Portugal under austerity: from financial to renewable crisis?

Environmental Research Communications

LETTER

Portugal under austerity: from financial to renewable crisis?

Jan-Justus Andreas[1,4], Charlotte Burns[2] and Julia Touza[3]

[1] University of York, Environment & Geography Department, Wentworth Way, YO10 5NG, York, United Kingdom
[2] University of Sheffield, Department of Politics, Elmfield, Northumberland Road, S10 2TU, Sheffield, United Kingdom
[3] University of York, Environment & Geography Department, Wentworth Way, YO10 5NG, York, United Kingdom
[4] Author to whom any correspondence should be addressed.

E-mail: mail@jjandreas.de, charlotte.burns@sheffield.ac.uk and julia.touza@york.ac.uk

Keywords: critical juncture, financial crisis, historical institutionalism, portugal, tariff debt, energy transition, electricity markets

OPEN ACCESS

RECEIVED
23 May 2019

REVISED
14 August 2019

ACCEPTED FOR PUBLICATION
19 August 2019

PUBLISHED
5 September 2019

Abstract

Portugal was hit hard by the global financial crisis, with concomitant effects upon the development of its renewable energy sector. The imposition of austerity has had negative impacts upon the further development of the Portuguese renewables sector, prompting the question of whether we have seen a critical juncture that will lead to a new policy trajectory. Historical institutionalist analysis demonstrates a range of unintended consequences arising from the pursuit of austerity in Portugal, yet no true critical juncture to the country's commitment to renewable electricity. The path dependent structure of the Portuguese electricity market and the export bottleneck between the Iberian Peninsula and Central Europe are identified as critical variables explaining the sub-optimal policy trajectory. We conclude that resolving this bottleneck will be critical for Portugal to reduce current financial and electricity price pressures, and continue its renewable energy transition.

1. Introduction

The EU's 2009 Renewable Energy Directive seeks to raise the share of renewable energy in the EU's final energy consumption to 20% by 2020 (European Commission 2010). Portugal set its own 2020 target at 31%, aiming to achieve 60% of its electricity generation from renewable energy sources (RES). However, at the same time as Portugal's targets were approved by the European Commission (EC), the country came under increasing scrutiny by the EU and the International Monetary Fund (IMF) for its high government deficit and increasing debt levels. As Portugal's financial situation worsened, the country requested a bailout from the 'Troika' of the EC, European Central Bank (ECB), and IMF in April 2011. The Troika, in turn, demanded significant structural reforms and the introduction of austerity measures to consolidate government finances. Part of these consolidation measures was the obligation to eradicate the country's growing Feed-in tariff (FiT) debt, and in 2012, the Portuguese government introduced a moratorium on onshore wind-power and small-hydro FiTs with no new licenses being issued. Although the licensing moratorium was lifted in 2013, new projects have not been entitled for government support, with capacity additions having slowed significantly: while average growth rates for wind additions between 2005 and 2011 stood at 37%, between 2012 and 2018 this rate had dropped to a mere 3% (Direção-Geral de Energia e Geologia 2019). With wind power making up over 41% of renewable capacity in 2011, the financial crisis therefore appears to have had a drastic impact on both Portugal's debt-practices and the country's renewable energy transition (RET), which seems to have become a victim of austerity.

Austerity and rising electricity costs played a crucial role in shifting policy instruments that created uncertainty and high volatility on RETs in many countries, including Bulgaria (Andreas *et al* 2018), Germany (Andreas 2019), Italy (Grimaccia and Rondinella 2015), the UK (Andreas 2019) and Spain (López 2015). These measures generally led to a decline in capacity growth rates from renewables, and even a complete halt for some technologies in the case of Bulgaria, while both Spain and Italy were reprimanded by the European Commission for failing to transpose Directive 2009/28/EC on renewable energy to achieve the 2020 targets (López 2015). In Germany, exempting certain consumers from rising electricity costs increased the cost for paying consumers

even further, adding to the decision to abolish the German feed-in tariff system (Andreas 2019). In the UK, austerity plans were crucial in the axing of the country's CCS support, and encouraged the shift from the renewables obligation scheme to a contract for difference system (*ibid.*).

Drawing on Historical Institutionalism (HI), we seek to identify whether Portugal's financial crisis and the entry of the Troika represented a critical juncture for the country's renewable electricity sector. We contribute to the vast literature on HI by critically evaluating the applicability of a critical juncture to real-world policy-change in a case in which two separate institutions interact: those of fiscal sustainability and sustainable energy. This paper investigates HI in the relatively novel context of renewable energy transitions (Stefes 2010), for which HI's potential and limitations has only recently been established (Lockwood *et al* 2017). Thematically, the Portuguese RET has received significant attention from academics in the past (Herman 2013, Gouveia *et al* 2014, Pereira and Rodrigues 2015, Delicado *et al* 2016, Stefanini 2016, Peña *et al* 2017), and while there is a growing number of analyses on the effects of the economic crisis and austerity on RETs in Europe (Skovgaard 2014, Slominski 2016, Andreas *et al* 2017, 2018, Burns *et al* 2019), the implications of austerity on the Portuguese RET has not yet been investigated. As Europe is about to enter its next periods of climate targets for 2030 and beyond, we provide a timely analysis of these implications. Our empirical analysis draws on secondary literature, including policy papers, reports, and assessments, and is supported by semi-structured elite interviews.

