To See, or Not to See, That Is the Question: Studying Dutch Experimentalist Energy Transition Governance through an Evolutionary Lens

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Abstract: Experimentalist forms of governance have burgeoned across policy areas and institutional contexts in recent years. Recognizing that experimentalist forms of governance can evolve along a plethora of distinct pathways, this paper inquires how the evolutionary nature of experimentalism can be explored in greater depth. Linking the framework of experimentalist governance to that of Evolutionary Governance Theory (EGT), the paper identifies three driving mechanisms of contingency in experimentalism: governance being (1) self-referential, (2) rooted in observation, and (3) steered by dependencies. The paper then refers to recent efforts in the realm of energy transition governance in the Netherlands to illustrate how these contingency mechanisms can help to interrogate the variegated evolutionary pathways that experimentalist governance may have in practice. Building on this Dutch empirical context, the paper puts forward evolutionary path- and context-mapping as a fruitful tool for identifying and disentangling the myriad of pathways along which experimentalism may manifest itself.

Keywords: experimentalist governance; evolutionary governance; contingency; evolutionary pathways; path- and context-mapping; regional energy transition; The Netherlands

1. Introduction

In recent years, experimentalist forms of governance have burgeoned as a means to enable decision-making under complex conditions. Although experimentalism has clearly gained a growing foothold across policymaking sectors and institutional contexts (see [1] for an overview of recent applications), how it manifests itself in practice is more diffuse. Several studies have namely identified that experimentalist forms of governance can unfold along different pathways, each with their own starting points, causal mechanisms, and levels of operation [1–3]. Some have therefore argued that how experimentalism “will in fact materialize in any given policy domain is ultimately an empirical question” [1] (p. 825; emphasis added).

Recognizing that the proof of the experimentalist pudding is in its eating, this contribution to the special issue explores how governance scholars can engage with experimentalism’s evolutionary character in greater depth. In this paper, we do so by examining experimentalism through an analytical lens attuned specifically to illuminating the evolutionary nature of governance: Evolutionary Governance Theory (EGT). In short, EGT considers governance to be “radically evolutionary” in the sense that decision-making structures never stop evolving [4,5]. According to EGT, systems of governance transform continuously over time and in relation to the context they are situated in. Hence, every governance system is conceived to evolve along an inherently contingent pathway.
In this article, we aim to bring together the evolutionary perspectives on governance that the experimentalist governance framework on the one hand, and EGT on the other, offer. By linking these two lenses theoretically, we shed new light on the mechanisms that may cause forms of experimentalist governance to develop differently in practice. Specifically, we argue that conceiving of experimentalism as a form of governance that is: (1) self-referential in nature, (2) rooted in observation, and (3) steered by dependencies can deepen our understanding of how and why particular evolutionary pathways appear in experimentalist governance, and not others.

Our contribution is principally theoretical in nature. However, to support the theoretical arguments we put forward, we draw on empirical examples from experimentalist energy transition governance efforts in the Netherlands retrieved through desk research and document analysis. We argue that these empirical illustrations—although, by far, not constituting an exhaustive case study of Dutch energy transition governance—demonstrate that “evolutionary path- and context-mapping” can be a fruitful tool to identify and disentangle the evolutionary pathways along which experimentalist governance may manifest itself in practice. In this paper, we list a number of questions that could be engaged with to conduct a broader and more systematic mapping of energy transition governance in the Netherlands—and beyond.

The paper is structured as follows. The next section introduces experimentalist governance in more detail (Section 2.1) and discusses how it is fundamentally contingent (Section 2.2). Section 3 first elaborates on the important role that contingency plays in Evolutionary Governance Theory (Section 3.1), after which three “contingency mechanisms” of experimentalism are explored theoretically. These are: governance being self-referential (Section 3.2), rooted in observation (Section 3.3), and steered by dependencies (Section 3.4). Section 4.1 briefly introduces recent experimentalist governance efforts for the energy transition in the Netherlands. The three sections thereafter (Sections 4.2–4.4) empirically illustrate the three contingency mechanisms identified in Sections 3.2–3.4, respectively. We reflect on our theoretical analysis and empirical illustrations in Section 5, before making concluding remarks in Section 6.

2. Experimentalist Governance: An Introduction

2.1. Experimentalism as a Response to Wicked Governance Issues

Charles Sabel and Jonathan Zeitlin originally introduced the concept of experimentalism in relation to policymaking practices at the level of the European Union. They characterized experimentalist governance as a form of coordination through which parties operating at different levels of government incrementally improve their understanding of governance problems and potential solutions [6–8]. In general, experimentalism revolves around constructing iterative and adaptive processes of decision-making, aimed at strengthening networks, trust, and learning amongst stakeholders [9] (p. 278). More specifically, De Búrca, Keohane, and Sabel [10] (p. 477) define experimentalist governance as “an institutionalized process of participatory and multilevel collective problem solving, in which the problems (and the means of addressing them) are framed in an open-ended way, and subjected to periodic revision by various forms of peer review in the light of locally generated knowledge”.

