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<cn>IX.33<ct>Regulating the promotion of renewable electricity consumption and production: a European Union case study

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<a>Abstract

Increasing renewable electricity production and consumption is viewed worldwide as a desirable policy goal, for reasons including climate change mitigation and energy security enhancement. However, realising this goal is far from simple. This is due to two related factors – socio-economic lock-in to fossil fuel consumption, and the difficulties associated with integrating renewable generation within electricity systems. Many states therefore use law to support pro-renewables policies, whether by promoting renewable electricity specifically or through removing barriers to the growth of the renewables sector. This chapter uses examples from European Union policy and law on renewable energy to illustrate some of the main respects in which law is used to facilitate renewable electricity production and consumption.

<a>Keywords

Renewable energy law, European Union, target, subsidy, operating support, network integration, streamlining, certificates

<a>Contents

<a>IX.33.1 Introduction

The growth of renewable electricity production has been supported by many states since the 1990s. The need to mitigate climate change through securing rapid reductions of greenhouse gas emissions is the principal reason for this. In addition, the growth of renewable electricity is seen as helpful for realising other desirable policy objectives, such as: enhanced energy security (due to the scope for replacement of imported energy with indigenous supplies), job and wealth creation (through national and regional development of specialisations in renewable energy technology), and the extension of access to clean electricity supplies in remote locations.

In the 1980s, when state interest in renewables first arose, energy systems were dominated by the production of energy from fossil fuel sources such as oil, coal and gas and by technologies developed for consuming them. Since World War II, there have been nigh on eight decades of investments in the capacity for accessing fossil fuels, and for the production and distribution of energy from them through centralised national and regional networks. The functioning of economies and societies has become dependent on the availability of fossil fuel energy at affordable prices during this period, making it difficult for all 'non-fossil' energy sources to gain a foothold within energy systems as they are currently structured.[1] In addition, the growth of renewable electricity specifically is hampered by factors such as the comparatively higher cost of energy produced from new technologies, with these technologies not benefiting from long experience with their use for commercial energy production. Furthermore, the generating profile of renewable technologies – characterised by intermittency and often small-scale production – also poses issues. This makes it challenging to accommodate renewables within electricity systems designed for predictable, large-scale means of generation.[2]

Nonetheless, renewable electricity has enjoyed rapid worldwide growth, with total renewable generation capacity more than doubling between 2007 and 2017, and with the capacity of

[1] Unruh (2000).

[2] Negro, Alkemade and Hekkert (2012).

non-hydropower renewable electricity increasing more than six-fold in that time.[3] This growth has been made possible through the use of legal interventions in the electricity sector at national (and, in the EU's case, regional) levels to support renewable electricity production. This chapter provides an overview of the main respects in which law can be used to facilitate renewable electricity's growth. These are: creating legal frameworks for facilitating the growth of renewables; attracting investment in renewable technology; enabling integration into electricity systems and markets designed for predictable power producers; reducing administrative burdens for those pursuing renewable electricity production; and addressing public opposition to renewable generation and transmission projects. Examples drawn from EU law are used throughout to illustrate how legal intervention can be used to facilitate the sector's growth.[4]

<a>IX.33.2 Renewable energy targets

Many states have set targets for the share of renewables in their energy matrix.[5] Target-setting can contribute to the growth of the renewables sector in several respects. Targets can assist with building investor confidence in the renewables sector by committing an actor, typically a state, to adopt and maintain pro-renewables policies at least until the target is achieved. They can also create a framework for the development of detailed packages of policies and laws supporting renewable energy production, and for ongoing scrutiny of progress towards targets. However, targets will only have this effect if they impose real and effective obligations on actors to back renewable energy development.[6] It is important therefore, when assessing the likely effectiveness of a target for promoting renewable electricity, to consider not only the clarity and legal status of the target itself, but also whether it is backed up by legal arrangements designed to give it effect.

By looking at EU Member States' (MSs) renewable energy consumption targets for 2020 and the legal arrangements underpinning them, it is possible to see the role that law can play in giving effect to renewable energy targets. In 2007, the European Council set a target of 20 per cent renewable energy in overall EU energy consumption by 2020, to be achieved by states

[3] REN21 (2018) 40–47.

