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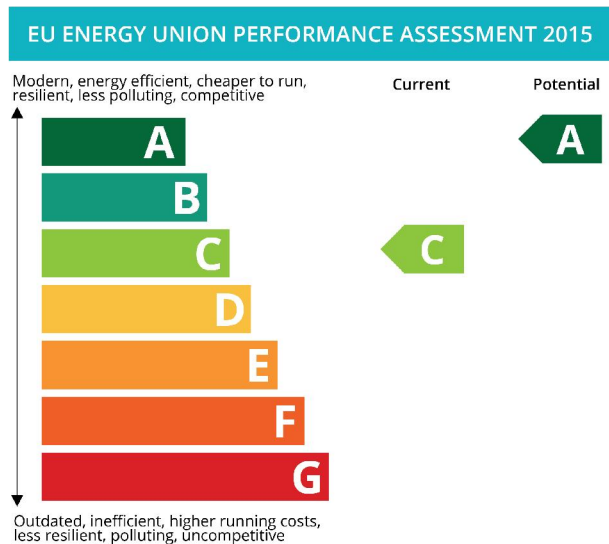
## EU ENERGY UNION ASSESSMENT 2015

### TOWARDS A RESILIENT ENERGY UNION WITH A FORWARD-LOOKING CLIMATE POLICY

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The global energy landscape is changing. New technologies and business models are disrupting the established order; new geopolitical, economic and environmental risks mean that returning to outmoded ways of doing business is no longer possible. The EU Energy Union project is Europe’s chance to stay competitive and secure in this changing world.

If it succeeds, citizens across Europe stand to gain from more resilient, integrated, low-carbon and cost-effective EU energy markets; new economic opportunities from digital innovation and resource efficiency; and a robust governance system that supports jobs and investment.



A year into the term of the European Commission, this performance assessment finds progress has been made in establishing the direction of travel towards a resilient Energy Union with a forward-looking climate policy, and in initiating a wide-reaching set of regulatory and market reforms. Further action is needed on clarity of investment signals, on consistency of implementation, on integrating energy with finance and digital agendas, and in transitioning out of polluting and inefficient coal power.

Based on current progress, the Energy Union achieves a Performance Grade ‘C’. This assessment also presents recommendations for the energy market, finance, infrastructure and governance reforms needed for the Energy Union to succeed. With full implementation of the suggested measures, the EU Energy Union has a potential to achieve a Performance Grade ‘A’, denoting a world-leading smart, efficient, integrated, resilient, low carbon energy system.

## The challenge

**-47%** Drop in new clean energy investment in Europe last year compared to 2010 – in contrast to a **16%** increase in new clean investment globally.<sup>1</sup>

**-23%** EU greenhouse gas reduction already achieved by 2014, compared to the 20% 2020 EU target. The ‘hot air’ caused by weak targets risks a lost decade for climate action.<sup>2</sup>

**17%** Percentage of EU greenhouse gas emissions from coal power plants alone, with air pollutants responsible for **22,000** premature deaths in the EU each year.<sup>3</sup>

**€1 billion per day** Cost of fossil fuel imports to the EU. The EU imports 53% of all the energy it consumes, a proportion that is expected to rise.<sup>4</sup>

**0,1,1** Number of references to Energy Union in the Capital Markets Union communication, the Digital Single Market communication and the Better Regulation Agenda communication, respectively.<sup>5</sup>

## The opportunity

**\$220 billion** Expected global market volumes for smart grid and smart energy technologies by 2020.<sup>6</sup>

**€624 billion** Pipeline of low-carbon investment projects put forward by member states for consideration in the €315bn Investment Plan for Europe – showing there is no growth rationale for high carbon investment.<sup>7</sup>

**-23%** Fall in EU gas demand since its peak in 2010 – making Europe less exposed to supply disruptions and reducing the need for new import infrastructure development.<sup>8</sup>

**-84%, -55%, -50%, -18%** Cost reductions in the past 5 years in LED lighting, electric vehicle batteries, solar PV and onshore wind.<sup>9</sup>

## Next steps

**35 years** left for Europe to achieve **80-95%** reduction in GHGs, including a near-zero carbon energy system. This is within the economic lifetime of new infrastructure built today.

**12 days** until COP21 begins in Paris to finalise a global climate agreement. Commitments have already been made by **160 countries** representing **95%** of global emissions.

**5 dimensions, 15 priorities** and **43 activities** for Energy Union outlined in the Commission workplan, with **90%** of legislation expected to be tabled by the end of 2016.

## EU ENERGY UNION 1 YEAR ON: 5 STEPS FOR MAKING IT WORK

1. The EU's climate and energy targets are at risk of being overtaken by facts on the ground as low carbon technology costs fall and as demand patterns change. In the wake of the Paris climate negotiations, the EU needs **to clarify when and how it plans to ratchet up delivery on greenhouse gas reduction, energy efficiency and renewables deployment**. This 'dynamic ambition mechanism' needs to be built into the EU's own energy and carbon market reforms and governance as well as the international climate agreement.
2. Energy markets are changing. Market rules and infrastructures need to be based on the needs of the rapidly emerging low-carbon energy systems rather than on expensive, protectionist safeguarding of the interests of the past. The new energy market package must **prioritize demand measures over new supply (the Efficiency First principle); reward flexibility; accelerate interconnection and catalyse a shift to regional market operation; unlock the potential of digital innovation; and tackle overcapacity in energy markets by providing a clear exit ramp out of unabated coal power generation**.
3. The EU is falling behind on clean energy investment, while continuing to use its limited budget resources to subsidise fossil fuel infrastructure. **A European clean energy investment strategy** should be produced to ensure the Capital Markets Union, Investment Plan for Europe and other EU funds are designed to deliver the investment needs of the Energy Union, and to establish criteria to prevent publicly-backed investment from being misspent on projects that run counter to Europe's energy and climate security goals.
4. There should be no disconnect between Europe's climate diplomacy and its energy diplomacy – yet EU energy diplomacy remains focused on access to fossil fuels. **A reset of the EU Energy Diplomacy Strategy is needed after COP21 to recognise the new global energy and climate realities**. Europe should implement a clean technology diplomatic strategy, focused on cost reductions through development of global supply chains, open trade and coordinated research and innovation.
5. **The Energy Union should not be limited to an energy and climate policy silo**. Modern and resource-efficient energy systems underpin European competitiveness. If it is to succeed in its ambitions, the EU Energy Union needs to be a core component across Europe's market, innovation and regional economic strategies.

