to be a sub-set of around 6 or 7 of the 40 indicators designated as a headline set.

The goals as set out in the Act are as follows:-

- **A prosperous Wales:** An innovative, productive and low carbon society which recognises the limits of the global environment and therefore uses resources efficiently and proportionately (including acting on climate change); and which develops a skilled and well-educated population in an economy which generates wealth and provides employment opportunities, allowing people to take advantage of the wealth generated through securing decent work.
- **A resilient Wales:** A nation which maintains and enhances a biodiverse natural environment with healthy functioning ecosystems that support social, economic and ecological resilience and the capacity to adapt to change (for example climate change).
- **A healthier Wales:** A society in which people's physical and mental well-being is maximised and in which choices and behaviours that benefit future health are understood.
- **A more equal Wales:** A society that enables people to fulfil their potential no matter what their background or circumstances (including their socio economic background and circumstances).
- **A Wales of cohesive communities:** Attractive, viable, safe and well-connected communities.
- **A Wales of vibrant culture and thriving Welsh language:** A society that promotes and protects culture, heritage and the Welsh language, and which encourages people to participate in the arts, sports and recreation.
- **A globally responsible Wales:** A nation which, when doing anything to improve the economic, social, environmental and cultural well-being of Wales, takes account of whether doing such a thing may make a positive contribution to global well-being.

The indicators have not yet been published and so we cannot comment on them, but the process so far has made the following points evident:-

- Ministers and public bodies are obliged to take account of the goals when setting well-being objectives, but the goals are vague and it is not clear in the absence of indicators what this obligation amounts to – hence the importance of indicators in clarifying this

- However, there is no obligation to take account of the indicators as such when setting these objectives: the impact of the indicators on objectives, policy and outcomes depends on Ministers and public bodies choosing to be guided by them
- This means that they have to win the support of decision makers if they are to have effect. While there is a reporting process that may encourage this (including by the Future Generations Commissioner for Wales and the Auditor General for Wales, both of whom are independent of Ministers), and while it is possible that judicial review decisions will reinforce the status of the indicators, it is likely that their power will stem from the extent to which commentators and thus the public use them to hold decision makers at national and local level to account. In other words these really are intended to be political indicators in our sense; as opposed to sources of information (ONS) or performance measurement tools (Scotland performs) and the indicators and surrounding processes will need to be designed with this in mind.

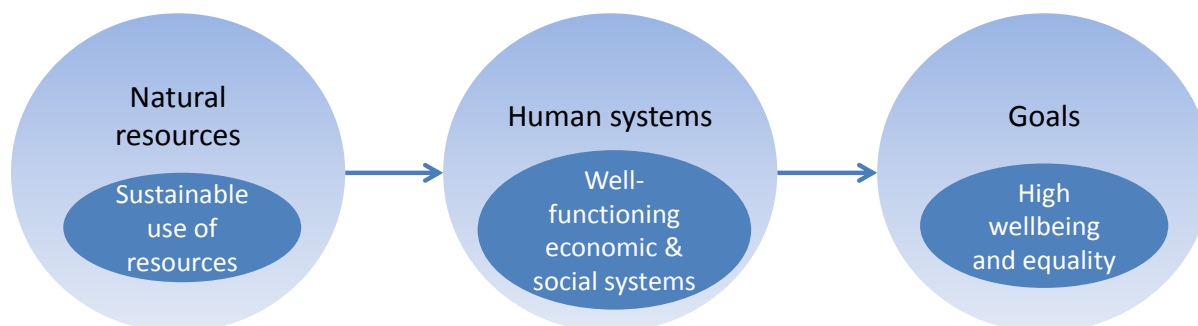
3 : A proposal for a headline indicator set

Given the above, our view is that we do not yet have a headline indicators set that will advance the transition to the green economy. Accordingly we are putting forward here our proposal for such a set and describing the work this involved: first developing a coherent but small (5–7) set of domains and then developing or selecting indicators for each of the chosen domains. As well as identifying a succinct set that is as comprehensive as possible, we recognise that obtaining backing for such a set, from a range of civil society and business organisations will be crucial to its successful promotion and dissemination. As such, we have carried out these steps in close consultation with a range of organisations and experts (see Appendix B for the full list of organisations engaged throughout the project).