In section 2, we establish our analytical framework, focusing on HI's concepts of path-dependence, unintended consequences, sub-optimal policy developments, and critical junctures. In our analysis in section 3, we, firstly, establish Portugal's sustainable energy institution, and, secondly, briefly address Portugal's plunge into financial crisis in order to identify the consequences of the entry of the Troika for Portugal's renewable policy. Our results indicate that there has not been a critical juncture for Portugal's renewable sector, but that the current slump in renewable growth is an unintended consequence of the renewable policy adjustments that seek to meet the fiscal requirements imposed by the Troika. In section 4, we consequently discuss the sub-optimal structure of the Portuguese renewables market that played a critical role both in the initial emergence of the tariff debt, and in the unintended consequences of the current renewables policy. In our recommendations and conclusions, we stress that overcoming these structural issues will be crucial for the economic viability of Portugal's RET and hence can also play an important role in improving the country's wider fiscal situation.

2. Analytical framework

We employ historical institutionalism (HI) as an analytical, comparative approach that allows the identification of change in institutional structures across time. We conducted a literature review and analysis of Portugal's renewable energy policy since 1988. In order to establish a comprehensive narrative we also conducted six in-depth semi-structured elite interviews with members of both governmental (European Commission; European Parliament), and non-governmental institutions (WWF Portugal; Portuguese Association for Renewable Energy, APREN; and the European Wind Energy Association, EWEA, now WindEurope). The analytical process was one of triangulation, both guiding and reaffirming the policy analysis.

HI revolves around institutions, or paradigms (Peters *et al* 2005), that are the recurring patterns of behaviour representing the structures and mechanisms of social order within a given context (Capoccia 2015). In a political context they refer to public policies and political regimes (Capoccia and Kelemen 2007, Stefes 2010). HI provides 'generalisable explanations of patterns of diversity and change' within these institutions (Lockwood *et al* 2017, p. 315).

Our analysis focuses on two institutions. First, the institution of fiscal sustainability that emerged with the rise of neo-liberalism in the 1970s, which views excessive debt as undermining economic and financial stability. Debt should therefore be maintained at sustainable (i.e. minimal) levels (Checherita and Rother 2010), promoting governmental monetary restraint and budgetary austerity. Both are deeply embedded in the EU's Stability and Growth Pact (European Commission 2015a). Second, the sustainable energy institution represents the growing global policy trend of breaking the world's dependence on fossil fuels by promoting the share of clean and renewable energy sources to combat growing biodiversity losses and mitigate climate change (Cardinale *et al* 2012).

The inherent self-reinforcing processes of institutions render them highly rigid in nature as the specific principles and assumptions that institutions represent commonly constrain the availability of options of choice (Pierson 2000a, p. 492). As such, institutions become entrenched on a certain track that is not easily reversed or altered, known as 'path dependence' (Stefes 2010). Institutional structures may suffer from sub-optimal policy developments, in which, due to the stickiness of institutions, less or ineffective policies are protected or reinforced. This trend is further aggravated by actors' lacking foresight and unintended institutional effects (Pierson 2000b). As such, 'long-term institutional consequences may be the by-products of actions taken for short-term political reasons' (*ibid.*, p.479) that can often be observed in democratic systems. An increased

acknowledgement of long-term issues can be achieved by making governments accountable to actors with longer time horizons, for example international organisations (Pierson 2000b, p. 480).

A 'rare event in the development of an institution' (Capoccia and Kelemen 2007, p. 368) is the critical juncture in which a significant, commonly exogenous, shock facilitates a short period of social and political fluidity, during which the ability of an institution to self-replicate is undermined, allowing for political agency to shape the outcome (Collier and Collier 1993, Pierson 2000b, Capoccia and Kelemen 2007, Stefes 2010, Capoccia 2015). The notion of a short period of time stands relative to the duration of the path-dependent phases of the institutional structures preceding and following the juncture. Social and political fluidity (contingency) represents a crucial factor of critical junctures, as it breaks the constraints of the path-dependence phase. The choices made during a juncture may trigger a new path-dependent process, thereby constraining future choices. As the direction of this process rests with the decisions made by influential agents, their role is critical.

Critical junctures are commonly associated with, and defined as, 'a period of significant change' (Collier and Collier 1993, p. 29). However, Capoccia and Kelemen (2007) argue that a critical juncture may also involve the 'restoration of the pre-critical juncture status quo' or a 're-equilibrium of an institution' (p.352). Yet, the traditional critical juncture literature stresses the importance of significant, or paradigmatic, change as part of a critical juncture (Hall and Taylor 1996, p. 10, Peters *et al* 2005, p. 1286, David 2007, p. 3, Lockwood *et al* 2017, p. 323). Also considering the danger of blurring the qualitative lines towards a mere policy window (Kingdon 1984), we maintain that significant change represents an essential factor of a critical juncture. In doing so, we face the challenge of distinguishing between 'significant' and 'ordinary' change, as the latter is also common in path-dependent periods (Peters *et al* 2005).

Our policy review, interviews and in-depth analysis seek to overcome this qualitative vagueness by focusing on four institutional structures (economic, cultural, ideological, organisational) (Capoccia and Kelemen 2007, Stefes 2010). To empirically determine the existence of a critical juncture based on the above definition, the following three aspects need to be met:

(i) Time: short time period relative to the path-dependent period(s).

(ii) Contingency: the existence of structural fluctuations that provide a 'broader than typical range of feasible options' (Capoccia and Kelemen 2007, p. 348).

(iii) Change: paradigmatic change affecting the institutional structures (economic, cultural, ideological, and organisational).

3. Portugal's Renewable Energy Transition and the Financial Crisis

The analysis of the time factor takes into account that a critical juncture does not necessarily have to be a discrete event but can be an accumulation of related events (Capoccia and Kelemen 2007, p. 350). In the Portuguese case, related events begin with Portugal's financial crisis in 2010, followed by the country's bailout and ended with the exit of the three-year EU/IMF financial assistance program in May 2014. Since then, Portugal has been under ex post evaluation, a tool of the European Commission to assess the effectiveness of a specific intervention (European Commission 2016a, p. 9). Although we cannot yet establish a post-juncture path dependent period of significant duration, we consider the period of a potential critical juncture to begin with Portugal's financial crisis in 2010, and end with the exit of the Troika in 2014.