In general, four steps of deliberation are key to developing experimentalist governance structures [1–3,6–8,10–12]. First, relevant stakeholders in government and civil society jointly reflect on a governance issue to formulate broad and open-ended goals in relation to the issue at hand. Secondly, these broad framework goals are implemented across different contexts by “lower-level” bodies. These bodies have been given substantial discretion and are expected to draw on their knowledge of local conditions. Examples of such implementing bodies are provincial, regional, and municipal authorities or, if applied to single organizations, given departments or working groups. Thirdly, these lower-level bodies are asked to systematically report their actions to higher-level authorities and compare their respective progress and approach to those of other implementers. In doing
so, stakeholders across various local contexts engage in consecutive rounds of “peer review” and monitoring. As the fourth and last step in experimentalist governance, the peer review and monitoring outcomes are evaluated by all stakeholders. The framework goals set and implementation practices used are revised accordingly.

Over time, these four steps are reiterated, giving rise to “a recursive process of framework rulemaking and revision across levels and sectors” in a certain governance domain [13] (p. 272). Organizing governance in this way has numerous benefits. Put briefly, it allows stakeholders to: (1) adapt general policies to local conditions [3,10]; (2) recognize failures and adjust decisions or approaches during implementation [3]; (3) learn from experiences in other locales [3]; and (4) hold each other accountable in dynamic ways, enabling more effective implementation of measures [1]. The experimentalist governance practice thus builds on the idea that systematic, recursive comparison of decentralized approaches to implementing broad framework goals can, on the one hand, facilitate coordinated “learning-by-doing” for stakeholders and, on the other, enable differentiated, place-specific policymaking.

Because of these ascribed favorable features, experimentalism is considered well-suited for structuring decision-making in environments that are dynamic and diverse, complex and uncertain. Some scholars therefore see experimentalist governance as “a normatively desirable form of deliberative and participatory problem solving” [10] (p. 478). Unsurprisingly, experimentalist governance systems have proliferated with regard to “wicked problems” [14], such as data privacy and financial market regulation, human rights and justice, and energy and environmental protection (see [1] for a detailed overview). Each of these fields tends to be confronted with “interconnected subsets of problems that cut across multiple policy domains and levels of government” [15] (p. 336), as well as a need to work with fragmented and incomplete factual knowledge [16].

2.2. Experimentalism and Its Contingent Evolution

Whereas several scholars have indeed identified the aforementioned features of experimentalist governance in different policy contexts, a growing body of literature also highlights that these beneficial outcomes may not necessarily be reaped. This literature engages critically with, for example, the capacity of experimentalist governance structures to facilitate change, learning, and problem solving. To start with, stakeholders may at times indeed be able to adapt their policies to local conditions or to adjust their implementation approaches in response to critical review, but such changes to governance systems are not self-evident. Examples of how past legacies inhibit prompt alterations to patterns of decision-making are rife across the scholarly literature in planning (see, e.g., [17]), public administration and political studies (for a review, see, e.g., [18]), and management and strategy studies (see, e.g., [19]), as is critique on the supposed malleability of planning in high modernism (see, e.g., [20]).

Additionally, even though stakeholders may sometimes be able to distill lessons from other contexts and translate them to their own in meaningful ways, learning cannot be assumed a “given” in experimentalist arrangements due to inherent limits to rationality and reflexivity in governance [21,22]. More specifically, scholars have critiqued the literature on experimentalism for its limited account of how learning takes place under different contextual conditions [23–25]. On top of this, local implementers may not always have sufficient room, time, and skills for reflecting on and learning from their daily practice [26].

Furthermore, research on, for instance, the EU Water Framework Directive shows that decentralized implementation of governance practices, on the one hand, brings about more region-specific and tailor-made measures for limiting water pollution but, on the other hand, also gives rise to cases of problem avoidance rather than problem solving. In the long run, the experimentalist governance approach adopted in this context has led to less controversial, yet also less far-reaching and less integral policy measures, reducing the Directive’s overall effectiveness to address the issue of water pollution [27–29].
effectiveness issues have been reported regarding regional governance efforts for energy-
neutral housing initiatives in the Netherlands [30].

All in all, these studies demonstrate that experimentalist governance emerges, de-
velops, and generates outcomes in distinct ways, depending on the local conditions in
which it is deployed. They underline that studying how experimentalism materializes is an
empirical question indeed. Whether experimentalist practices and associated propositions,
such as change, learning, and problem solving, manifest themselves—and, if so, how—thus
depends on the contingent, heterogeneous opportunities and constraints of the context in
which experimentalist governance systems evolve.

3. Conceptualizing the Contingency of Experimentalism through an Evolutionary Lens

3.1. EGT and the Relevance of Contingency

Evolutionary Governance Theory (EGT) is well-suited to examine the contingent char-
acter of experimentalism. According to EGT, governance systems constitute co-evolving
configurations of actors and institutions, forms of power and knowledge, and narratives
and observations [4,5]. Over time, actors may, for instance, use certain institutions or
narratives about the past, present, and future to reinforce existing actor–institution con-
figurations, build new ones, or deconstruct those unfavorable. In doing so, these actors
invite particular forms of power, expertise (knowledge), and ways of seeing (observations)
into decision-making—and exclude others. As a result of these co-evolutionary processes,
governance systems transform continuously, in ways that cannot be predicted.