# INTRODUCTION

The Energy Union is a European project designed to use the power of cross-border collaboration to address new energy challenges. It has a major potential to reduce the costs and risks of the European energy transition, as well as forming a new impetus for growth in Europe's economy. By enabling concerted action at EU level, the Energy Union can:

- > Integrate energy markets and allow member states to share resources, reliably and cost-effectively
- > Unlock the potential of the demand-side solutions, smart grids and digital innovation to transform the resource efficiency of the energy system
- > Establish a robust and predictable governance system to create more investor certainty, lower costs of capital, and attract new sources of finance.

There are a number of hurdles and challenges that need to be overcome for this vision to succeed. Overarching visions will need to be translated into concrete actions. Internal inconsistencies will need to be ironed out. Ways of sharing out the costs and the benefits will need to be developed. Citizens, communities, new energy market actors and governments need to feel ownership of the process.

To assist the Commission in developing the Energy Union agenda, in late 2014 E3G, CISL and ECF collaborated to develop a set of '6 principles for a resilient Energy Union' – foundation points for an effective, efficient and forward-looking EU energy and climate strategy.

The European Commission will publish its first 'State of the Energy Union' on 18 November 2015 – one year on from when the new Commission was confirmed and the appointment of a dedicated Commission Vice-President for Energy Union was announced.

**One year later, this scorecard assesses the progress of the Energy Union project so far against these initial principles.**

## 6 principles for a resilient Energy Union

1. **Clear and consistent long term goals:** Europe's energy and climate strategies must be complementary, not contradictory.
2. **Securing investment:** Energy security depends on access to finance, not just fuels.
3. **Integrated infrastructures:** Investment choices should look beyond outdated barriers between energy systems.
4. **Energy system resilience and stronger governance:** Explicit stress-testing and stronger governance can improve EU resilience to risk.
5. **Responsibilities as well as rights:** Cross-border solidarity should be matched by effective management of energy demand.
6. **A neighbourhood and global perspective:** Like energy systems themselves, an Energy Union must go beyond European borders.

## A CHANGING CONTEXT

**A year is a long time in energy politics.** In July 2014, European heads of state and government agreed “A resilient Energy Union with a forward-looking climate policy” as one of 5 strategic priorities for Europe for the next 5 years. Since that agreement, Energy Union has been knocked off the top of the political attention space by crises on refugees, Greece and Syria. Nevertheless, none of the original drivers for Energy Union have gone away.

**The need for a European Energy Union is stronger than ever.** The EU remains exposed to volatile and risky fossil fuel imports, with over €1 billion spent on imported fuels every day.<sup>1</sup> The potential cost savings from integrating Europe’s energy markets – estimated at €40-70 billion per year – are yet to be fulfilled.<sup>2</sup> Europe’s economic recovery has been slow and remains fragile – with investment levels remaining 15% below the pre-crisis peak<sup>3</sup> - yet clean energy investment in the EU remains stagnant rather than rising.

**The G7, G20 and Paris COP21 meetings in 2015 have changed the international context on climate and energy. Europe needs to respond.** In June 2015, G7 leaders committed for the first time to decarbonise the global economy over the course of the century. This gives a clear signpost to the limited lifetime of fossil fuels and the need for an ‘end date’ to the energy transition. On 16 November 2015, the G20 summit in Antalya recognized the risks to global economic and financial stability from climate change impacts and the ‘carbon bubble’ of unburnable fossil fuel resources and infrastructures. COP21 in Paris, beginning in only 12 days time, is a firm demonstration that Europe is not going alone on climate change. Already before the conference begins, climate commitments have been agreed by more than 160 countries covering 95% of global emissions.<sup>4</sup> As a result, renewable energy supplies are now expected to collectively double in eight of the world’s largest economies, which collectively represent two thirds of global energy demand.<sup>5</sup>

**Europe’s challenge is no longer about showing climate leadership: it is about avoiding being left behind.** The market for clean technologies is set to increase significantly and proliferate around the world, providing major export opportunities for technology and expertise. Smart grid energy technologies alone are forecast to have a global market volume of \$220 billion within the next 5 years. In parallel, there are surging domestic economic gains to be made from innovation in energy and digital, from integrating markets, and using resources more efficiently. Europe’s competitiveness depends on its ability to adapt to this new energy world.

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<sup>1</sup> European Commission (2015) **Imports and Secure Supplies**

<sup>2</sup> Booz & co (2013) **Benefits of an integrated EU energy market**

<sup>3</sup> European Commission (2015) **Why are investment levels in the EU so weak?**

<sup>4</sup> Carbon Brief (2015) **Paris 2015: Tracking Country Pledges**

<sup>5</sup> World Resources Institute (2015) **Assessing the post-2020 clean energy landscape**

# HEADLINE PROGRESS ASSESSMENT

**Overall, our assessment shows solid progress so far but major hurdles ahead that will require continued political commitment.**

**The Energy Union vision is the right one.** The February 2015 Energy Union Communication set out an impressive plan for a “*fundamental transformation of Europe’s energy system*”, in which “*we have to move away from an economy driven by fossil fuels ... and outdated business models*”. The Energy Union will be “*climate friendly*” and place “*energy efficiency first*”, with the EU becoming “*the world leader in renewable energy*”. These are strong, welcome commitments.

**For Europe’s Energy Union to achieve an overall aim for a world-leading smart, efficient, continent-wide low carbon energy system, it needs to establish a set of far-reaching reforms to energy markets, governance, infrastructure and finance.** Action in each of these areas is planned or underway – as part of the 15 priorities and 43 activities outlined in the February Communication and confirmed in the Commission work plan.