3.1. Renewable energy trajectory, 1988–2010

Portugal's first support scheme for renewables was established through the *Decree Law* 189/88 that installed an undifferentiated FiT system to all renewables. In 1995, Portugal's electricity market was converted from a vertically integrated state monopoly into a dual market structure, comprised of a Public Service System (SEP) and a liberalised system (LM) (Amorim *et al* 2013). Crucially, in 2001, in response to EC Directive 2001/77/*CE*, the Portuguese government initiated the E4 Programme (Energy Efficiency and Endogenous Energies) that established 2010 targets of 39% of electricity from renewables and an overall installed renewable capacity of 8.8 GW (including hydropower) (Peña *et al* 2017).

In 2001, the Portuguese and Spanish governments made plans to integrate the two countries' electricity market into a single Iberian Electricity Market (MIBEL). After further market restructuring following the 2003 Resolution of the Council of Ministries (*RCM* 63/2003) and the 2005 National Energy Strategy, MIBEL was launched in July 2007 and the Portuguese electricity market liberalisation completed to the degree that all electricity customers were freely able to choose and change their electricity provider (Del Río *et al* 2016).

In 2007, the purchase obligation for energy under the special regime (renewables and cogeneration) was extended to the last-resort supplier, leaving RES generators effectively outside the wholesale market (Amorim *et al* 2013). Between 2006 and 2008, Portugal ran a three phase multi-criteria auction for a total of 1.8 GW, where lowest possible development costs only weighted 20% to the final tender decision, while 45% of the bid decision was made to ensure high direct and indirect investment volumes, as well as a high job creation and gross added value around the development of renewables (Del Río *et al* 2016). In 2007 the target for consumption of energy produced from RES was increased to 45% by 2010.

The government renewable policies of the early 2000s were highly successful in achieving renewable targets. Between 2004 and 2009 more than 500 MW of wind power were installed yearly. By 2010, Portugal achieved almost 9.7 GW of renewable capacity, 4.23 GW of which was in large-scale hydro, and over 3.9 GW wind (IEA Wind 2013). Electricity from non-hydropower renewables reached a share of 24.4% in total generation, second in the world only to Denmark, plus a 30.8% share of hydropower—significantly overachieving its targets for 2010 (IEA 2016).

3.2. The fiscal institution and the financial crisis

The EMU's convergence criteria establish maximum levels of government deficit (3% of GDP) and debt (60% of GDP). Pereira and Wemans (2012) stress that a government deficit has been considered 'normal in Portuguese political discourse' (p.3), with deficits being 'the rule without exception' (*ibid.*). Since its emergence from authoritarian rule in 1974, Portugal never achieved a surplus in its state budget with only Greece having a similarly poor record (Eurostat 2017, World Bank 2017). The country therefore repeatedly introduced austerity programmes; in 1977, 1983 (Courakis *et al* 1993), 1991 (Von Hagen and Strauch 2001), and again in 2000 (Blanchard 2007, Cunha and Braz 2007). However, 'crucial reforms […] in the public administration, instrumental to curb the growth of compensation of employees, and the private sector social security system were barely initiated' (*ibid.*, p.115).

In the run up to the 2008 financial crisis, the Portuguese government 'did not adapt [its] fiscal policy to the new slow-growth environment' (Eichenbaum *et al* 2016, p. 10). To boost economic growth and prevent a deeper recession, the EU-wide European Economic Recovery Plan established a fiscal stimulus of 400 billion EUR by March 2009 (Council of the European Union 2009). Portugal's stimulus increased the government deficit to 9.8% in 2009 and 11.2% in 2010 (Eurostat 2017). Primary causes for this rise were a reduced VAT tax rate in 2009 and wage raises for civil servants in anticipation of parliamentary elections that year, as well as the country's Investment and Employment Initiative that, although meant to be temporary, continued into 2010 (Pereira and Wemans 2012).

As the sovereign debt crisis unfolded through the bailouts of Greece and Ireland in May and November 2010, Portugal's high public and external debt, paired with slowing growth prospects, led to downward revisions of the country's sovereign credit rating (Almeida *et al* 2014). Higher risk premiums charged for borrowing triggered increased costs to service public debt that risked Portugal defaulting, making a bail-out inevitable by April 2011 (Pereira and Wemans 2012).

3.3. The Troika and the tariff debt

The memorandum of understanding (MoU) signed in 2011 with the Troika addressed five areas for required reform and adjustments, one of which (iv) required further measures for the liberalisation of the electricity market and an end to the rising tariff debt. The tariff debt accumulated from 2007 onwards due to a misalignment between regulated tariffs that are based on one-year-ahead estimates on fuel costs and actual market prices, and the so-called policy costs, the production costs originated by government decisions (Linden *et al* 2014, European Commission 2016a). Essentially, 'the energy tariff was not enough to cover the costs of buying energy; and politically there's a decision [to be made] to put the burden on consumers or just to accumulate [it as debt].'[5] Between 2006 and 2011 this rising debt was not repaid and reached 1.7 billion EUR by 2011 (European Commission 2016b). As a member of DG ECFIN summarised:

> 'the[Portuguese] energy sector is a mirror of what happened in the whole economy; over-indebtedness and not thinking in a sustainable way to repay this debt; and that's when the Troika kicked in saying, this is going too far, you cannot afford this, you will have to shrink it somehow. The tariff debt we witnessed in Portugal is widely related with political choices that were made but were not budgeted.'[6]

[5] EU-P01-ECFIN.

[6] EU-P02-ECFIN.