[4] For fuller accounts of EU law on renewable energy, see: Woolley (2015) and Woolley (2021).

[5] Kieffer and Couture (2015).

[6] ibid.

meeting individual obligations for renewable energy growth.[7] Accordingly, Directive 2009/28/EC (the 2009 Renewable Energy Directive) imposed legally binding targets on MSs to achieve national increases in renewable energy consumption, with these targets enforceable at the EU level.[8] A failure to achieve a national target is punishable by a fine imposed through infraction proceedings before the European Court of Justice.[9] In a 2019 progress report, the European Commission noted its expectation that the overall 20 per cent target would be achieved.[10] However, the same report predicted that seven MSs would not reach their national targets in 2020.[11] Those MSs had the option open to them to meet their legally binding targets despite the proportion of renewables in the national energy supply not having reached the required level by using mechanisms established in EU law to promote cooperation between MSs on increasing renewable consumption.[12] States unable to meet their targets under their own steam may, for example, utilise the statistical transfer mechanism – a mechanism which allows MSs that have exceeded their target to transfer some of the surplus to other MSs (for appropriate consideration).[13]

In addition to these legally binding targets, the 2009 Renewable Energy Directive used legal tools to enable interim action against MSs whose efforts fell short of what was necessary to achieve their 2020 targets. Firstly, it established an indicative trajectory for the increase of renewable energy consumption levels, thereby providing a basis for tracking and criticising interim progress towards the end target. MSs were not obliged to stay on or above the interim trajectory, but were obliged to take measures 'effectively designed' to ensure that the trajectory was followed.[14] Secondly, the obligation for MSs to submit National Renewable Energy Action Plans required MSs to give advance thought to measures that would be taken

[7] Council of the European Union, 'Presidency Conclusions: 8/9 March 2007' Ref. 7224/1/07/Rev.1

[8] Directive 2009/28/EC of the European Parliament and of the Council [2009] OJ L 140/16 (2009 Renewable Energy Directive).

[9] Bennink, Croezen and van Valkengoed (2011).

[10] Commission (2019), 'Renewable Energy Progress Report' (Communication) COM (2019) 225 final, 3.

[11] ibid 7–9.

[12] For discussion of the cooperation mechanisms see: Boge (2014); Dmitruk (2018).

[13] Commission (n 10) 6–7.

[14] 2009 Renewable Energy Directive art 3(2).

to achieve targets.[15] A MS that fell behind its indicative trajectory was required to submit an amended plan setting out the measures to be taken to meet the trajectory from which it had deviated.[16]

A combination of legally binding targets and the obligation to take measures conducive to meeting them are likely to reinforce their meaningfulness in the eyes of third parties. In contrast, questions have been raised over the EU's climate and energy governance arrangements for 2030. Whilst these arrangements enhance requirements for MSs reporting and scrutiny of progress significantly, they do not impose national legally binding targets for renewable electricity consumption.[17] As a consequence, there are doubts as to whether they will be as effective for delivering the EU's goal – set out in Directive (EU) 2018/2001[18] (the 2018 Renewable Energy Directive) – of 32 per cent renewable electricity in energy supplies by 2030.[19]

<a>IX.33.3 Attracting investment in renewable electricity

Enormous investment in relevant technologies is required if renewable electricity is to displace current fossil fuel consumption in the power sector. It is unlikely that revenues from electricity sales alone will be sufficient to attract this level of investment.

Declining costs for electricity produced by better-established renewable technologies often enable such projects to compete with fossil fuel generation on price.[20] However, newer forms of renewable electricity production may struggle to compete with the prices attained by established power generating companies employing mature technologies, which benefit through centralisation from economies of scale. Investor concerns over the sufficiency of energy sales for cost and profit recovery may also be heightened for all renewable electricity

[15] ibid art 4.

[16] ibid art 4(4).

[17] See: Directive (EU) 2018/2001 of the European Parliament and of the Council [2018] OJ L 328/82 (2018 Renewable Energy Directive) art 3.

[18] ibid.

[19] ibid art 3(1); Commission, 'A policy framework for climate and energy in the period from 2020 to 2030' (Communication) COM (2014) 15 final.