**The European Commission has a mandate for reform.** The Energy Union project has broad-based backing: it was listed as one of 5 strategic priorities for the next five years by the European Council in July 2014 and the Commission’s approach was explicitly endorsed by heads of state and government in March 2015. The European Parliament has also been supportive, although its own report on Energy Union is still being completed. Regional and city governments and a broad range of external stakeholders have backed the project too.

**However, the depth of ambition of reform needs to be clarified and the direction of travel maintained.** There is a clear a gap between the necessary outcomes to achieve the overall vision, and the actions that are easy to achieve. It is natural for bureaucracies to trend towards the incremental rather than transformational, and to prioritise lowest common denominator positions over meaningful reforms. This cannot be allowed to block the Energy Union goals.

**The Energy Union needs to be a priority beyond the energy and climate DGs in the European Commission.** Success in the Energy Union will require embedding it in areas outside the direct remit of DG ENER and DG CLIMA, including the Capital Markets Union, the Investment Plan for Europe, the Digital Agenda, the Single Market for goods and services, the Trade Strategy, the Better Regulation Agenda and the EU Global Strategy for foreign and security policy. Yet there is little evidence of this happening in practice. With a Commission Vice-President responsible for Energy Union, the European Commission should be capable of integrating the Energy Union priority more widely across its agenda.

**The Energy Union must avoid the ‘tyranny of the present’.** The architects of the Energy Union will be under pressure to focus on short-term crises at the expense of longer-term value, to prioritise the interests of current incumbents over the more dynamic energy market actors of the future, and to commit to continued coal, gas and oil infrastructure investments regardless of their long-term viability. The success of the Energy Union project is reliant on their ability to hold their nerve.

# FULL ASSESSMENT: 6 PRINCIPLES FOR A RESILIENT ENERGY UNION

## 1. Clear and consistent long term goals

Europe's energy and climate strategies must be complementary, not contradictory.

### Assessment: C

For the Energy Union to succeed, it needs a clear direction of travel. Achieving energy and climate security depends on changing energy sector investment patterns, which are mainly delivered through the private sector. This requires coherent, effective and long term investment signals to be sent from the public to the private sector. **All investments and policies as part of the Energy Union need to be fully consistent with the EU's climate goals.**

The Energy Union communication in February 2015 set out a strong vision for an integrated approach to climate change and energy. This builds on the 2030 targets agreed in October 2014 for at least 40% greenhouse gas reductions, at least 27% renewables, at least 27% efficiency improvements and 15% interconnection capacity.

In 2016, legislative proposals will be tabled to enact these goals, through updates to the EU Emissions Trading Scheme, the Effort Sharing Decision (for non-ETS emissions), the Internal Energy Market package and the Renewable Energy and Energy Efficiency Directives. These negotiations will no doubt be challenging - decisions on who bears the costs and benefits are often more fraught than establishing initial objectives – but they are ultimately resolvable.

But there are three major challenges ahead that need to be addressed.

First, **the 'at least' in the EU climate and energy targets** (for at least 40% GHG emissions reductions, at least 27% renewable energy and at least 27% improvement in energy efficiency) **needs to be embedded into a robust governance system** – both in practice and in law.

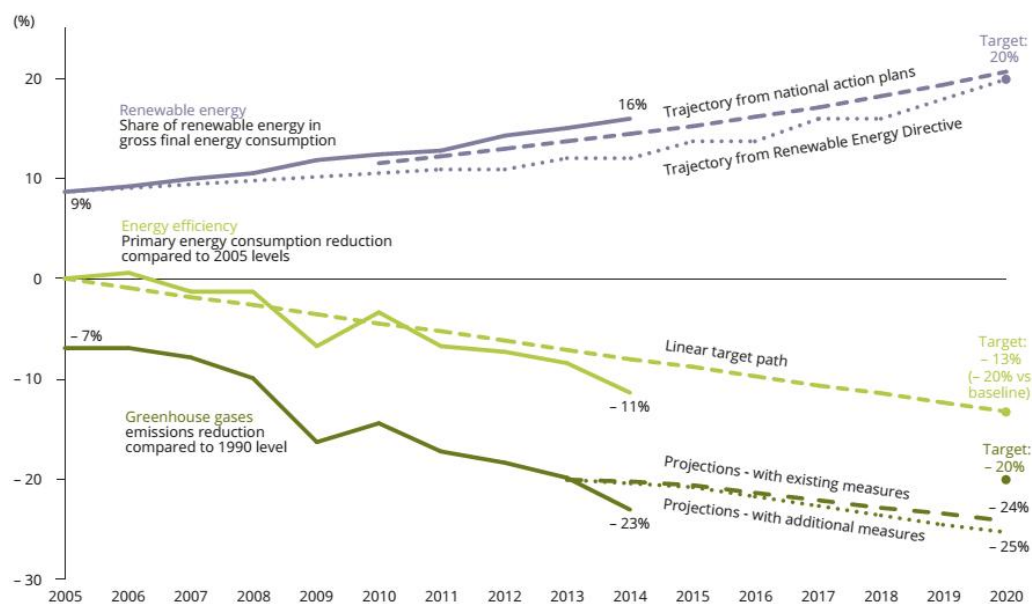
The EU's targets are already being overtaken by the facts on the ground. The EU hit 23% GHG reductions in 2014 – overshooting the 2020 GHG target over six years ahead of schedule. The 'hot air' built up in emissions credits could lead to a decade of lost action on climate.

Similarly, the rapid pace in cost reduction in renewable energy now means that a 27% 2030 target is more in line with business-as-usual than a stretch target. For energy efficiency, the 27% target actually represents a slow-down on current progress.<sup>6</sup> Forthcoming modelling from the European Commission is likely to show that the costs of moving beyond 27% energy efficiency are far lower and the benefits are higher than previously thought. Without clarification on 'at least', the two 27% targets risk becoming ceilings rather than floors for clean energy progress.