The government introduced several subsequent energy policy packages. In 2012, a moratorium on wind, co-generation and small-hydro FiTs was implemented, with no new licenses being issued. Unlike in Spain, the moratorium only affected new projects and did not change contracts retroactively after an agreement was reached with producers who agreed to pay a levy until 2020. The authorities 'formally recognized the right of the affected utilities to recover the corresponding amount' (Linden *et al* 2014, p. 23), and regulated tariffs for households were gradually abolished between 2013 and 2015 (*ibid.*, p.30).

Since 2013, onshore wind, co-generation and small-hydro power projects can again be developed, however without any governmental support. Yet, no new major projects in these technologies had been contracted for several years.[7] In the same year, the government repealed and revised its NREAP, taking into account the falling energy consumption levels as a consequence of the economic crisis and efficiency improvements, and the adjusted support instruments. It reduced the wind capacity target to 5.3 GW (European Union 2015, European Commission 2016c), which was reached almost entirely through already awarded projects, with only minor additions through repowering and retrofitting of existing assets in 2016 (Direção-Geral de Energia e Geologia 2019).[8]

Further policy packages modified remuneration regimes for cogeneration projects and reduced compensation for the early termination of former long-term power purchase agreements (European Commission 2014, p. 63). A special levy on the energy sector (Exceptional Contribution of the Energy Sector), excluding RES and small operators, was also established. Initially set to run only in 2014, the levy was extended to 2015 and 2016 (*ibid.*). Frequent policy changes increased uncertainty for investors and developers during those years.[9] As a consequence, even reaching the lowered 2020 targets has been called into question. As APREN stated: 'we are at 52% now, to reach 60% is quite difficult because the new [renewables] projects are quite few and projects that start now need two to three years to finish, so there is not enough time'.[10]

3.4. Juncture Or No Juncture?

The financial and economic crisis led to strong global advocacy to create new economic and financial structures, improving the system's sustainability (Edenhofer and Stern 2009, Read 2009, Reinhart and Rogoff 2009, UNEP 2009, Everett *et al* 2010, Leichenko *et al* 2010, Tienhaara 2010, Bina and La Camera 2011, Bina 2013, Foxon 2013). However, contingency was expressed differently in the Portuguese case. Rather than extending the available options of choice for Portugal, the financial crisis forced the government to request a bailout package, empowering the Troika that found itself with an availability of choices in how to address Portugal's growing debt problem.

The requirements imposed by the Troika dictated reforms (liberalisation) and a certain policy path (austerity). However, while these actions restricted Portugal's policy options, it enforced a fiscal approach that was different to that implemented by domestic actors. Thereby, the Troika actually provided a new policy that was unlikely to have been pursued without external pressure. However, this increased power of the Troika only addressed issues of fiscal imbalance. The policy decisions made after 2011 sought to halt the further accumulation of tariff debt, and through the generation of additional revenues begin reducing it.[11]

Portugal continued its FiT scheme for micro renewable electricity generators although at lower rates. In 2011, a new mini generation programme was added to the existing micro one from 2010 (International Energy Agency 2017). *Decree-Law No.*153/2014 further established the legal regimes applicable to the production of electricity for self-consumption from RES. These measures particularly benefited rooftop solar installations in residential and commercial settings. Although the introduced special levy aimed to reduce the budget deficit, it explicitly excluded RES and small-scale plants (Energias De Portugal (2013), EU Business 2016).

In 2015, Portugal published its '*Green Growth Commitment* 2030' that established new, ambitious renewable targets of 40% in final energy consumption that imply an increase to about 80% in the share of renewables in the country's electricity generation. This target has since been raised to 47% by 2030 and is supported by an almost 5 bn EUR renewable energy investment budget, aimed to increase wind capacity to over 9 GW (European Commission 2018). Culturally and ideologically these policies represent a continuing positive attitude and commitment to renewables, which have had an overall positive economic effect. The Portuguese wind industry alone supported an estimated 3,200 jobs and generated an income of 1,170 mn EUR in 2013, and simultaneously allowed the saving of about 4.3 mn tons of CO_2 emissions (IEA Wind 2013). This CO_2 level reduction also reduced the number of permits required from the EU's Emission Trading Scheme. According to APREN, the joint benefits of renewables on market prices, reduced fossil fuel imports, saved CO_2 emissions and permit costs

[7] EU-P01-ECFIN/PT-P01-APREN.
[8] PT-P01/2-APREN.
[9] PT-P02-APREN.
[10] PT-01-APREN.
[11] EU-P01-ECFIN.

