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EU regulation of electricity

Uniform, differentiated and
experimentalist approaches

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ACES Policy Briefs offer summaries of particular issues facing Europe and the European Union and options how to address them, based on academic research.

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Key Policy Insights

Based on the findings, this brief suggests the following Key Policy Insights:

Key Policy Insight #1

Experimentalism is necessary to arrive at effective and acceptable uniform rules in highly diverse settings like the EU

Coordinated experimentation and rule development through review of alternative implementation approaches appears to be a condition for arriving at the effective uniform regulation that is demanded in highly interdependent policy fields - such as the internal market and large technical infrastructure sectors like electricity, while at the same time ensuring that such uniform regulation is acceptable to diverse member states - as typical in a heterogeneous setting like the EU.

[Go to insight #1](#)

Key Policy Insight #2

It is crucial to explicitly recognise and monitor the diversity that persists even after the adoption of largely uniform rules

No matter how detailed uniform rules might be, they always leave some space for discretion. It is crucial that the diversity remaining after rule development is acknowledged and reviewed, so that experiences of implementation with such persistent diversity can aid subsequent rule revision.

[Go to insight #2](#)

Key Policy Insight #3

In regional security coordination and especially promotion of renewables, experimentalism could and should be leveraged further

In few important issues - regional security coordination and especially renewables promotion - the existing diversity within the EU appears underexploited. This could and should be leveraged more, so that good practices can be identified and diffused among participating actors.

[Go to insight #3](#)

Introduction

Electricity's influence on other sectors (such as transport, electronic communications, and manufacturing) make it an especially important policy domain, and indeed one that underpins our daily lives, both professionally and privately. But how has electricity been regulated throughout the European Union (EU) over the past two decades?

The need to keep electricity demand and supply in balance at all times (due to the currently very limited storage possibilities), the fact that electricity follows the 'law of physics' rather than political boundaries, and the risk of negative externalities and cascading effects make this an especially interdependent sector. Such interdependence has only grown over time, as European markets have become more interconnected and unscheduled flows of electricity from renewable sources have increased. If the familiar need to avoid regulatory arbitrage and foster a 'level playing field' in the European internal market already calls for uniform rules across countries, electricity's high interdependencies makes such a call particularly strong.

Yet electricity is no exception to the diversity of preferences, institutional structures, resources and socio-economic conditions at the heart of Europe. The most prominent approach to accommodating diversity in the EU is 'differentiated integration', which allows some member states to

'opt out' while others 'opt in' so that they can proceed toward further integration. The creation of a single currency (the euro) and the transfer of exclusive competences on monetary policy to the European Central Bank, and the Schengen borderless area are major examples.¹

An alternative approach to managing diversity is offered by 'experimentalist governance', which gives member states discretion to pursue a variety of solutions adapted to their local circumstances, but in return requires them to report regularly on their implementation experiences, which might in turn lead to revisions in the overarching rules and procedures.

An illustration is offered by the EU Water Framework Directive which, through its Common Implementation Strategy, is explicitly intended to be revisable in the light of national implementation experiences.²

This brief draws out broader insights for EU policy making by using the three approaches just

outlined – uniform, differentiated and experimentalist – to analyse key issues in electricity regulation: cross-border tariffication, cross-border network access, regional security coordination, detection and deterrence of insider trading and market manipulation, monitoring and amendment of 'network codes' (i.e., the binding rules governing cross-border electricity exchanges since 2009), and promotion of renewable energy.

1 Leuffen D, Rittberger B, Schimmelfennig F (2013) *Differentiated Integration: Explaining Variation in the European Union*. Palgrave Macmillan, Basingstoke.

2 Sabel CF, Zeitlin J (2012) *Experimentalist Governance*. In: Levi-Faur D (ed) *The Oxford Handbook of Governance*, pp. 169–183. Oxford University Press, Oxford.

Policy Insight #1

Experimentalism is necessary to arrive at effective and acceptable uniform rules in highly diverse settings like the EU

The findings of the study confirm that high interdependence generates pressure for uniformity.

Although in few cases EU rules leave ample or moderate discretion to national actors (renewables and regional security coordination, respectively), in most of the examined issues and notably those concerning the internal market (cross-border tariffication, cross-border network access, network codes, and market integrity and transparency) EU rules exhibit remarkable - and progressively growing - uniformity. By contrast, in policy domains characterised by high interdependencies, the disadvantages of differentiated integration outweigh its advantages, judging from the choices of the relevant actors, who have decided not to use this approach in any of the cases examined.

Yet when confronted with highly interdependent policies, member states do not 'naturally' cease to have different preferences, traditions or resources. That is to say, the need to respond to diversity remains.

Again judging by actors' own choices, experimentalist governance appears as a very effective

and legitimate method of policy development and refinement that can 'square the circle'. In most of the issues analysed (cross-border tariffication, cross-border network access, network codes, and market integrity and transparency), policy actors engaged in coordinated experimentation and rule development through review of alternative implementation approaches.