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<sup>6</sup> European Commission (2014) **Energy Efficiency and its contribution to energy security and the 2030 Framework for climate and energy policy**

Figure 1 EU progress towards 2020 targets



Source: EEA<sup>7</sup>

Without continued forward movement in clean energy and decarbonisation, European businesses in the green economy cannot continue to thrive. Many will be forced to shut up shop. Investment in clean energy will go elsewhere: in fact, as outlined below, this trend is already being witnessed.

The EU negotiating position for COP21 in Paris includes support for a ‘dynamic ambition mechanism’ (or ‘ratchet’), by which countries review and potentially increase their commitments. Agreement to this type of mechanism is critical to ensuring a 2-degree pathway is met. **It is with considerable urgency that the EU spells the conditions and mechanisms under which its own targets will be strengthened.**

Second, **continued use of unabated coal power generation threatens to blow the Energy Union objectives off course.** Unabated coal generation continues to represent 17% of Europe’s total greenhouse gas emissions; the associated air pollution from sulphur oxides, nitrogen oxides, fine dust and mercury has been estimated to lead to up to 23,000 premature deaths per year<sup>8</sup>. The continued presence of large quantities of ageing and largely-amortized coal power generation on the system that fails to pay its full environmental social and health costs freezes out space in the energy markets for cleaner and more efficient new investment. However Europe’s coal problem has not been tackled directly at EU level: indeed the word coal is fully absent from both the Energy Union communication in February and the Commission’s market design consultation in July.

<sup>7</sup> European Environment Agency (2015) **Trends and projections in Europe 2015**

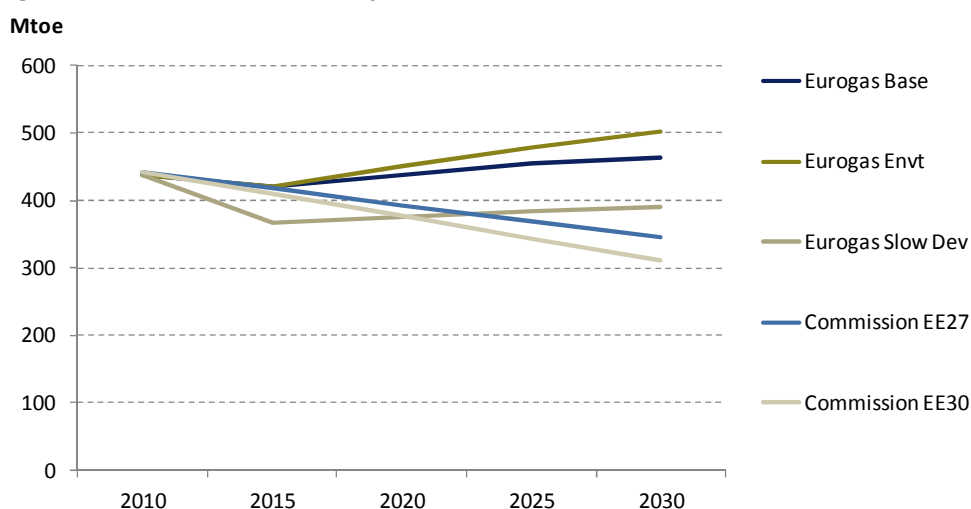
<sup>8</sup> Health and Environment Alliance (2013) **The Unpaid Health Bill**



By not mentioning the problem Europe risks a disorderly transition in which – having blocked new entrants and new investment – large volumes of coal generation suddenly and unpredictably exits the system.

Instead the Energy Union should include a regulatory strategy and glide-path for phasing out unabated coal, including measures to ensure security is maintained – to enable the required investment to come forward in a timely manner. This is about killing two birds with one stone. A smart retirement strategy for coal will tackle overcapacity to make EU energy markets investable, while at the same time significantly reducing carbon emissions in the power sector.<sup>9</sup>

*Figure 2 Gas demand scenarios for 2030 in MTOE*



Source: European Commission, Eurogas, E3G

Third, **the Energy Union still suffers from a consistency gap.** Actions and investments in some areas risk undermining investments in others, leading to a risk of ‘policy cannibalism’. The clearest example of this is in gas infrastructure. Gas demand scenarios used by project developers to plan major new import pipelines and LNG terminals foresee a significant increase in overall gas demand, while European Commission and IEA scenarios that meet the EU’s efficiency, renewables and climate targets point to a significant drop in gas consumption. Unless this consistency gap is bridged, the EU will either face expensive but underutilized new gas infrastructure, or ‘lock-in’ from this infrastructure will prevent EU Energy Union goals from being met.

<sup>9</sup> RAP, Agora et al (2015) The Market Design Initiative and Path Dependency

## 2. Securing investment

EU security depends on access to finance and clean technology, not just fuels.

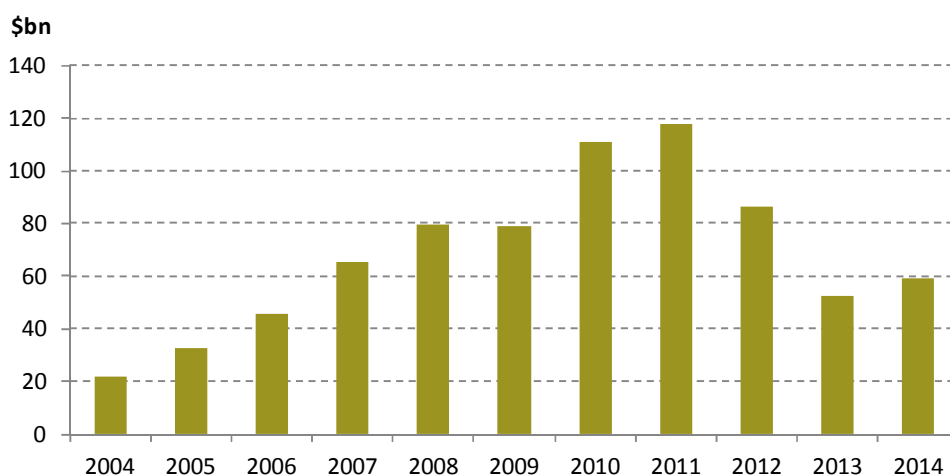
### Assessment: D

As Europe transitions to a new energy economy, its dependence on fuels will decline while the importance of securing investment will rise. Low carbon power generation and networks, efficiency measures and low carbon transport are all characterized by significant upfront capital investment requirements, but low or no operating costs. This means that gaining access to new investment – with affordable financing costs – is critical for Europe’s security and competitiveness. The European Commission has identified:<sup>10</sup>

“The transition towards a more secure and sustainable energy system will require major investments in generation, networks and energy efficiency, estimated at some € 200 billion annually in the next decade”.