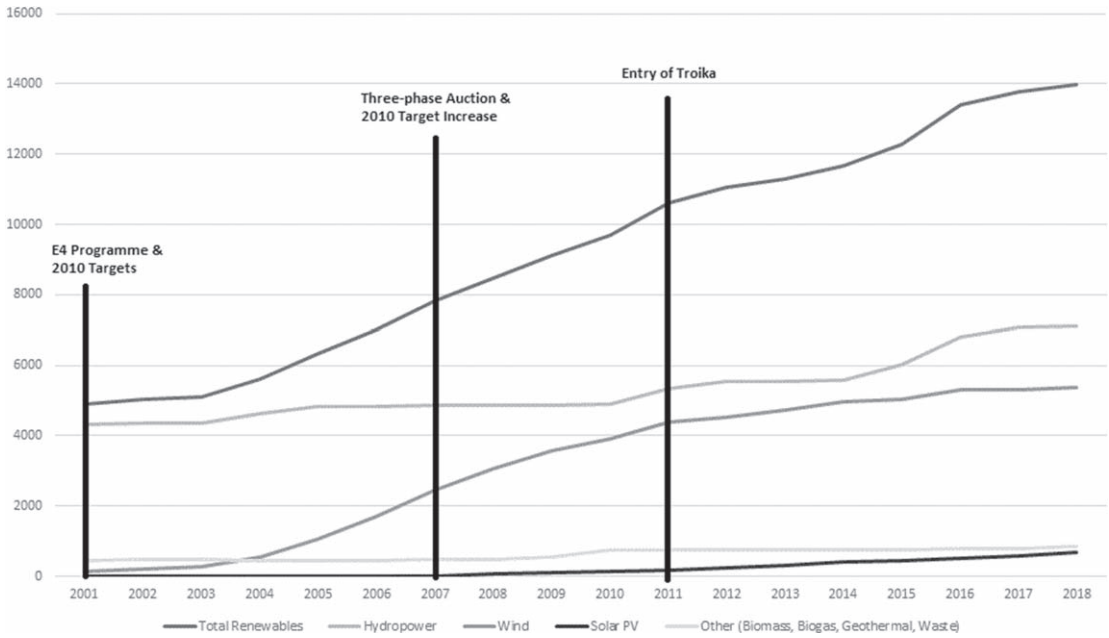

Figure 1. Timeline of Portuguese Installed Renewable Capacity, in MW, and key policy events, 2001–2018 (Direção-Geral de Energia e Geologia 2019).

are 'twice or three times bigger than the [costs of] feed-in tariffs.'[12] The sector's generally positive role for the Portuguese economy is a fact APREN General Secretary José Manuel Medeiros Pinto says 'everyone here in Portuguese society understands'.[13] Indeed, just after the exit of the Troika, Portugal still reached the second highest number of respondents (94%) across the EU finding that nationally set renewable targets for 2030 are important, and the highest number of respondents (84%) agreeing that a reduction of fossil fuel imports will benefit the EU (European Commission 2015b).

As figure 1 shows, renewable electricity and particularly wind capacity increased dramatically towards the 2010 targets. With the entry of the Troika and the subsequent moratorium for large scale hydropower and wind until 2013, capacity expansion can be seen to largely plateau for these technologies in the immediate aftermath of the crisis, followed again by an uptick in growth rates around 2015/16 at least for hydrogen. At the same time, continued support for solar power paired with cost improvements meant solar PV grew steadily despite the crisis. These dynamics of renewable capacity growth depict how the outlined policy decisions represent a financially-induced policy adjustment, albeit within the maintained, enewable path. Indeed, the importance to continue the expansion of renewables meant that from a financial standpoint the introduced measures were still considered largely insufficient:

> 'the government did not take sufficient ownership and missed the opportunity to reform more decisively this key sector. […] Eliminating the tariff debt, which is heavily weighing on the high costs of electricity for end users, remains a significant challenge if price increases are to be kept limited as desirable for firms' competitiveness and households' budgets.' (European Commission 2016a, p. 83)

The EC stressed that the government's resistance to more decisive policy reforms was based in part on the aim to develop green energy, showing that Portugal did not want to undermine its support (*ibid.*). By 2015 the tariff debt had reached about 5 billion EUR and in 2016, the Commission raised doubts over its elimination by 2020 (European Commission 2016a).

The findings depict the complex interplay across the fiscal sustainability and sustainable energy institutions, and the various levels of agency. Considering the contingency factor, Portugal's financial crisis necessitated a bailout, which in turn obligated the Portuguese government to address its fiscal unsustainability. Considering the number of unsuccessful attempts of the past and the resistance austerity experienced in Portugal over the past years, it is safe to assume that without the entry of the Troika, no rigorous austerity measures would have

[12] PT-P02-APREN.
[13] PT-P02-APREN.

been implemented (Príncipe 2013). The financial crisis, therefore, provided the institutional fluidity that empowered the Troika to impose a policy change by largely restricting Portugal's choice of options. This development hints at a critical juncture in Portugal's fiscal sustainability institution.

It is, however, difficult to claim that the financial crisis has been a critical juncture for the Portuguese renewables sector. Despite its policy consequences, there has been no fundamental political, cultural or ideological change. Indeed, the government and the public remain committed to expanding renewable energy, which led to its resurgence towards 2020 and new 2030 targets. The structural reforms of the renewable sector were focused solely on the elimination of the existing tariff debt. As Carlos Zorrinho, former Secretary of State for Energy and Innovation (2009–2011) and now member of the European Parliament, stated:

> '[The] Troika has a financial approach and not an economic or scientific approach. They don't look how to change the economic model to try to be more competitive. They look to the budget and say how to cut it. The Troika is not for or against renewables; the Troika is for less incentives and more cuts'.[14]

The cancellation of FiT support sought to halt the accumulation of further tariff debt without preventing the development of mature renewable technologies. Nevertheless, this decision severely limited the capacity additions particularly from new wind projects due to a lack of commerciality. This implication should be considered an unintended consequence of the debt-focused policy reform. In the following section we discuss the fundamental structural issue of Portugal's RET that affected this development.

4. The grid challenge: the future of Portugal's renewables

As the European Commission's (2013) guidance for the design of renewable support schemes states: 'the market does not provide the optimal level of renewables in the absence of public intervention [...] due to market and regulatory failures' (p.3). For Portugal a key issue that disincentivised new wind projects after 2013 is the export bottleneck between the Iberian Peninsula and Central Europe.

Due to its intermittency, Portugal's wind power share of total demand has been recorded to vary between 0% to over 91% (between 2007 and 2014) (Pereira and Rodrigues 2015). Since wind power has dispatch priority, it causes significant variability in the supply curve (Pereira and Rodrigues 2015). Hence, although wind energy can decrease average wholesale electricity price levels, it also increases price volatility (*ibid.*). This instability was exacerbated by falling demand levels during the crisis that led to periodic oversupplies of electricity across MIBEL.[15] Jointly, in 2013, Spain and Portugal produced 335,238 GWh of electricity and consumed just 277,266 GWh, about 82.7% of total electricity produced (IEA 2015). Crucially, this oversupply could not be balanced through the export of electricity, increasing cost for generators and consumers.

