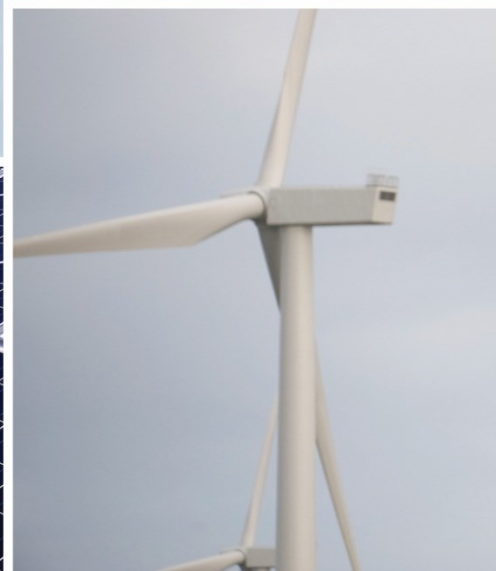
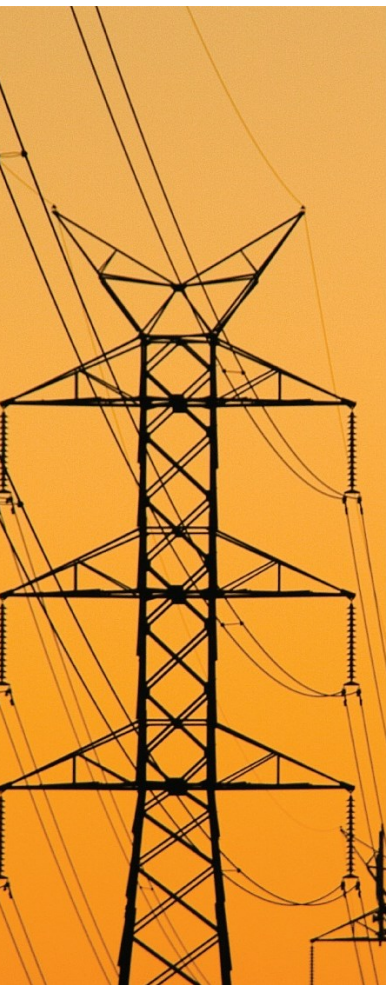


WINTER 2016

# EUROPE'S CLIMATE AND ENERGY OUTLOOK NOW THAT THE INK ON COP21 IS DRY

REPORT



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## INTRODUCTION

Friends of Europe's 2016 Energy and Climate Summit took place in Brussels at the end of an extraordinary few weeks in climate politics. The Paris Agreement, the landmark 2015 climate deal, reached the required thresholds for ratification, many years earlier than anyone anticipated. A long-anticipated agreement to cut emissions from aviation was also made. And a global deal was made to phase out hydrofluorocarbons (HFCs), one of the most harmful greenhouse gases.

But the Summit also took place in the context of a European Union that is grappling with a number of serious challenges, including Brexit, frosty relations with Russia, limited progress on the Energy Union and the ongoing weakness of European economies.

The Paris Agreement offers an opportunity to reset climate policy to meet the targets agreed at the COP21 climate conference, and the EU is working on several measures, including reforms to the Emissions Trading Scheme (ETS) and efforts to stimulate innovation.

While representatives of the business community were supportive of a higher carbon price, they warned of the ongoing importance of protecting carbon-intensive industries from competition from outside Europe.

It is also important to build European industries in new, low-carbon technologies such as energy storage and low-carbon transport. But this is not just a question of technological innovation. It also requires new business models and financing arrangements, such as the EU's European Fund for Strategic Investments (EFSI) and Innovfin, the European Investment Bank's fund for innovative companies.

The Summit heard that Europe does not have to decide between decarbonisation and energy security. Instead, cutting emissions will help to make Europe more energy secure by reducing demand for imported fossil fuels.

While home-grown renewable energy will be important, the key to cutting carbon while increasing security of supply is energy efficiency. But Europe is currently missing out on massive opportunities because policymakers are obsessed with the supply side and continue to ignore the potential of demand management. Cutting demand will not only reduce emissions and consumer bills, it will also cut the amount of new capacity that is needed.

