



THE PRINCE OF WALES'S
CORPORATE LEADERS GROUP

21st century energy:

Business reflections
on renewables
in Europe

Business
conversation

The Prince of Wales's Corporate Leaders Group

The Prince of Wales's Corporate Leaders Group (CLG) brings together executives from a cross-section of European industry to accelerate progress towards a low carbon, sustainable economy. Through cross-fertilisation of ideas and influential conversations with policymakers and peers, the CLG advocates forward-looking solutions that build a resilient and prosperous future. The CLG is convened by the University of Cambridge Institute for Sustainability Leadership (CISL).

The CLG is a founder member of the We Mean Business coalition.

The University of Cambridge Institute for Sustainability Leadership

The University of Cambridge Institute for Sustainability Leadership (CISL) empowers business and policy leaders to make the necessary adjustments to their organisations, industries and economic systems in light of this challenge. By bringing together multidisciplinary researchers with influential business and policy practitioners across the globe, we foster an exchange of ideas across traditional boundaries to generate new solutions-oriented thinking.

Corporate Leaders Group members



Publication details

Copyright © 2017 University of Cambridge Institute for Sustainability Leadership (CISL). Some rights reserved.

Disclaimer

The opinions expressed here are those of the authors and do not represent an official position of CLG, CISL, the wider University of Cambridge, or clients.

Author and acknowledgments

This business briefing was authored by Joanna Gaches, with editorial input by Jill Duggan, Eliot Whittington, Natalia Agüeros-Macario and David Webb. The editorial team also wishes to thank the We Mean Business Coalition for their support.

Reference

Please refer to this publication as University of Cambridge Institute for Sustainability Leadership (CISL). (2017). *21st century energy: Business reflections on renewables in Europe*, Cambridge, UK: The Prince of Wales's Corporate Leaders Group.

Copies

This full document can be downloaded from the Corporate Leaders Group's website: www.corporateleadersgroup.com

Contact

To obtain more information on the report, please contact Adele Williams:

E: adele.williams@cisl.cam.ac.uk

T: +44(0)1223 768451

April 2017

Contents

Executive summary	2
Introduction	4
Section 1 Is the 2030 target ambitious?	6
Section 2 Why are ambitious targets so important to business?	10
Section 3 How does policy consistency drive investment in renewables?	12
Section 4 Is there a case for stronger governance?	16
Section 5 What is the commercial case for renewable energy?	18
Section 6 What is the effect on market positioning and reputation?	20
Section 7 How do companies decide whether to produce or purchase renewable electricity?	24
Section 8 How are some companies innovating?	26
Conclusions	28

Energía del siglo XXI: Reflexiones empresariales sobre la energía renovable en Europa

Resumen ejecutivo

Este informe reúne entrevistas, historias de emprendimientos y empresas interesadas en la energía renovable. El informe se centra en las políticas de la UE sobre energía renovable y el papel que desempeña la industria en la innovación para generarla.

Invitamos a 15 empresas y organizaciones empresariales a compartir su experiencia en energía renovable y en innovación dentro sus organizaciones, y las entrevistamos para discutir el contexto europeo en el que operan. Este conjunto de empresas representa un grupo intersectorial de industrias. El objetivo de la discusión era explorar las decisiones que se han tomado sobre energía renovable y los factores empresariales que impulsaron esa toma de decisiones. A los entrevistados se les preguntó si la actual Directiva sobre energías renovables había alterado de algún modo la política corporativa, si las medidas que contiene son eficaces para alcanzar los objetivos y cómo podrían favorecer mejor las directivas futuras la adopción de medidas nuevas.

Un mensaje común que se extrae del informe es el deseo de que la estrategia de políticas sobre energía renovable sea más ambiciosa, coherente y cooperativa y la voluntad de que Europa lidere la innovación en este ámbito. Las empresas expresaron su frustración respecto a políticas que consideran incoherentes, poco ambiciosas y que no se aplican. Asimismo señalaron bajo nivel de cooperación regional y nacional y una ausencia de un marco coherente que permita planear operaciones futuras.

Otras reflexiones clave:

- **La mayor parte de las empresas entrevistadas desean objetivos ambiciosos.** Consideran que este tipo de objetivos son una buena manera de obtener resultados en el sector privado, mientras que los objetivos menos ambiciosos tienen menor probabilidad de impulsar inversiones empresariales. Quienes se muestran a favor de unos objetivos más audaces alegan que deben ser lo bastante ambiciosos para estimular la acción y la intervención, y no limitarse a predecir lo que ocurrirá si prevalece el modelo actual de negocios.

- **Algunos de los entrevistados sostienen que el éxito depende de que todos los actores tengan un mandato claro.** Los entrevistados creen que los compromisos de los estados miembros deben seguir siendo parte de la solución, porque la ausencia de objetivos vinculantes sobre energía renovable devalúa la ambición de las políticas y crea un entorno en el que las inversiones se perciben como riesgosas.
- **Varios de los entrevistados reconocieron claramente la necesidad de una coherencia mayor en la política sobre energía renovable entre los países de Europa y también dentro de ellos.** La Unión de Energía de Europa necesita un marco común para la cooperación transfronteriza que incluya un diseño de mercado normalizado, así como plantillas para la cooperación regional y medidas de aplicación.

Gran parte de las empresas entrevistadas considera que podrían absorber fácilmente el nivel de ambición actual para llevar a cabo la transición hacia la energía renovable, y cree que se podría hacer mucho más si la UE interviniera para racionalizar el panorama actual de políticas y reglamentos contradictorios. Un panorama de políticas más claro y ambicioso generaría un clima de confianza absolutamente necesario para la inversión empresarial y permitiría obtener mayores logros en lo que respecta al suministro de energía renovable en la UE.

A diferencia de otras empresas entrevistadas, EDF Energy preferiría reducir gradualmente el énfasis en objetivos tecnológicos específicos (como los de energía renovable) y reforzar el compromiso de utilizar un precio de carbono fuerte para impulsar el desarrollo de soluciones energéticas de bajas emisiones y del menor costo.



“

Un mensaje común que se extrae del informe es el deseo de que la estrategia de políticas sobre energía renovable sea más ambiciosa, coherente y cooperativa, y la voluntad de que Europa lidere la innovación en este ámbito.