For decades the EU has sought to create a single European electricity market, with the Juncker Commission's Energy Union strategy seeking to achieve an internal energy market with aligned prices (European Commission 2017). However, while the creation of MIBEL rendered electricity exchange within the Iberian Peninsula a non-issue, due to its geographic position exporting excess electricity is extremely difficult.[16] In February 2015 a new interconnector between France and Spain, the first built in almost 30 years, was inaugurated to double the existing commercial exchange capacity to 2.8 GW (Crampes and von der Fehr (2018)). Until 2015, only four high voltage interconnectors existed with a greater capacity (1.4 GW) from France to Spain, than from Spain to France (1.1 GW) (Carvalho Figueiredo and Pereira da Silva (2015)). In contrast, Germany had an available interconnection capacity of 21.3 GW in 2012 (Bayer 2015). As such, 'MIBEL can be seen as an almost isolated system' (Pereira *et al* 2018, pp. 2–3).

In summary, times of oversupply and lack of export possibilities due to the isolation of the Iberian electricity market acted to amplify unfavourable market conditions. Without an adequate connection to the European market, both Portugal and Spain will continue to struggle to promote a cost-effective RET. As a member of DG Energy stated: 'without a development of interconnections you cannot benefit from the full potential of renewable energy in Portugal and Spain. So, the question of interconnections is instrumental to the development of the sector. If you want to get closer to market values, you need to be able to export'.[17]

[14] EU-P04-PARL.
[15] PT-P03-APREN.
[16] EU-P04-PARL.
[17] EU-P03-ENER.

5. Conclusions and policy recommendations

Based on the three defining aspects of time, contingency, and change our analysis did not identify a critical juncture for Portugal's renewable energy transition. Having determined the Portuguese financial crisis as the potential juncture period from 2010 to 2014, we established the Portuguese renewable energy path until 2010. Although our analysis revealed that the Troika's enforcement of austerity represented a potentially significant change to Portugal's fiscal institution, we could not identify a subsequent paradigm shift in the country's renewable path. While policy adjustments effectively prevented new onshore wind from being contracted, other measures and the introduction of 2030 targets signalled the continuing support for renewables. Indeed, we consider the negative implications of the above policy changes to be unintended consequences that stem from the sub-optimal structure of the Portuguese electricity market, primarily due to the export bottleneck between the Iberian Peninsula and Central Europe. The subdued domestic demand during the economic crisis, paired with the lack of export opportunities has undermined the expansion of renewable electricity generation and led to increased electricity prices for consumers.

To overcome Portugal's financial issues, as well as improve the economic viability of its renewable sector means to provide improved interconnection between the Iberian Peninsula and the rest of Europe that would further allow an improved balancing of RES across the European electricity markets.

Acknowledgments

Our sincere gratitude to those individuals in Brussels and Lisbon who kindly shared their opinions and provided valuable insights to develop the present research. Many thanks also to Sara Christensen for helping in the transcription of the interviews and the two anonymous referees for their valuable comments.

Funding

This work was supported by the Leverhulme Trust (RPG-2014-183).

Appendix 1. Semi-structured Questionnaire from Interviews

B.1. Indicative questions on renewable energy transitions in Portugal during the economic and European Debt crises

What would you consider the key drivers of Portugal's renewable energy transition?

In your view, have there been changes in the scope, ambition, or pace of Portugal's renewable energy transitions over recent years?

If yes, what have been the causes, and what are its effects?

Have the economic crisis and the European Debt Crisis affected Portugal's renewable energy transition?
If yes, in what ways has this been visible?

Has there been a change in the government's support for renewable energy?

If so, what was the rationale for such changes?

Has there been a shift in the type or extent of renewable policy instruments?

Has the volume of new renewable projects changed?

Have budget cuts affected the implementation or operation of renewable programs?

What role have energy costs played?

Has there been a significant change in investment levels in the renewable sector over the course of the crisis?

If not, why do you think this is?

Annex 2. List of Interviewees

Organisation	Position	Area	Code
WWF Portugal	Advisor/Expert	Non-Profit Organisation	PT-PO3-WWF
DG ECFIN	Economic Analyst	European Commission/ Government	EU-PO1-ECFIN
DG ECFIN	Economic Analyst	European Commission/ Government	EU-PO2-ECFIN
DG ENER	Analyst	European Commission/ Government	EU-PO3-ENER
European Parliament	MEP, former State Secretary Energy	European Parliament/Government	EU-PO4-PARL
European Wind Energy Association (EWEA)	Analyst	Industry	EU-PO5-EWEA
Portuguese Renewables Association (APREN)	Engineer	Industry	PT-PO1-APREN
Portuguese Renewables Association (APREN)	General Secretary	Industry	PT-PO2-APREN