[20] IRENA (2018).

projects, however established the technology may be, due to two characteristics of renewable developments. Firstly, for renewable technologies, a considerable proportion of overall project capital costs are incurred at the development stage, meaning that substantial confidence in their recovery is needed before development proceeds. Secondly, the costs of connecting to networks that were designed to transmit and distribute energy from centralised fossil fuel production facilities can often be substantial.

States with pro-renewables policies attempt to create investor confidence in relevant technologies where this would otherwise be absent, either by providing funding themselves from public funds, or by placing legal obligations on private actors to support the growth of a renewables sector. For example, in the EU, the 2009 Renewable Energy Directive and the 2018 Renewable Energy Directive recognise that the provision of financial backing for renewable energy by MSs is required if targets for growth in its consumption are to be met.[21] Both directives authorise MSs to support renewable energy development by using schemes which variously reduce the cost of that energy, increase the price at which it can be sold, or increase the volume of such energy purchased.

Support schemes are categorised either as providing 'investment support' or 'operating support'. Regarding the former category, it is often difficult to obtain financial backing for research into early-stage renewable energy technologies, their development, and the trialling of pre-commercial prototypes. This can be attributed to the high risk that investments will not be recovered. Alternatively, investors may seek rates of return that would make it difficult to recover development costs through energy sales alone. States use investment support measures to enable innovators to develop new renewable energy technologies and to encourage consumers to use them through the provision of public financial support.[22] For example, the provision of long-term public loans allows renewable technology developers to access investment at lower interest rates than would be available from private lenders. Alternatively, public body guarantees to repay loans if a borrower defaults allow developers to access private finance more cheaply. In addition to making public funds available, governments also provide tax exemptions and reductions to support investment, reducing the financial burden on developers and consumers.

[21] 2009 Renewable Energy Directive art 2(k); 2018 Renewable Energy Directive art 4(1).

[22] Hogg and O'Regan (2010) 35–9; Commission (2011) 4–6; Commission (2013) 11–12.

‘Operating support’ provides developers with either a guaranteed sale and fixed revenue, or an additional payment on top of revenues, from the sale of electricity in markets. The aim of such schemes is to create confidence that monies recouped from electricity produced by a generating plant will be more than sufficient to cover development costs in cases where this may be lacking if relying on market prices alone.[23] The three main types of operating support scheme that states use to attract investment in commercial projects are as follows:

(i) Feed-in-tariffs (FITs) provide renewable energy operators with a specified price for each unit of electricity fed into the electricity grid to which they are attached over a specified duration (typically between 10 and 20 years).[24] Tariff rates typically vary according to the level of financial support that a technology needs to become established.

(ii) Obligation and certificate schemes oblige electricity sector actors (usually suppliers, but sometimes also producers and consumers) to include a specified proportion of renewable electricity in their overall production, supply or consumption of energy.[25] Compliance with the obligation is demonstrated by holding the requisite number of certificates, creating a second revenue stream for certificate recipients. Such schemes require that a person or institution be given authority to issue certificates confirming that renewable electricity has been produced, and to cancel them upon use (to prevent double counting). Many states have established capacities for issuing and cancelling such certificates in any event, enabling renewable generators to benefit from ‘green-minded’ consumers’ willingness to pay a premium for electricity from renewable sources.[26] Suppliers can demonstrate their support for renewable electricity production to a stated extent by purchasing the relevant certificates. Both the 2009 and 2018 directives require MSs to establish and maintain a guarantee of origin certification scheme capable of issuing certificates and tracking them until cancellation.[27]

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[23] Hogg and O’Regan (2010) 33–34, 39–44.

[24] Commission (2013) 12–13; Couture and Gagnon (2010) 955.

[25] Commission (2013) 10–11; Hogg and O’Regan (2010) 42–44; Lauber (2011)

[26] Raadal and others (2012).

[27] 2009 Renewable Energy Directive art 15; 2018 Renewable Energy Directive art 19.

