

SUMMARY

	Page
Introduction	11
<i>Claudio Aranzadi</i>	
Questionnaire	33
<i>Josep Borrell Fontelles</i>	
Chapter one	45
The impact of COVID-19 on the energy transition: a global perspective	45
<i>David Robinson</i>	
Introduction	51
The energy transition was well underway before COVID-19	52
Politics	54
Global Agreement.....	54
National Commitments and Regional Agreements.....	54
Sub-national Agreements	55
Technology and economics	56
Financial regulatory and market pressure	57
Investment.....	59
Civil society	63
Resistance weakening.....	63
Key Messages.....	65
Lessons from COVID-19 that support the energy transition	65
The change we need.....	65
Respect for the natural world	65
A long-term view and the precautionary principle	66
Early action to stop a crisis from becoming uncontrollable	66
Global cooperation to deliver global public goods.....	67
Support for science and innovation	67
Increasing citizen awareness of the case for change.....	69
The role of government and civil society in shaping the energy transition	70
Government competence is key.....	70

	Page
Governments need to address social concerns	70
Governments must work with business and civil society.....	70
Key Messages	71
COVID-19: a glimpse of the future energy system?	71
Early glimpses of the future energy sector?	72
Electricity	73
Oil, gas and coal corporate strategy	78
Key messages	79
Green recovery and the energy transition.....	80
European Union	83
More ambitious emission reduction targets for 2030 and 2050.....	84
Supplying clean, affordable and secure energy.....	84
Building and renovating in an energy and resource efficient way	85
Accelerating the shift to sustainable and smart mobility	85
China.....	86
United States	88
The rest of the world.....	90
Key messages	92
International barriers to a global energy transition.....	92
Using the energy transition to enhance global trade and investment.....	93
Climate clubs.....	96
Industry-specific agreements	96
Using the energy transition to meet multiple SDGs	97
Donor-recipient or global agreements.....	99
Offset markets	100
Support to the losers	101
Key messages	101
Summary conclusions	102
End comment	104
Chapter two	107
Geopolitics under the green deal: a challenge for the EU	107
<i>Miguel Ángel Lasheras Merino</i>	
Introduction	113
Climate change and green transition in an international order in crisis.....	116
The international order crisis.....	116
Climate Change	120
Energy policy in the European Union.....	123
The Treaties of Rome and the Liberalisation Directives	123
The Kyoto Protocol and the Green Papers on Energy Policy	125
The Treaty of Lisbon	126
Clean Energy for All Europeans.....	127
The Green Deal as an axis of the European strategy	129
The Green Deal: Objectives, Policies, Requirements and Consequences.....	131
Green Transition and COVID-19: The objectives.....	131
The Green Deal Policies	134
A greater climate ambition	134
Supplying clean, affordable and secure energy	136

	Page
Mobilising industry in favour of a clean and circular economy.....	136
Efficient use of energy and resources in construction and renovation of buildings.....	137
Speeding up the transition to a sustainable and intelligent mobility.....	137
From the farm to the table: a fair, healthy, and environmentally friendly food system.....	138
Conserving and restoring the ecosystems and biodiversity.....	139
Aiming for zero pollution in an environment free from toxic substances .	140
The Requirements.....	141
A Just Transition.....	141
Mobilising the finance required.....	144
Geopolitical consequences of the EGD.....	147
Reinforcing international financial flows.....	148
New framework in trading relations between power blocks.....	151
Nationalism in the electrical generation mix.....	156
Slowing up the transition: the OPEC strategies.....	159
Conflicts over the major energy corridors.....	162
Jurisdiction over taxation and the costs of CO ₂	168
Asymmetries in traditional industries and new industries.....	171
Individual mobilisation to achieve efficiency in buildings and constructions .	175
EU's World Leadership.....	177
Conclusions.....	180
Chapter three	185
Clean Hydrogen: Building Block of a New Geopolitical Landscape ..	185
<i>Thijs Van de Graaf</i>	
Introduction.....	191
What is hydrogen?.....	193
Technical characteristics.....	193
Production methods.....	195
Areas of application.....	197
Towards an international hydrogen market.....	203
Transportation options.....	203
Pipelines.....	203
Shipping.....	205
Hydrogen hubs and valleys.....	207
Key players in the geopolitics of hydrogen.....	208
Who will be the hydrogen superpower?.....	208
Selected frontrunner countries.....	210
Japan.....	210
European Union.....	212
Australia.....	214
Chile.....	214
Geopolitical dimensions of hydrogen.....	215
The race for technological leadership.....	216
Geo-economic competition.....	219
The future of petrostates.....	220
New interdependencies.....	222

	Page
Carbon lock-in and stranded assets	225
Shaping and governing the market.....	226
Conclusions.....	228
Chapter four	231
Energy Geopolitics in the Maghreb. The Rise and Fall of Two Energy Superpowers. The cases of Algeria and Libya	231
<i>Ignacio Fuente Cobo</i>	
Introduction	237
Energy in Algeria. History of a mortgaged future.....	239
Characteristics of the Algerian Hydrocarbons Sector.....	239
The Natural Resources' Curse.....	242
An economy historically dependent on hydrocarbon prices	244
Consequences of the structural limitations of the Algerian economy.....	246
The rupture of the social contract.....	250
The Algerian energy sector crisis.....	254
The problems affecting the State-owned energy companies.....	256
A new energy model for Algeria?.....	258
A new energy strategy.....	261
Energy in Libya. War, power and oil.....	266
Without oil Libya does not exist.....	266
Civil war and energy.....	270
1st PHASE: Upheaval followed by relative stability.....	270
2nd PHASE: division and civil war.....	272
3rd PHASE: New actors for a proxy warfare.....	280
Conclusions.....	288
Chapter five	295
Rare earths, a key piece in the energy puzzle	295
<i>Ricardo Prego Reboredo</i>	
The Age of Rare Earths.....	301
A great variety of uses.....	305
Military and optronic applications.....	308
Energy-related applications.....	310
The bibliography speaks: reporting on the research work	316
Sources of rare earth metals: the past conditions the present	321
Periods in the exploitation of rare earths	325
US domination: Mountain Pass Mine	326
The People's Republic of China joins the world of rare earth elements.....	328
Chinese domination: Baiyun-ebo mine.....	330
Crisis and current situation	332
Critical and strategic elements.....	337
European Union's response to the crisis.....	341
US response to the crisis.....	344
Japanese response to the crisis.....	346
A «rare» key piece in the energy puzzle?	349
Challenges to overcome	353

	Page
Environmental friendliness: preventing pollution	354
Return to mining and industry	357
Composition of the working group	363
They have collaborated in the edition of this work	365