**“We never expected the EU process to overrun national ratifications. In the end, it took us just nine months to ratify the biggest-ever global climate agreement.”**

**Norbert Kurilla**, State Secretary at the Slovak Environment Ministry

**“Without quantification, how can we create the right parameters for investment decisions?”**

**Gérard Mestrallet**, Chairman of the Board of energy company Engie

## THE PARIS AGREEMENT A YEAR ON: TURNING WISHLISTS INTO PRACTICAL POLICIES

The Friends of Europe Energy and Climate Summit took place in the wake of an extraordinary month in climate politics that saw the Paris Agreement ratified, an agreement to cut emissions from aviation and a global deal to amend the Montreal Protocol and phase out HFCs, one of the most harmful greenhouse gases.

The speed of progress on the Paris Agreement took the European Union's institutions by surprise, said **Norbert Kurilla**, State Secretary at the Slovak Environment Ministry, given that the Kyoto Protocol took seven years to ratify. “We never expected the EU process to overrun national ratifications. In the end, it took us just nine months to ratify the biggest-ever global climate agreement.”

But despite all the recent achievements, this is no time for complacency, said Kurilla. “We have achieved a lot, but now is the time for real effort to deliver concrete results towards a pathway of a temperature rise under 2°C.”

For the EU, this means reforming the Emissions Trading Scheme (ETS) as well as tackling non-ETS sectors. “The ETS is the best instrument to deliver emissions reduction in the most cost-efficient way,” the minister added. “We are doing our homework to stay aligned with global targets but it will also create domestic opportunities for low-carbon development.”

**Dominique Ristori**, the European Commission's Director-General for Energy, agreed that the challenge now is implementation. But he suggested that Europe has an advantage because it already has clear targets for 2030 on cutting emissions, boosting renewables and improving energy efficiency. “Many other countries around the world are adopting the same approach,” he said.

There are two key challenges to this rapid pace of change, said **Gérard Mestrallet**, Chairman of the Board of energy company Engie. One is that EU policies such as the ETS are not aligned with the Paris targets. The other is to ensure that decarbonisation can be delivered without cutting economic growth.

“This is the age-old argument that we can't have economic growth and achieve our climate targets,” said moderator **Dharmendra Kanani**, Director of Strategy at Friends of Europe. “But we now know that we can do that.”

“We need massive investments in generation, transmission and distribution, as well as demand-side management. But sectors such as lighting and housing have a fantastic potential to relaunch the economy,” Ristori said, adding that the Commission will present proposals before the end of the year “revisiting key legislative texts to allow measures going in that direction”.

Business was heavily involved in the discussions that led to the Paris Agreement and was able to ensure that carbon pricing was part of the final text, Mestrallet said. “This is the way to give us predictability, visibility and a way to quantify the climate. The private sector will have to make 70% of the investment needed to meet climate targets. Without quantification, how can we create the right parameters for investment decisions?”

## CONFLICTING SIGNALS

One example of the clarity that quantification provides is the contradiction between the signals sent by the existing ETS and the targets in the Paris Agreement. To meet the EU's own target of cutting emissions by 40% by 2030 there would need to be a carbon price of €20-€30 in 2020, increasing year on year to €50 by 2030, Gérard Mesrellet said.

"Today's carbon price, at €6 per tonne, is clearly not enough. If we don't improve the system, we will never reach 40% – or we will have to issue regulations country-by-country to close down all coal plants or massively subsidise renewable energy and energy efficiency."

Mestrallet added that any reform must include measures such as free allocations to sectors exposed to international competition, including steel, chemicals and cement.

**Geneviève Pons-Deladrière**, Director at the World Wide Fund for Nature (WWF) pointed out that to implement Paris, Europe will have to cut its emissions by at least 95% by 2050. "The main winner will be energy efficiency and next will be renewables," she said. "The needs that are now satisfied by fossil fuels, if they cannot be cancelled by efficiency gains, have to be satisfied by renewables. The ETS should be much more ambitious. €6 per tonne is a joke and free allocation of allowances does not send the right signal to business. Businesses already have shadow carbon prices much higher than the ETS price, so the European institutions should try to get it right."