”

21st century energy: Business reflections on renewables in Europe

Introduction

In October 2014, the EU Council agreed a 2030 framework for climate and energy, which included a proposed renewables target of 27 per cent of energy consumption drawn from renewable energy sources by 2030, building on the EU's previous 20 per cent by 2020 target.

As the EU implements its 2030 framework it does so in the context of a number of challenges, including the impact of the UK's decision to leave the EU, concerns about migration and populism, and a number of key national elections. As a result, climate and energy issues risk slipping down the EU's agenda.

However, EU Member States remain committed to the 2030 framework and to the Energy Union initiative, which has been developed by the European Commission to update EU energy policy. Proposals for new EU legislation on renewable energy in particular have been subject to significant criticism from some Members across all stakeholder groups for the low level of ambition and the lack of binding Member State commitments.

This report was commissioned to gather views from a number of business sectors on the effectiveness of EU renewables policy in encouraging business to generate or use renewable energy, and how this could be improved for a new directive.

Of the 15 companies and business organisations sharing their views on these questions, many are known as pioneers for sustainability or 'green' business, and many are from sectors that would not obviously see direct benefits in transitioning to renewable energy. For most, the issue of energy production and supply is far from their core business and expertise, which makes the different approaches taken to tackling this area so interesting.

Some have taken direct action, moving into renewable energy generation, not only for their own consumption but also for the market, thereby diversifying their business model. Others have been content to leave production to established providers, but sought to ensure their own consumption is beyond reproach. They have tried to stimulate demand in the market by requiring renewable energy provision when tendering. We have highlighted some of the different approaches companies are adopting in the 'How are companies innovating?' section of this report.

27%

The EU Council's proposed renewables target for the proportion of energy consumption to be from renewable energy sources by 2030, set in 2014.

15

Companies and business organisations contributed to this report.

The participants in this report were:

ACCIONA	Juan Ramón Silva, Chief Sustainability Officer José Lopez-Tafall, Regulatory Affairs Director Elisa Prieto, Research & Strategy Office, ACCIONA Energy
Anglian Water	Matt Pluke, Energy Manager
BT	Rob Williams, General Manager, Procurement – Utilities, Power & Cooling
Doosan Babcock	Les King, Director of Technology Policy and Liaison
DSM	Paulette van Ommen, Global Climate Lead Ward Mosmuller, Director of EU Affairs
EDF Energy	Paul Spence, Director of Strategy and Corporate Affairs
Eurelectric	Koen Noyens, Manager Generation, Climate & Environment
GSK	Matt Wilson, Head of Environmental Sustainability Centre of Excellence
Google	
IKEA Group	Katerina Maaskant, Manager, Public Affairs Monica Mireles Serrano, Senior Advisor, Public Affairs Alejandro Castro Perez, Global Business Leader, Solar
Interface	Nigel Stansfield, President of EMEA at Interface
LafargeHolcim	Cedric de Meeus, Vice-President, Group Public Affairs
Philips Lighting	Bruno Pedrotti, Head of European Public and Government Affairs
Sappi	Max Oberhumer, Managing Director, Sappi Gratkorn
Stora Enso	Roy Antink, SVP, International Policy Coordination, Sustainability

Business and Brussels

We invited companies to talk to us about decisions regarding renewables policy and the corporate drivers for those decisions. Discussion also included how – or if – the existing Renewables Directive had affected corporate policy, whether the measures it contained were effective to achieve its goals, how future policies could best facilitate further action, and their views on policies affecting the use and generation of renewable energy in general.

Section 1

Is the 2030 target ambitious?

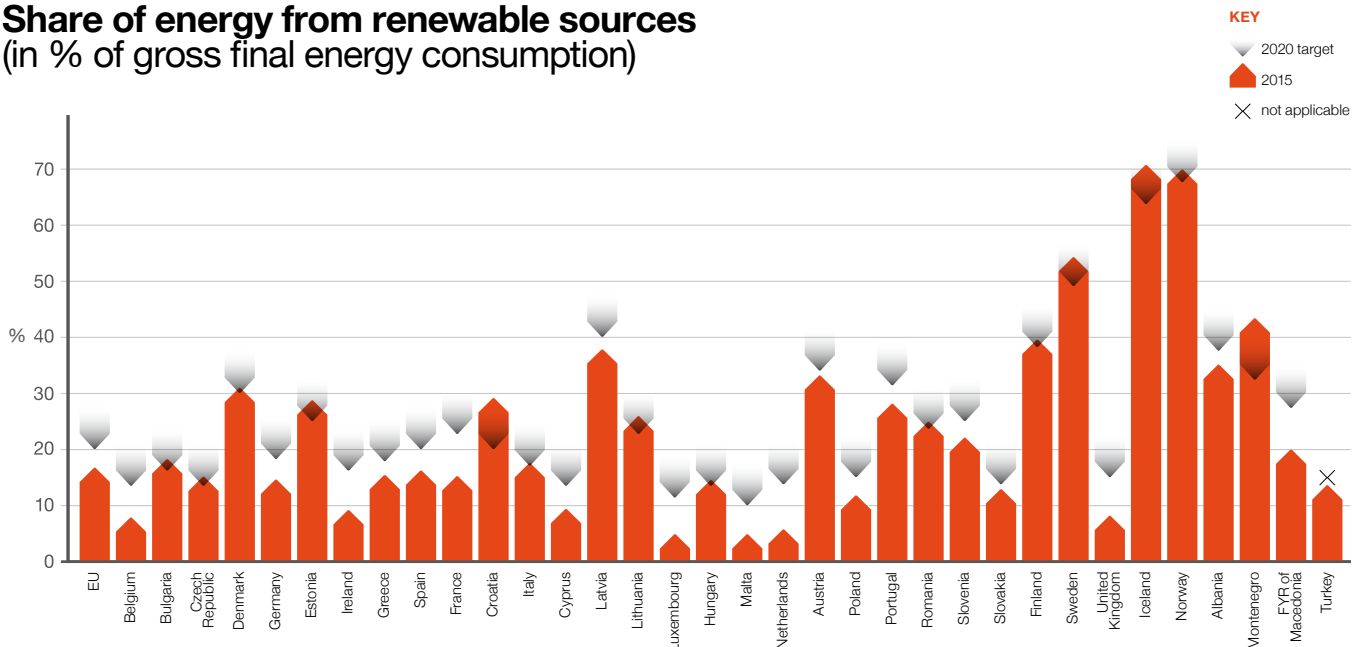
The current 2020 renewable energy target for the EU is divided into individual, binding, Member State targets, but the new renewable energy target of 27 per cent by 2030 is an EU-level target only. We asked companies what they thought of this change.