(iii) Premium schemes combine a guarantee of additional revenue for electricity generated with market exposure,[28] with generators paid a premium over the market rate for each unit of sold electricity.</list>

FITs have proved to be a successful means of increasing renewable electricity consumption.[29] The stability that receipt of a guaranteed return for a guaranteed period provides attracts lower cost investment due to the lower level of market risk. However, their use can give rise to concerns in liberalised energy markets, and particularly for larger developments than the domestic/community-scale using established technologies such as onshore wind, as the technologies become increasingly able to compete with fossil fuel electricity. For example, the European Commission does not favour the use of feed-in tariffs other than for small-scale developments, as the resulting market distortion runs counter to its policy of liberalising electricity markets.[30] It is also concerned that a lack of market exposure could be to the detriment of the renewable electricity sector, as it removes an incentive for generators to improve the efficiency of energy production through technological and operational innovation.[31]

In view of these concerns, the Commission's guidance on state aid in the field of energy and environment advises that new FIT schemes should only be introduced for developments of below 3 MW or 3 units for wind energy, or 500 kW for other technologies (for example, domestic-/community-scale developments).[32] The Commission prefers the use of premium schemes to other options for renewable energy technologies that are capable of commercial deployment.[33] The 2018 Renewable Energy Directive confirms this position by requiring

[28] Commission (2013) 8–9; Couture and Gagnon (2010) 960–64; Gawel and Purkus (2013).

[29] Commission (2011) 6; Lauber (2011).

[30] Commission (2013) 11–12.

[31] ibid.

[32] Commission, 'Guidelines on State aid for environmental protection and energy 2014–2020' (Communication) 2014/C, para 125.

[33] ibid para 126.

MSs to support electricity from renewable sources (other than small-scale and demonstration installations) through market premiums.[34]

Auctions and tendering processes are potential supplementary methods of promoting cost reduction in electricity produced from renewable sources as they become better able to compete with fossil fuel generation.[35] The Commission requires states to provide subsidies through such processes unless factors such as the scale of development or the newness of technology would justify a different approach, with its state aid guidelines advising that operating support for renewable electricity generation should be granted 'in a competitive bidding process on the basis of clear, transparent and non-discriminatory criteria' as a default position.[36] In addition, the 2018 Renewable Energy Directive obliges MSs to 'ensure that support for electricity from renewable sources is granted in an open, transparent, competitive, non-discriminatory and cost-effective manner' save where exceptions apply.[37]

Interstate agreement under international law to collaborate on the provision of financial support for renewable electricity generation offers a way for states to promote lower cost renewable electricity production to their mutual advantage. States that are able to finance renewable electricity development (but whose own renewable resources are limited or too expensive to exploit) and states with plentiful and/or lower cost renewable sources (but lacking the necessary resources to exploit them) may find it beneficial to work together. Agreements have been reached by EU MSs to use cooperation mechanisms established by the Renewable Energy Directives of 2009 and 2018. These mechanisms allow for one MS to benefit from renewable energy produced in a different MS, and permit the MS to pool financial support for renewable electricity development.[38] The agreements reached to date provide a small but growing body of experience of the design of legal arrangements for

[34] 2018 Renewable Energy Directive art 4(3).

[35] Fitch-Roy, Benson and Woodman (2019).

[36] Commission (n 32) para 76.

[37] 2018 Renewable Energy Directive art 4(4).

[38] 2009 Renewable Energy Directive arts 6–12; 2018 Renewable Energy Directive arts 8–14; Boge (2014); Dmitruk (2018); Commission (n 10) 6–7.

renewable energy cooperation from which non-EU states may draw when exploring similar arrangements.

<a>IX.33.4 Electricity network and market integration

Issues relating to network access and market participation must be addressed if the renewables sector is to expand.[39] Imbalances between inputs and outputs of power can trigger network blackouts, but related controls on market access can make it difficult both to distribute electricity from intermittent wind and solar sources and to find a buyer for it in markets.[40]

Costs for works required to integrate renewable electricity into networks, such as connections and capacity increases, alongside charges for transmitting electricity from often remote generating plants, can also constrain the growth of renewable power, and particularly when borne by developers.[41]

By requiring network operators to manage networks in ways conducive to renewable electricity access, an immediate response is provided to the barriers posed by network operating rules that may otherwise preclude or disfavour higher than anticipated electricity volumes.[42] In addition, legal requirements may be imposed on market operators to ensure that markets operate as close to real time as possible,[43] enabling access for electricity produced by self-consuming producers and community developments, and enabling all market actors to participate in system balancing. These reforms are typically viewed as preferable to market distorting priority dispatch measures.[44]

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[39] For a fuller account of the difficulties described here, see: Tawney (2013). See also: Roggenkamp and Kruimer (2015) 235–73.

