



# NAVIGATING THE ROADMAP FOR CLEAN, SECURE AND EFFICIENT ENERGY INNOVATION



## *Workshop Proceedings Paper on The Future of Gas in an Electrifying Europe*

SET-Nav Final Policy Event

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[www.set-nav.eu](http://www.set-nav.eu)

**Project Coordinator:** Technische Universität Wien (TU Wien)

**Work Package Coordinator:** CEPS

**SET-Nav**  
Strategic Energy Roadmap



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TECHNISCHE  
UNIVERSITÄT  
WIEN

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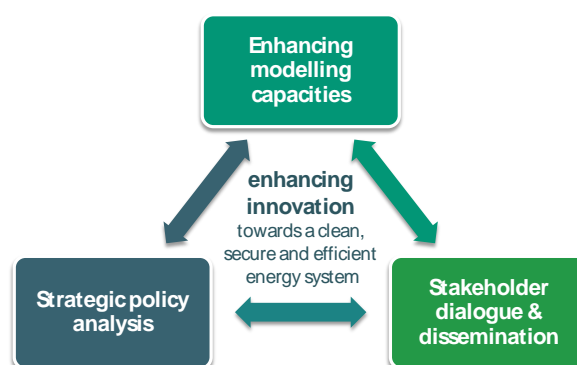
Project duration:	April 2016 – March 2019
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### About the project

SET-Nav aims for supporting strategic decision making in Europe's energy sector, enhancing innovation towards a clean, secure and efficient energy system. Our research will enable the European Commission, national governments and regulators to facilitate the development of optimal technology portfolios by market actors. We will comprehensively address critical uncertainties facing technology developers and investors, and derive appropriate policy and market responses. Our findings will support the further development of the SET-Plan and its implementation by continuous stakeholder engagement.

These contributions of the SET-Nav project rest on three pillars: modelling, policy and pathway analysis, and dissemination. The call for proposals sets out a wide range of objectives and analytical challenges that can only be met by developing a broad and technically-advanced modelling portfolio. Advancing this portfolio is our first pillar.

The EU's energy, innovation and climate challenges define the direction of a future EU energy system, but the specific technology pathways are policy sensitive and need careful comparative evaluation. This is our second pillar. Ensuring our research is policy-relevant while meeting the needs of diverse actors with their particular perspectives requires continuous engagement with stakeholder community. This is our third pillar.



### Who we are?

The project is coordinated by Technische Universität Wien (TU Wien) and being implemented by a multinational consortium of European organisations, with partners from Austria, Germany, Norway, Greece, France, Switzerland, the United Kingdom, France, Hungary, Spain and Belgium.

The project partners come from both the research and the industrial sectors. They represent the wide range of expertise necessary for the implementation of the project: policy research, energy technology, systems modelling, and simulation.





The project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 691843 (SET-Nav).

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# Table of Contents

- 1 Introduction..... 1
- 2 Agenda ..... 2
- 3 Minutes ..... 4
- 4 List of Participants..... 9

# Figures

- Figure 1: SET-Nav Future of Gas in an Electrifying Europe..... 1
- Figure 2: Panel Discussion during the Final Policy Event in Brussels..... 8

# 1 Introduction

The SET-Nav *“Future of Gas in an Electrifying Europe”* meeting, part of the SET-Nav Final Policy Event in Brussels was successfully organised on the 20<sup>th</sup> March 2019. The event was organised by the Centre for European Policy Studies (CEPS).

The workshop brought together European and national stakeholders to discuss the role of gas in the future European energy mix. The event united and put to the test different perspectives on the future of gas, and tested the results and policy recommendations developed as part of the SET-Nav project. Several different scenarios were up for discussion, including moderate electrification, hydrogen, strong gasification, and renewable gas.

The workshop featured presentations on the future of gas as an energy source in an electrifying Europe followed by a round table discussion with participants. The workshop’s presentations are available in the event’s page here: <http://www.set-nav.eu/content/final-policy-event>.

The present report includes the agenda, list of participants and minutes of the meeting.