**Jean-Pierre Clamadieu**, Chief Executive Officer at Solvay, said that his company has committed to cut its carbon intensity by 40% in the next decade and has an internal carbon price of €25 per tonne, which is "a very strong tool to challenge our investments".

Seventeen countries and regions outside the EU already have carbon prices. Canada is set to introduce a carbon tax and China's pilot schemes will be scaled up to national level in the coming years. "In a world advancing towards carbon pricing it would be a pity if Europe was to lose its lead and lag behind," Pons-Deladrière added.

The risk is not investment leakage, but innovation leakage, she argued. "The most interesting and innovative investments are taking place elsewhere."

EU climate commentator Mark Johnston pointed out the need to communicate in a meaningful way the gap between the targets and what current policies will achieve. "With emissions falling by an average of one per cent per year since 1990, at that rate we will meet the target in 2090, not 2050. We need to be moving twice as fast as we are now."

However, Clamadieu said "there has not been much political courage from governments to tell people what carbon pricing means. Are we ready to make sure our fellow citizens know what it means to their own income, their spending on transport, heating and cooling? I don't see much willingness to address this. Governments want to make it invisible to consumers – for obvious political reasons."

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## CARBON REDUCTION IS THE NAME OF THE GAME

Yet there are encouraging signs that things are changing, Jean-Pierre Clamadiou added, pointing out that “the dial has started to shift”. Even companies such as Solvay – one of the large chemicals companies long seen as part of the problem – can also be part of the solution by developing new advanced materials that help customers.

“In my everyday life, I see things changing. In discussions with customers and partners, sustainability is more and more part of the conversation. For example, Apple launched an initiative to ensure that its supply chain contributes to decarbonisation and we were able to commit to use renewable energy for all our plants that supply Apple,” he said. “Throughout the supply chain, carbon reduction is the name of the game.”

The Paris Agreement will turn into action plans in all countries, he added, although Geneviève Pons-Deladrière pointed out that these action plans will have to be carefully monitored.

The amendment to the Montreal Protocol that brought about the phasing-out of HFCs is a good example of how to proceed, Clamadiou suggested. “It provides long-term visibility and a level playing-field. Thanks to this, industry can adapt and develop technical solutions to make the phase-out possible within a clear global framework.”

Conversely, what has happened to the coal industry is a sobering indication of the dangers of failing to respond to the pressure to decarbonise, Clamadiou said. “When you hear large investors say they don't want to invest in companies that produce coal it creates lots of questions. We recognise that our use of coal is a weakness and we need to prepare ourselves for a world where coal is not used as it is today.”

## ENERGY REVOLUTION

The technological revolution in clean energy is being accompanied by a cultural and societal revolution that is changing the rules for businesses, particularly in the energy sector, Gérard Mestrallet said. “We used to be energy providers. Now it is completely changing from a centralised system to a much smaller, decarbonised and decentralised system. Our role is to help with this shift from the old world to the new and to be an energy partner to our customers in this transition.”

Eberhard Rhein, a Trustee of Friends of Europe, asked what the EU can do to wean Poland off coal, but Dominique Ristori pointed out that it will not be possible for the country to give up coal overnight given that more than 80% of its electricity is generated using the fuel. “Many people criticise Poland,” he added, “but it has accepted the 2030 energy and climate framework and was among the first to ratify the Paris Agreement. They know very well they have to progressively modernise their energy system and change the energy mix.”

There is a need for social support in all coal-producing regions – not just in Poland, but also countries such as Germany and the Czech Republic. Norbert Kurilla added: “You have to let countries choose how to decarbonise.”

All levels of government will have to play their part, Ristori said, while Geneviève Pons-Deladrière highlighted the importance of cities. "Many cities have more people in them than some countries but democracy is easier at the city level, so decision-making is quicker than at government or EU level," she said.

## THE ERA OF DISRUPTIVE TECHNOLOGIES AND BEHAVIOURS - RECONCILING CONSUMERS' INTERESTS WITH INDUSTRY NEEDS

Moderator **Siobhan Hall**, Senior Editor for EU Energy Policy at Platts, illustrated the impact of disruptive technologies by asking the audience how many of them owned smartphones. The majority raised their hands. "Just remember, smartphones didn't exist ten years ago," she pointed out. "The same thing can happen in other sectors."