Cross-border tariffication

For example, EU regulation of cross-border tariffication is uniform, in that formal EU rules establish a common mechanism for the compensation of Transmission System Operators (TSOs) for the costs of hosting cross-border flows of electricity in which every member state must participate (Commission Regulation (EU) No 838/2010). But these uniform rules themselves were largely developed through experimentalist processes. The use of a multi-stakeholder forum (known as 'Florence Electricity Forum', FEF),

in particular, facilitated debate and comparison of different views and experiences among several public authorities and market participants from the late 1990s to the early 2000s. This first produced agreement on the need to compensate TSOs for the costs incurred in hosting on their networks cross-border electricity flows which were gradually increasing as a result of market liberalisation and integration, and then consensus on an Inter-TSO Compensation (ITC) mechanism.³

Cross-border network access

Similarly, EU regulation of cross-border network access has been characterised by a succession of uniform rules, which have become increasingly detailed over time. In 2003, EU legislation mandated that network access be managed through market-based auctions (Regulation (EC) No 1228/2003). As in the case of tariffication, these uniform rules on cross-border network access were likewise developed through experimentalist pro-

3 FEF (Florence Electricity Forum) (2002) Conclusions.

cesses. Through deliberation and comparisons in the FEF during the late 1990s, and by referring explicitly to the pioneering auctions being set up at the Spanish-French border, a wide variety of public authorities and regulated players came to voluntarily agree that network access should be managed through market-based auctions,⁴ as opposed to the

dominant ‘administered’ methods such as ‘pro-rata’, ‘first-come-first-served’, and long-term contracts, all of which hindered market entry and favored incumbent firms.

In both cases, it was only after these experimentalist processes had aided the identification and agreement on uniform solutions that EU legislation made them

binding. The analysis thus shows that experimentalism is actually a necessary condition for developing rules which are at once effective in providing the uniformity needed in highly interdependent policy fields and acceptable to diverse member states in a heterogeneous polity like the EU.

Policy Insight #2

It is crucial to explicitly recognise and monitor the diversity that persists even after the adoption of largely uniform rules

The study also reveals that no matter how uniform EU rules might be, they always leave some space for diversity.

In some instances, the possibility for multiple options is codified: for example, in calculating the network capacity available for cross-border exchanges, Transmission System Operators (TSOs) can choose between a ‘default’ and an alternative methodology (Commission Regulation (EU) 2015/1222). In others instances, the room for discretion, even though not codified, remains present at a level of granularity below the harmonised one: thus as we have seen, for allocating transport capacity the first electricity Regulation imposed the use of market-based

auctions rather than administered methods such as pro-rata and first come, first served, but in doing so, it left the door open to a variety of market-based auctions (Regulation (EC) No 1228/2003).

These cases suggest that the persistence of diversity – whether codified or not – is the result of the impossibility and undesirability of fully specifying rules for complex systems, as well as helping to explain why policy actors may be willing to accept uniform higher-level rules, as discussed in Policy Insight #1.

What is crucial from an experi-

mental governance perspective is that this remaining diversity, whether codified or not, is explicitly acknowledged, so that institutional arrangements can be put in place to regularly monitor and review implementation experiences with the continuing micro-alternatives within largely uniform EU rules, aiding rapid and frequent revision of these rules on that basis.

Indeed, although in a few issues experimentalist processes could be leveraged further (as discussed in Policy Insight #3), in most of the issues analysed (cross-border tariffication, cross-border net-

4 FEF (2000) Conclusions.

work access, network codes, and market integrity and transparency) policy actors made provisions to monitor and learn from the remaining lower-level national diversity, in order to review and revise higher-level EU rules as deemed appropriate.

As for example in the domain of financial regulation, where there are strong reasons to have

rules that at any given moment are largely uniform, but equally strong reasons for such rules to be adaptable in the light of problems and possibilities as they emerge,⁵ also in electricity regulation experimentalism appears able to reconcile higher-level rules that are progressively specified and discretion for lower-level actors that is gradually

reduced with revisions over time based on review of implementation experiences. But in order for this learning machine to work, the diversity of implementation experiences that persists even under very detailed uniform rules must not be neglected, but rather acknowledged and monitored, so that it can be fruitfully employed as a useful resource.

Policy Insight #3

In regional security coordination and especially promotion of renewables, experimentalism could and should be leveraged further

In few policy issues, finally, experimentalism could be exploited more extensively. A first such issue is regional security coordination.

