

INTERNATIONAL TRADE IN SUSTAINABLE ELECTRICITY

Cross-border trade in electricity is rapidly expanding as a result of technical innovations, economic and geopolitical developments and the ongoing decarbonisation of the electricity sector in response to climate change. The expansion of electricity networks and the integration of increasing shares of electricity produced from renewable energy (RE) sources into the grid have made long-distance electricity flows both feasible and desirable. Drawing on the work of experts in trade and energy law and policy, and offering novel, multidisciplinary perspectives on the rapidly evolving landscape shaping international trade in electricity, this book examines the most important challenges – technical, economic, legal and policy-related – posed by long-distance and sustainable electricity trade. The book explores the regulatory implications of the policy instruments aimed at supporting RE electricity and considers how best to promote greater overall coherence in international electricity governance.

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Regulatory Challenges in International Economic Law

Edited by

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PREFACE

The World Trade Forum series was established in 1997 as a meeting hub for academia, policy-makers, international organisations and civil society representatives, with the aim of addressing some of the most pertinent questions facing the international trading system. In its 2014 event, the World Trade Forum focused on the regulatory challenges posed by the expansion of international trade in electricity, triggered by the climate-driven, ongoing process of decarbonisation of the electricity sector, and, how it relates to the international trade and investment regimes.

The cutting-edge innovations that are reconfiguring the landscape of electricity trade and the shift to renewable energy (RE) sources that has occurred in response to the prominence of climate change mitigation in government agendas have prompted cross-border electricity trade. As the uptake of intermittent RE electricity grows, this will require the progressive integration of national, regional and, eventually, continental grids. These trends point to the need for an informed debate in the rapidly evolving area of international trade in electricity, which holds great interest for the public and private sectors alike. The idea of a global grid, of course, reflects a long-term vision which, if it materialises at all, will do so over a long period of time. Yet it is important to work on building blocks in a national and regional context, and to prepare the tools for inter-regional interfaces in the future.

Based upon experiences in the field of trade regulation and investment, the World Trade Forum 2014 sought to contribute to this debate by analysing, from a multidisciplinary perspective, the regulatory challenges that such developments pose to trade and investment in RE electricity. This book is based upon the papers presented at the World Trade Forum held in September 2014 at the World Trade Institute, University of Bern, Switzerland. The Forum brought together leading scholars and practitioners and policy-makers from the trade, investment and energy communities in an effort to learn more about the limits and opportunities

inherent to the current configuration of the trade and investment frameworks for the development of the electricity network over larger regions.

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ABBREVIATIONS

AB	Appellate Body
AB 32	Assembly Bill 32
AC	alternating current
ACER	Agency for the Cooperation of Energy Regulators
ADA	Anti-Dumping Agreement
AEC Blueprint	ASEAN Economic Community Blueprint
APAEC	ASEAN Plan of Action for Energy Cooperation
APG	ASEAN Power Grid
APS	alternative policy scenario
ARPP	African Regional Power Pools
ASCC Blueprint	ASEAN Socio-cultural Blueprint
ASCM	Agreement on Subsidies and Countervailing Measures
ASEAN	Association of Southeast Asian Nations
ATC	available transfer capacity
BAU	business-as-usual
BITs	bilateral investment treaties
BNDES	Brazilian Development Bank
BTA	border tax adjustment
CACM	Capacity Calculation and Congestion Management
CAPP	Central African Power Pool
CARB	California Air Resources Board
CCCME	China Chamber of Commerce for Import and Export of Machinery and Electronic Products
CCL	climate change levy
CDM/JI	Clean Development Mechanism/Joint Initiative
CEER	Council of European Energy Regulators
CHP	combined heat and power
CIER	Regional Energy Integration Commission
COMELEC	<i>Comité Maghrébin de l'Electricité</i>
CO ₂	carbon dioxide
CO ₂ e	CO ₂ equivalent
COP	coefficient of performance