Figure 1: SET-Nav Future of Gas in an Electrifying Europe

## 2 Agenda



NAVIGATING THE ROADMAP FOR CLEAN,  
SECURE AND EFFICIENT ENERGY INNOVATION

### AGENDA

#### The Future of Gas in an Electrifying Europe

*SET-Nav Final Policy Event*

**20 March, 16:30-18:30**

Venue: **CEPS, 1 Place du Congrès, 1000 Brussels**

What is the role of gas in the future European energy mix? The event will unite and put to the test different perspectives on the future of gas, and test the results and policy recommendations developed as part of the SET-Nav project. Several different scenarios will be up for discussion, including moderate electrification, hydrogen, strong gasification, and renewable gas.

16:00 – 16:30	<b>REGISTRATION</b>
16:30 – 16:35	Welcome & introduction to SET-Nav by <b>Marijke Welisch</b> , Senior Researcher, TU Wien
16:35 – 16:50	Keynote: <b>Florian Ermacora</b> , Head of Unit, Internal Energy Market, DG Energy, European Commission
16:50 – 17:05	Gas perspectives from SET-Nav by <b>Ruud Egging</b> , Professor, NTNU
<b>17:05 – 18:30</b>	<b>Panel discussion</b>
17:05 - 18:30	<p><i>Moderated by</i> <b>Christian Egenhofer</b>, Senior Research Fellow &amp; Director, CEPS</p> <p><b>Vera Brenzel</b>, Head of Political Affairs, E.ON</p> <p><b>Stijn Carton</b>, Associate for the Energy Systems Initiative, European Climate Foundation</p> <p><b>Ruud Egging</b>, Professor, NTNU</p> <p><b>Steinar Eikaas</b>, Vice President, Low Carbon Solutions, Equinor</p> <p><b>Florian Ermacora</b>, Head of Unit, Internal Energy Market, DG Energy, European Commission</p> <p><b>Franziska Holz</b>, Deputy Head of Department for Energy, Transportation, Environment, DIW Berlin</p> <p><b>Daan Peters</b>, Associate Director, Navigant</p>
18:30 - 19:00	<b>REFRESHMENTS</b>







## SET-Nav at a Glance

SET-Nav will support **strategic decision making** in Europe's energy sector, enhancing innovation towards a **clean, secure** and **efficient energy system**. Our research will enable the EC, national governments and regulators to facilitate the development of optimal technology portfolios by market actors. We will comprehensively address critical uncertainties and derive appropriate policy and market responses. Our findings will support the further development of the SET-Plan and its implementation by continuous stakeholder involvement. These contributions of the SET-Nav project rest on three pillars:

The wide range of objectives and analytical challenges set out by the call for proposals can only be met by developing a broad and technically-advanced **modelling portfolio**. Advancing this portfolio and enabling knowledge exchange via a modelling forum is our first pillar.

The EU's energy, innovation and climate challenges define the direction of a future EU energy system, but

the specific **technology pathways** are policy sensitive and need careful comparative evaluation. This is our second pillar. Using our strengthened **modelling capabilities** in an integrated modelling hierarchy, we will analyse multiple dimensions of impact of future pathways: **sustainability, reliability** and **supply security, global competitiveness** and **efficiency**. This analysis will combine bottom-up 'case studies' linked to the full range of SET-Plan themes with holistic 'transformation pathways'.

**Stakeholder dialogue** and **dissemination** is the third pillar of SET-Nav. We have prepared for a lively stakeholder dialogue through a series of events on critical SET-Plan themes. The **active involvement** of stakeholders in a two-way feedback process will provide a reality check on our modelling assumptions and approaches, and ensure high policy relevance. Our aim is to ensure policy and market actors alike can navigate effectively through the diverse options available on energy innovation and system transformation.