Under conditions of uncertainty, where neither public authorities nor regulated firms know what needs to be done, it is considered important to establish incident or event reporting procedures, in order to: ‘register failures in products or production processes that could be precursors to catastrophe; identify and correct their root causes; alert others in similar situations; ensure that countermeasures to ensure the safety of current operations are taken and require-

ments for the next generation of the implicated components or installations are updated accordingly’.⁶

Regional security coordination

To be sure, Regional Security Centers (RSC) must prepare an annual report and submit it to the European Network of TSOs for Electricity (ENTSO-E), providing information notably on ‘the number of events, average duration and reasons for the failure to fulfil its functions; statistics

regarding constraints, including their duration, location and number of occurrences together with the associated remedial actions activated and their cost; number of instances where TSOs refuse to implement the remedial actions recommended by the regional security coordinator and the reasons thereof’ (Commission Regulation (EU) 2017/1485, art.17.2). Regional Coordination Centers, in which RSCs will evolve in 2022, are embedded with similar exper-

5 Zeitlin J (2016) EU Experimentalist Governance in Times of Crisis. *West European Politics* 39(5), 1073–1094.

6 Sabel CF, Herrigel G, Kristensen PH (2018) Regulation under Uncertainty: The Co-Evolution of Industry and Regulation. *Regulation & Governance* 12(3), 371–394, see p.372.

imentalist provisions on regular reporting on implementation practices, so that lessons can be identified and spread across the participating actors.

Yet the incident reporting system could be developed further, to take place in real time rather than via periodic reporting. European policy makers could learn from US nuclear power safety regulation, where plants are required to report all potentially dangerous significant operating events (ranging from interruptions in electricity production to unexpected equipment deterioration) to the Nuclear Regulatory Commission, which evaluates the reports and notifies all operators of possible hazards, so that a notice by one actor alerts all the other actors to inspect the same issue. This system is then integrated by peer reviews evaluating actors' responses to such notices and annual rankings showing the performance of the power plants.⁷

Renewables promotion

But the issue where experimentalism seems currently to present most unexploited potential is the promotion of renewables. This appears as a paradox, since while strong member state resistance has hindered the transfer of competences to the EU level, unlike in the internal market issues, there does not seem to be much experimentalist learn-

ing from diverse national experiences.

The arrangements set up by the latest EU rules (part of the 'Clean Energy Package' adopted in 2018) do not seem geared toward comparison and deliberation over different implementation experiences by member states and possible revisions on that basis. Instead, they seem to reflect an 'aspirational hierarchy', understood as an ambition to hierarchical authority which, however, is not fully realised.

To be sure, this does not mean that the existing arrangements could not be used – or revised – more experimentally. But the fact that the European Commission currently sees the comparability provided by the latest EU rules as 'a way to put peer pressure' on member states, the more general focus of the new institutional arrangements on compliance, and the attention focused by observers on questions of hard vs. soft governance⁸ suggest that, at least for the moment, the experimentalist potential offered by diverse implementation experiences with renewables does not appear to be fully exploited.

And yet it is precisely the wide variety of energy resources and policy choices, combined with the uneven progress by member states in introducing renewables (e.g. Denmark vs. Netherlands),

that makes the learning potential *prima facie* so great. Despite the abundance of EU-funded research on renewables however, evidence of policy learning from the bottom up appears at best unclear.

Besides sovereignty and industrial policy considerations, part of the explanation might be that climate change mitigation – having come to be defined as a matter of 'high politics' – is currently intractable, and the multifaceted nature of the problem coupled with virtually limitless but highly interdependent solutions hinder basic agreement on cause-effect relationships and desirable strategies at the EU level. Here too, however, recent experimentalist governance-inspired research suggests that progress can most effectively be made by breaking down climate change mitigation into smaller and potentially more tractable problems (such as decarbonisation of agriculture) and identifying promising local solutions which can then be generalised and adapted more widely.⁹

7 Sabel CF, Simon WH (2011) Minimalism and Experimentalism in the Administrative State. *The Georgetown Law Journal* 100: 53-93, see pp.84-85.

8 Oberthür S (2019) Hard or Soft Governance? The EU's Climate and Energy Policy Framework for 2030. *Politics and Governance* 7(1): 17-27.

9 Sabel CF, Victor DG (2017) Governing global problems under uncertainty: making bottom-up climate policy work. *Climatic Change* 144: 15-27.

Conclusion

This policy brief has summarised the findings of research conducted on electricity, a sector which affects our daily lives so

much that the only reason why we might not be fully aware of it is because we now take it for granted. Table 1 summarises the

core findings on the nature of rules and the processes for creating and revising them.

Table 1. Rules and processes in EU electricity regulation

| Issue | Rules | Processes |
|------------------------------------|----------------------------------------------------------------------|--------------------------|
| Cross-border network tariffication | High uniformity; No differentiated integration | Much experimentalism |
| Cross-border network access | High – and increasing – uniformity; No differentiated integration | Much experimentalism |
| Regional security coordination | Moderate uniformity; No differentiated integration | Moderate experimentalism |
| Market integrity and transparency | High uniformity; No differentiated integration | Much experimentalism |
| Network codes | High uniformity; No differentiated integration | Much experimentalism |
| Renewable energy | Low uniformity; No differentiated integration | Little experimentalism |

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