EGT therefore considers contingency “a key aspect of governance evolution, in the
sense that the next step in the evolution of a governance system, and hence the result of
many steps, is a possible but not necessary outcome” [31] (p. 3). This implies that nothing
can be taken for granted or assumed a priori in governance:
The recognition of contingency is not a trivial matter, as it points out that, neither in the
effects of problems, nor in the search for governance solutions, one can expect enough
similarity of conditions to allow for one size fits all analyses. [31] (p. 3)

Against this backdrop, EGT scholars stress that “what needs to be assessed is the
capacity of a governance system to strategize in a particular environment” [32] (p. 18;
emphasis in original). This means that how experimentalist governance systems appear
and develop should always be related to the contexts they are located in. An evolutionary
lens on governance therefore zooms in on the mechanisms through which experimentalist
governance systems co-evolve with their contexts and, thus, introduce contingency in
experimentalism (see Figure 1).

Figure 1. Seen through an evolutionary lens, experimentalism is inherently contingent; since experi-
mentalist governance systems co-evolve with their context in unique ways, the next steps in their
 evolution are always a possible, yet not necessary, outcome.

Three such “contingency mechanisms” come to the fore in an evolutionary reading of
experimentalism: understanding governance as (1) self-referential in nature; (2) rooted in
observation; and (3) steered by dependencies. These mechanisms are further unpacked in
the following three sub-sections.

3.2. Contingency Mechanism 1: Experimentalist Governance as Self-Referential

Adopting an evolutionary perspective on experimentalist governance first and fore-
most entails acknowledging how governance “does not occur in a void, never starts with a
tabula rasa” [4] (p. 28). Instead, governance is self-referential in nature; it is “always, in one
way or another, connected to the past, the future and the environment” [4] (p. 30). This is because, in evolutionary terms, governance systems are “operationally closed”, a notion derived from Niklas Luhmann’s theory of social systems. It denotes that every governance system can only refer to its own previous operations when considering a future operation, thereby, in fact, reproducing those operations in the present [33,34].

Since the primary operation driving governance is “the taking of collectively binding decisions” [4] (p. 339), governance systems being operationally closed implies that them taking decisions now inevitably leads them to take more decisions in the future. Governance will thus, in and of itself, lead to more governance; it reproduces itself through new forms of decision-making. In light of this, an evolutionary reading of experimentalism stresses how decisions resulting from experimentalist governance operations—characterized by the four iterative steps discussed in Section 2.1—reproduce themselves too. Experimentalist governance will thus likely bring about other, additional forms of experimentalist governance. This self-referential tendency of experimentalism is illustrated empirically in Section 4.2.

3.3. Contingency Mechanism 2: Experimentalist Governance as Rooted in Observation

A second insight that adopting an evolutionary lens on experimentalism yields is acknowledging how experimentalist governance is “always rooted in observation” [35] (p. 700). This means that how contextual developments may influence an experimentalist governance system cannot be known beforehand, but rather “has to come from observation in the governance [system] of influences from outside” [36] (p. 9; emphasis added).

In evolutionary terms, an experimentalist governance system acts as an “observer” of both itself and its context: from its context, the system actively selects what it considers important (or not) for its functioning—as well as in what kinds of situations [37] (p. 112). Key here is that only those developments that are observed as relevant by the experimentalist governance system itself can be of influence on its functioning. In practice, this implies that the governance context at hand cannot directly exert pressure on the functioning of an experimentalist governance system; it can only do so indirectly. Experimentalist governance systems are, in this regard, fundamentally self-steering. Once they have observed developments in their context, governance systems will first have to “translate” the potential effects that those developments may have for their functioning (Luhmann calls these “irritations” or “noise”) to their own, system-specific operational terms before they can act on them [38]. Whether and how they translate this noise depends on these systems’ logics of observation (see Figure 2).

![Figure 2](image-url) Experimentalist governance systems observe both themselves and their context in their own, system-specific ways: their observational logics.

The observational qualities of experimentalist governance systems therefore determine to what extent they are able to respond to contextual noise and, thus, what the outcomes of experimentalist governance will be. Experimentalist governance arrangements may not always be able to align irritations with their unique ways of seeing—or observational logics. When governance systems indeed fail to translate contextual noise to processable information, their functioning will not change substantially. However, when experimentalist governance systems do manage to translate noise from their context to relevant information, they may be able to alter the logics based on which they make decisions, aligning...
their ways of seeing more neatly with the new information observed. In such cases, the future governance operations of these systems will change and, hence, generate alternative outcomes. These observational dynamics are illustrated empirically in Section 4.3.