3.1 Conceptual framework

As a starting point, we used NEF’s framework for measuring progress (Figure 1), which takes the broadest possible view of societal progress. It regards the three fundamental spheres of importance to humanity as: natural resources, on which all human life depends; the ultimate goals which humans aim to achieve; and the human systems by which those resources are used to achieve the goals.

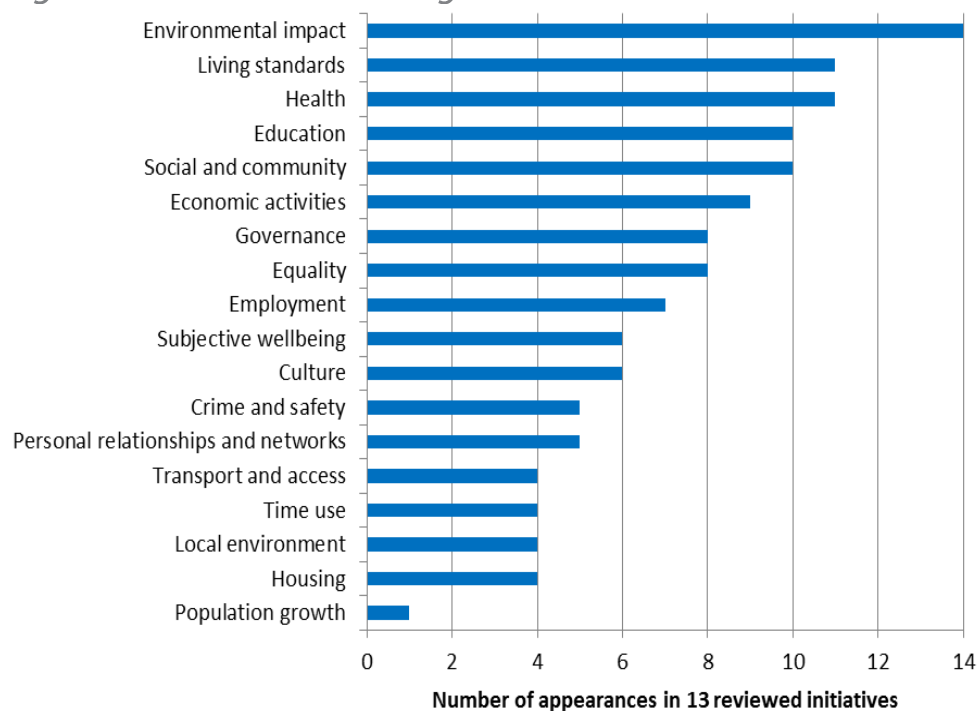
Figure 1: Conceptual framework for measuring the progress of UK society



3.2 Review of domains recommended by existing high-profile headline indicator initiatives

We identified 13 initiatives which set out to produce sets of headline and political indicators, including the initiatives described in section 2, further examples from government and civil society bodies in the UK, Bhutan, Germany and Canada, and international initiatives by the European Commission, the OECD and the United Nations.¹⁹ We reviewed these initiatives to identify the domains covered by the suggested indicators. The results are set out in figure 2, which shows the frequency with which 18 domains occurred (we grouped similar but not identical domains).