These organisations articulate a key concern – that a lack of EU ambition will inevitably lead to a lack of Member States’ ambition. Those countries that are delivering on renewables already, such as Sweden, Croatia, Bulgaria, Finland, have no incentive to go further, and yet they are the very countries best placed to deliver more.

As for those countries who are not even close to meeting their 2020 targets, such as France, the UK, Hungary, Poland or the Netherlands, what incentive do they have to tackle the issue if other states will be meeting the target on their behalf? A lopsided concentration of effort amongst Member States makes the prospect of moving towards 2050 decarbonisation and EU Energy Union much more difficult, particularly in the absence of a truly effective carbon price in the emissions trading market.

There is frustration amongst many of the companies interviewed that although the current renewables targets have been a driver for change, they are not being used to full effect by the EU to push or encourage Member States to co-operate as they might. Nor are they explicit enough to encourage Member States to address both electricity generation and heat generation from renewable sources, with some companies hoping for a specific commitment in the Directive for increasing renewable heat generation.

Share of energy from renewable sources (in % of gross final energy consumption)





The 2030 target is an EU-level target only. We asked how businesses felt about this change.

Interface



An overall EU target is a bit irrelevant on its own – Member States will make their own decisions – or not – on how to contribute to that target.



ACCIONA



A common framework should reflect, at least: binding targets on Member States; indicative paths to achieve final targets; transparent, stable and predictable support systems and market rules; prohibition of retroactivity or other measures against achieving renewable targets; coherence with fiscal policy (environmental taxes); a specific procedure enabling the Commission to verify in advance the effective implementation of the methodology, as well as to resolve potential deviations from the national targets; discrimination against conventional energies (remove fossil fuel subsidies).



IKEA Group



We need stable and ambitious policies since any uncertainty can hamper or delay corporate investments. This would enable us to realise our investments faster. The EU level can play an important part in increasing the harmonisation of the policies.



EDF Energy



Decarbonisation of electricity by 2030 is essential to deliver the longer term carbon reduction targets agreed in Paris and renewables have a key role to play in this. However, it is important to minimise the cost to the consumer and this means countries need flexibility, in order to decarbonise most cost effectively for their particular circumstances. To enable this flexibility, we think that a renewables target set only at the EU level is an appropriate approach.



EU state of play

01

In Brussels, the EU's Energy Union strategy identified renewable energy as a top priority. The European Commission published a package of proposals to implement this strategy, known as 'Clean Energy for all Europeans'.

It includes suggested revisions to the Renewables Directive (REDII) and market design. These dossiers are being discussed in the European Parliament and EU energy ministers will also have their say, all of which will shape the final legislation.

Section 1

Is the 2030 target ambitious? *continued*

Most companies interviewed are concerned that the removal of individual targets for Member States will lead to a relaxation of effort from those countries that are already struggling the most to transition to cleaner energy.

The European Parliament is also concerned about the lack of ambition. In June 2016, it voted to increase the EU's renewables targets to "at least" 30 per cent by 2030, and to include national targets – a clear message to the Commission that its new Renewable Energy Directive (REDII) proposals should be more ambitious.

Targets are tools to drive action – to encourage new ways of looking at problems and changing mindsets. As IKEA Group points out, bold targets work – they have set themselves a 100 per cent renewable energy target for 2020 because it is clear that its whole system must change.

If it had set an 80 per cent target, it says everyone would have found a reason to be in the other 20 per cent. IKEA says that when the EU sets itself a 30 per cent target for 2030, it is giving Member States permission to be in the 70 per cent, rather than aiming for a total change of mindset or putting itself on track for a different level of provision.

It is worth noting that EDF, from its perspective as a large, European energy company, places a stronger emphasis

on the use of effective carbon pricing to drive the development of renewable and other low carbon energy sources, in a technology neutral approach.

The 2009 Renewable Energy Directive (REDI) contained clear and binding responsibility for Member States to deliver set contributions. The revised Renewable Energy Directive, REDII, raised the renewables target on one hand, while on the other, removed the responsibility of Member States to individually contribute to that target, therefore decreasing the likelihood of Europe reaching its renewable energy goals, if confidence is not restored. Businesses interviewed have little confidence that Member States will continue to make the effort when the EU does not ensure action is taken.

Targets focus on all energy, while our interviewees spoke mostly about electricity, so it is important that heating, cooling, transport and buildings all play a role. One respondent, Doosan Babcock, highlighted the importance of focusing on other elements of energy beyond electricity.

€40 billion

The potential benefits of increasing the number of grid interconnections and sharing reserves across the EU in a high renewable energy scenario could be as much as €40 billion a year from 2030.ⁱ



Doosan Babcock



A mandatory heat component of the total REDII 2030 energy target would encourage uptake of renewable CHP technologies, with the concomitant improvement in air quality associated with current CHP schemes. The decarbonisation of heat is one of the major challenges facing the EU in the next few decades. A number of countries are incentivising local/community-based CHP schemes, where electricity is produced off grid and heat distributed via local heat networks. Incentives, if they are in place, vary from country to country, and also within country, on the technology used.



100%

IKEA Group renewable energy target:
“by 2020 we will produce as much
renewable energy as the energy we
consume in our own operations”.

Section 2

Why are ambitious targets so important to business?

Current EU policy has successfully increased the share of renewable energy.ⁱⁱ By increasing the size of the market in this way, costs have been driven down, increasing affordability. However, recently investments in renewables have flattened due to the uncertainty about the future policy regime.ⁱⁱⁱ

Specifically, the absence of binding targets means that companies do not know what Member States will do in terms of renewables after 2020. It gives permission for renewable energy to be treated as a low priority by those Member States who wish to, thus driving away investment despite the overall mandate to increase the share of renewables.