## SET-Nav Partners

No	Participant Name	Country Code
1	Vienna University of Technology, Energy Economics Group ( <i>TU Wien</i> )	AT
2	Fraunhofer-Institut für System- und Innovationsforschung ( <i>Fraunhofer ISI</i> )	DE
3	Deutsches Institut für Wirtschaftsforschung ( <i>DIW Berlin</i> )	DE
4	Norges teknisk-naturvitenskapelige universitet i Trondheim ( <i>NTNU</i> )	NO
5	Stiftelsen SINTEF ( <i>SINTEF</i> )	NO
6	Société Européenne d'ECONomie ( <i>Seureco</i> )	FR
7	Universidad Pontificia Comillas ( <i>Comillas</i> )	ES
8	National Technical University of Athens ( <i>NTUA</i> )	GR
9	Regional Center for Energy Policy Research ( <i>REKK</i> )	HU
10	Centre for European Policy Studies ( <i>CEPS</i> )	BE
11	University of East Anglia ( <i>UEA</i> )	UK
12	Eidgenössische Technische Hochschule Zürich ( <i>ETH</i> )	CH
13	Axpo Services AG ( <i>Axpo</i> )	CH
14	International Institute for Applied Systems Analysis ( <i>IIASA</i> )	AT
15	M-Five GmbH Mobility, Futures, Innovation, Economics ( <i>M-Five</i> )	DE



### 3 Minutes



## NAVIGATING THE ROADMAP FOR CLEAN, SECURE AND EFFICIENT ENERGY INNOVATION

### The Future of Gas in an Electrifying Europe

**20 March 2019, 16:30-18:30**

Venue: [CEPS 1 Place du Congres, 1000 Brussels](#)

**16:30 – 16:35 *Welcome & Introduction to SET-Nav by Marijke Welisch, Senior Researcher, TU Wien***

**Marijke Welisch** welcomed the participants and delivered the key components of the meeting's structure.

**16:35 – 16:50 *Keynote: Florian Ermacora, Head of Unit, Internal Energy Market, DG Energy, European Commission***

**Florian Ermacora** presented some of the recent achievements of the Commission and some of the future plans when it comes to gas. Some of the achievements presented of the current Commission include the reformed ETS system, the targets for GHG emissions, energy efficiency and renewable energy for 2030, the reformed electricity market, in addition to the technical extension of the gas directive to third countries. He suggested that the following Commission will likely remain very interested in decarbonisation. He also highlighted the fact that gas is cleaner than burning coal and has no radioactive waste, so it makes a good complement for renewable energy generation, especially by providing back-up/flexibility options. The recently improved ETS system will likely further help the competitiveness of gas in the power generation sector. Therefore, on the short and medium term, gas will play an important role. However, on the long term this is more uncertain, as technological developments will be required for developing renewable forms of gas. One of the questions that the Commission has been looking at recently is that of the necessity of a common European Gas Polity, in order to provide standardisation across the EU gas sector.

**16:50 – 17:05 *Gas perspectives from SET-Nav by Ruud Egging, Professor, NTNU***

**Ruud Egging** presented some of the findings of SET-Nav modelling on gas and explained the consequences of the SET-Nav pathways for the gas sector. Globally, there will be no shortage in the supplies of gas and the industry sector will likely be the main driver of gas demand, given its usage for feedstock and process heat. He presented the modelling done by REKK and NTNU on 5 European scenarios for gas. His conclusion was that in the long-term Europe will no longer be able to burn gas without any abatements if it wants to decarbonize. One of the main takeaways is that there will

be a sharp decline in infrastructure utilisation and the operational income of TSOs will drop by 75%. Decommissioning of infrastructure can be expected and higher tariffs will be needed to keep infrastructure online. The SET-Nav conclusions recommend no new EU PCI support to be given to gas investments, which should focus instead on electricity and energy efficiency.

17:05 – 18:30 *Panel discussion*

*Moderated by Christian Egenhofer, Senior Research Fellow & Director, CEPS*

**Christian Egenhofer** welcomed the participants and introduced the panel, highlighting the high level of interest in this topic at the moment.

**Vera Brenzel, Head of Political Affairs, E.ON**, presented the view of an energy company, which usually focuses more on the shorter-term and less on the 2050 perspective. However, she did acknowledge that when it comes to gas, the policy decisions taken in the next 3-5 years will determine the future of the sector in 2030 and later. The distribution of R&D funds and the state-aid guidelines for financing new technologies and solutions will play a crucial role in determining what investments will be made. In terms of future gas technologies, the focus in Germany appears to be more on battery cells than on power-to-gas, with little interest at the moment in blue hydrogen.