Europe has been a leader in a number of disruptive technologies, such as smart grids and wind power, said **Ruxandra Draghia-Akli**, European Commission Deputy Director-General for Research and Innovation, highlighting that Denmark generates 42% of its electricity from renewable energy and Portugal sourced all of its electricity from renewable sources for four days earlier in 2016.

But Europe's experience with solar, where it has lost ground to China, shows that even in areas where we are ahead, maintaining that leadership cannot be taken for granted.

That is why the European Commission is working on a comprehensive strategy for research, innovation and competition, she added. The plan, which will be presented in the coming months, will seek to strengthen synergies between energy, transport, industry, the digital agenda, innovation and the circular economy.

"Consumers will be empowered to produce, manage and store energy in increasingly intelligent ways," she said, adding that new business models are required now that consumers increasingly want energy as a service. "Consumers are not interested in energy. They are interested in lighting, comfort, transport and entertainment and knowing how many kilowatts they are using. The industry needs to be prepared for this disruptive innovation and to know that this service can be provided by outsiders," she added.

Draghia-Akli highlighted the contribution the Commission is making through the European Fund for Strategic Investments (EFSI) and Innovfin, the fund for innovative companies set up by the European Investment Bank (EIB). "Fighting climate change is a daunting task. We need all hands on deck – the EU, member states, cities, local authorities, business and consumers," she said.

EFSI has given the EIB "the capacity to enter into agreements in areas it would not previously have been able to engage in," said **Edward Calthrop**, Senior Economist in the Institutional Affairs Department at the EIB, while Innovfin allowed it to support earlier-stage innovations by providing guarantees to projects through the construction phase, up to the point where developers have proved the technology works.

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**“You really can move at scale and speed with technologies like batteries and demand response. There is a danger we will miss this moment because of an obsession with the supply side that locks us into multi-decade contracts for power plants that we’re adding to a system that is already over capacity.”**

**Lucy Symons**, Director of Public Affairs  
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“There are a number of interesting ways that a limited use of public funds can help generate scale.”

Innovfin “is a very good opportunity for the clean energy community to put forward riskier projects that need to build prototypes and demonstrate that devices work,” Draghia-Akli said.

## STORAGE SOLUTIONS

One example of up-and-coming disruptive innovation is energy storage, said **Lucy Symons**, Director of Public Affairs at Open Energi. The top priority for consumers is price and energy security, but energy markets face a situation where costs are increasing and margins for electricity markets are tight. Coal-fired power plants are closing, renewables are intermittent and it takes about four years to build a new gas-fired power plant.

Open Energi’s way of dealing with this precarious situation in the UK is to create a giant digital battery by linking together more than 3,000 devices – including boilers, tanks, water pumps and HVAC equipment – in companies, supermarkets and much of the water industry. When power demand is high, these devices can be switched off and when supply is plentiful they can be ramped up, to smooth energy demand.

While the company has about 20 megawatts of capacity connected currently, there is potential to remove 6 gigawatts (of a winter peak of 55GW). That is equivalent to what the Hinkley Point C nuclear power station is scheduled to produce. Building out energy storage to scale would benefit both industry and consumers, Symons said, and it can be done quickly and without state subsidies.

Symons pointed out that when the Aliso Canyon gas storage facility near Los Angeles suffered a massive blowout in 2015 that created a risk of blackouts, California fast-tracked almost 65MW of energy storage. It did this in four months, instead of the three-and-a-half years it would normally take, and put aside US\$11.5m for demand-response dynamic pricing.

In the UK, the National Grid recently bought 200MW of battery storage capacity, but more than 1GW of capacity pre-qualified for the bidding process, meaning “there is 800MW of capacity that is shovel-ready but not yet bought,” Symons said. “It shows you really can move at scale and speed with technologies like batteries and demand response,” she said.