3.4. Contingency Mechanism 3: Experimentalist Governance as Steered by Dependencies

Besides acknowledging how experimentalist governance systems are self-referential and rooted in observation, an evolutionary perspective on experimentalism also advocates for studying governance dependencies. Dependencies are defined as “the mechanisms and processes that influence the reproduction of governance” [4] (p. 28). Dependencies in an experimentalist governance system’s context can exert influence on the future development of that system, “pushing” it one way or another.

Well-known examples of dependencies are path dependencies (1), which constitute organizational and cognitive legacies inherited from the past. Other types of dependencies are (2) current relations between actors and institutional frameworks, forms of power and knowledge generation in governance systems (interdependencies); (3) narratives and ideas that governance actors hold about the future (goal dependencies); and (4) existing material infrastructures in environments or landscapes (material dependencies) [4,31,36]. These different types of dependencies “all play out at the same time and influence each other” [31] (p. 4).

Hence, scrutinizing what sets of dependencies (path, inter-, goal, material) are present in an experimentalist governance context, and how they interact to “exert pressure in a particular direction” on a governance system [36] (p. 8), can help to reflect on the evolutionary pathways of experimentalist governance. The nature and quality of their observational apparatus determines to what extent experimentalist governance systems are able to, first, observe and, second, respond to pressures exerted by dependencies in their context. This is illustrated in Figure 3 and supported empirically in Section 4.4.

Figure 3. Whether experimentalist governance systems are able to observe and respond to influences of path, inter-, goal, or material dependencies in their context relies on their observational logics.

4. Studying the Contingency of Experimentalism through an Evolutionary Lens

4.1. Dutch Energy Transition Governance as a Case of Experimentalism

In November 2019, the Dutch government signed a National Climate Agreement (Nationaal Klimaatakkoord), committing itself to curb greenhouse gas emissions by 49% by 2030 and 95% by 2050 [39]. In order to achieve these goals, the climate agreement stipulates that a transition away from fossil-fuel based forms of electricity generation towards more renewable forms is required. The agreement introduces a new spatial planning instrument for organizing this transition, and in which participatory, multilevel problem solving plays a key role: the so-called “Regional Energy Strategy” (Regionale Energiestrategieën, RES). As part of this instrument, thirty “energy regions” were created [40] (see Figure 4). These regions are new governance systems comprising a given number of municipalities, a provincial government, and one or more regional water authorities.
The Dutch energy regions differ substantially in terms of their size, expertise, and character, which likely means that they will face different types of challenges when it comes to energy-related decision-making. First, regarding size, it is striking that the largest regions consist of over 25 municipalities (e.g., Metropoolregio Eindhoven, Rotterdam-Den Haag), whereas the smallest regions count only one or two municipal governments (e.g., Goeree-Overflakkee, Hoeksche Waard). Second, municipalities in regions such as Drente, Flevoland, and Friesland have ample expertise with realizing renewable forms of energy, notably on-land wind and solar parks; others lack such expertise entirely. Third, the regions are different in character. Some energy regions overlap (partly) with pre-existing regional governance systems relevant to RES-related governance, such as provinces (Drente, Flevoland, Friesland, Groningen, Zeeland) or environmental service providers (e.g., Regionale omgevingsdiensten), whereas such overlaps are missing in others. Furthermore, whereas some regions are mainly urban and, hence, consume a substantial amount of electricity, others are more rural and have a considerably lower demand for electricity.

Despite these regional differences, all energy regions have been requested to develop two-yearly plans for spatially allocating on-land renewable electricity generation capacity (e.g., wind turbines or solar fields), with the first plans (RES 1.0) due mid-2021. Although quantitative and qualitative guidelines for this planning process were provided to the energy regions by the government-initiated platform organization National Program Regional Energy Strategies (NP RES) [42], energy regions have been given considerable freedom to develop a RES that best suits their conditions and preferences [43] (p. 11). This regional freedom is, for example, illustrated by the diverging regional “bids” presented in the RES 1.0 documents: the region of Flevoland is planning to install as much as 5.8 TerraWatt hours (TWh) of renewable electricity generation capacity by 2030, whereas its neighboring region Noord-Veluwe is planning only 0.5 TWh [44].

Energy regions are asked to report to NP RES on a regular basis. NP RES and the Netherlands Environmental Assessment Agency (PBL) use this information to conduct cross-regional analyses of strategies adopted, progress made, and challenges faced. Based on their reviews, NP RES and PBL advise energy regions how they could improve their regional energy strategies. NP RES has also used these insights to revise the framework goals according to which the next version of the RES (RES 2.0) should be drafted by 2023 [45].

Figure 4. The thirty energy regions in the Netherlands that draft Regional Energy Strategies (RES) (image adapted and translated from [41]).
All in all, recent decision-making efforts regarding the energy transition in the Netherlands follow the four experimentalist “steps” discussed in Section 2.1 to a large extent. In short, broad framework goals for energy transition governance—as formulated by the Dutch national government—are implemented by lower-level bodies (energy regions) in reiterative rounds of comparative review, monitoring, and revision. The RES governance structure can thus be seen as a clear example of experimentalist governance.