ORCID iDs

Jan-Justus Andreas https://orcid.org/0000-0003-1992-9947

References

Almeida H, Cunha I, Ferreira M A and Restrepo F 2014 The real effects of sovereign credit rating downgrades *The Journal of Finance* **72** 1–16
Amorim F, Vasconcelos J, Abreu I C, Silva P P and Martins V 2013 How much room for a competitive electricity generation market in Portugal? *Renew. Sustain. Energy Rev.* **18** 103–18
Andreas J-J, Burns C and Touza J 2017 Renewable energy as a luxury? A qualitative comparative analysis of the role of the economy in the EU's renewable energy transitions during the 'Double Crisis' *Ecol. Econ.* **142** 81–90
Andreas J J, Burns C and Touza J 2018 Overcoming energy injustice? Bulgaria's renewable energy transition in times of crisis *Energy Research and Social Science* **42** 44–52
Andreas J J 2019 *Turning Cuts into Growth: German and British Renewable Energy and Climate Policy During the Economic Crisis* ed C Burns *et al* The impact of the economic crisis on european environmental policy (Oxford: Oxford University Press)
Bayer E 2015 *Report on the German power system, Agora Energiewende*
Bina O 2013 The green economy and sustainable development: an uneasy balance? *Environment and Planning C: Government and Policy* **31** 1023–47
Bina O and La Camera F 2011 Promise and shortcomings of a green turn in recent policy responses to the 'Double crisis' *Ecol. Econ.* **70** 2308–16
Blanchard O 2007 Adjustment within the euro. The difficult case of Portugal *Portuguese Economic Journal* **6** 1–21
Burns C, Tobin P and Sewerin S 2019 *The Impact of the Economic Crisis on European Environmental Policy* (Oxford: Oxford University Press)
Capoccia G 2015 Critical Junctures and institutional change *Advances in Comparative Historical Analysis in the Social Sciences* (Cambridge: Cambridge University Press) 147–80 Advances in Comparative Historical Analysis in the Social Sciences
Capoccia G and Kelemen R D 2007 The study of critical junctures: theory, narrative, and counterfactuals in historical institutionalism *World Politics* **59** 341–69
Cardinale B J *et al* 2012 Corrigendum: biodiversity loss and its impact on humanity *Nature* **489** 326–326
Carvalho Figueiredo N and Pereira da Silva P 2015 *Explanatory Variable on South-West Spot Electricity Markets Integration* ed P Godinho and J Dias (Imprensa da Universidade de Coimbra: Assessment Methodologies: Energy, Mobility and Other Real World Application) (https://doi.org/10.14195/978-989-26-1039-9)
Checherita C and Rother P 2010 The impact of high and growing government debt on economic growth *An Empirical Investigation for the Euro Area, Working paper Series of the European Central Bank* (https://doi.org/10.2307/2281644)
Collier R B and Collier D 1993 *Shaping the political arena: critical junctures, the labor movement, and regime dynamics in Latin America* (Princeton: Princeton University Press) Contemporary Sociology (https://doi.org/10.2307/2075739)
Council of the European Union 2009 Presidency conclusions. URL https://consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/ec/110889.pdf (accessed 7.8.19)
Courakis A S, Moura-Roque F and Tridimas G 1993 Public expenditure growth in Greece and Portugal: Wagner's law and beyond *Applied Economics* **25** 125–34
Crampes C and von der Fehr N 2018 Decentralised Cross-Border Interconnection *CREE Working Paper Series* **11** 1–22
Cunha J C and Braz C R 2007 Public Expenditure and Fiscal Consolidation in Portugal *OECD Journal on Budgeting* **6** 103–21
David P A 2007 Path dependence: a foundational concept for historical social science *Cliometrica.* **1** 91–114
Del Río P *et al* 2016 Auctions for Renewable Energy Support in Germany: Instruments and Lessons Learnt. AURES 1–25. URL https://researchgate.net/publication/333719325_Auctions_for_Renewable_Energy_Support_Lessons_Learned_in_the_AURES_Project (accessed 7.8.19)