Figure 2: Domains that emerged from the review of indicator initiatives



¹⁹ See Appendix A for further details

3.3 Shortlist of suggested domains

We then created a shortlist based on these 18 domains. We eliminated *Economic activity*, typically measured by GDP, as the set was designed to complement and balance the prominence given to GDP, and *Population growth* as this occurred just once in our review and there are disagreements in the UK as to whether this is a good or bad thing. (Initially we also eliminated *Employment*, as we felt this already had adequate coverage in existing political indicators but were persuaded following consultation to reinstate this). We also combined seven domains together into a *Public goods and services* domain: health, education, culture, local environment, transport and access, housing, crime and safety. Combined in this way, these form a non-market complement to *Living standards*. Our shortlist therefore comprises the following ten domains:

- Environmental impact
- Living standards
- Employment
- Public goods and services
- Governance
- Equality
- Social and community
- Wellbeing
- Personal relationships and networks
- Time use

3.4 Applying the criteria to the shortlisted domains

We assessed each of the shortlisted domains against the domain criteria set out in section 1. The results of this exercise are summarised in Table 5.

Most of these assessments relied on judgement; however in assessing what mattered to people we paid particular attention to public consultation exercises with British citizens conducted by other initiatives which had gathered public views on priority domains for measurement:²⁰

- The ONS ‘National Debate’ on measuring national wellbeing
- The results from UK users who ranked the domains in the OECD’s Better Life Index
- The Oxfam Humankind Index consultation in Scotland, including with marginalised groups.

²⁰ Note that none of the initiatives used statistically representative samples of the public.

Table 5: Summary of assessment of domains against selection criteria

	Matters to people	Clear and easy to communicate	Far-reaching	Influenced by policy	Measurable
Suggested domains	Living standards	✓	✓	✓	✓
	Employment	✓	✓	✓	✓
	Economic inequality	✓	✓	✓	✓
	Environmental impact	✗	✓	✓	✓
	Wellbeing	✓	✗	✓	✓
	Public goods and services	✓	✗	✓	✗
	Governance (quality of democracy)	✗	✗	✓	✗
	Social and community	✗	✓	✓	✓
	Personal relationships and networks	✓	✓	✗	✓
	Time use	✗	✗	✓	✗

At a roundtable, we then tested our suggested list of domains with a group of key informants, and after some follow up conversations, reached agreement on the following six domains:

- Living standards
- Employment
- Economic inequality
- Environmental impact
- Wellbeing
- Public services

3.5 Recommended indicators

Following a further period of consultation, and having considered various indicator options for each domain in accordance with the criteria set out earlier in this paper, we have set out tentative indicator suggestions and labels for five of the six domains in Table 6 – tentative because we are continuing to research these suggestions and alternatives to them. Note that we propose using the labels to represent both the domain and indicator, rather than communicating about domains and indicators separately. At the time of writing, we have not yet identified a single indicator that adequately reflects the public services domain, and are considering a range of options.

Table 6: Suggested headline indicators to represent the identified domains

Domain	Indicator	Label
Living standards	Real median equivalised disposable income	Real incomes
Employment	Proportion of labour force in employment and mostly or very satisfied with their job	Good jobs
Economic inequality	The ratio of the share of total income received by the highest 10% to that of the lowest 40% (the Palma ratio) OR The ratio of average income in top and bottom 20% (80:20 ratio)	Economic inequality
Environmental impact	Annual consumption-based carbon emissions	Carbon footprint
Wellbeing	Percentage of the population reporting 7+ on overall satisfaction with life (on a 0–10 scale)	High wellbeing
Public services	–	–

The choice of indicators has been based on detailed consideration of various options within each domain, but can be summarised as being guided by a focus on selecting the indicator for each domain that is likely to best communicate about the domain as a whole. In some cases, such as living standards, it seems relatively uncontroversial to say that the indicator we are recommending – i.e. one based on incomes – is a good one to represent the domain as a whole, because incomes are strongly associated with other key aspects of living standards such as affordability of basic goods, and of housing. In others, such as environmental impact, it is much less straightforward to

make this sort of case: while carbon emissions are a good proxy for contributions to climate change, this clearly leaves out a huge range of other types of environmental impact, particularly biodiversity loss which is another headline environmental issue. However, our current recommendations are based on our views about what are the best available options to communicate about the domain as a whole: for the environmental impact domain the technical and conceptual complexity and unfamiliarity of other indicator options has strongly informed our recommendation.