Governments are obsessed with having resource adequacy rather than adequacy of flexibility, which is what they really need, she added. “A framework of flexibility adequacy opens up so many possibilities. It facilitates the use of electric vehicles to mitigate intermittent renewables, allows you to replace ageing coal infrastructure, and can make the smart grid a reality. But there is a danger we will miss this moment because of an obsession with the supply side that locks us into multi-decade contracts for power plants that we’re adding to a system that is already over capacity.”



## UNDERSTANDING FUNDAMENTALS

The really large technology disruptions in the energy sector over the last ten years have been the emergence of shale oil and gas in the US and the growth of the solar photovoltaic (PV) market, said **John Cooper**, Director-General at FuelsEurope. The success of both these technologies came about "because investors could see the possibilities in markets they understood," he asserted. "The fundamental performance of the technology is what has really given investors the confidence to go forward."

Calthrop told the summit that the first intermittent renewable project in Europe to proceed without any form of government subsidy – a solar PV scheme in Italy – was set to be financed soon.

"Given that in 2009 some governments were paying €600/MWh for PV, it gives a sense of how far the sector has moved in a short time," Calthrop said. From a banking perspective, the removal of technology risk and price risk has been key to making the sector investable at scale, he added. "If you want to deploy at scale, you typically need debt finance, so you need to close down these types of risk."

In transport, there is a range of potentially disruptive technologies, including more efficient internal combustion engines, electrification, advanced biofuels, carbon capture and storage (CCS) and power to gas technology. But none have really taken off at scale, Cooper said. Electric vehicles have been heavily supported by subsidies but it is unclear what will happen when that support falls away, while the other technologies are not supported because there is such a patchwork of regulations.

"We will need liquid fuels in transport for decades, in marine transport, aviation and heavy duty fuels at the very least, so we will need innovation in the sector for decades," Cooper said. The oil industry has already responded to the pressure to tackle climate change, he added, with European refineries typically 35% more efficient than the world average thanks to a combination of high energy costs and the ETS.

When it comes to supporting innovation to ensure disruptive technologies are developed in Europe, more needs to be done at an earlier stage, he said. "We have a bias towards mandating particular technologies and spending a lot of money to meet those mandates." There are about one million electric vehicles on the road, with support payments of about €10,000 per car. But the batteries for all of those cars come from Japan and South Korea, Cooper added. "Support has not encouraged production in Europe. If we focused on the technology at an earlier stage, we could have an industrial opportunity in that technology and many others."

One must also be aware of unintended consequences, he pointed out. "One of the most exciting ideas in transport is truck platooning on motorways, where you have up to ten trucks driven autonomously and very close to each other. This concept significantly reduces drag and fuel consumption – but it also essentially creates a train on the motorway, so how will other road users react to that? There are moral, ethical and behavioural issues we need to work through for many technologies that are ready to go from a technical point of view."

**"The fundamental performance of the technology is what has really given investors the confidence to go forward."**

**John Cooper,**  
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**“We define energy security as providing reliable energy at a cost conducive to economic growth in an environmentally sustainable way. Europe did a great service to the whole world, at considerable cost, by introducing very high feed-in tariffs that drove down the costs of renewable energy for everyone.”**

**Paul Simons**, Deputy Executive Director of the International Energy Agency (IEA)

## **SECURING EUROPE'S ENERGY SUPPLIES – LONG-TERM SOLIDARITY VERSUS SHORT-TERM SELF-INTEREST**

The final session started with **Paul Simons**, Deputy Executive Director of the International Energy Agency (IEA), pointing out that energy security was his organisation's purpose, having been set up in the wake of the Arab oil crisis in the 1970s.

“We define energy security as providing reliable energy at a cost conducive to economic growth in an environmentally sustainable way,” he said.

Europe is leading the world in terms of decoupling its economic growth from energy consumption, he added, with absolute volumes of coal and oil use set to decline in the coming decades and gas use expected to be either flat or declining, depending on the pace of decarbonisation. In addition, public opinion about decarbonisation is more advanced than in the rest of the world and Europe is a leader in renewable energy.

“Europe did a great service to the whole world, at considerable cost, by introducing very high feed-in tariffs that drove down the costs of renewable energy for everyone,” Simons pointed out.

