Part IV
CONCLUSION

Chapter 10: Now what? Results, contributions, limitations

After reporting the results of three original surveys and 20 interviews in five empirical chapters, this study has now reached its conclusion. What are the key take-aways and what are the contributions and access vectors for further literature? This chapter sets out to answer these questions. It summarizes the previously reported findings, answers the hypotheses, reflects on this study's contributions, points out limitations and discusses avenues for further research. It proceeds in said order.

10.1. Summary of results and evaluation of hypotheses

This study has derived its research question from a social and academic problem: So far, there has barely been any research on wind energy in Switzerland, let alone on the singularly crucial determinant of its deployment, its authorization procedures (*syn.* siting or permitting procedure). The main literature gap that the study sought to address is that there has been a lack of institutional-performance studies in the field of energy. Based on these considerations, this study aimed to find effects of the institution of decentralization on aspects of organizational arrangements that implement these authorization procedures. It also sought to determine decentralization and implementation-arrangement effects on the problem-solving effectiveness of such authorization procedures.[298] Because in international comparison local autonomy in Switzerland is among the strongest in Europe (Ladner et al. 2015), the test of whether decentralization affects policy outcomes amounts to testing a most likely case. If a test of decentralization cannot find an effect, then it is not likely that there is an effect of decentralization on problem-solving effectiveness in wind energy authorization procedures in other European democracies.

Aside from its focus on decentralization effects, the present study also examined possible effects of political parties on outcomes in wind energy

298 The research question, repeated for convenience, has been the following: How does decentralization affect implementation arrangements of wind energy authorization procedures in Switzerland and how do these arrangements affect the problem-solving effectiveness of public decision-making?

authorization procedures. Like the institution of decentralization, the study's analytical framework (see figure 2.2) understands political parties as part of the context. As political parties do not take part in implementation arrangements, they only indirectly shape the politics of the implementation arrangement: Along with interest groups and bureaucratic actors, they formulate the policy that later has to be implemented (see Sciarini et al. 2015; Kriesi 1980). Crucially, the engagement of political parties in matters of wind energy has not been scientifically assessed yet. However, for a successful energy transition in Switzerland, knowledge on partisan engagement in wind energy would be important. In terms of expectations, Swiss parties are regularly found to be very weak in international comparison (Ladner 2014). Testing their influence on policy-making thus amounts to a least likely scenario: If the Swiss parties are found to have an influence, such effects could expected to be stronger in other (European) democracies, where parties tend to take a stronger role in policy-making.

A further aim of this study has been the identification and description of the characteristics of wind energy authorization procedures in Switzerland. The data comprising all larger wind energy projects in Switzerland between 1998 and 2022[299], which has sought to provide an overview over these projects. This is something that had been lacking hitherto. In addition, the study also aimed at explaining the functioning of the European authorization procedures in a comparative set-up, testing the role of decentralization within them as well the role of decentralization in their efficiency and deployment.