There are a number of EU-level tools in place that should help with this task. The Capital Markets Union initiative aims to better connect savers and investors with opportunities to finance the real economy. The new Investment Plan for Europe seeks to catalyse a pulse of new investment into Europe’s economy, including through the €315 billion European Fund for Strategic Investment. The Connecting Europe Facility should help fund much-needed cross-border low carbon infrastructure. The modernisation fund will help economies update their energy systems. The NER400 will support innovation in new energy technologies. Overall, 20% of the EU budget (the ‘multi-annual financial framework’) is intended to be earmarked for climate-friendly projects.<sup>11</sup>

Figure 3: New clean investment in Europe (\$bn)



Source: Bloomberg New Energy Finance<sup>12</sup>

<sup>10</sup> European Commission (2015) **A Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy**

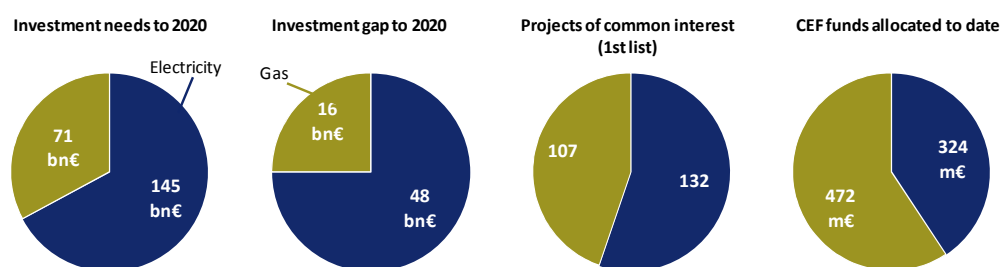
<sup>11</sup> European Commission (2013) **One-fifth of total EU budget to be spent on climate action**

<sup>12</sup> Bloomberg New Energy Finance (2015) **Global trends in clean energy investment: Q3 2015 fact pack**

However, despite these tools, investment in the Energy Union remains a major concern. While clean energy investment has rebounded globally to pre-crisis levels, it continues to languish in Europe. Strong linkages between the Capital Markets Union and Energy Union are still lacking – to the point that the word “energy” did not get a single reference in the Capital Markets Union green paper.<sup>13</sup> With increasing recognition of the threat to financial stability posed by environmental, social and governance (ESG) risks, the Capital Markets Union cannot be blind to what it invests in.<sup>14</sup>

The Investment Plan for Europe and European Fund for Strategic Investment should be key tools for financing clean investment. Member states have identified €624 billion of low carbon investment projects that could be considered for funding in the €315 billion European Fund for Strategic Investment – suggesting that there is no growth rationale for high carbon investment.<sup>15</sup> A ‘scoreboard’ has been implemented to track project contributions to objectives such as energy efficiency, climate action and sustainability as well as growth and employment.<sup>16</sup> Nevertheless, the first projects supported under the EFSI include both energy efficiency projects and fossil fuels. Similarly, the Connecting Europe Facility was originally designed to primarily support electricity infrastructure, given the increased role of electricity in the low carbon economy, but nearly 60% of the funds so far have been spent on fossil fuel infrastructure.<sup>17</sup>

Figure 4: EU infrastructure needs, priority projects, and allocated EU funds



Source : European Commission, E3G

**A more focused approach to Energy Union investment is needed.** A European energy investment strategy should be produced to ensure the Capital Markets Union, Investment Plan for Europe and EU investment funds are designed to deliver the investment needs of the Energy Union, and to establish criteria to prevent publicly-backed investment from being mispent on projects that run counter to Europe’s energy and climate security goals. This should include measures and conditionalities to ensure EU energy and climate targets are fully integrated into EU spending decisions and cost-benefit assessments and EU agreement of a shadow forward carbon price among financial institutions to price in climate damage. The review of the EU’s Multi-Annual Financial Framework (i.e. the ‘EU Budget’) planned for 2016 must include an assessment of progress on earmarking 20% of the budget for climate-related spending, and put forward a plan for allocating any shortfall in this target. Work to implement

<sup>13</sup> European Commission (2015) Green Paper: **Building a Capital Markets Union**. A subsequent **CMU action plan** did make one reference to meeting 2020 targets.

<sup>14</sup> E3G (2015) **Future Proofing the Capital Markets Union**

<sup>15</sup> E3G (2015) **Making the investment plan work for Europe**

<sup>16</sup> European Commission (2015) **The establishment of a scoreboard of indicators for the application of the EU guarantee**

<sup>17</sup> Innovation and Networks Executive Agency (2015) **Actions by type of infrastructure**

the recommendations of the Energy Efficiency Financial Institutions Group (EEFIG), which identified barriers to investment in energy efficiency and to the development of project pipelines, must be continued.<sup>18</sup>

### 3. Integrated infrastructures

**Investment choices should look beyond outdated barriers between energy systems**

#### **Assessment: B**

Integrating infrastructures is at the heart of the Energy Union project. This includes integrating grids across borders to enable energy to flow to where it is most needed, and integrating infrastructures between sectors (i.e. electricity, heat, buildings, transport and digital) to capture the positive synergies between different infrastructure types. Above all it means breaking down the silos between supply-side and demand-side infrastructure, so that best-value choices can be made across the energy system.