However, the region will remain a large importer of oil and gas, while domestic production will decrease. As a result, Europe will be importing more than two-thirds of its gas requirements in 2040 and up to seven million barrels of oil per day.

As a result, energy security will remain an urgent issue for Europe, Simons said. “One of the biggest challenges for Europe is to shift its decarbonisation focus from electricity to industry and transport. A second challenge is how to increase the amount of renewables in electricity to further decarbonise the power system.”

Europe's great challenge is that it is not America, said **Andreas Goldthau**, Professor at Royal Holloway University of London and an Associate on the Geopolitics of Energy project at Harvard University's Belfer Center for Science and International Affairs. Goldthau, who is also a Fellow at the Russia Institute at King's College, added: “Europe is not going energy-independent. It doesn't have a thousand or more gas producers or a liquid gas market. Its gas markets, the world's largest, aren't integrated, and it has only very few suppliers, including Gazprom, which accounts for 30% of the market.”

## **POLITICISED REGULATORS NOT THE ANSWER**

Europe's response – to build markets and connect them, to support hub pricing and enforce anti-trust laws – has been the right one, Andreas Goldthau said. However, as gas has become more politicised and energy security has become more of a concern, “European regulation has started to be used in a more selective and arbitrary way. Europe has started separating ‘good’ molecules from ‘bad’ molecules.”

This approach is evident in the decisions to stop the Nord Stream 2 and South Stream pipelines, but “this is not a good thing to do,” Goldthau

insisted. "Regulation should provide a level playing-field and give security to any investors who want to invest in the market. It is not well suited to playing geopolitical games. It is up to political actors to deal with this rather than put regulators at the forefront of this."

Decarbonisation of the energy mix can contribute to energy security, said **Bruno Lescoeur**, Special Advisor to EDF's Chairman and Chief Executive Officer. "The challenge is to decarbonise at a reasonable cost to society." The British, in a "parting gift before Brexit", have provided some useful tools for doing this in the form of the carbon price floor and a long-term system of contracts that "provide the right signals for investment in the technologies that they favour".

Changes in geopolitics and the nature of the energy system have created an imperative and an opportunity to rethink notions of what constitutes energy security in terms of long-term solidarity versus short-term costs, suggested **Ingrid Holmes**, Director at Third Generation Environmentalism (E3G).

In the past, EU energy policy was about securing access to fossil fuel supplies "but structural changes to the energy system driven by changes in demand, technology and long-term priorities have lessened Europe's energy insecurity and created the space to think about how we deliver energy supplies," she said. "We're going to have to break out of the current siloed approach of pitting one fuel against another and think about the collective, not just the national, interest."

"Energy supply is too important to be separated from demand, and immediate energy infrastructure decisions, especially around gas pipelines, can't be separated from Europe's climate transition," she continued. "The Energy Union presents the opportunity to make the transition in an integrated way and burst out of the siloed approach."

It makes no sense, Holmes argued, to invest in gas pipelines if gas demand is falling, yet while gas demand has fallen by 20% since 2010, a 58% increase in pipeline capacity is planned. "Gas will be part of the transition and we do need to make some investments, but a lot of investment is being planned on the basis of rising demand that will not be there."

It also makes no sense to consider energy efficiency policies separately from energy security policies. Modelling work carried out by E3G showed that Europe's gas networks were actually highly resilient to even quite extreme supply shocks, although limited investment was needed in Southern Europe.

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**Bruno Lescoeur**, Special Advisor to EDF's Chairman and Chief Executive Officer

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## SMARTER ENERGY

“We really do need to get smarter about this. The question is, how?” Ingrid Holmes asked. More integrated system planning, greater cross-border flexibility and more investment in interconnections would reduce the need to invest in supply, so energy planning needs to take an ‘energy efficiency first’ approach that treats efficiency as an infrastructure priority, that puts demand and supply on an equal footing, and that prioritises flexible demand over new pipes and wires. “We need to support the deployment of the new smart energy system that we need, not prop up the old, inflexible one that we have.”