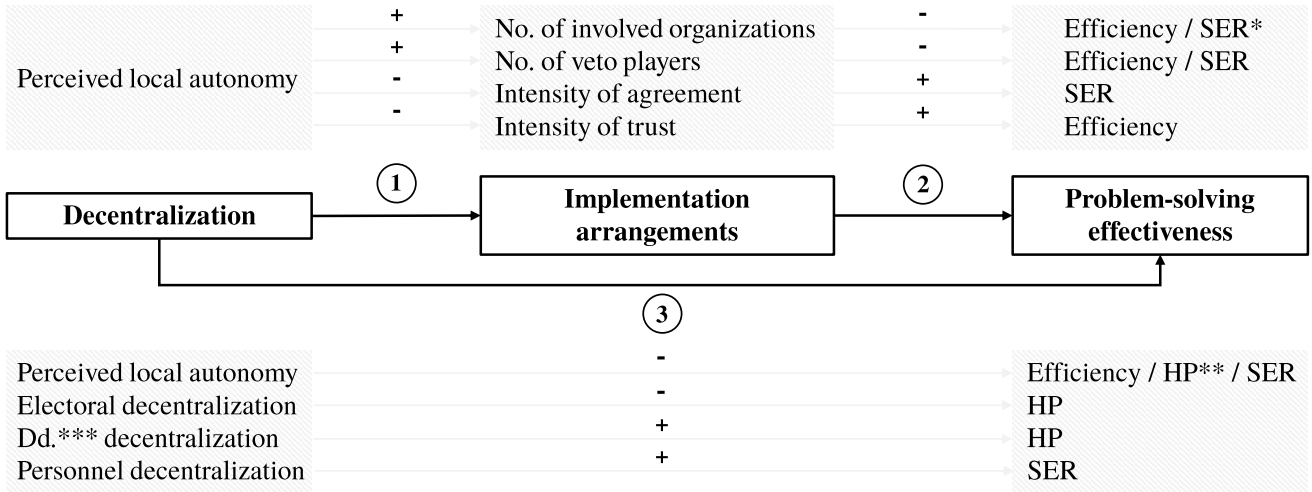
The subsequent summary will thus proceed as follows: Decentralization effects and partisan effects are summarized separately, and for each of the two the hypotheses are discussed. Thereafter, the most important findings of the examination of Swiss and European onshore wind energy authorization procedures shall be briefly elaborated upon.

10.1.1. Effects of Decentralization and implementation arrangements

Figure 10.1 presents a graphical overview over the detected relations between decentralization and aspects of implementation arrangements, following the three links that the analytical framework has provided for the comparative

299 For a complete definition of the population, please refer to section 7.1.1.

Figure 10.1: Graphical overview over effects of decentralization and implementation arrangements, following links 1, 2 and 3.



Notes: * “SER” stands for “stakeholder efficacy ratings”. ** “HP” is short for “hosting probabilities”. *** “Dd.” is an abbreviation of “direct-democratic”.

case study on wind energy authorization procedures in Switzerland. The presentation of the summaries follows the sequence of the links.

The links

Perceived local autonomy, an indicator of the polity dimension of decentralization (Mueller 2015, 2022), has been found to be the only indicator of decentralization that robustly affects those aspects of an implementation arrangement which have an effect on problem-solving effectiveness. The polity dimension of decentralization, of which perceived local autonomy is a component, captures cantonal constitutional freedoms and the perceptions thereof (Mueller 2015; Mueller et al. 2017). Perceived local autonomy is thus to be understood as a measure of organizational freedoms within a municipality. The measure is associated with a higher number of participating organizations in an implementation arrangement. Moreover, higher perceived local autonomy correlates with a higher number of veto players. It could also be found that conflict and mistrust are increased along with a greater number of involved organizations and involved veto players. Theoretically, it is very likely that the driver behind the reduction in intensities of agreement and trust are really the number of involved organizations in implementation arrangements and the number of veto players.

If only the first link is considered between decentralization and implementation arrangements, without requiring that aspects of implementation arrangements that are affected also actively shape problem-solving effectiveness, then decentralization can be said to have broader effects. Especially notable in this regard has been the finding that policy- and politics-indicators of decentralization, including the peak-level aggregate of decentralization itself, strengthen collaboration. This suggests that greater decentralization fosters collaboration, likely due to the greater number of issues that must be coordinated. In more theoretical terms this also means that decentralization increases transaction costs in the implementation arrangement.[300] But, importantly, it could not be discovered that transaction costs had an effect on problem-solving effectiveness. This severely questions the role of the Actor-Centered Institutionalism's analytical category of "modes of interaction",

300 On the continuum of negative to positive integration, greater decentralization is also associated with a shift towards more positive integration, meaning stronger collaborative embedment of actors in decentralized settings.

which have been measured as collaborative embedment as a determinant for problem-solving effectiveness.

The second analytical link has investigated impacts of implementation arrangements on two measures of problem-solving effectiveness: efficiency and stakeholder efficacy ratings. Efficiency captures the duration of the authorization procedure in months. Stakeholder efficacy ratings are composed of individual stakeholder ratings on five evaluative dimensions of the wind energy authorization procedure. They are: fairness, transparency, competence of those leading the procedure, perceived efficiency and overall satisfaction.