**Stijn Carton, Associate for the Energy Systems Initiative, European Climate Foundation**, spoke about the recent study commissioned by the ECF looking at fossil-free energy for achieving net-zero emissions in 2050. He highlighted the fact that future planning must focus only on net-zero energy systems as a starting point. In this context, any gas that will be used in the future will have to be carbon neutral. He stated that only 3 types of gas could count for this: green hydrogen, biomethane and synthetic gas. At the same time, however, green hydrogen is the only reliable source that can produce large quantities of gas, but this will require a massive scale-up in renewable power generation for its production. The ECF scenarios were either more electrification-focused or 'molecule-focused'. In all scenarios green hydrogen will be used as seasonal storage. Their study also highlighted the huge costs that will be required for greening the gas pipeline infrastructure.

**Ruud Egging, Professor, NTNU**, having previously presented during the introductory remarks, he only had a brief follow-up. He highlighted some aspects that have not been looked at in SET-Nav modelling, but will be crucial for achieving the climate ambitions. These include the way markets and consumer behaviour will have to change.

**Steinar Eikaas, Vice President, Low Carbon Solutions, Equinor**, presented their work on blue hydrogen. According to their perspective, gas will play a role as a back-up option for intermittent

renewable power generation in the medium term and will have to be decarbonised in the long-term. He also explained that given the current status of the energy sector, relying on 3 times more molecules than electrons, the molecule sector cannot be simply ignored. In order to clean it, blue hydrogen will play a crucial role as a transition technology. Blue hydrogen, using methane and CCS is the cheapest way to produce hydrogen on a large scale. They are currently developing projects such as H2M Magnum and H21 in North England in order to show how this technology can be used in the power and heating sectors. In addition, they are also running pilot projects for ship carriers transporting liquid hydrogen. Using blue hydrogen during the transition will also create a market which will be ready for the arrival of green hydrogen, once it becomes price-competitive at a later stage.

**Franziska Holz, Deputy Head of Department for Energy, Transportation, Environment, DIW Berlin**, gave a brief presentation, highlighting the fact that their work has not focused much on hydrogen. She highlighted the fact that the enthusiasm for hydrogen is at its second coming, having already been popular in the 90s. However, as not much has changed since then she is reluctant that its prospects are brighter this time. She also explained that something that has probably not been accounted for properly is potential resistance to decarbonisation from the supply side, which is concerned with the prospects of stranded assets. This sort of resistance is especially expected to come from outside Europe.

**Daan Peters, Associate Director, Navigant**, presented the findings of the new Navigant study focusing on the potential for new gaseous products in the long-term decarbonisation perspective. Net-zero carbon emissions by 2050 was also the starting point of their study. Their findings show that there will be indeed less gas used in 2050 than today. However, gaseous products will still have to be used for hybrid heat pumps, industrial heat, feedstock, flexibility and transport. Long-distance transport will probably also represent a key sector where gas will be competitive. Their study showed that about 272 bcm of biomethane and hydrogen can be produced in a cost-effective manner by 2050, while also providing impressive societal savings.

#### **Q&A:**

**Q:** Why was blue hydrogen not used in the ECF Study?

**A:** If you look at the life-cycle emissions of green and blue hydrogen, it is quite clear that you do mitigate a lot of emissions with blue hydrogen, but it is not zero-carbon. As their study only focused on zero emissions, it did not fit their purpose. In addition, there are also concerns which are not satisfactorily addressed about the upstream methane leakages of pipeline gas needed for blue hydrogen.

**A:** While blue hydrogen is not zero-emissions, we do not have the luxury of excluding affordable hydrogen. Their solutions capture 95% of emissions, which is very competitive in terms of carbon

reduction, even when you look at the entire life cycle. If you want to have green hydrogen you need huge increases in clean electricity production, which will take time.

**A:** They see a transition period of decarbonisation using grey and blue hydrogen, until green becomes price-competitive, point at which the system will switch to green hydrogen. Blue hydrogen represents a means of decarbonising on the short term and giving time to ramp up renewable electricity generation needed for green hydrogen.

**A:** E.ON, as they are customers, they are interested in providing decarbonisation in the cheapest way possible. For them the carbon prices will also be an important signal for making decisions. New technologies are only interesting if business models and scaling can be achieved.

**Q:** Asked Equinor why blue hydrogen is all of the sudden viewed as a 'silver bullet'. In addition, the transition from blue to green is unlikely and will probably not be a smooth transition as presented by them.