The following three sections (Sections 4.2–4.4) apply the three contingency mechanisms in experimentalism discussed in Sections 3.2–3.4 to Dutch energy transition governance efforts in general and, in particular, the Regional Energy Strategies (RES) spatial planning instrument. These empirical applications are not meant as exhaustive case studies by themselves; they rather serve to illustrate the theoretical discussions engaged in previously. By linking theoretical insights to empirical observations, we hope to demonstrate that adopting an evolutionary lens on governance can help to map and understand the variety of contingent, evolutionary pathways observed in experimentalist governance.

4.2. Contingency Mechanism 1: The RES and Its Self-Referentiality

Seen through an evolutionary lens, the Dutch approach to organizing the energy transition is characterized by self-referential governance processes to a large extent. A first example of this is that the RES planning instrument as introduced in 2019 is the result of upscaling a small-scale pilot project with regional energy strategies. In this “Deal Pilots RES”, municipalities, provinces, water authorities, companies, and societal partners worked together between 2016 and 2017 to formulate an energy strategy for the regions Drechtsteden, Frysln, Hart van Brabant, Midden-Holland, and West-Brabant. In doing so, they were supported by the associations of Dutch municipalities (VNG), provinces (IPO), and water authorities (UvW), as well as by the Ministries of the Interior (BZK), Economic Affairs (EZ), and Infrastructure and Environment (I&M).

An evaluation report published in October 2017 highlights how “the experiences in the pilot regions that started working on an energy strategy underline the advantages of the [regional] scale” for organizing the energy transition in an iterative and adaptive manner [46] (p. 46; authors’ translation). Building on these observations, the report recommends the Dutch government to transform the pilot into a nation-wide program for regional energy strategies [46] (p. 49). Such a national program should enable regions to exchange knowledge and experiences more structurally and thereby enhance their strategizing procedures. This has indeed become one of the main goals of the National Program Regional Energy Strategies (NP RES) founded by the Ministries of BZK, EZ, and I&M, the VNG, IPO, and UvW in 2019 [42].

Through establishing the nation-wide RES program, the experimentalist operations that the RES pilot was based upon have become reproduced in and extended to a range of new, related systems of experimentalist governance, both at the level of NP RES and across energy regions. For example, founding a platform organization, such as NP RES, that is responsible for organizing learning and monitoring in the Dutch energy transition also requires making decisions on how to actually achieve those goals. This need has led to a variety of new governance systems related to learning and monitoring that take collectively binding decisions in an adaptive, iterative manner and, thus, engage in experimentalist governance themselves too. NP RES has, for instance, hired permanent project managers to address recurring thematic issues, such as societal participation and system efficiency [47]; initiated new working groups to advise on, e.g., the opportunities and challenges offered by the RES [48]; and designed several new communities to facilitate learning across actors and regional contexts [49,50].

The self-referential experimentalist governance dynamics as perceived in the NP RES organization are also visible across the newly formed energy regions. New governance arenas have been created at the political and administrative levels of energy regions, such as RES steering groups and thematic working groups, to tailor collective decision-making to regional conditions, needs, and wishes—which themselves change with time too. In
response to these new experimentalist governance systems, many energy regions have also established “program teams” that operate more strategically: they link unfolding decision-making efforts in region-specific thematic working groups with those at the political level (see, e.g., [51]). Similarly, provinces have initiated cross-regional initiatives to harmonize continuously evolving governance efforts in the energy regions they participate in, such as through “provincial steering group” meetings in North-Brabant [52] or provincial guidelines for RES participation in South-Holland [53,54].

What is more, implementing their first regional energy strategies produced (RES 1.0) and revising their RES in years to come (RES 2.0, RES 3.0, etc.) may require energy regions to set up new, or reshuffle existing, experimentalist governance systems yet again. Determining how to decide on reforming collective decision-making may itself prove to be a challenging task; the Metropolitan Region of Eindhoven has, for instance, convened a separate working group on exactly this issue between January and July 2021, as a means to collect input for (re)designing its plans for RES implementation and consecutive rounds of RES strategy-making [55] (pp. 56–61).

All in all, these examples demonstrate how Dutch experimentalist RES governance can indeed be seen as self-referential: new systems of experimentalist governance are produced continuously in response to the needs for additional or revised decision-making invoked by previous systems of experimentalist governance, thereby, in fact, reproducing themselves invariably. Even though the upscaling of the RES pilot may seem insignificant in itself, an evolutionary reading emphasizes how this step in the evolution of energy transition governance has triggered—and still continues to do so—a cascade of additional needs for decision-making forms that can be adapted to transforming circumstances.

4.3. Contingency Mechanism 2: The RES and Its Observational Logics

Following Luhmann’s interpretation of systems, the Dutch approach to energy transition governance requires two types of “function systems” to communicate with each other: the spatial planning system on the one hand, and the energy system on the other. Both function systems have a distinct observational logic based on which they select what information from their context is relevant to respond to (see Figure 5). The planning system predominantly functions according to political-administrative and jurisdictional logics, imbued in communications such as spatial planning strategies at the national, provincial, or local levels of government (the National, Provincial, and Municipal Environmental visions–Omgevingsvisies: NOVI, POVI, GOVI), as well as permit approvals. The energy system mainly pertains to the logics of optimization and efficiency, communicating through grid infrastructure impact analyses and projections for material investment costs.