Delicado A, Figueiredo E and Silva L 2016 Community perceptions of renewable energies in Portugal: impacts on environment, landscape and local development *Energy Research and Social Science* **13** 84–93
Direção-Geral de Energia e Geologia 2019 Renovaveis. Estatisticas rapidas no 175 maio de 2019 [WWW Document] URL http://dgeg.gov.pt/default.aspx?cn=808587788780AAAAAAAAAAAA (accessed 7.8.19)
Edenhofer O and Stern L N 2009 Towards a global green recovery—recommendations for immediate G20 action URL http://lse.ac.uk/GranthamInstitute/publication/towards-a-global-green-recovery-recommendations-for-immediate-g20-action/ (accessed 7.8.19)
Eichenbaum M, Rebelo S and De Resende C 2016 *The Portuguese Crisis and the IMF, IEO Background paper*
Energias de Portugal 2013 Portuguese government proposes energy sector extraordinary contribution for 2014 [WWW Document] Press Release URL https://edp.pt/en/Investidores/informacaoprivilegiada/2013/Pages/GovernoPortuguespropoecontribuicooextsectorenergetico2014.aspx (accessed 3.7.17)
EU Business 2016 Portugal bows to EU pressure to lower budget deficit [WWW Document] EU Business URL http://eubusiness.com/news-eu/portugal-budget.167s (accessed 3.7.17)
European Commission 2018 *Portugal. Integrated national energy and climate plan 2021-2030* https://ec.europa.eu/energy/sites/ener/files/documents/ec_courtesy_translation_pt_necp.pdf
European Commission 2017 Second report on the state of the energy union URL https://ec.europa.eu/commission/second-report-state-energy-union_en (accessed 7.8.19)
European Commission 2016a *Ex post evaluation of the economic adjustment programme* (https://doi.org/10.2765/755597)
European Commission 2016b Proposal for a directive of the European Parliament and of the Council on the promotion of the use of energy from renewable sources
European Commission 2016c NREAPs and progress reports DATA PORTAL [WWW Document] URL http://iet.jrc.ec.europa.eu/remea/nreaps-and-progress-reports-data-portal
European Commission 2015a Stability and growth pact [WWW Document] URL http://ec.europa.eu/economy_finance/economic_governance/sgp/index_en.htm (accessed 6.6.17)
European Commission 2015b Eurobarometer Special report: climate change 2015 *Physiological Research* **64** 897–905
European Commission 2014 *European economy. The economic adjustment programme for Portugal, 2011–2014.* (https://doi.org/10.2765/85246)
European Commission 2013 *European commission guidance for the design of renewables support schemes*
European Commission 2010 *Europe 2020—Europe's growth strategy* (https://doi.org/10.1016/j.resconrec.2010.03.010)
European Union 2015 Keep on track. Portugal, EU tracking roadmap 2015
Eurostat 2017 Eurostat [WWW Document] URL http://ec.europa.eu/eurostat/de (accessed 9.20.17)
Everett T, Ishawaran L, Ansaloni G P and Rubin A 2010 Economic growth and the environment *Defra Evidence and Analysis* 1–50 Series paper 2
Foxon T J 2013 Responding to the financial crisis: Need for a new economics *Environmental Innovation and Societal Transitions* **6** 126–8
Gouveia J P, Dias L, Martins I and Seixas J 2014 Effects of renewables penetration on the security of Portuguese electricity supply *Appl. Energy* **123** 438–47
Grimaccia E and Rondinella T 2015 *How austerity put a brake on the energy transformation in Italy* ed B Galgoczi (European Trade Union Institute (ETUI)) Europe's energy transition in the austerity trap [WWW Document] URL https://etui.org/content/download/21142/176499/file/15+Europe+energy+transformation+Web+version.pdf
Hall P A and Taylor R 1996 Political science and the three new institutionalisms *Political Studies* **XLIV** 936–57
Herman K 2013 The Green Job Engine in Portugal
IEA 2016 Energy policies of IEA countries Portugal 2016. URL https://webstore.iea.org/energy-policies-of-iea-countries-portugal-2016-review (accessed 7.8.19)
IEA 2015 Energy statistics of OECD countries 2015 (https://doi.org/10.1787/energy_stats_oecd-2015-en)
IEA Wind 2013 2013 annual report. 31 Portugal URL http://repositorio.lneg.pt/bitstream/10400.9/2734/1/IEA-Wind-2013-Portugal.pdf (accessed 7.8.19)
International Energy Agency 2017 Portugal. Renewable energy policies and measures database [WWW Document]. IEA/IRENA Joint Policies and Measures database. URL http://iea.org/policiesandmeasures/renewableenergy/?country=Portugal (accessed 3.7.17)
Kingdon J W 1984 *Agendas, Alternatives, and Public Policies* (Boston/Toronto: Longman)
Leichenko R M, O'Brien K L and Solecki W D 2010 Climate change and the global financial crisis: a case of double exposure *Annals of the Association of American Geographers* **100** 963–72
Linden A J, Kalantzis F, Maincent E and Pienkowski J 2014 Electricity tariff deficit: temporary or permanent problem in the EU? *European Commission Economic Papers* 534, 1–68
Lockwood M, Kuzemko C, Mitchell C and Hoggett R 2017 Historical institutionalism and the politics of sustainable energy transitions: a research agenda *Environment and Planning C: Politics and Space* **35** 312–33
López B E 2015 *Energy Transformation Under the Pressure of Austerity: the Case of Spain* ed B Galgoczi (Brussels: European Trade Union Institute (ETUI)) Europe's energy transition in the austerity trap [WWW Document]. URL https://etui.org/content/download/21142/176499/file/15+Europe+energy+transformation+Web+version.pdf
Peña I, Azevedo I L and Marcelino Ferreira L A F 2017 Lessons from wind policy in Portugal *Energy Policy* **103** 193–202
Pereira J P, Pesquita V, Rodrigues P M M and Rua A 2018 Market integration and the persistence of electricity prices *Empirical Economics* **2018** 1–20
Pereira J P and Rodrigues P M M 2015 The impact of wind generation on the mean and volatility of electricity prices in Portugal *IEEE 2015-Augus* 1–5
Pereira P and Wemans L 2012 Portugal and the Global Financial *Crisis—short-sighted politics, deteriorating public finances and the bailout imperative Lisbon School of Economics and Management Working Papers* 1–30
Peters B G, Pierre J and King D S 2005 The politics of path dependency: political conflict in historical institutionalism *The Journal of Politics* **67** 1275–300
Pierson P 2000a Increasing returns, path dependence, and the study of politics *The American Political Science Review* **94** 251–67
Pierson P 2000b The limits of design: explaining institutional origins and change *Governance: An International Journal of Policy and Administration* **13** 475–99
Príncipe C 2013 From mobilisation to resistance: Portugal's struggle against austerity *International Socialism Journal.* **138** http://isj.org.uk/from-mobilisation-to-resistance-portugals-struggle-against-austerity/ (accessed 7.8.19)
Read R 2009 Towards a green philosophy of money *Advances in Ecopolitics* **3** 3–26
Reinhart C M and Rogoff K S 2009 The aftermath of financial crises *NBER Working paper Series*

Skovgaard J 2014 EU climate policy after the crisis *Environmental Politics* **23** 1–17
Slominski P 2016 Energy and climate policy: does the competitiveness narrative prevail in times of crisis? *Journal of European Integration* **38** 343–57
Stefanini S 2016 Portugal's clean-power problem [WWW Document]. Politico. URL http://politico.eu/article/portugal-looks-to-free-its-stranded-renewables-wind-solar-energy-subsidies-european-union/ (accessed 3.7.17)
Stefes C H 2010 Bypassing Germany's Reformstau: the remarkable rise of renewable energy *German Politics* **19** 148–63
Tienhaara K 2010 A tale of two crises: What the global financial crisis means for the global environmental crisis *Environmental Policy and Governance* **20** 197–208
UNEP 2009 Rethinking the Economic Recovery: a Global Green New Deal. URL http://wedocs.unep.org/handle/20.500.11822/7727 (accessed 7.8.19)
Von Hagen J and Strauch R R 2001 Fiscal consolidations: quality, economic conditions, and success *Public Choice* **109** 327–46
World Bank 2017 World Data Bank [WWW Document]. URL http://databank.worldbank.org/data/home.aspx (accessed 6.6.17)