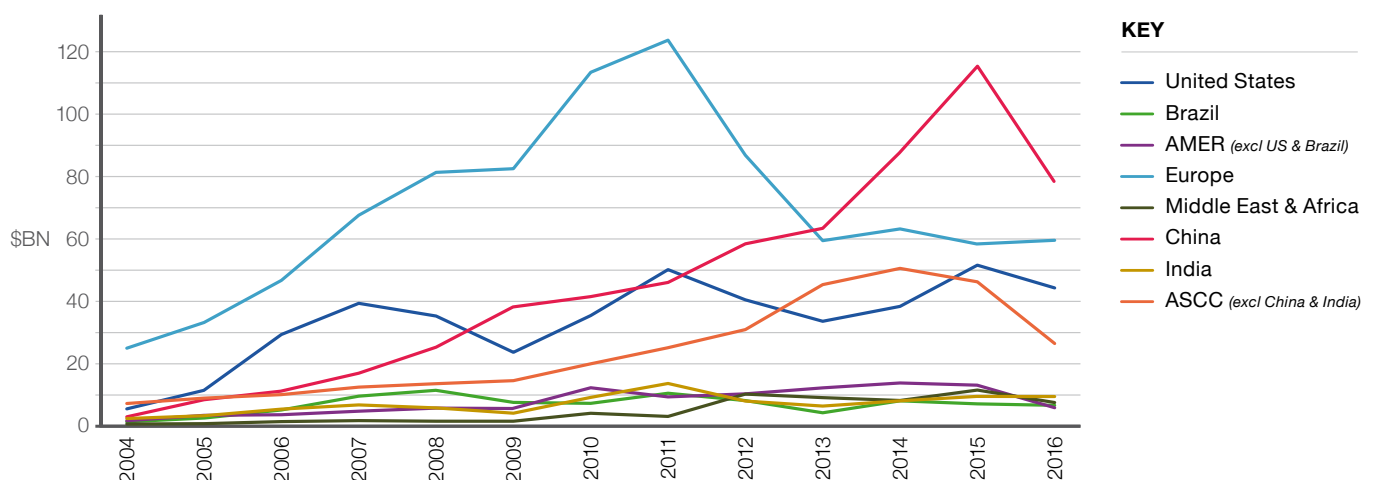
Some interviewees argued that without Member States' commitment to binding targets, investors cannot be expected to commit the capital needed to reach those targets. Business investor confidence needs to be seen over the long term and the risk of a policy change in three years' time, creates significant concern. Only seven of the 28 EU Member States currently have targets and policies in place beyond 2020,^{iv} whilst investments in energy generation are considered in decades.

The uncertainty regarding future regulatory incentives and costs are major barriers to the type of long-term contracts that will drive the most innovative investments. The longer term perspective is the difference between investing in a slightly more efficient version of technology already in use, and investing in entirely innovative technologies.

In addition, opportunities that are considered low cost over the period from now until 2030 may not be the ones that are lowest cost between now and 2050, when changes such as the electrification of transport, will increasingly take hold. The EU, as a market with the critical mass to drive significant change, may need to intervene in these cases and not leave market development to an entirely free energy market, or individual Member State energy choices.

If investors are not convinced of the EU's consistency of intent, then finance will take up innovation opportunities elsewhere, a trend already underway. The EU risks ceding favourable investment and economic development to the USA, China, and India.^v

Global trends in renewable energy investment



ii. See www.tinyurl.com/kr3ldtu and www.tinyurl.com/myrcvb7

iii. 'Investment in [renewable energy] in Europe slipped 21 per cent [in 2015] to 48.8 billion; this is the continent's lowest figure in 9 years.' www.tinyurl.com/z9mg5ia

iv. See www.tinyurl.com/moe4u6b

v. India's ten-year energy blueprint predicts achievement of 57 per cent renewable energy by 2027.



Ambitious national targets seem to be very important. We asked companies why.

IKEA Group



High-level targets are about creating stability of purpose. 27 per cent won't change anything – we are already on track to reach that. Bold targets work, and must be backed up by governance that makes countries accountable. We would like to see legally binding targets at the national level. Just a high-level EU target is not enough. There are regional differences within the EU and we need a coherent EU plan to push renewables, not just for commercial use, but also for private consumption. The new directive needs to be bold and clear about how the target should be achieved.



GSK



We want to invest capital where it will have the most impact on carbon reductions per pound invested. Competitive and stable frameworks are vital for continued investment in the EU.



BT



We've got to keep working to encourage the government to create more stable frameworks for renewable policy and certification. And we must continue to apply pressure on policymakers to create clearer incentives for companies to purchase renewable energy and stimulate demand.



DSM



The current EU situation is that DSM is 'exporting' EU-generated technology to the US. Hence, know-how developed within the EU is now creating jobs and growth outside the EU. In some countries outside the EU, policy frameworks are more enabling.



EU state of play

02

In 2016, the European Commission presented a legislative proposal on Energy Union governance, specifying the political process between Member States and the Commission to streamline planning, reporting, and monitoring requirements. The integrated National Energy and Climate Plans (NECPs) drafts, which Member States will submit in 2018,

could offer some valuable insight on investment needs. Given the absence of binding national targets on energy efficiency and renewable energy, it remains to be seen whether the governance mechanisms are sufficient to inspire investor confidence.

Section 3

How does policy consistency drive investment in renewables?

Until 2020 renewable energy targets are binding on Member States, but each state can decide how to implement its preferred range of policies to meet these targets.

The number and type of different subsidies, tariffs and premiums are considered to have prevented the market from settling down and caused investors to be wary of longer term investment. For companies who want to produce their own renewable energy, the requirements of different regulations and support policies can be utterly frustrating.

This matters because transitioning to renewables is not a short term, quarterly or annual business assessment for companies, and the potential for policies to be reversed can be considered too much of a commercial risk. The lack of confidence in lasting policies is undercutting their investment case. The message here is that a very divergent policy landscape risks obliterating investment signals, by not giving a clear message to either business or investors.

Even those companies of a size to make substantial capital investment in their own production find it hard to weather the variations in policy. IKEA Group is currently producing an amount of renewable energy equivalent to 70 per cent of its own consumption and is aiming for 100 per cent by 2020. IKEA Group suspects it will be ahead of target, but is not able to plan consistently on how to use that energy.

We have had actual cases where retroactive policy changes have totally altered the business case for investment in renewables. This demonstrates the need for the EU to regain investor trust by being consistent on how policies are implemented or phased out. The Commission's proposal seeks to prevent retroactive removal of subsidies in the future.



Member States choose how to meet present targets. We asked if companies found this flexibility helped or hindered operating across borders.