The number of organizations participating in the arrangement and the number of veto players were found to have an unequivocally negative effect on both measures of problem-solving effectiveness. This would corroborate the institutional or competitive veto player theory, expecting a blockade effect on policy-making, as predicted by Scharpf's joint-decision trap (1976, 2006b), among many others. In contrast, the collective veto player hypothesis that would expect more equalized problem-solving and, thus, deblocking (see Wälti 2001, 2004) could not be supported for the case of Swiss wind energy authorization procedures.

For problem-solving effectiveness, the number of veto players has been demonstrated to be a key predictor: They increase the reputational power of an implementation arrangement, another significant predictor, and also show a strongly negative effect on both efficiency and stakeholder efficacy ratings. A greater number of involved organizations surely does this as well, but it appears to be the case that the veto players within the additional involved organizations drive this effect.

Furthermore, some predictors showed a robust effect on only one of the two problem-solving effectiveness measures: Examining the strength of trust, the study found a positive effect on efficiency but not on stakeholder efficacy ratings. Hence, trust affects the duration of the procedure, but it does not impact what stakeholders think about whether the procedure went or has been going well. This finding stands in contrast to the finding for agreement: Stronger agreement is only associated with higher stakeholder efficacy ratings but not with efficiency. The following explanation for these contrasting findings is offered: Agreement is likely more closely associated to what respondents think of when assessing the efficacy of a project, but the actual underlying driver of agreement could be trust. But as this remains tentative, these differences should not be overinterpreted. Both, in fact, are positive for problem-solving effectiveness.

Regarding Actor-Centered Institutionalism's analytical categories of the implementation arrangements, investigations into this second link have shown that there is not a single variable of the category of modes of interaction that shows to have an effect on problem-solving effectiveness. In fact, all predictors for both measures of problem-solving effectiveness are either actor constellation or actor orientation measures (the last not shown here). How can this be? The extensive robustness checks of the predictor variables have revealed that variables of the modes of interaction are partly behind effects of actor constellation variables, especially concerning the effects of the number of organizations and of veto players. This suggests a treatment role of modes of interaction for the mediator of actor constellation and its effects on problem-solving effectiveness.

The third link has assessed the overall relation between decentralization and problem-solving effectiveness without the intermediary of implementation arrangements. For these tests, a third measure of problem-solving effectiveness that models the hosting probability of a wind energy project on the cantonal or municipal level has been integrated additionally. One measure is not considered as a robustness check of others, as they measure individual aspects of problem-solving effectiveness and because problem-solving effectiveness is not a uniquely operationalizable concept. In this sense, when multiple measures are significant for a single predictor, it simply means that the predictor is statistically relevant for multiple aspects of problem-solving effectiveness.

The only predictor of decentralization that has shown to be significant across all three measures of problem-solving effectiveness aspects is the polity indicator of perceived local autonomy, just like for the first link. Higher perceived local autonomy is associated with a lower cantonal hosting probability of a wind energy project. It also stands in controlled negative relation with efficiency and stakeholder efficacy ratings. This means that a higher local autonomy is associated with both lower efficiency and lower stakeholder efficacy ratings. This would indicate that the more municipalities can decide autonomously, the less they are interested in acquiring such a wind energy project and helping to conduct the procedure in an efficient and effective manner. This paints a picture of municipalities using their greater powers due to greater local autonomy to fend off, rather than to accommodate, such projects.

Of course, the measure of perceived local autonomy may be seen to have its problems: It is a measure of perception, as rated by municipal secretaries

in the municipal secretary surveys (Ladner et al. 2021). However, as Actor-Centered Institutionalism would suggest, actor perceptions of a situation tend to be good behavioral predictors, and they would not be a self-standing analytical category to explain performance if it were otherwise. Moreover, although perceptions are clearly individual ratings, they also tap into the experience of the municipal secretary that is likely a much greater expert on the workings of her municipality vis-à-vis her canton. In addition, following Mueller (2015), the measure of perceived local autonomy correlates strongly with Fiechter's (2010) indices of "existence and autonomy guarantee" and "organizational freedom". In consequence, from a perspective of the observing researcher, one can be optimistic about the validity of the measure.