The indicator set as a whole contains three indicators within the standard economic sphere, but all of these are different from existing economic mainstream indicators. Rather than the overall size of aggregate economic activity represented by GDP, two of the indicators, real incomes and economic inequality, are based on the real distribution of incomes. The third represents a key outcome of a well-functioning economy – the proportion of the labour force in satisfying jobs. The other three indicators come from spheres beyond the standardly economic – though we believe that they too represent key outcomes of a well-functioning economy. They are the proportion of people reporting high wellbeing (life satisfaction of 7 and above on a 0–10 scale), the UK's carbon footprint (annual consumption-based carbon emissions), and a measure of the quality of key UK public services. As a set it is therefore firmly grounded in the 'standard economic' sphere, but also considerably expands the view of the outcomes by which a successful economy and society should be judged.

There are of course tensions between these indicators – for example, increasing median income may at some point come into conflict with reducing carbon footprint (though in the short-term there are many ways in which it would be possible to do both concurrently). Their usefulness as a policy measure is therefore in part in bringing to light such tensions and trade-offs, and requiring political decision-making to achieve balance between the different goals represented by the indicators.

The next steps will be to test the presentation of the values and stories associated with these indicators, with a small sample of the set's target audience, before preparing to launch and disseminate the findings of the project.

A key idea, which those we have consulted during the work to date have been eager to explore, is whether these indicators could be combined into a single index of progress towards the green economy. As already noted, we are not proposing such an index at this stage, but think it worth setting out two possible approaches to such an index based on these or similar domain indicators, if only to make clear that this is a possible project.

The first would be the construction of a ratio, along the lines of the Happy Planet Index. The numerator would be the goods and the denominator environmental damage. The index would thus measure the environmental efficiency of the economy. The goods might involve some combination of living standards, good jobs and

wellbeing, weighted appropriately, and adjusted to take into account inequality. Environmental damage could be defined in terms of carbon emissions or more broadly to take into account bio-diversity loss and other forms of environmental degradation.

An alternative would be to combine the various goods and bads without creating a ratio. The weighting and methods of combination would be designed to ensure that insufficient progress towards tolerable levels of degradation would always result in a negative number.

Whilst offering an attractive opportunity to set out a 'long-term' compliment to the 'short-term' measure of GDP, in the absence of a robust theory of progress which enables the index to accurately reflect the balance needed across the set of indicators and the tensions between them, at this point, we do not advocate the creation of an overarching index to provide a single number to sum up all six headline indicators.

3.6 Use of the indicators

Operating on its own account, outside the terms of reference of NETGREEN, NEF is now planning to build support for its final recommended indicators amongst those who hold governments to account or who have influence: politicians, civil society organisations and think tanks, expert commentators, journalists and business. The idea is that these individuals and organisations will be able to use these indicators as the basis for reports on how well government has done, each year and over an electoral term, overall and in transitioning to a green economy. NEF will do this in the UK, but it hopes that others may adopt the same or a similar approach in other European countries and that a debate might start in Brussels on a new set of headline indicators.

We do not underestimate the difficulties of building support for a broad ranging indicator set of the kind set out here: organisations of all kinds are set up to pursue specific objectives which can be measured with specific indicators, and they may see a set such as this as at best a distraction from and at worst in conflict with advocating the adoption of more specific indicators within the policy process. However, we believe that overall, the benefits of an impactful, 'strength in numbers' approach will outweigh these difficulties.

4 : Headline indicators for the European Union – beyond Europe 2020

As already noted, the European Union already has a set of headline indicators for the period until 2020. The question is what will replace these, and whether the ambition should be to create ‘political indicators’ in the sense we are using the term. This raises a number of very broad issues about the direction of Union policy and the role of the Commission in building support, which we briefly sketch here.