IKEA Group



Today we see a very fragmented market with a complex regulatory environment across the different countries. The regulations for selling renewable electricity to the grid are changing very often, which influences the financial profitability of the investments. This is a huge challenge for the industrial sector, small and medium enterprises and households.



Eurelectric



The massive expansion of RES based on badly designed support schemes has led to distortions regarding investments in generation capacity and market functioning. However the latest market experiences have given the power industry confidence that RES are becoming fully competitive with other power generation technologies. This will require that future RES deployment is sustainable, cost-efficient and based on market fundamentals.



GSK



The Walloon region in Belgium offers a tax credit for energy efficiency, but if you don't meet your targets by 2020 you could incur an unexpected tax bill. The approach is variable across different jurisdictions – there is no consistency which makes strategic planning more difficult.



Google



The Directives recognise the need for increased cross-border trading and Google fully supports this initiative. High levels of renewables can be optimally managed reliably and cost-effectively, with larger, more integrated, more liquid markets. For example, the NordPool has proven successful in integrating high penetration of large-scale renewable energy. Being able to purchase renewable power where renewable resources are strongest and have it delivered to the load centre is an important aspect of renewable integration for corporate purchasing.



Section 3

How does policy consistency drive investment in renewables? *continued*

When regulations are applied differently to support different national goals, companies working across borders find that efforts in one State often impede or contradict efforts in another.

It is not that the type of policies clash, but that the same policies are implemented in widely differing ways in different countries. Energy generation that is found to be economically viable in one area can become financially unviable over the border, as taxes and levies differ so substantially among Member States. In Denmark, for example, taxes and levies comprise 57 per cent of the energy price, but a mere 5 per cent in Malta.

The lack of strategic planning across Member States, and across the EU as a whole, is identified as one of the causes holding up the transition to renewable energy. In order to progress towards the 2050 goal of an EU-wide energy market, companies said that progress needs to be made with more intelligent regional arrangements, to build the learning and capacity to eventually join up into an EU-wide energy market capable of transmitting low carbon energy from source areas to demand areas. Successful examples of joint development, such as the North Seas Countries

Offshore Grid Initiative (NSCOGI) on offshore wind offer an interesting blueprint for the proposed European framework for regional co-operation.^{vi}

Regional co-operation depends on having an interconnected grid capable of transmitting as and when needed, to support the most efficient placement of renewable power plants in the most suitable locations. Portugal and Spain, for example, are key producers of renewable energy but there are not enough interconnectors across the Pyrenees to enable them to export their full surplus into the rest of Europe.^{vii}

Energy infrastructure and interconnections in particular will be in place for a long time, and have long investment payback periods. To get investment started now, respondents believe that the EU cannot afford to accept the ongoing high likelihood of policies changing every few years, or applying only within national boundaries.

52%

The gap between the highest and lowest proportions of taxes and levies included in energy prices across Europe.^{viii}

vi. The North Sea Offshore Grid was proposed by the European Commission in the Second Strategic Energy Review, published in November 2008. www.tinyurl.com/ljoysa8

vii. The lack of interconnectors in Spain and the row with France. www.tinyurl.com/lqgruv7

viii. See www.tinyurl.com/mtbd84o



An Anglian Water sewage
sludge treatment facility

Section 4

Is there a case for stronger governance?

Companies emphasised that the EU should establish a common framework in order to promote investment in renewables.

The lack of commonality can be dispiriting and will actively drive investment away. Opportunities to invest are abandoned because the regulatory environment is not supportive, and in the absence of a common EU framework, companies believe some Member States' plans will not be specific enough to provide incentives to investors.

Some companies reported that they had considered generating their own on-site energy, but found there had not been a solid business case to make such an investment, because the risks and regulations of such a fragmented energy market were serious barriers to diversifying into renewable energy production.

Respondents suggest that the EU must be able to hold Member States to account more expediently than through infringement proceedings, to intervene if countries are not making timely progress towards their targets, or are getting in each other's way with conflicting policies. An effectively enforced framework will ensure that deployment of renewable energy is increased in all Member States, bringing the concomitant benefits of jobs and growth industries.

As GSK says, companies are discerning about where they invest. The EU cannot afford to concede if it is looking to grow the share of renewable energy produced in the EU. The issue is not just one of proportions of energy produced, it also negatively impacts the growth of new industry and wealth creation.

EU state of play

03

The Commission has launched a series of sector-specific expert roundtables with representatives of energy-intensive industries, renewable energy project promoters and investors to inform the EU Innovation Fund on attracting additional private investment and addressing the needs of the marketplace. In parallel, the Commission and the European Investment Bank partnered to launch the European Fund for Strategic

Investments (EFSI) to bridge the investment gap in infrastructure, energy, research and innovation, broadband, bioeconomy, climate-related action and education. Finally, the first Multiannual Financial Framework proposals to be published this year will, if linked to the NECP process, be an important driver to clean energy investment.

There is uncertainty surrounding conflicting national policies.

We asked companies if they would welcome a more mandatory approach within the EU's policy framework, to attempt to smooth out some of these discrepancies.

IKEA Group

“

There is no stable environment to make the investments. If incentives are promised they should be honoured to prevent confidence erosion. The EU could add value in all these areas, not necessarily by centralising action, but to ensure that Member States align, create more stability and create momentum in the right direction.

”

LafargeHolcim

“

Our ability to increase the use of alternative fuels is highly dependant on the policy framework and its enforcement. For instance, enforcement of EU waste policies, such as the Landfill Directive, would have an immediate and significant impact on waste-to-energy markets. Local actors tend to have a short-term agenda and the necessary systemic change is hard to achieve.

”

Eurelectric

“

The EU governance framework should provide a framework to steer regional co-operation and foresee a mechanism to identify and address potential incompatibilities between national plans on regional and European levels. When Member States are looking at their national plans, regional co-operation is a must, and to ensure that happens the EU must have a stronger framework – not just accepting plans as submitted by countries. The role of the European Commission in steering and guiding regional energy policy co-operation is crucial as it facilitates dialogue, pushes for policy convergence and ensures transparency of the processes.

”

Section 5

What is the commercial case for renewable energy?

Naturally, the bottom line is crucial for businesses. They must be able to demonstrate that there is intrinsic value for the company in one way or another from investing in or switching to renewable energy.