![Figure 5](image_url). The RES instrument triggers the Dutch planning and energy systems to observe and respond to each other through their own, system-specific logics.

Successfully calibrating these two orientations at decision-making, as is attempted through the RES instrument, is not a given. The extent to which the planning system generates “irritations” that are, first, observed and, second, acted upon by the energy system depends on the latter system’s observational apparatus. Vice versa, the observational
mechanisms of the planning system determine to what degree spatial planning operations can be influenced by the energy system. How these complex observational dynamics play out over time has a major impact on RES-related decision-making and, thus, on the outcomes of the energy transition in individual regions and in the Netherlands as a whole.

The fact that distribution system operators (DSOs) have been invited to RES steering group gatherings in all thirty energy regions on a structural basis shows that both the planning and energy systems consider it relevant to coordinate their decision-making efforts regarding the energy transition. Yet, recent calls made by the association of Dutch DSOs (Netbeheer Nederland) to work towards more “integral” decision-making on grid infrastructure planning [56] reveal how challenging it is for the planning and energy system to translate each other’s “noise” to input they can use to reflect on and alter their respective operations. The calls for a better integration of the energy system within the RES by Netbeheer Nederland can at least be seen as an effort to induce the planning and energy systems to examine their current RES-related operations critically and revise their future operations accordingly.

4.4. Contingency Mechanism 3: The RES and Its Dependencies

4.4.1. Path Dependencies in the RES

Energy transition governance across Dutch energy regions is shaped by path dependencies to a large extent. The unique regional histories of governance seem to find their way into RES-related governance, yielding idiosyncratic regional evolutionary pathways. This is illustrated particularly well by governance efforts in the five regions participating in the Deal Pilots RES program in 2016 and 2017 (Drechtsteden, Frysln, Hart van Brabant, Midden-Holland, West-Brabant). These pilot regions refer to outcomes of the pilot program in formulating their new regional energy strategies for the nation-wide program (RES 1.0). Clear examples of how governance legacies from the past can restrict subsequent evolutions of governance systems are found in regional “starting documents” (startnotities), in which energy regions outline the principles based on which they formulate their RES 1.0. The following excerpt from Hart van Brabant’s regional energy and climate strategy showcases how current energy transition governance in the region builds directly on organizational patterns and governance decisions inherited from its past involvement in the Deal Pilots RES program [57] (p. 3; authors’ translation):

A RES 1.0 has already been formulated in the Hart van Brabant region, subtitled ‘Energy neutral in 2050—starting now’. The RES 1.0 was finished towards the end of 2017, after which a regional deal (‘Regiodeal’) was made in March 2018. The REKS that will be formulated in 2019 builds on these documents. The present document therefore constitutes an update based on our previous RES 1.0 experiences.

In a similar vein, Midden-Holland’s current RES-related governance approach has been shaped significantly by preceding governance efforts in the pilot RES program. Six municipalities, three regional water authorities, and the province of Zuid-Holland used the pilot program to develop a regional vision for energy transition governance in Midden-Holland. Between June 2017 and April 2018, this vision was substantiated into a regional covenant, signed by all regional parties except the province of Zuid-Holland. These parties have subsequently used this covenant to create and implement Midden-Holland’s RES 1.0 [58] (pp. 6–7).

4.4.2. Interdependencies in the RES

Besides path dependencies, interdependencies constitute a powerful steering force behind current regional energy transition governance in the Netherlands too. Over time, RES-related governance arenas have not only become populated by political-administrative parties, such as municipalities, provincial governments, and regional water authority boards, but also by a plethora of societal actors. Examples of the latter are DSOs, housing corporations, and local energy cooperatives, as well as representatives of farmers, business
associations, or energy-related industries. As a result, complex and continuously evolving configurations of actors have been formed in energy regions, steering (in)formal decision-making along region-specific pathways. These new webs of relations between actors can be seen as interdependencies because they can both restrict or enable decision-making of certain actors and, thus, shape the next steps of a governance system’s evolution.

The large variety of interdependencies that have emerged across Dutch energy regions are, for instance, reflected in the composition of RES steering groups (RES stuurgroepen), the highest-level decision-making bodies in energy regions. An inventory of these steering group constellations reveals, first, that societal actors from a range of sectors have become embedded formally in Dutch regional energy transition governance and, second, that stark disparities exist across regions. Figure 6a depicts how nature organizations (15 times), housing corporations (14), business associations (14), local energy cooperatives (10), and farmers’ associations (10) are particularly well-represented in regional RES steering groups, and can thus exert influence on decision-making. Figure 6b reports strong differences across energy regions in terms of societal partner presence: they are by far most prominent in steering groups of Achterhoek (15 partners), Foodvalley (11), and Fryslân (11), whereas they are entirely absent from the steering groups of 11 other energy regions. This might imply that societal actors can exert influence on RES-related decision-making at the steering group level more easily in some energy regions than in others.