Concerning hosting probabilities, a lower electoral decentralization and a higher direct-democratic decentralization has been discovered to be associated with higher cantonal hosting probabilities. Both are indicators of the politics dimension by Mueller (2015, 2022). Electoral decentralization denotes the extent to which municipalities have control over cantonal elections (candidate selection, number and size of cantonal constituencies, electoral quotas etc.). Higher municipal control over cantonal parliamentary and executive elections is associated with lower hosting probabilities. This finding, again, indicates that municipalities, when they have greater powers at the cantonal level, tend to work against such wind energy projects rather than welcoming them.

For direct-democratic decentralization (Mueller 2022), the association with hosting probabilities has been found to be positive. Direct-democratic decentralization refers to the extent of powers of a municipality to challenge or initiate cantonal legislation. Lower thresholds to do this denote higher direct-democratic decentralization. For this indicator, higher values are associated with higher hosting probabilities. This can be interpreted in the following way: Municipalities view direct-democratic measures as the offloading of political responsibility and thus as a measure enabling the deflection of risk. Concretely, municipalities are readier to take on controversial wind energy projects if they can contest cantonal decisions or initiate cantonal legislation more easily. Put differently, for municipalities these low thresholds may act as some kind of "insurance" against unwanted cantonal decisions. It has been argued that it is due to this insurance that municipal officials are more ready to take on politically risky projects, as decisions on it can always be contested later, either by the municipal assembly or citizenry.

Regarding effects of decentralization on stakeholder efficacy ratings, only a single one could be discovered: personnel decentralization, an indicator of

Mueller's (2015) policy dimension, is associated positively with stakeholder efficacy ratings. Hence, this means that greater local personnel resources go hand in hand with stakeholder ratings showing greater efficacy of the authorization procedure. This suggests that greater personnel resources could offset lower ratings by stakeholders. This result points to an argument that has been anecdotally discussed in the wind energy sector for years: Municipalities are overburdened by such large-scale projects. These projects, which take multiple legislatures and involve many external as well as cantonal and federal experts, are too much to handle for non full-time political personnel. They must rely on outside expertise and need to build up internal expertise as well. Resources are needed to do this. In any case, the finding points towards well-equipped municipalities being conducive to more effective authorization procedures, as rated by stakeholders.

Boundary conditions for interpretation

Decentralization and implementation-arrangement effects have now been named. However, before an overall discussion can start and the hypotheses can be assessed, some comments about boundary conditions are in order.

What does it mean when the third link contains three statistical associations of variables that the connection of the first and the second link could not detect? There are three possibilities: One is that the relations could be mediated or moderated by other sets of intermediary variables, such as other political institutions and policy or physical conditions for such projects in cantons. Another one is that they could be mediated or moderated by aspects of implementation arrangements that have not been measured. The third possibility is that these indicators have no intermediary at all, meaning that their effects could be understood to be direct. Unfortunately, which of these three is applicable must be left open. What is possible to assert is, however, that one can be certain that the three third-link components of Mueller's (ibid.) politics- and policy-dimensions of decentralization cannot logically have the measured implementation arrangement aspects as intermediaries. Otherwise, effects of these three additional decentralization indicators on actor constellations, modes of interaction or actor orientations would have been detected in link 1.

From a quantitative perspective, intermediaries can take the form of mediators or moderators. As potential mediators for the two politics indicators (electoral and direct-democratic decentralization), the author would find it

most convincing if other politics indicators, such as party systems or political parties, played a significant role. For example, it could be expected that decentralization affects the party system, which in turn might impact the political treatment of wind energy authorization procedures, thereby also affecting their problem-solving effectiveness. A possible moderator, in turn, could be the following: Higher decentralization, meaning more municipal powers, would grant higher agency to political parties that act within municipalities. This could redefine, strengthen or weaken the impact of political parties on the problem-solving effectiveness of wind energy authorization procedures. These relations have not been tested but serve as an illustration of what could be behind the direct associations that have been found not to pass through the measured aspects of the intermediary of implementation arrangements.