Thus it is widely – but not universally – agreed that to achieve the aims of the European Union, as set out in the Treaty of Lisbon, GDP maximisation and market efficiency cannot be the sole or perhaps even the main objectives of economic policy over the longer term. Growth remains important, but it needs to be smart, inclusive and sustainable. The question now is *how* to achieve the changes to economic policy making needed to deliver this.

One part of the answer is to develop new measures of progress ‘Beyond GDP,’ as proposed by the Stiglitz Commission. The other is to use these measures in economic governance. This *does not* mean that environmental and social ministries or directorates general (DGs) start to use environmental and social indicators alongside economic indicators, which happens in any case. It means instead that economic ministries and DGs (e.g. DG ECFIN) start to use *all* these indicators as part of an integrated policy process, in a way that prevents traditional economic objectives (such as GDP growth) from trumping all others.²¹ To some extent the Juncker structural reforms are pushing in this direction, but while bureaucratic improvement is necessary, it is not sufficient. Most of those we have spoken with agree that to effect real change pressure from the European Parliament and at least passive support from the Council is needed. In other words, some kind of democratic imperative is required.

While the Parliament and the Council are the channels for any such imperative, there remain questions for the Commission. First, can and should members of the Commission do anything to stimulate and complement this imperative? Second, if the answer to this first question is yes, will developing a much stronger narrative about the role of Europe in promoting economic wellbeing be part of this? Third, if the answer to this second question is yes, will developing a new set of headline indicators or ‘political indicators’ that will in due course replace the Europe 2020 indicators be part of this narrative construction? And finally, does the crisis of the UK referendum (and the European Parliament election results) represent an opportunity?

If the answers to these questions suggest action is possible, further research is needed to determine what that action should be.

²¹ Whitby, A. et al (March 2014) *BRAINPOOL: from measurement to Politics and Policy* available at <http://www.brainpoolproject.eu/wp-content/uploads/2014/05/BRAINPOOL-Project-Final-Report.pdf>

5 : Using the NETGREEN web-tool to identify headline indicators

With the financial support of the European Commission, the NETGREEN team has developed an open-access, searchable web tool that provides policy-makers and other stakeholders with a unique point of entry into the huge landscape of green economy indicators, including headline indicators. The tool, named 'measuring-progress', enables policy-makers and other users²² to quickly identify the most relevant indicators to help them measure the success of green economy policies and understand the key implications and challenges of the transition.

The tool offers a concise collection of green economy indicators²³ accompanied by easy-to-understand information²⁴ (e.g. description, data availability, indicator construction and quality, interpretation) that can help users who are not necessarily familiar with scientific terminology to interpret results and select the indicators most suited to their purpose. Most importantly, the web tool provides further indicator suggestions²⁵ that may broaden users' viewpoints and help them integrate alternative green economy considerations into their analysis. To achieve that, the tool provides a list of related indicators for each indicator and a list of potential misinterpretations and indicators to help avoid misinterpretations.

Aiming to address the needs of users who may not have specialist knowledge of the green economy, the design of the web tool enables users to receive indicator suggestions in three ways: by using key words¹⁷ that are prominently used in the policy process (e.g. environmental taxes, eco-innovation, climate change negotiations); by choosing one or several green economy topics¹⁸ from a hierarchy; or by free-text search.

The web tool is accessible at www.measuring-progress.eu.

²² Examples of other users include campaigners, business strategists and researchers.

²³ To prepare the collection of indicators featured in the web tool, the NETGREEN research team first conducted a systematic overview of the large and fragmented body of work in the field of green economy indicators. Using a list of around 2000 identified indicators as a starting point, the team prepared a list of about 300 'lead' indicators that cover, to the extent possible, all major aspects of the green economy, namely economic sustainability and resilience, environmental sustainability, social justice, effective governance and quality of life. This list of 'lead' indicators featured in measuring-progress.eu is complemented by a list of about 500 'non-lead' indicators for which the tool offers a limited amount of information.