However, Andreas Goldthau argued that anyone who wanted to make investments should be able to. “We need to think about resilience not just as something that happens in the system but also in terms of slack. There is a lot to be said for having as many entry points as possible. It’s not about planning capacity, it’s about who has the best deal to offer. What happens if Southern Europe starts picking up economically? It will need a lot more gas than projected.”

**David Buchan**, Senior Research Fellow at the Oxford Institute for Energy Studies, pointed out that another word for slack is inefficiency, so while there is something to be said for spare capacity from an energy security point of view, it does come with costs.

Bruno Lescoeur highlighted concerns in Italy about future gas supplies and prices. With imports currently coming from Russia, Libya, Algeria and Qatar, it saw the South Stream pipeline as insurance policy against any disruption in supplies. While liquefied natural gas (LNG) is seen as a help, it was only a few years ago that supplies were being diverted to Asia because buyers there were willing to pay a higher price, he pointed out. “From a consumer point of view, you need as many options as possible.”

However, Paul Simons pointed out that in the next five to six years, “tremendous volumes of LNG from Australia and the United States” would hit the world market, doubling supply and putting downward pressure on prices.

Energy efficiency is an essential component in the energy transition, he added, and should contribute at least 40% of the EU’s efforts to bridge the gap between its current policies and the Paris Agreement 2°C target.

## ENERGY EFFICIENCY, THE FIRST FUEL

**Theresa Griffin** MEP, Member of the European Parliament Committee on Industry, Research and Energy and rapporteur on ‘Delivering a new deal for energy consumers’ agreed, saying: “Energy efficiency should become our first fuel. We also need to include citizens through demand-side management and we need to end the digital divide.”

A one per cent increase in energy efficiency would mean three million homes could be renovated and seven million people lifted out of energy policy, she added.

This is an opportunity for business. Engie was the first company to create a division dedicated to energy efficiency, and this has now grown into a 100,000-people, €16bn business, Gérard Mestrallet pointed out.

Griffin also called for enhanced cooperation between member states, with risk assessment plans and preventative action plans in case of an energy crisis. "I would love to see binding energy efficiency targets," she added. "We need energy supply that puts the citizen first."

However, Ingrid Holmes warned that a lot of energy efficiency policy is about enabling "quite complex investments across the economy. A lot of this sits outside the traditional energy policy debate, for example in accounting rules reform and state aid reform."

## CONCLUSION

These are extraordinary times for climate policy, and they will require significant responses by all stakeholders – from the EU to national and regional governments, regulators, business, investors and consumers.

Friends of Europe's Energy and Climate Summit heard many long-held concerns that decarbonisation must not drive jobs and industries out of Europe. Support may be needed for vulnerable communities, but the Summit also heard that many businesses now see the transition to a low-carbon economy as a massive opportunity, for individual companies and Europe as a whole.

Business leaders were instrumental in pushing for a carbon price to be part of the Paris Agreement and companies are increasingly comfortable with the idea of higher carbon costs. Investors are demanding action, as has been seen in the coal sector, and companies are taking note. But there is still work to do to highlight what higher carbon prices will mean to consumers – work that policymakers appear to be reluctant to do.

Decarbonisation is changing the relationship between consumers and producers of energy, with disruptive technologies such as energy storage, smart grids and big data empowering consumers to produce their own energy as well as to have greater transparency about the energy they purchase.

But regulatory structures are still geared towards producers and the supply side rather than the demand side, even though the technology is now available to create massive energy savings by reducing electricity demand at peak times and to store energy until it is needed.

The revolution in the electricity sector is well under way but much more work needs to be done in heating and transport, and progress remains slow.

Taking an 'energy efficiency first' approach would help to tackle many of the challenges that we face – on energy security, on decarbonising the economy, on creating new jobs – but the energy system is not well-placed to adopt this approach. Making this switch would help to create a smart, responsive energy system fit for the 21st century.

## "I would love to see binding energy efficiency targets."

**Theresa Griffin**, Member of the European Parliament Committee on Industry, Research and Energy and rapporteur on 'Delivering a new deal for energy consumers'



**“We have achieved a lot, but now is the time for real effort to deliver concrete results towards a pathway of a temperature rise under 2°C.”**

Norbert Kurilla, State Secretary at the Slovak Environment Ministry



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