Regarding the positive effect of higher municipal personnel resources and of direct-democratic decentralization, the first link detected a positive effect on collaboration intensity (not shown on figure 10.1). However, the second link did not pick it up, as no effect of collaboration intensity on either efficiency or stakeholder efficacy ratings could be discovered. For the decentralization indicators, this means that a decentralization effect on PSE cannot pass through the intensity of collaboration. In consequence, it is possible that the effect is mediated or moderated either by a non-measured implementation arrangement aspect or by other institutional, policy, physical or project variables. For personnel decentralization, it seems likely that measures of professionalization of municipalities are mediators or moderators, but this has not been tested. For direct-democratic decentralization, a possible political party moderator has been suggested above.

Embedding the overall findings

Seeking to interpret the overall findings on the performative effects of decentralization, it becomes clear that "decentralization does not equal decentralization" (2017, 381). Decentralization indicators show effects on the problem-solving effectiveness of wind energy authorization procedures in both the positive and negative direction. Moreover, the major point is overlooked when focusing on results: Most indicators of decentralization, with the exceptions mentioned, show a null finding. For example, both Mueller's (2015) and Ladner et al.'s (2021) top-level aggregates of decentralization show a null finding. Of course, these broader considerations do not falsify the individual findings, but they point towards an important limitation of interpre-

tation: It is not aggregate decentralization per se that affects problem-solving effectiveness but only some of its indicators. This is especially important for an academic debate on effects of decentralization, as it is paramount not to confuse overall decentralization with some of its aspects.

That being said, the detected relations cannot be categorized along the lines of Mueller's (2022, 2015) three-dimensional index setup of polity, policy and politics. Regarding the polity indicator of perceived local autonomy, it was found to have a negative effect throughout. This is not the case for the other indicator of polity in Mueller's data (2022), Giacometti's (1941) classification on the legal autonomy of municipalities. The politics dimension would also include the indicator of representational decentralization, for which no effect could be found. Similarly, for the policy decentralization, only its personnel indicator has been found to have an effect, not its other indicators of fiscal and administrative decentralization.

Of course, this conceptual-empirical incongruence limits the overall interpretation. But it also represents a critique to Mueller's (2015) concept of decentralization that does not seem fully suitable to detecting performance effects in policy-making. The question to what extent this incongruence is a finding of the specific methodological setup or of the topic of this study, or whether it represents a more general finding, must be left open.

This is not to lessen the importance of the finding of a negative effect of perceived local autonomy that is interesting in its own right. It means that greater constitutional guarantees of freedom of self-rule, as perceived by municipal secretaries, affect the problem-solving effectiveness of wind energy authorization procedures negatively. This points towards a generally critical role of municipalities towards these projects, as they use their greater perceived powers towards defending against wind energy projects rather than making an effort to accommodate them.

It is worth going into depth of what perceived local autonomy could really mean: The measure itself provides information on the extent of legal and organizational self-rule. Mueller et al. (2017) have called it a perceptional measure of "constitutional freedoms". Concretely, it refers to greater *organizational* freedom, as guaranteed by cantonal constitutions. By association, it also refers to a less strong administrative supervision by the cantons and greater legal protection of municipalities. In consequence, this means that municipalities with greater local autonomy in their polities can be more assertive regarding the decisions they take vis-à-vis their cantons. They need to fear no retribution or consequences if their decision is cantonally unwarranted. They can decide more strongly on their self-organization, set its own

agenda and define priorities, with less strong superiors that can decide to the contrary. Hence, if this stronger assertiveness and self-reliance is coupled with an orientation against a wind energy project, then the canton has less means to convince them otherwise.