**A:** From Equinor's perspective, blue hydrogen will be needed for meeting the Paris Agreement and something needs to be done now. Therefore, we cannot wait for green hydrogen to become price competitive. As for the transition from blue to green, that can always be done through regulation.

**A:** CCS projects have been a failure, therefore this makes the prospects for blue hydrogen unlikely. CCS will probably play a more prominent role for industry, where it will be cheaper to use than in the power sector.

**Q:** The current transmission infrastructure has been designed to carry large quantities of natural gas and is not readily available for carrying other gaseous products. Have the studies taken into account that the current infrastructure which cannot carry hydrogen, for example, has a lifespan of decades? In addition, there are a lot of gas exploration projects carried at the moment. These will also have a long life-span.

**A:** They did look at costs and they will be undoubtedly expensive. However, public policy can help with this. The Navigant scenarios still makes efficient use of the current gas infrastructure, especially for covering the peak in energy demand in the cold season.



**Figure 2:** Panel Discussion during the Final Policy Event in Brussels

## 4 List of Participants



NAVIGATING THE ROADMAP FOR CLEAN,  
SECURE AND EFFICIENT ENERGY INNOVATION

### LIST OF PARTICIPANTS

The Future of Gas in an Electrifying Europe

20 March 2019, 16:30-18:30

Venue: [CEPS, 1 Place du Congres, 1000 Brussels](#)

A/A	First Name	Last Name	Organisation
1	Paal I. M.	Aavatsmark	Norwegian Ministry of Foreign Affairs / EEAS
2	Dries	Acke	European Climate Foundation
3	Kavita	Ahluwalia	Uniper SE
4	Jorick	Albers	Brunswick Group LLP
5	Dawud	Ansari	DIW Berlin
6	Apostolos	Aravanis	European Commission
7	Mathilde	Arjakovsky	European Association for Storage of Energy
8	Anton	Arkhipov	Russian Mission to the EU
9	Carlos	Arruego	Naturgy
10	Jonas	Asbjørnsen	SINTEF
11	Gabrielle	Badin	ENGIE
12	Roxana	Balaur	Endesa
13	Kate	Ballantyne	Chevron
14	Cesar	Baron	EEP
15	Edmund	Beavor	Europex
16	Winston	Beck	Kreab Gavin Anderson
17	Annika	Behnen	Total
18	Francisco	Beirao	EDP Energias de Portugal
19	Flore	Belin	GRTgaz
20	Francesca	Bellisai	European Committee of the Regions
21	Ioana	Bere	Stefan Scheuer S.P.R.L.
22	Christiane	Bernath	Fraunhofer Institute for Systems and Innovation Research
23	Marco	Berti Palazzi	European Commission
24	Charles	Bestgen	EUROGAS
25	Alexandra	Bihain	Hill and Knowlton Strategies
26	Tim	Boll	Mission of the United States to the EU
27	Viktor	Borecky	Weber Shandwick
28	Stefano	Bottoni	Health Link Global
29	Vera	Brenzel	E.ON SE