4.4.3. Goal and Material Dependencies in the RES

The large extent to which RES steering groups are populated by region-specific configurations of societal actors could also be interpreted as an example of a goal dependency. Since garnering support for the regional energy strategies in the public realm (maatschappelijk draagvlak) is one of the main goals of the RES [42,45], all energy regions have attempted to involve local citizens, companies, and other actors in RES-related decision-making. As Figure 6 exhibits, some energy regions have included societal actors in their steering groups to live up to this RES goal, whereas others have chosen not to do so. This indicates how one of the RES framework goals has been interpreted differently across energy regions and, consequently, has steered energy transition governance along different regional trajectories.

At the same time, the emphasis that energy regions placed on generating public support for their RES-related governance has shifted attention away from the more material aspects of governance. A recent evaluation by the Ministry of BZK suggests that “energy system efficiency” remained a relatively unaddressed topic in Dutch energy regions because they prioritized organizing support for their decision-making and did not have to account for the energy infrastructure-related costs of their plans [43] (p. 11). Consequently, the renewable electricity generation capacity that energy regions plan to install is most likely incompatible with regional electricity grids. Hence, without large-scale, timely grid infrastructure investments, it will become very difficult—if not impossible—for some energy regions to realize their RES 1.0 ambitions [59] (p. 3). This example shows how material infrastructures—or their shortcomings—can exert significant pressure on future decision-making, exemplifying the strong material dependencies that Dutch regional energy transition governance is also characterized by.
5. Discussion and Reflections

The empirical examples of Dutch RES governance dynamics discussed previously underscore how different types of dependencies can interact with each other to create new,
or reshape existing, dependencies. Specifically, our empirical analysis demonstrated that certain goal dependencies in energy transition governance (i.e., the focus of energy regions on creating support for RES governance) may generate material dependencies (i.e., lacking electricity grid infrastructure) that, in turn, trigger particular actors to call for revised, more balanced forms of governance (i.e., Dutch DSOs pleading for more “integral” infrastructure planning in the RES). Such calls for reshuffling energy transition governance may, in and of themselves, change the configurations of actors and institutions, forms of power and knowledge, and narratives and observations involved in decision-making, producing new interdependencies. Over time, these interdependencies may yield refined visions for optimal grid infrastructure planning in the RES (i.e., goal dependencies) that can shape future investments and, with that, create new material and path dependencies.

Yet, an evolutionary reading of governance also stresses that how these dependencies will interact to generate outcomes in each energy region in the Netherlands depends on the observational dynamics specific to those regions. Our analysis of RES steering groups reported that actor constellations involved in regional decision-making differ considerably. This also means that different forms of power and knowledge, as well as different types of narratives and observations become engendered in governance across Dutch energy regions. As a result, these regional governance configurations develop their own logics of observation that shape their operations. Seen through an evolutionary lens, these unique “ways of seeing” determine whether the governance actors in the planning system consider contextual developments, such as the call for more integral grid infrastructure planning made by DSOs, relevant enough to respond to, thereby propelling RES-related decision-making along diverse regional pathways.

Answering the “empirical question” of how experimentalism will manifest itself in practice [1] (p. 825) therefore ultimately requires a closer scrutiny of observation in experimentalist governance. This concerns not only questioning the what of experimentalism (its “being”), but also the how and why (its “coming-of-being”). In Luhmann’s terms [60], this means interrogating the “second-order” observations in experimentalism or, put differently, observing how is observed. Through what mechanisms, and based on what rationales, do governance configurations decide to take particular actors and institutions, forms of power and knowledge, and narratives and observations on board in decision-making, whilst dismissing others? To what extent, and under which circumstances, do these observational mechanisms and rationales transform, and what does this imply for the outcomes of governance? How are those outcomes in turn apprehended and responded to by different governance configurations?

By asking such questions systematically, one can reconstruct how experimentalist governance systems co-evolve with their contexts. Through mapping the types of actors and institutions, forms of power and knowledge, and narratives and observational logics present in experimentalist governance arrangements over time, as well as how these governance configurations interact with dependencies in their context, the various pathways along which experimentalism may unfold can be illuminated (see Figure 7). Such evolutionary path- and context-mapping efforts [36,61] provide a richer view of “what works” through what mechanisms and under what conditions in experimentalist governance [62].

More specifically, a thorough understanding of experimentalist governance paths and contexts can make it easier to identify “the possible chain of changes and adaptions that might occur as a consequence of steering attempts” in experimentalist governance arrangements [61] (pp. 366–367). Evolutionary mappings could even contribute to grasping “which self-transformations of governance systems are more likely than others and which governance tools and ideas stand a better chance than others in a particular context” [61] (p. 365). They may, in this regard, also help to uncover to what extent different types of experimentalist governance systems can(not) learn from each other dialectically [63].
6. Concluding Remarks

In this paper, we have engaged with the evolutionary character of experimentalism. By combining insights from experimentalist governance and Evolutionary Governance Theory, we argued that whether experimentalist propositions, such as change, learning, and problem solving, will take effect and, if so, how, relies on the unique interplay between the governance systems and their contexts at hand. In this light, we conceive of experimentalist forms of governance as fundamentally contingent, meaning that the “problem solving” they are ultimately after can indeed be participatory, multilevel, collective, and institutionalized in nature [10] (p. 477), but that they can also not be.