[40] For more on this issue, see Chapter 51, section 4 of this book.

[41] For more on the technical aspects, see Chapter 45, section 2.2 of this book.

[42] See, *e.g.*: Regulation (EU) 2019/943 of the European Parliament and of the Council [2019] OJ L 158/54 (2019 Electricity Regulation) art 12.

[43] ibid art 8.

[44] Commission, 'Clean Energy for all Europeans' (Communication) COM (2016) 860 final, 8; Commission (2016).

Legislation can be used to promote technologies and practices which address system balance problems posed by intermittency, whether by storing renewable electricity produced when supply exceeds demand,[45] by promoting and encouraging demand response,[46] or by supporting 'smart' technologies.[47] Provisions to this effect feature prominently in Directive 2019/944[48] (the 2019 Electricity Directive) and the 2019 Electricity Regulation.

Legal obligations placed in any event on network operators to maintain networks and to adapt them to changing patterns of demand can be used to ensure that networks adapt over the long term to better accommodate changing generation patterns. For example, the 2019 Electricity Directive requires transmission system operators to maintain and implement ten-year-ahead network development plans, formulated with factors such as changes in the production and consumption of electricity in mind.[49] The directive also introduces a requirement for distribution system operators to produce plans for five to ten years ahead, and responds to the growing demand for network access from distributed renewable generation by requiring that such plans place emphasis on this driver for network adaptation.[50]

Regulation can be used to discourage and prevent network operators from billing generators for the full costs of network connection and upgrades. To this end, the 2009 Renewable Energy Directive obliged MSs to keep network connection charges under close review, and to require their modification when found to be dampening renewable electricity development.[51] The directive also addressed elevated transmission and distribution charges for remote renewables by requiring MSs to ensure that network charging does not discriminate against renewable electricity generators in remote areas.[52]

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[45] See: Chapter 57 of this book.

[46] See: Chapter 64 of this book.

[47] See: Chapter 54 of this book.

[48] Directive (EU) 2019/944 of the European Parliament and of the Council [2019] OJ L 158/125.

[49] ibid art 51.

[50] ibid art 32(3).

[51] 2009 Renewable Energy Directive art 16(3)–(6).

[52] ibid art 16(7).

Legislation can also promote the significant network developments necessary to integrate renewable electricity within electricity systems, including by requiring the provision of priority support to such developments. For example, Regulation (EU) 347/2013[53] (the Trans-European Energy Infrastructure Regulation) requires regional groups of states and sectoral actors to identify priority projects that will thereafter enjoy a special status in on-going development, including through *prima facie* requirements for the relevant network regulators to allow funding for project development, and access to EU funds.[54] Legal rights for states to give guidance to regulators can also be used to require that they shift their focus from network cost efficiency to the facilitation of a low carbon energy transition, albeit in the most cost effective means possible.[55]

<a>IX.33.5 Reforming administrative and regulatory regimes

Administrative and regulatory regimes serve to prevent developments with potentially harmful effects and ensure minimum standards in service provision. Compliance should not therefore automatically be seen as 'delaying' development or as placing bureaucratic hurdles in the way of policy goals. Even so, such regimes may add another hurdle by obliging developers to follow processes of unnecessary complexity, including through a duplication of regulatory requirements where more than one permission is required to pursue a project. In view of this, an obvious way in which legislation can contribute to supporting renewable electricity development is through the reform of related administrative and regulatory regimes, reducing complexity and other sources of duplication and delay without denuding their capacity to serve the purposes for which they were introduced.

EU law on renewable energy illustrates three means of preventing or mitigating the problems that administrative and regulatory requirements pose for renewable electricity producers. First, MSs have general obligations to review relevant laws to avoid heavy-handed requirements for developments that do not merit them; to streamline application processes; and to expedite applications. This ensures that administrative and regulatory processes are conducted as efficiently and quickly as possible.[56] Second, the EU promotes reducing

[53] Regulation (EU) 347/2013 of the European Parliament and of the Council [2013] OJ L 115/39.