<b>30</b>	Jean Marc	Brimont	GRTGaz
<b>31</b>	Julie	Bryhn	CEPS
<b>32</b>	Natalia	Caldes	European Commission
<b>33</b>	Adriano	Capitanelli	
<b>34</b>	Amandine	Carriere	RTE
<b>35</b>	Stijn	Carton	European Climate Foundation
<b>36</b>	Francisco	Casañas	ENDESA, S.A.
<b>37</b>	Mihnea	Catuti	CEPS
<b>38</b>	Alessandro	Celestino	The Regulatory Assistance Project (RAP)
<b>39</b>	Eva	Chamizo	Iberdrola
<b>40</b>	Konstantinos	Chronis	Public Power Corporation SA (Hellas)
<b>41</b>	Manuela	Conconi	European Commission
<b>42</b>	Giorgio	Corbetta	European Energy Exchange - EEX
<b>43</b>	Jean philippe	Cornelis	Civic Forum Creatopia
<b>44</b>	Pedro	Crespo del Granado	NTNU
<b>45</b>	Marvin	Dalheimer	VCI - German Chemical Industry Association
<b>46</b>	Daniele	D'Angelo	ENGIE
<b>47</b>	Witold	de Chevilly	PKEE
<b>48</b>	Anne	De Geeter	EFTA Surveillance Authority
<b>49</b>	Alexandre	de Joybert	Brunswick Group
<b>50</b>	Marine	Delhommeau	Uniper
<b>51</b>	Alexandre	Dérobot	Smiths Group
<b>52</b>	Angelo	Di Mambro	Informatore Agrario
<b>53</b>	Monica	Di Pinti	Centrica
<b>54</b>	Fiona	Dubernet	Weber Shandwick Brussels
<b>55</b>	Dariusz	Dybka	Polish Electricity Association
<b>56</b>	Christian	Egenhofer	CEPS
<b>57</b>	Ruud	Egging	Norwegian University of Science and Technology
<b>58</b>	Steinar	Eikaas	Statoil
<b>59</b>	Zsolt	Eles	Milieu Consulting
<b>60</b>	Milan	Elkerbout	CEPS
<b>61</b>	Silas	Engbrecht	EWE AG
<b>62</b>	Gregor	Erbach	European Parliament
<b>63</b>	Florian	Ermacora	European Commission
<b>64</b>	Frantz	Eyssallenne	Mission of the United States to the EU
<b>65</b>	Alexandre	Ferrafiat	FORATOM
<b>66</b>	Michael	Feuerstein	Brunswick Group LLP
<b>67</b>	Jean- Christophe	Finidori	HODLNG
<b>68</b>	Arnaud	Fougeyrollas	Seureco
<b>69</b>	Jelizaveta	Gamalejeva	Eurideas
<b>70</b>	Mohan	Gandhi	New Bridge Founders
<b>71</b>	Alessandro	Gangarossa	Global Counsel

<b>72</b>	Kyriakos	Gialoglou	United Nations Educational, Scientific and Cultural Organisation (UNESCO)
<b>73</b>	Marco	Gilotto	IOGP
<b>74</b>	Florie	Gonsolin	European Chemical Industry Council - Cefic aisbl
<b>75</b>	Joao	Gorenstein Dedecca	Trinomics
<b>76</b>	Grainne	Greehy	Gas Networks Ireland
<b>77</b>	Lucia	Grilli di Cortona	Orano
<b>78</b>	Raquel	Guerra	Haymarket
<b>79</b>	Ronan	Haas	Eurelectric
<b>80</b>	Siobhan	Hall	S&P Global
<b>81</b>	Samar	Hana	Friends of the Supergrid
<b>82</b>	Abdishakur Mohamed	Hassan	Ministry Ports and Marine Transport
<b>83</b>	Dominik	Heijnk	HKI Industrial Association
<b>84</b>	Robert	Heiling	Council of the European Union
<b>85</b>	Eva	Hennig	Thuega
<b>86</b>	Franziska	Holz	DIW
<b>87</b>	Turid	Høstmark	NTNU
<b>88</b>	Diyun	Huang	KULeuven
<b>89</b>	Nicolas	Hubert	Council of the European Union
<b>90</b>	Cécile	Huck	Kreab
<b>91</b>	Jaap	Jansen	CEPS
<b>92</b>	Maria	Jimenez	Permanent Representation of Spain to the EU
<b>93</b>	Nathan	Johnson	Mission of the United States to the EU
<b>94</b>	Mailys	Kahn	Committee of the Regions
<b>95</b>	Chara	Karakosta	NTUA
<b>96</b>	Ekaterina	Karaseva	Gazprom
<b>97</b>	Johanna	Kieroth	Eurelectric
<b>98</b>	Yeong Jae	Kim	EIEE
<b>99</b>	Marius	Knagenhjelm	EFTA
<b>100</b>	Maria	Knyazeva	RIA Novosti (Rossiya Segodnya)
<b>101</b>	Peter	Kotek	REKK
<b>102</b>	Nicolas	Kraus	HydrogenEurope
<b>103</b>	Zeljko	Krevzelj	Permanent Representation of Croatia to the EU
<b>104</b>	Mikhail	Lebedev	Gazprom
<b>105</b>	Amélie	Leventi	Cerame-Unie
<b>106</b>	Constantine	Levoyannis	GRTgaz
<b>107</b>	Jannik	Lindbaek	Equinor
<b>108</b>	Vera	Lipkovskaya	Gazprom
<b>109</b>	Anna	Lo Monaco	Council of the European Union
<b>110</b>	Teresa	Luis Ruiz	Endesa
<b>111</b>	Domenico	Maggi	SNAM