Each of the companies interviewed had found that value comes in many guises – avoided costs, business diversification, energy bill reductions, or additional income streams, with different businesses having different experiences.

The premium on renewable energy costs as experienced in the past has often encouraged companies to explore much more proactive energy efficiency policies, resulting in an overall decrease in energy costs.

Stora Enso has committed to reduce the company's use of fossil fuels to as close to zero as is technically and commercially feasible over the next ten years. The business case for their commitment to further reduce fossil fuels is driven by competitiveness (fuel costs are a contributor to production cost), the need to manage long-term cost and supply risks, as well as its ambition to lead on combating global warming. To date, the share of biomass and other non-fossil fuels in their energy production is already as high as 82 per cent and a consequence of a journey started back in 2007.

Some companies have seen the value in longer term investments with multiple co-benefits in that time-frame such as physical security of supply, price security, as well as reduced energy costs. However, many investments depend on an acceptable level of certainty around renewables support such as feed-in tariff prices over a set period. But there are other considerations, such as the opportunity to avoid paying other costs, such as grid use and development charges.

The issue of physical security – shortages or stoppages – is not a minor point. Actual physical security of supply is as important as price security, and arguably can have a greater financial impact on a company. In an age of digitalisation, for a growing number of companies that are increasingly reliant on data centres, continuity and security of supply are high priorities.

These issues can be presented to finance officers in a company to justify much longer payback periods for investment than are usual, but the overall case usually depends on future developments in the regulatory and incentives framework being clear, upfront, and visible – with a reasonable degree of certainty that they will not be reversed or watered down.

In short, the uncertain mix of frameworks, standards, tariffs, subsidies, and regulations makes it significantly harder to present medium- to long-term business cases internally, when companies normally operate on payback periods of three years or so. Encouraging finance directors to back schemes with longer payback periods in the absence of any binding commitment by Member States will not be an easy task, particularly when the payback period for some new installations can be 14 years or more, according to some companies.



There are reservations about targets and policy uncertainty outlined so far.

We asked companies how they had made the internal financial case for switching to either their own renewables generation or purchasing renewable electricity.

IKEA Group



Energy is an essential cost to your business, until you start generating your own. Then you can turn energy from cost into a profit centre. We are investing in renewable energy because we want to have a positive impact, but also because it reduces our exposure to fluctuating energy prices.



Philips Lighting



Our renewables programme is mainly driven by our sustainability commitment, however there is a financial case to be made. At least in some cases, using renewable energy has been cheaper due to local or national schemes and incentives.



Interface



In Holland we paid a 20 per cent premium for biogas. But that has already been clawed back as our renewables policy goes hand in hand with our energy efficiency policies, ie if you're going to be paying more for energy, ensure you use a lot less of it. Our energy efficiency policies have produced a 54 per cent reduction in energy use since 1996 and saved us far more than we paid out for renewables premiums over the same period.



Section 6

What is the effect on market positioning and reputation?

Companies have different ways of seeking such broader business benefits.

Visibility is a powerful route to bringing technology from the abstract to the possible in the eyes of their customers. In addition to putting solar panels on their own buildings, IKEA Group wants customers to turn their roofs into power stations as well. In Poland, society is seeing a shift towards greener interests.

The company currently offers solar photovoltaic products for its customers in four European markets with the aim of becoming a market leader. IKEA Group says it is supportive of the EU's proposals related to prosumers and can see a clear division of responsibilities between companies and regulators. It is the role of business to create the

demand and offer the service or product, and it is the role of regulators to ensure that it is straightforward for consumers to invest by enabling access to the grid and simplifying the incentives and policies.

A leading market position built on reputation, as BT points out, affects not just how companies invest their own money, but who invests in them. Attracting the attention of ethical investors is becoming more of a consideration, as ethical investment is rapidly growing. There are around 1,600 signatories – representing US\$62 trillion worth of assets – signing up to the UN's Principles for Responsible Investment network, for example.^{ix}

EU state of play

04

In Brussels, along with a push to increase energy efficiency, the signal to drive action is underlined by the European Commission's Clean Energy For All package. This includes a proposal to plug consumers directly into wholesale markets, and new binding policies on renewable energy sources, giving the necessary legal framework for success to various active market sectors, including buildings, heating and cooling, transport, and electricity.

The Clean Energy package of proposals and targets is intended to drive energy market policies and pricing. It is also aimed at opening the door for new private sector activities in Europe such as retail energy aggregators for consumers, and the development of other prosumer-oriented energy products, information communication technology, and smart technologies for monitoring building efficiency.



Financial benefits are not merely a matter of money. We asked companies if they found any ‘soft’ capital advantages to transitioning to renewable energy.

BT



There is a lot of growth in socially responsible investors (SRIs) who are pulling funds out of, for example, coal – and putting them into ‘clean’ companies. Market positioning and public commitments are still a big pull. Being a member of RE100 has the company fully and publicly committed to the direction of travel.



Philips Lighting



We cannot be credible if we do nothing about our own carbon footprint. Philips Lighting is very much engaged with sustainability issues, and is keen to ‘walk the talk’.



Interface



Being the front runner brings kudos – we want to be a cult, like Star Wars, or Apple – and we are recognised as such within the sustainable community. But to be a leader or a cult we need to artificially raise demand for green products by applying new standards to meet, or giving points for green development.



IKEA Group



We are investing in renewable energy, not only because it’s the right thing to do, but because it makes good business sense. Our co-workers are proud of our investments in renewables, and as a business, we are being recognised for our ambitions and achievements. The voice of the business community calling for a transition to a low carbon economy has never been louder – or more crucial – than at this point in time, and we’re proud to be part of that.



GSK



It is primarily the big supermarkets who are starting to ask us about product carbon footprints and performance in reducing them. Far too many folks are still focusing on operational energy for big companies, which is a small contribution to the overall value chain carbon footprint.



Sappi



Our core business is built around being an environmentally friendly product, so there are also clear reputational gains to be had from enabling a local community to reduce emissions as well. Being seen to be a leader brings ‘soft’ capital in terms of product visibility, community trust, and enhanced engagement with local policymakers.



Section 6

What is the effect on market positioning and reputation? *continued*

The lesson from these experiences of market drivers is that there are very real opportunities and incentives for companies to transition to renewable energy, but these drivers are only sporadically a result of EU policies.