²⁴ The tool also provides links to access data.

²⁵ In order to include this functionality in the tool, the research team first developed a mind map of the main themes associated with the green economy using input from an in-depth literature

Appendix A: Indicator initiatives reviewed

Author/Organisation	Initiative	Aim of the initiative	Link
European Commission	Europe 2020	Delivering smart, sustainable, inclusive growth	http://ec.europa.eu/europe2020/europe-2020-in-a-nutshell/priorities/index_en.htm
OECD	How's life?	Assessment of people's wellbeing in OECD countries	http://www.keepeek.com/Digital-Asset-Management/oecd/economics/how-s-life-2013_9789264201392-en#page27
OECD - Hall et al	A framework to measure the progress of societies	A proposed framework for measuring the progress of societies	http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=std/doc%282010%295&docLanguage=En
Bhutan (The Centre for Bhutan Studies and GNH Research)	Gross National Happiness	An attempt to define an indicator and concept that measures quality of life or social progress in more holistic and psychological terms than only the economic indicator of gross domestic product	http://www.grossnationalhappiness.com/nine-domains/
UNDP - Amartya Sen and Mahbub ul Haqin	Human Development Index	To shift the focus of development economics from national income accounting to people-centred policies	http://en.wikipedia.org/wiki/Human_Development_Index
Canadian Index of Wellbeing, University of Waterloo	Canadian Index of Wellbeing	To enable all Canadians to share in the highest wellbeing status by identifying, developing and publicizing statistical measures that offer clear, valid and regular reporting on progress toward wellbeing goals and outcomes Canadians seek as a nation.	https://uwaterloo.ca/canadian-index-wellbeing/resources/reports

Vermuri and Costanza	National Well-being Index	This study aims to combine data on national levels of mean SWB with data on objective measures of built, human, social, and natural capital in order to better explain the determinants of national SWB.	https://www.pdx.edu/sites/www.pdx.edu/sustainability/files/Vermuri%20and%20Costanza%202006.pdf
Sustainable Society Foundation	Sustainable society index	Monitoring the progress of a country on its way to sustainability, for setting priorities with respect to sustainability, to make comparisons between countries, for education purposes and for further research and development	http://www.ssindex.com/about-ssf/
Roland Zieschank and Hans Diefenbacher	German National Welfare Index	The National Welfare Index is not intended to replace GDP/GNI but rather to integrate it as an informational counterpart	http://www.polsoz.fu-berlin.de/en/polwiss/forschung/systeme/ffu/forschung-alt/projekte/abgeschlossene/07_wohlfahrtsindex/bmu_final_report.pdf?1367705877
Welsh government	Wales Wellbeing of Future Generations Bill	To improve the economic, social and environmental wellbeing of Wales	http://www.senedd.assembly.wales/mgIssueHistoryHome.aspx?IId=10103
Scottish government	Scotland Performs	To focus government and public services on creating a more successful country, with opportunities for all of Scotland to flourish, through increasing sustainable economic growth	http://www.gov.scot/About/Performance/scotPerforms
Office for National Statistics	Measuring National Wellbeing	The programme aims to produce accepted and trusted measures of the well-being of the nation - how the UK as a whole is doing.	http://www.ons.gov.uk/ons/publications/re-reference-tables.html?edition=tcn%3A77-303186
Oxfam Scotland	Humankind Index	The development of the Oxfam Humankind Index shows that a new approach to measuring prosperity in Scotland is not only possible but desirable, moving beyond economic growth and increased consumption and looking instead at a broader range of factors that matter to people and communities.	http://policy-practice.oxfam.org.uk/our-work/poverty-in-the-uk/humankind-index#5c3829e3-01f6-4660-8718-c002eed46c5c

Appendix B: Organisations engaged and consulted throughout NEF's Headline Indicators of Progress project