Our theoretical analysis and empirical illustration of energy transition governance in the Netherlands through an evolutionary lens aimed to unpack this contingent aspect of experimentalism. We have shown that the forms of experiment that are imaginable, comprehensible, and implementable in governance, as well as the types of lessons that can be learned from them, are always limited and shaped by the governance paths they evolve along. Paraphrasing Hamlet, “to see, or not to see” how these paths evolve in practice becomes the key question when studying experimentalism. In line with this, we contend that a broader, ongoing reflection is needed on the governance configurations, paths, dependencies, and forms of observation engendered in experimentalism.

Adopting an evolutionary lens can help to map these dynamics more clearly. In fact, this paper’s empirical illustration of Dutch energy transition governance is a preliminary form of such evolutionary mapping. Above all, our mapping shows that the experimentalist approach embraced in the Netherlands is a sign of reflexivity, an awareness of the need to enable more “creative, iterative, and adaptive” forms of decision-making that can be accommodated to the continuously changing and highly complex circumstances that the energy transition poses [42] (p. 74). Furthermore, the evolutionary lens we used to study these emergent experimentalist governance arrangements brings to the fore three lessons about the contingency of experimentalism and the practice of “mapping” governance. These lessons also provide inspiration for future research avenues into energy transition governance—in the Netherlands and beyond.

First, seeing governance as self-referential implies that experimentalist governance systems will inevitably cascade into other, related systems of experimentalist governance.
Evolutionary mappings should therefore contain detailed accounts of the links between governance systems and how their continuous reproduction is justified. Future research avenues related to this may be:

- How does the RES planning instrument reproduce itself in different energy regions? To what extent do patterns of reproduction differ or align across regions, and why?
- To what degree does the RES instrument cast a long shadow? Does its experimentalist character find its way into other types of regional governance fields in the Netherlands and, if so, how and why?

Second, seeing governance as rooted in observation means that the different modes of observation involved in experimentalist governance systems will generate substantially different outcomes, depending on the quality, diversity, and adaptivity of the observational mechanisms in those systems. Evolutionary mappings should thus investigate carefully what observational logics are present in experimentalist governance systems and how they “irritate” each other in order to interpret the results of experimentalism. In line with this, future research could address questions such as:

- What observational logics become apparent across Dutch energy regions, and to what extent do they differ from each other? To what degree do these logics evolve over time and, if so, under what influences?
- How will the observational mechanisms of the Dutch planning and energy systems develop as RES governance processes continue to crystallize? To what extent, and how, will the two systems manage to align their operations in the various energy regions?

Third, seeing governance as steered by path, inter-, goal, and material dependencies entails that contextual conditions can lead to diverging pathways of experimentalist governance structures. Hence, mapping what types of dependencies interact with each other to exert pressure on governance configurations is crucial to grasp how experimentalist forms of governance evolve along particular pathways (and not along others). The following research questions could be asked in relation to this:

- What dependencies are present in individual energy regions, and how do these compare to each other? What factors may explain similarities and differences across regions?
- What dependencies are (not) observed and responded to by governance configurations and, if so, in what ways? What consequences does this have for the energy transition in individual energy regions and for the Netherlands as a whole?

**Author Contributions:** Conceptualization, M.G. (Martijn Gerritsen), H.-J.K., M.G. (Martijn Groenleer) and E.v.d.K.; Funding acquisition, E.v.d.K.; Investigation, M.G. (Martijn Gerritsen); Visualization, M.G. (Martijn Gerritsen); Writing—original draft, M.G. (Martijn Gerritsen); Writing—review and editing, M.G. (Martijn Gerritsen), H.-J.K. and M.G. (Martijn Groenleer). All authors have read and agreed to the published version of the manuscript.

**Funding:** This research was conducted as part of the EXPerimental, gOvernance for the Regional Energy transition (EXPLORE) project (408.ME.19.403), which is funded by the Dutch Research Council (NWO), the National Program for Regional Energy Strategies (NP RES), and the Dutch Provinces of Groningen, North-Brabant, Overijssel, South-Holland, and Zeeland through the Societal aspects of the regional energy transition (MARET) program.

**Acknowledgments:** We thank three anonymous reviewers and the special issue editor for their insightful comments and suggestions regarding our manuscript. We are also grateful to colleagues attending the 2021 Research Day from the Institute of Management Research at Radboud University Nijmegen for their feedback on an earlier version of this paper, in particular Iulian Barba Lata.

**Conflicts of Interest:** The authors declare no conflict of interest. The funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript, or in the decision to publish the results.
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