Where they have worked, such as Germany's fixed 20-year feed-in tariffs mentioned by a number of companies, they have leveraged huge capital investment sufficient to build wind farms such as Wikingen in the North Sea.^x This type of capital investment could be far more common if there was more certainty about the lifespan of all the varied incentives and tariffs.

When those opportunities also bring co-benefits of security of supply, protection from price fluctuations, diversification of business and reputational gains, it is clear that there is a positive business case to be made, but to invest at scale and speed they need greater commonality and certainty for renewables policy across Member States.

\$62 trillion

The value of assets signing up to the UN's Principles for Responsible Investment network.



Section 7

How do companies decide whether to produce or purchase renewable electricity?

Despite the solid commercial benefits for companies investing in their own renewable energy, many are not in a position to generate at meaningful scale, and so their electricity is purchased from the grid.

These companies feel strongly that policymakers should encourage investment in and development by utility scale producers to ensure that generation of renewable energy is keeping pace with demand. If renewable energy is available at scale from the grid where the demand is, buying in is definitely seen as a quick and attractive option of reducing the company's carbon footprint.

Over the years BT has explored a number of options for increasing renewable power use within its operations, including producing its own energy: a windfarm programme BT explored in 2007–08 called “Wind for Change”. It was considered a brave and very proactive move as BT was certainly not a specialist in energy production. After BT had had secured consent for two proposals, corporate Power Purchasing Agreements (PPAs) had been introduced and were becoming more common. A strategic decision was therefore taken to change BT's approach and move away from creating its own generation, to securing renewable electricity via PPAs, leaving specialist companies to consent, own and operate the wind and solar farms.

The decision was taken not only due to the corporate resource that was being taken up with developing its own production, but also the technical challenges, particularly the storage and intermittency issues that are associated with wind energy.

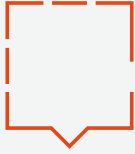
BT commented that having visibility of the carbon content in electricity was an innovative move that made sense because it stimulated demand for more low carbon A-rated electricity. This encourages energy companies to invest in renewable energy infrastructure which helps to drive down overall carbon emissions.

Although BT is now getting closer to the 100 per cent renewable milestone (at 95 per cent globally in 2016), the company still has plenty of work to do. Along the way it wants to share its experiences to help others do the same. BT has said that PPAs are simply just another way of buying energy. Its experience helps demonstrate that PPAs work well alongside buying from energy suppliers to provide 100 per cent renewable electricity. For instance, the legal documents are now well understood and while there is work to do, they are heading towards an industry standard approach.

It is more cost-effective for producers to tackle the innovation needed at scale, rather than each company on a case-by-case basis. It is also a question of which players are best placed for the roles that need playing. Companies have already demonstrated their contribution in creating demand, both from themselves and from their customers, but it can feel like wasted effort if the availability of renewable energy on the grid is poor.

To assist in attracting investment into capital projects, Sappi would like to see a renewable energy efficiency target for heat and power in EU renewables policy. A target for renewable energy alone is not specific enough to encourage efficiency, and renewable energy produced from raw materials, such as its black liquor, is a limited resource so, in such cases, improving efficiency must be a priority.

Whilst microgeneration is very attractive to companies, and some are even able to produce on the scale needed to balance their own energy consumption, for a large number the only solution is to turn to certified renewable energy from the grid. So the challenge here is twofold – to address the regulatory and systemic barriers for smaller producers selling to the grid, and to ensure utilities produce a greater share of renewables on the grid.



Many companies cannot generate their own renewable energy at scale.
We asked for their views on purchasing 100 percent renewable electricity.

GSK



There is a disconnect in that companies are asked to invest their funds in the renewable sector, which is not their core business. So renewables regulation really should focus on the energy infrastructure, and there should be percentage renewable targets set for utilities.



Philips Lighting



It is far more pragmatic for the EU to focus on utilities developing clean energy, than to set regulatory requirements for companies to get involved in the RES market.



BT



The advantage of not producing our own renewable generation is that we don't have to 'pick a winner' – there is no need to specify or commit to a preferred type of technology – this is especially of importance where national policy can be uncertain over the lifetime of the investment. Another advantage of buying in rather than producing is that because energy is not our core business, we have no electricity supply licence, for example, so this way suppliers manage all the transmission and intermittency issues on our behalf.



Section 8

How are companies innovating?

We looked at how three businesses contributing to this report – Anglian Water, LafargeHolcim and Stora Enso – are each rising to the challenge.

Anglian Water

Sewage is the source of the vast majority of the renewable energy that UK water utility Anglian Water generates. It has developed and patented a new way to treat sewage sludge called HpH (heating, pasteurisation, hydrolysis), which generates 5 per cent more methane gas during treatment, which is converted into electricity. So far this innovation has saved Anglian Water around £3 million in capital expenditure and the increase in gas production will lead to a further operational cost benefit of more than £400,000 a year.

At some sites Anglian Water produces more energy than the site needs and so it also exports it back to the grid. Generating its own power in this way protects Anglian Water against volatile energy prices, whilst helping to improve energy security. In 2016 the value of the reduced power costs, exported power and policy-based incentives for renewables was over £12 million, making a significant contribution to reducing customers' bills.

As Anglian Water is close to treating 100 per cent of its sewage sludge it would seem it has reached a renewable energy plateau. But it wishes to go further, and so is looking outside of its sector with plans to co-digest small amounts of other organic 'wastes' within its advanced anaerobic digestion plants, namely food waste, green waste and agricultural waste.

However, existing environmental regulations make it difficult to run co-digestion plants. Sewage sludge is subject to one set of regulations and other organic wastes to another set. The two sets have conflicting requirements, making the cost of including other organic waste prohibitive. Regulators and stakeholders have no ideological objection to co-digestion, but as yet they have not been able to successfully remove this 'red tape'. Anglian Water has led the development of the Biosolids Assurance Scheme (BAS) which could help provide a way through this red tape.

£3m

Saved by Anglian Water through a new and innovative methane gas conversion process.