Progress on this agenda has been made. The February 2015 Communication committed<sup>19</sup>:

**“As part of the market design review, the Commission will ensure that energy efficiency and demand side response can compete on equal terms with generation capacity.”**

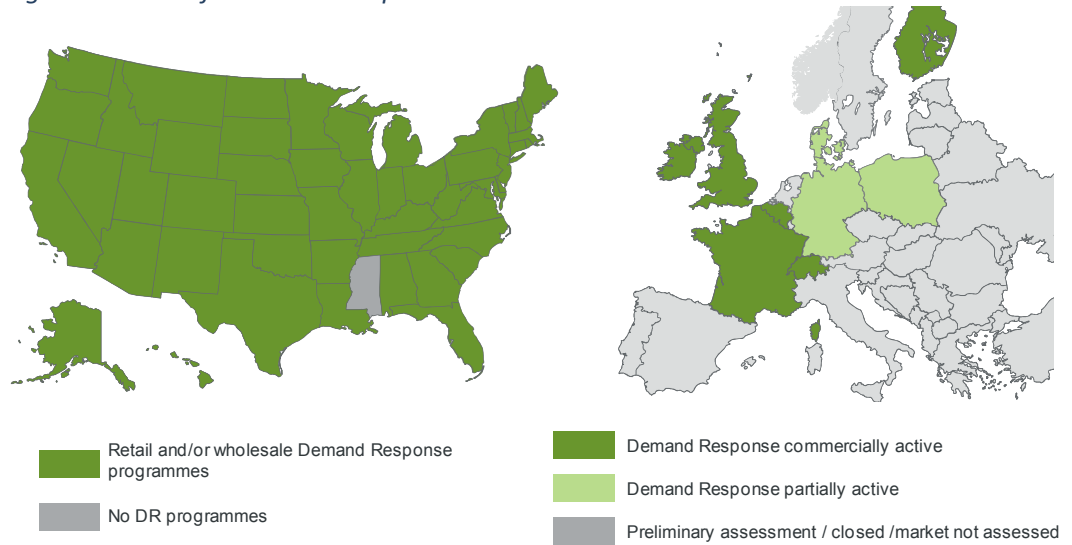
This is a potentially transformative undertaking, and a cornerstone for smart and efficient energy systems in Europe. It transforms the notion that Europe’s energy system should be based on large fossil-fuel fired power plants supplying passive consumers. If carried through to its full conclusion, it paints a picture of a new type of energy market, in which the supply of energy is increasingly decentralised, consumers are in control of their consumption, and businesses can find a myriad of opportunities beyond the pre-established roles of producing, transporting, and selling electricity. This vision is, however, a long way from current market functioning. The Commission plans to bring forward legislative proposals on a new market design in late 2016. This will be a key test for what the Energy Union will become in reality.

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<sup>18</sup> Energy Efficiency Financial Institutions Group (2015) **Energy Efficiency: the First Fuel for the European Economy**

<sup>19</sup> European Commission (2015) **A Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy**

Figure 5 Market for demand response in US and EU



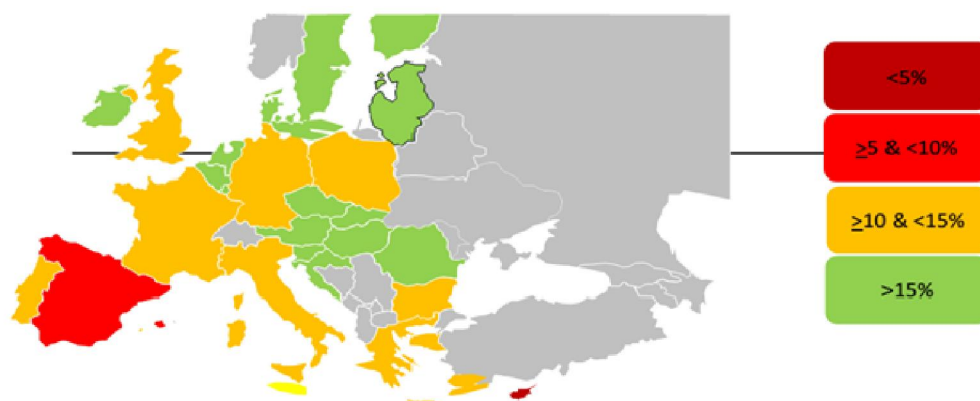
Source: E3G, from SEDC and Institute for Building Efficiency

A successful Energy Union also requires integration of infrastructures across borders. The potential cost savings for Europe from integrated energy markets is in the range of €40-70 billion per year, and more integrated infrastructure can also make it cheaper and easier to bring higher levels of renewables on to the system.

Proposals are currently under development on cross border electricity infrastructure, regional cooperation and market integration, including as part of the new market design proposals to be launched 2016. A communication was published in February on progress towards the 10% interconnection target by 2020 (although few new actions were identified) and the Commission will publish details of how it will meet the 15% 2030 target later this year.

A new regional high level group for Central East South Europe Connectivity (CESEC) has been established, and has brought a welcome focus on regional cooperation across southeast Europe including non-EU countries. It makes sense for this to be expanded to include all energy infrastructure – not just gas. A new high level group is also planned for North Seas Grid collaboration, which offers major opportunities to maximise offshore wind resources across the region.

Figure 6 Interconnection levels in 2020 if 1<sup>st</sup> list of Projects of Common Interest is implemented



Source: European Commission<sup>20</sup>

Finally, integration is also needed between different infrastructure types. There are multiple synergies possible here, particularly between electricity, gas, heat, and transport. Electrification of transport, for example, needs to go hand in hand with smartening local electricity grids. This has been a research and development priority for the Commission so far, as seen for example in last month's launch of the joint EU-US interoperability centre for smart grids and electric vehicles.<sup>21</sup> Actions in 2016 will test the extent to which this principle of systems integration is incorporated into the Energy Union more broadly. The Commission will be coming forward with strategies on heating and cooling, decarbonisation of transport, gas security and electricity markets in 2016, as well as a broader strategy on energy innovation. All of these should be seen as interdependent. In particular, Europe should put in place ambitious strategies for smarter mobility and for electrification of transport and heat, which are designed to maximise the cost-effective reduction in EU exposure to imported fossil fuels as well as reduce CO<sub>2</sub> and other harmful emissions.