[54] Roggenkamp and Kruimer (2015) 266–70; Van Driessche (2013).

[55] McHarg (2012).

[56] 2009 Renewable Energy Directive art 13(1); 2018 Renewable Energy Directive art 15(1).

complexity and overlap through the establishment by MSs of 'one-stop-shop' authorities, which may act as sole permitting authorities where possible. Where more than a permit is required, these 'one-stop-shops' may coordinate the processes pursued by all the authorities involved, and may act as a single point of contact in relation to licensing requirements.[57] Third, EU law has long encouraged – and now obliges MSs – to promote expediency in decision-making by placing time limits on permitting processes.[58] Such provisions may be accompanied by laws confirming the automatic award of a permit if it has not been granted within the prescribed period.

In addition, the reform of administrative requirements can be used to promote renewable electricity production. For example, Article 15 of the 2018 Renewable Energy Directive requires MSs to use regulations in ways that promote renewable energy consumption, particularly in the design and construction of new (and the refurbishment of existing) building stock.

<a>IX.33.6 Addressing public concerns

Renewable electricity projects may raise public concerns due to fears of direct effects such as reduced property prices, impacts on wildlife, and incompatibility with places valued for their aesthetic or wilderness qualities.[59] Discontent with the quality of decision-making processes can also raise concerns even amongst persons who would otherwise be supportive of a proposed development.[60] If not addressed, such concerns can provoke public opposition, leading to projects being delayed or even scrapped entirely.

Law plays a key role in reducing the scope for opposition due both to direct effects and procedural concerns. Legal requirements for public engagement during environmental assessment of development consent applications enables affected populations to review proposals and comment on proposed developments.[61] Opportunities for participation can enhance confidence in the legitimacy of decision-making processes and yield information

[57] 2009 Renewable Energy Directive art 22(3)(a); 2018 Renewable Energy Directive art 16(1)–(3).

[58] 2009 Renewable Energy Directive arts 13(1)(c), 22(3)(b); 2018 Renewable Energy Directive art 16(4)–(7).

[59] Rule (2014).

[60] Wolsink (2007).

[61] Directive 2011/92/EU of the European Parliament and of the Council [2011] OJ L 26/1.

enabling the avoidance or mitigation of impacts. On the other hand, scope to alter proposals and therefore to address public concerns once proposals have been submitted for approval is often limited. In view of this, relevant laws may require engagement by developers with affected communities before submitting development proposals. For example, in England, developers of wind farms with more than two turbines or where the hub height exceeds 15 metres are required to consult with affected communities before applying for development consent.[62]

In addition, law is used to promote public acceptance of renewable electricity projects by requiring that affected persons and communities be provided with financial incentives.[63] Laws of this type include obligations for developers to allow affected persons and communities to purchase shares in the development;[64] to compensate persons who can prove that the value of their property has been reduced;[65] and to provide affected populations with benefits such as community-enhancing facilities.[66] Care is required in the design of relevant laws to prevent them from stimulating greater opposition than they avoid, whether by benefiting only certain groups in communities (*e.g.* those who have the money to buy shares) or creating a sense of being manipulated into accepting an unwelcome development.[67]

<a>IX.33.7 Conclusion

This chapter has illustrated the essential role played by law in enabling the growth of electricity from renewable sources. It is evident that law contributes to attracting investments in relevant developments and to enabling their integration within existing electricity networks and markets in a timely fashion, including by requiring governments to adopt supportive policies. The way in which law is used will change in unpredictable ways as political and public attitudes towards renewable electricity and legal intervention designed to favour its production and consumption evolve. It can be stated with a degree of confidence, however,

[62] The Town and Country Planning (Development Management Procedure) (England) Order SI 2015/595.

[63] Olsen (2014); Cowell, Bristow and Munday (2011).

[64] Olsen (2014) 195–202.

[65] ibid 202–7.

[66] Cowell, Bristow and Munday (2011).

[67] ibid; Olsen (2014).

that its use will remain essential for decades to come in view of the major challenges posed by shifting from a high carbon global energy system, in which fossil fuels meet 80 per cent of energy demand, to one in which renewable electricity predominates.[68]

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[68] REN21 (2018) 31.

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