<b>112</b>	Tewfik	Mahi	Ambassade d'Algérie
<b>113</b>	Francis	Masson	Royal Dutch Shell plc
<b>114</b>	Felicia	Mester	Eurogas
<b>115</b>	Maximo	Miccinilli	Centre on Regulation in Europe
<b>116</b>	Vladimir	Mijatovic	Uniper SE
<b>117</b>	Emma	O'Kane	Northern Ireland Executive
<b>118</b>	Dmytro	Panchuk	Ukrainian World Congress
<b>119</b>	Aikaterini	Papapostolou	National Technical University of Athens
<b>120</b>	Colin	Parker	Electricité de France (EDF) Energy
<b>121</b>	Daan	Peters	Navigant
<b>122</b>	Alexandros	Petropoulos	Committee of the Regions
<b>123</b>	Jacinto	Pico	Naturgy
<b>124</b>	Kamila	Piotrowska	International Association of Oil & Gas Producers (IOGP)
<b>125</b>	Tomas	Pirkl	CEZ
<b>126</b>	Kai	Pittelkow	EWE Aktiengesellschaft
<b>127</b>	Andres	Ramos	Universidad Pontificia Comillas
<b>128</b>	Gustav	Resch	TU Wien
<b>129</b>	Emily	Rochon	Renewable Futures
<b>130</b>	Jacob	Rookmaaker	RWE
<b>131</b>	Pascoe	Sabido	Corporate Europe Observatory
<b>132</b>	Simone	Sachmann	Confederation of Danish Industry
<b>133</b>	Yoshinobu	Satomi	Mitsubishi Corporation European Headquarter
<b>134</b>	Gideon	Saunders	ONTRAS Gas transport
<b>135</b>	Stefan	Schmitz	RWE
<b>136</b>	Annya	Schneider	Global CCS Institute
<b>137</b>	Paul	Schreurs	VLAIO
<b>138</b>	Frank	Sensfuß	Fraunhofer Institute for Systems- and Innovation Research
<b>139</b>	Cecilia	Serrano-Piedecabras	BusinessEurope
<b>140</b>	Pierre	Sevestre	ADS Insight
<b>141</b>	Antoine	Simon	Friends of the Earth Europe
<b>142</b>	Iryna	Skliar	Naftogaz of Ukraine
<b>143</b>	Admir	Softic	Ministry of Foreign Trade and Economic Relations, Bosnia & Herzegovina
<b>144</b>	Fabio	Sostaro	SNAM
<b>145</b>	Krassimir	Stantchev	EWE AG
<b>146</b>	Florian	Steuerer	Evonik
<b>147</b>	Johannes	Stolle	ONTRAS Gastransport GmbH
<b>148</b>	Shigeo	Sugimoto	Mitsui & Co Benelux S.A/N.V.
<b>149</b>	Carine	Swartenbroekx	National Bank of Belgium
<b>150</b>	Alain	Taccoen	EDF
<b>151</b>	Victor	Thevenet	GRDF

<b>152</b>	Ascanio	Troiani	European Commission
<b>153</b>	Ildar	Tumakov	Mission of Russia to the EU
<b>154</b>	Marie	Ulsas	Athenora Consulting
<b>155</b>	Villu	Varjas	Miltton Europe
<b>156</b>	Julius	Vierula	Aula Europe SPRL
<b>157</b>	Marco	Vilardo	ENEL
<b>158</b>	Simonas	Vileikis	Gplus Europe
<b>159</b>	Ole	Voss	EFTA/FMO
<b>160</b>	Marijke	Welisch	TU Wien - Vienna University of Technology
<b>161</b>	Ida	Westerborn	Stockholm Region EU Office
<b>162</b>	Charlie	Wilson	UEA
<b>163</b>	George	Zavvos	CEPS
<b>164</b>	Lydia	Zhou	Mission of Canada to the EU
<b>165</b>	Nikolaos	Zografakis	Regional Development Fund of Crete Energy Agency
<b>166</b>	Sergey	Zubkov	Russian mission to the EU