Action for Happiness
Aldersgate Group/An Economy That Works
Bioregional
Carnstone Partners
Equality Trust
Federation for Small Business
Friends of the Earth
Imperial College
Kingfisher
Landmark
Mind
Office for National Statistics
Oxfam GB
Plymouth University
Royal Statistical Society
RSPB
Shelter
TUC
University of Leeds
WWF

Appendix C: Policy workshop agenda

Date: Tuesday 16th June 2015, 11:00 – 15:30

Location: Mary Ward House, 5–7 Tavistock Place, London WC1H 9SN

- 1100 – 1115 Welcome and introduction to the workshop**
Charles Seaford, New Economics Foundation
- 1115 – 1135 The UK experience (1):** The ONS's Measuring National Well-being Programme. *Abigail Self, the Office for National Statistics* followed by questions
- 1135 – 1155 The UK experience (2):** The Welsh Government's plan for National Indicators. *Charles Seaford, on behalf of Public Policy Institute for Wales* followed by questions
- 1155 – 1230 A complementary approach:** Developing a succinct set of headline measures of progress for the UK. *Juliet Michaelson and Karen Jeffrey, New Economics Foundation* followed by questions
- 1230 – 1250 The UK experience (3):** Scotland Performs
Jennifer Wallace, Carnegie UK Trust followed by questions
- 1250 – 1350 Lunch**
- 1350– 1355 Summary of the morning and identification of key issues**
Charles Seaford
- 1355– 1405 Reflection on the UK experience and implications for Europe**
Bartek Lessaer, European Commission
- 1405 – 1500 Discussion of key issues arising including:**
- What it will take for indicators to help create support for the shift to a green economy
 - The implications of the experience and ideas presented today for other European nations
 - The implications of the experience and ideas presented today for the EU
- 1500 – 1520 The NETGREEN tool:** A platform to identify headline indicators of progress – presentation and questions
Lucas Porsch, Ecologic Institute followed by questions
- 1520 – 1530 Summary of discussion and concluding comments:**
Charles Seaford, New Economics Foundation

Appendix D: Policy workshop attendee list

Abigail Self
Office for National Statistics

Alex Kirykowicz
Department for Environment
Food and Rural Affairs

Ashvin Ramasamy
Ecologic Institute

Bartek Lessaer
European Commission
DG Employment

Charles Seaford
New Economics Foundation

David Rodriguez-Rodriguez
University of Plymouth

Donatella Fazio
Italian National Institute for Statistics

Floor Brouwer
Wageningen University

Garret Tankosić-Kelly
SEE Change Network

Igor Taranic
Centre for European Policy Studies

Ioana Sirca
New Economics Foundation

Hannah Wheatley
New Economics Foundation

James Evans
Office for National Statistics

Jennifer Wallace
Carnegie UK Trust

Juliet Michaelson
New Economics Foundation

Karen Jeffrey
New Economics Foundation

Kate Raworth
Oxford University

Lucas Porsch
Ecologic Institute

Lucien Georgeson
Yale University/University College
London

Marius Hasenheit
Ecologic Institute

Oliver Greenfield
Green Economy Coalition

Richard Lewney
Cambridge Econometrics

Saamah Abdallah
New Economics Foundation

Sara Pires
University of Coimbra

Tiago Domingos
Instituto Superior Técnico

Tom Barnett
TruCost

Vasileios Rizos
Centre for European Policy Studies

Will McDowall
Green Economy Policy Commission,
University College London

About NETGREEN

NETGREEN is an EU-funded project that aims to advance progress towards a green economy. The key output of the project is an open access, interactive website (www.measuring-progress.eu) providing information on green economy indicators. Partners in NETGREEN are: Ecologic Institute (lead partner), the Centre for European Policy Studies (CEPS), the New Economics Foundation (NEF), LEI Wageningen UR, the Centre for Environmental and Sustainability Research (CENSE) and the Green Economy Coalition (GEC).

Project coordination provided by Ecologic Institute

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