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CRMs	capacity remuneration mechanisms
C&T	cap-and-trade
CVD	countervailing duty
dena	<i>Deutsche Energie-Agentur</i> [German Energy Agency]
DC	direct current
DER	distributed energy resources
DGAD	Directorate General of Anti-Dumping and Allied Duties (India)
DRC	Democratic Republic of the Congo
DSM	demand-side management technologies
DSOs	distribution system operators
EAPP	Eastern Africa Power Pool
EB	Electricity Balancing
ECCAS	Economic Community of Central African States
ECOWAS	Economic Commission of West African Countries
ECREEE	ECOWAS Centre for Renewable Energy and Energy Efficiency
ECT	Energy Charter Treaty
EEC Treaty	Treaty establishing the European Economic Community
EE Directive	Energy Efficiency Directive
EEGI	European Electricity Grid Initiative
EERA	European Energy Research Alliance
EERS	energy efficiency resource standards
EIA	Energy Information Administration (United States)
EIIs	European Industrial Initiatives
ELTAM	Egypt–Libya–Tunisia–Algeria–Morocco
EMCC	European Market Coupling Company
ENTSO-E	European Network of Transmission System Operators for Electricity
EPA	Environmental Protection Agency (United States)
EPEX	European Power Exchange
ERERA	ECOWAS Regional Electricity Regulatory Authority
ERGEG	European Regulators’ Group for Electricity and Gas
ESCO	energy service company
ESO	European standardisation organisation
ETS	Emissions Trading System (European Union)
EU	European Union
EUAs	EU allowances
FACTS	Flexible AC Transmission Systems
FBA	flow-based allocation
FCA	Forward Capacity Allocation
FERC	Federal Energy Regulatory Commission
FET	fair and equitable treatment
FiT	feed-in tariff

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FTA	free trade agreement
GATT	General Agreement on Tariffs and Trade
GATS	General Agreement on Trade in Services
GCC	Gulf Cooperation Council
GCEG	global clean electricity grid
GENI	Global Energy Network Institute
GHG	greenhouse gas
GPP	green public procurement
HDI	Human Development Index
HS	Harmonized Commodity Description and Coding System
HVDC	high-voltage, direct current
IADB	Inter-American Development Bank
IAI	Initiative for ASEAN Integration
ICSID	International Centre for Settlement of Investment Disputes
ICT	information and communications technology
IEA	International Energy Agency
IEC	International Electrotechnical Commission
IPCC	Intergovernmental Panel on Climate Change
IT	information technology
ITC	investment tax credits
LCFS	low carbon fuel standards
LED	light-emitting diode
LEC	levy exemption certificates
LNG	liquefied natural gas
MEDRING	Mediterranean Ring
MER	Regional Electricity Market
MiFID	Markets in Financial Instruments Directive
MFN	most favoured nation
MMTCDE	million metric tonnes of carbon dioxide equivalents
MoU	memorandum of understanding
MPP	Medicines Patent Pool
MTI	merchant transmission investment
Mtoe	megatonne of oil equivalent (Mtoe)
NAPs	National Action Plans
NEM	net energy metering
NEMO	Nominated Electricity Market Operators
NERC	North American Electric Reliability Council
NGO	non-governmental organisation
NIST	National Institute of Standards and Technology
NME	non-market economy
NREL	National Renewable Energy Laboratory
NSCOGI	North Seas Countries Offshore Grid Initiative

xxvi	LIST OF ABBREVIATIONS
NTC	net transfer capacity
OECD	Organisation for Economic Co-operation and Development
OLADE	Latin American Energy Organization
ONS	National System Operator (Brazil)
PCIs	projects of common interest
PCR	price coupling regions
PDAM	post day ahead market
PIDA	Program for Infrastructure Development in Africa
PLEF	Pentalateral Energy Forum
PPA	power purchase agreement
PPMs	processes and production methods
PTC	production tax credits
PV	photovoltaic
RE	renewable energy
REC	Renewable Energy Certificate
RERA	Regional Electricity Regulators Association of Southern Africa
REIPPPP	Renewable Energy Independent Power Producer Procurement Program
RES	renewable energy sources
RGGI	Regional Greenhouse Gas Initiative
RMOC	Regional Market Operation Center
ROC	Renewable Obligation Certificate
RPP	regional power pools
RPS	renewable portfolio standards
SADC	Southern African Development Community
SAPP	Southern African Power Pool
SCM Agreement	Agreement on Subsidies and Countervailing Measures
SETIS	Strategic Energy Technologies Information System
SG-CG	Smart Grid Coordination Group
SGTF	Smart Grid Task Force
SIEPAC	Central American Electrical Interconnection System
SIN	Brazilian Interconnected National System
SINEA	Andean Electrical Interconnection System
SOEs	state-owned enterprises
STEM	short-term energy market
TBT	Agreement on Technical Barriers to Trade
TDIs	trade defence instruments
TEN-E	trans-European energy networks
TPA	third party access
TRIMs	Agreement on Trade-Related Investment Measures
TSO	transmission system operator
UCTE	Union for the Coordination of the Transmission of Electricity

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UNASUR	Union of South American Nations
UNCITRAL	United Nations Commission on International Trade Law
UNCTAD	United Nations Conference on Trade and Development
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UPDEA	Union of African Power Utilities
US	United States
USW	United Steelworkers Union
WAPP	West African Power Pool
WTO	World Trade Organization
ZNE	zero net energy