## 4. Energy system resilience and robust governance

**Explicit stress-testing and stronger governance can improve EU resilience to risk.**

### Verdict: C

Governance is about the institutional, legal, procedural, market and financial arrangements that are needed to ensure delivery of the agreed objectives of the Energy Union. This includes well-defined targets (for example on greenhouse gas reduction, renewable energy and energy efficiency), and less-defined goals on energy security, affordability and competitiveness.

Energy and climate governance is currently featuring strongly on the EU agenda. Later in November 2015, EU Energy Ministers will agree a set of council conclusions on what a post-

<sup>20</sup> European Commission (2015) **Achieving the 10% interconnection target**

<sup>21</sup> Joint Research Centre (2015) **EU/US – new lab for interoperability of e-vehicles and smart grids**

2020 energy governance system should contain. As part of the 2015 State of the Energy Union report, the European Commission will publish a set of indicators as well as guidance on developing National Energy and Climate Plans. These plans and indicators are seen as the main instruments for tracking progress against EU targets and wider Energy Union goals.

However the focus of the discussions so far has often been more on streamlining planning and reporting burdens rather than what these instruments are actually meant to achieve in the real world.

Beyond streamlining, governance reforms are needed to do two things:

- > First, they need to give a clear steer to investors on direction of travel, and transparency about how policies interact across borders. Investors need to feel confident when they put their money into low carbon projects, and to feel confident when divesting from risky high carbon investments.

To achieve this, EU energy and climate governance arrangements need to be supported by legal mechanisms to ensure long-term stability of policy pathways and predictability of outcomes. The EU has a poor track record of achieving targets without obtaining concrete commitments from Member States with some form of legal backing for ensuring that outcomes are delivered. A failure to embed energy and climate governance in law would risk setting the Energy Union up for failure before it begins.<sup>22</sup>

- > Second, EU energy governance needs to ensure the resilience of EU energy systems in the face of an uncertain future. In other words, the EU needs to keep its energy systems affordable, secure and low carbon even if unexpected events happen, rather than hoping that everything will turn out for the best. This means that the metrics and indicators used for measuring progress need to look forwards rather than only backwards, and track capabilities to achieve outcomes. This could include for example, looking at power system flexibility and smart grids as a way of assessing potential for renewables integration, and assessing investment climate to measure whether energy projects can be deployed cost effectively.<sup>23</sup>

It also means that the EU's energy systems and policies need to be stress tested against a range of risks. The EU and member states should develop shared horizon-scanning assessments of potential risks to delivery of EU and member state energy and climate objectives, drawing on a full range of scientific, economic, security, foreign policy, and technological expertise. The new National Energy and Climate Plans need to be assessed against a broad range of scenarios to verify their resilience and deliverability. This function could either be undertaken through a new mandate for existing organizations and projects (such as the European Environment Agency, the Joint Research Centre and the European Strategy and Policy Analysis System), or through the development of a new European Energy and Climate Risk Observatory.<sup>24</sup>

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<sup>22</sup> Turner, S., Genard, Q., Roberts, J., and Luebbecke, I. (2015) **Four key messages for the governance of European Climate and Energy Policies after 2020**; Client Earth, E3G et al (2015) *The Market Design Initiative: Key Challenges and opportunities for IEM governance*

<sup>23</sup> DNV-GL (2015) **What indicators for monitoring the energy transition?**

<sup>24</sup> E3G (2015) **The Energy Union needs a new approach to policy making**

## 5. Responsibilities as well as rights

**Cross-border solidarity should be matched by effective management of energy demand.**

### **Assessment: C**

The Energy Union aims to increase energy security for all member states. In return, it also requires greater responsibility for managing energy demand.

Echoing similar proposals from a wide range of sectors, late last year our *6 Principles for a Resilient Energy Union* paper recommended that the Energy Union should be built on an 'Efficiency First' approach, in which efficiency and demand side measures are systematically considered alongside supply-side interventions, and prioritized where they are more cost-effective. It also identified that improving the efficiency of space heating in existing buildings should be an early priority for the Energy Union.

This Energy Efficiency First principle has been adopted by the Commission:

**“Our common objectives are clear: we have to get out of our energy dependency [and] give the principle of 'energy efficiency first' a central role in our policies”.**

– European Commission Vice President Maros Šefčovič, 18 May 2015<sup>25</sup>

**“It has been said many times but it is true: the energy we do not use is the cheapest, most sustainable and most secure energy there is. The EU is already a world leader here; but I think we can do so much more. It starts with taking 'efficiency first' as our abiding motto. Before we import more gas or generate more power, we should ask ourselves: 'can we first take cost-effective measures to reduce our energy?'”**

– European Commissioner Miguel Arias Cañete, 17 February 2015<sup>26</sup>

This is a positive and welcome commitment that will be critical to the success of the Energy Union. The next step needed is for the Commission to back up this headline commitment by undertaking a full assessment of the decision points across the energy sector where the Efficiency First principle could be incorporated. It is not yet clear, for example, that new supply-side infrastructure is being fully tested against demand-side and lower carbon alternatives. The new list of infrastructure Projects of Common Interest and the forthcoming LNG and gas storage strategy will be key indicators of whether the Efficiency First principle is being consistently applied. There are also important opportunities to make the Efficiency First

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<sup>25</sup> European Commission (2015) **Vice President Šefčovič announces the launch of the Energy Union Tour**

<sup>26</sup> European Commission (2015) **Speech by Commissioner Arias Cañete at the Lisbon Council “Towards an Effective Energy Union”**



principle live in reality in the forthcoming electricity market design proposals and the review of the Agency for Cooperation of Energy Regulators, expected in late 2016.