LafargeHolcim

The rotary kilns in cement plants are traditionally fired with fossil fuels. LafargeHolcim's primary energy strategy is to substitute fossil fuels with alternative fuels in the form of waste. In this process, referred to as co-processing, the mineral part of the waste replaces primary mineral materials (such as limestone, clay or iron) and the combustible part provides the fuel needed for the cement production. The level of substitution varies across countries, ranging from a few per cent to over 80 per cent in countries such as Germany. The major factor influencing the ability to increase the use of alternative fuels is the availability of waste on a competitive basis. In Eastern Europe for instance, there are great co-processing opportunities as a large proportion of waste is landfilled and could be recovered for co-processing (among other recovery and recycling routes). Such a win-win requires policy alignment and enforcement; without adequate enforcement there is no local implementation and therefore no investment.

90%

In Germany, LafargeHolcim's rotary kilns are powered almost exclusively by waste.

Stora Enso

Stora Enso's Langerbrugge Mill's business model is based entirely on recycling. The mill produces paper products out of recycled paper, is self-sufficient in steam, produces about 75 per cent of its own electricity, and uses a biomass boiler to generate renewable energy. But in order to be even more energy efficient, the mill is constantly seeking to increase the use of its assets and reduce carbon dioxide emissions, including partnering with companies in other sectors.

In November 2016 Stora Enso began running a four kilometre hot water pipeline from the mill to a nearby Volvo motor plant, carrying water at 125°C water to heat buildings at the Volvo site. The new pipeline means that Volvo uses substantially less fossil fuels for heating – reducing its energy costs, saving around 15,000 tonnes of CO₂ per year, and reducing the plant's total CO₂ emissions by more than 40 per cent.

The project required a great deal of capital up front, and was only made possible with financial assistance from the Flemish Government, which provided an ecology subsidy of €2 million. Stora Enso says that government has an important role to play in helping companies realise exemplary projects and overcome investment hurdles.

75%

Stora Enso's Langerbrugge Mill produces three-quarters of its own electricity.

21st century energy: Business reflections on renewables in Europe

Conclusions

The companies interviewed represent a range of sectors that have chosen to participate in the decarbonisation of their electricity or heat consumption by producing their own renewable energy, or by demanding an increased share of their electricity from the grid come from renewable sources.

A common theme running through these conversations was that there was initially some reluctance to become involved with renewable energy production, or purchase, but there is now widespread consensus about the gains to be made – direct income, market positioning, business expansion and diversification, or simply, energy savings.

As a result, it is particularly interesting to note the frustration around policymakers not moving fast enough in this area. It is obvious that some parts of business and industry have adapted and innovated far quicker than they are being given credit for, and are demonstrably running ahead of policy much of the time.

It is also clear that companies could absorb far more ambition coming from the EU. There was not one voice that considered the current EU ambition levels sufficient, and these companies are looking to, or even possibly relying on, the EU as a central body to pull a coherent framework together. The unanimous view was that the piecemeal national plans are actively working against each other, and so undo much of the good they are intended to create.



Overall, some emergent messages on renewable energy policies to make a faster, more cost-effective transition to low carbon energy were:

On ambition:

The EU should raise its 2030 ambition to at least 30 per cent renewables in total energy consumption, and consider a renewable heat target alongside renewable electricity. Whilst RED I contained clear and binding responsibility for Member States to deliver set contributions, RED II proposals, in raising the renewables target, whilst at the same time removing the responsibility of Member States to individually contribute to that target, actually represents a weakening of the likelihood of getting there. Clearly, these companies are not confident that Member States will continue to make the effort when released from binding targets.

On frameworks:

In its work to implement the Clean Energy for All package of the Energy Union, the Commission should set out a common framework for standard market design, creating the consistency required to move towards an integrated energy market. The Commission does recognise the need for market redesign and has taken steps in that direction in the proposal package. The transition to renewable energy is restricted by a lack of strategic planning across Member State geographical regions, and across the EU as a whole. Regulations have been applied in different ways to support different national goals, and the number of different subsidies, tariffs and premiums have prevented the market from settling down, and caused investors to be wary of any longer term investment.

Companies report that the uncertainty and lack of clarity is undercutting their investment cases – they need clear, credible, consistent signals to get investment.

On regional plans:

To meet the 2050 goal of an EU-wide energy market, progress should now be made towards more intelligent regional arrangements, to build learning and capacity to join into a wider EU energy market, capable of transmitting low carbon energy from source areas to demand areas.

On consistency:

Businesses want policy credibility and consistency, and reliable implementation of those policies. An effectively enforced framework will ensure that deployment of renewable energy is increased in all Member States, bringing the concomitant benefits of jobs and growth industries. The interviewees believe the EU must be able to hold Member States to account, not just be a passive recipient of reports, but have the ability to intervene if countries are not making progress towards their targets.

On investment:

Moving from binding Member State targets to an EU-wide target undermines investment confidence for both industry and investors. If the EU will not reintroduce binding targets on Member States, it will have to find other ways to give more market confidence. If investors are not convinced of the EU's consistency of intent, then finance will take up innovation opportunities elsewhere – the focus for renewables investment is already increasingly in the USA, China, and India. Policymakers need to ensure that RED II increases ambition, or else risk undermining investment and falling behind other market leaders and market makers.

70 TWh

Interconnecting the EU to Norway offers access to 70 TWh of hydropower capacity that could be used as electricity storage.

Cambridge insight, policy influence, business impact

The University of Cambridge Institute for Sustainability Leadership (CISL) brings together business, government and academia to find solutions to critical sustainability challenges.

Capitalising on the world-class, multidisciplinary strengths of the University of Cambridge, CISL deepens leaders' insight and understanding through its executive programmes; builds deep, strategic engagement with leadership companies; and creates opportunities for collaborative enquiry and action through its business platforms.

Over 25 years, we have developed a leadership network with more than 7,000 alumni from leading global organisations and an expert team of Fellows, Senior Associates and staff.

HRH The Prince of Wales is the patron of CISL and has inspired and supported many of our initiatives.

Head Office

1 Trumpington Street
Cambridge, CB2 1QA
United Kingdom
T: +44 (0)1223 768850
E: info@cisl.cam.ac.uk

EU Office

The Periclès Building
Rue de la Science 23
B-1040 Brussels, Belgium
T: +32 (0)2 894 93 19
E: info.eu@cisl.cam.ac.uk

South Africa

PO Box 313
Cape Town 8000
South Africa
T: +27 83 491 8369
E: info.sa@cisl.cam.ac.uk

**Printed by Seacourt.net,
naturally responsible printing.**

Zero waste to landfill
100% carbon neutral
100% renewable energy
100% eco-friendly simitri © toner
100% recycled FSC © stock