In parallel, the Commission is currently developing Europe's first dedicated Heating and Cooling Strategy. If effective this has a major potential to improve Europe's energy security: figures from the Buildings Performance Institute Europe suggest that realizing the cost effective potential of deep energy efficiency retrofits could cut gas import dependency by 36%.<sup>27</sup> Revisions to the Energy Efficiency Directive and Energy Performance of Buildings Directive are also planned in 2016.

## 6. A neighbourhood and global perspective

**Like energy systems themselves, an Energy Union must go beyond European borders.**

### **Verdict: E**

The EU Energy Union initiative has been accompanied by a significant diplomatic effort. The majority, it seems however, has been focused on access to fossil fuels. The first priority of the EU Energy Diplomacy Strategy, agreed by the EU Foreign Affairs Council in July 2015 is “diversification of sources, suppliers and routes”, focusing on gas. Diplomatic support is to be focused on “the Southern Gas Corridor, the Southern Caucasus and Central Asia; the strategic potential of the Eastern-Mediterranean region; the Euro-Mediterranean energy cooperation in the Southern Neighbourhood; the wider Middle East region; new energy sources in the Americas, Africa and Australia, including the potential of Liquefied Natural Gas (LNG)” – as well as Russia, Ukraine, Turkey and Iran.<sup>28</sup>

As the world looks to develop a new global agreement on climate change in Paris in December, this emphasis on fossil diplomacy risks sending mixed messages about Europe's intentions and direction of travel.

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<sup>27</sup> Green Growth Platform (2014) Advisory Council I: **Report to Ministers: Energy Security and the 2030 Climate and Energy Package**

<sup>28</sup> EU **Foreign Affairs Council conclusions**, July 2015; European Commission (2015) **A Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy**

Figure 7: World regions named as targets for diplomatic effort for access to fossil fuels in EU Energy Diplomacy and Energy Union strategies



Source: E3G

**A reset of the EU Energy Diplomacy Strategy is needed after COP21 to recognise the new energy and climate world.** There can be no difference between Europe’s climate diplomacy and its energy diplomacy. This will matter even more for embedding the outcomes of the COP21 climate summit in Paris than in ‘the road to Paris’. Europe should implement a clean technology diplomatic strategy for engagement with consumer countries, focused on cost reductions through development of global supply chains, open trade and coordinated research and innovation. The EU should also use the Review of European Neighborhood Policy and the EU Global Strategy on Foreign and Security Policy, which will be presented to EU leaders by June 2016, to guide the Union's external actions in the future towards delivering energy, climate and resource security for all.

Pivoting the EU energy diplomacy strategy towards clean energy is not simply a matter of climate security; it is also an imperative for Europe’s industrial future. The market for clean technologies will increase significantly and, importantly, proliferate around the world. The EU's competitive advantage has historically been in R&D and innovation, efficient production processes and a skilled and productive workforce.<sup>29</sup> Developing global markets in clean technologies – and ensuring open and fair access for European companies and talent into those markets – needs to be a firm diplomatic priority.

<sup>29</sup> E&Y (2014) **Europe’s Low Carbon Industries: A health check**

# CONCLUSIONS: 2016 AND BEYOND

## What needs to happen next

One year in to the Energy Union project, progress has been made in establishing the direction of travel towards a resilient Energy Union with a forward-looking climate policy, and in initiating a wide-reaching set of regulatory and market reforms. Further action is needed on clarity of investment signals into clean energy and away from fossil fuels, on integrating the energy and digital agendas, and in transitioning out of polluting and inefficient coal power.

2016 will be a critical year for turning the Energy Union vision into tangible proposals. The international climate negotiations in Paris will give a new impetus to this agenda internationally. Within the EU, 90% of relevant legislation for Energy Union is planned to be tabled by the end of 2016, with major reforms planned on electricity markets, efficiency, renewables and governance.

In this context we see five key priorities to be taken forward in the coming year.

First, in the wake of the Paris climate negotiations, the EU needs **to clarify when and how it plans to ratchet up delivery on greenhouse gas reduction, energy efficiency and renewables deployment**. The EU's climate and energy targets are at risk of being overtaken by facts on the ground as low carbon technology costs fall and as demand patterns change. The 'dynamic ambition mechanism' proposed on the EU's negotiating position for COP21 also needs to be built into the EU's own energy and carbon market reforms and governance as well as the international climate agreement.

Secondly, the new energy market package must **reward flexibility; accelerate interconnection and catalyse a shift to regional market operation; prioritize demand measures over new supply; unlock the potential of digital innovation; and tackle overcapacity in the energy markets by providing a clear exit ramp out of unabated coal power generation**.

Third, a **European clean energy investment strategy** should be produced to ensure the Capital Markets Union, Investment Plan for Europe and other EU funds deliver the investment needs of the Energy Union, and to establish criteria to prevent publicly-backed investment from being misspent on projects that run counter to Europe's energy and climate security goals.

Fourth, there should be no disconnect between Europe's climate diplomacy and its energy diplomacy. Currently EU energy diplomacy remains focused on access to fossil fuels. **A reset of the EU Energy Diplomacy Strategy is needed after COP21 to recognise the new global energy and climate realities**. Europe should implement a clean technology diplomatic strategy, focused on cost reductions through development of global supply chains, open trade and coordinated research and innovation.

Finally, **the Energy Union should not be limited to an energy and climate policy silo**. Modern and resource-efficient energy systems underpin European competitiveness. If it is to succeed in its ambitions, the EU Energy Union needs to be a core component across Europe's market, innovation and regional economic strategies.

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The European Climate Foundation (ECF) is a philanthropic initiative, established in 2008, to promote climate and energy policies that greatly reduce Europe's greenhouse gas (GHG) emissions and to help Europe play an even stronger international leadership role to mitigate climate change. The majority of our funds are re-granted to NGOs and think tanks engaged in bringing about meaningful policy change. [www.europeanclimate.org](http://www.europeanclimate.org)

## End notes

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<sup>2</sup> European Environment Agency (2015) **Trends and projections in Europe 2015**

<sup>3</sup> Health and Environment Alliance (2013) **The Unpaid Health Bill**

<sup>4</sup> European Commission (2015) **Imports and Secure Supplies**

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