The results for the politics indicators of electoral and direct-democratic decentralization can be interpreted somewhat similarly: They paint the picture of risk-averse municipalities, which use their additional powers on the cantonal level (shared rule equivalent on municipal-cantonal levels) by fending off such projects, only allowing them if they have powers to contest cantonal decisions or influence cantonal elections more directly. Regarding the policy indicator of personnel decentralization, results could be interpreted along the lines of a common anecdote mentioned above. It states that such large infrastructure projects are a burden to municipalities, of which they are more willing to carry the weight if they are allowed to be more professionalized, meaning greater personnel resources. All things considered, these findings would suggest that greater decentralization leads to greater municipal reluctance towards such projects. Systemically, it is argued that it is the increased cantonal inability to direct in situations of greater decentralization, coupled with a general reluctance of municipalities to act, that makes the wind energy procedure longer (less efficient), reduces the probability that a canton hosts a wind energy project and reduces efficacy ratings of stakeholders. However, it should be kept in mind that the mentioned negative effects in projects with greater innercantonal decentralization must not necessarily stem from the municipalities themselves but could also come from the fact that in these projects more organizations and veto players tend to be involved.

What does this mean for other countries when Switzerland demonstrates these effects? Switzerland would have been the most likely case of observing decentralization effects, after all, because the institution is very strong in international comparison (Ladner et al. 2015). For most indicators of decentralization, the null-results would therefore need to be expected for other countries as well, where decentralization is less strong. But the general finding of greater municipal reluctance to engage with wind energy projects in more decentralized settings could potentially be observed in other countries or comparatively across countries as well.

The results concerning the negative effects of the number of organizations and of veto players concur with the findings of the decentralization performance literature that has emphasized the effects of added constraints on policy-making (Braun et al. 2002; Wälti and Bullinger 2000; Blume and Voigt

2011; Grossman and Lewis 2014). It can further be maintained that these added constraints are due to the institution of decentralization, not because of a previously existing negative attitude towards wind energy of the actors involved, as the mediation analysis showed (see section 6.3.2.). Yet it is highly likely that the lower intensity of agreement and lower intensity of trust, which also correlate with higher perceived local autonomy, are due to higher numbers of involved organizations and veto players in implementation arrangements, not only due to prevailing negative attitudes in municipalities that are more consequential in decentralized settings. In turn, the findings of lower agreement and lower trust (positive relation) leading to lower problem-solving effectiveness also concur with the literature on the performance of organizational networks (Bryson et al. 2006; Agranoff 2007; Provan and Kenis 2008; Klijn and Koppenjan 2000; Costa et al. 2001; Klok et al. 2018; Raes et al. 2006; Raab et al. 2013).

Assessing the decentralization hypotheses

This study set up expected effects of decentralization on problem-solving effectiveness via implementation arrangements based on many strands of the decentralization performance literature. Put together, the mixture of these theories has provided for manifold positive and negative theoretic effects of decentralization on problem-solving effectiveness, brought together in a long list of potential mechanisms (see section 4.3.). As a consequence, the study has pursued a simple competing-hypothesis approach. H_1 has expected decentralization to increase the problem-solving effectiveness, and H_2 has expected problem-solving effectiveness to decrease as a result of greater decentralization.

What the study has found is that perceived local autonomy increases both the number of organizations involved in the implementation arrangement and the number of veto players. If a larger implementation arrangement means greater legitimacy, the argument of greater participation fostering problem-solving effectiveness due to greater legitimacy was disproven, as the opposite was found. Moreover, perceived local autonomy could be shown to decrease agreement and trust. With regard to the extensiveness of collaboration, the study showed a positive effect of some decentralization indicators on collaboration strength, meaning an increase of positive coordination and transaction costs. But these changes in implementation arrangement aspects

associated with decentralization, in turn, did not show any significance for problem-solving effectiveness.

As hinted at already further above, it is difficultly permissible to corroborate or refute the hypotheses for decentralization in total; the only way is to corroborate or falsify the hypotheses for aspects of decentralization only. If the study is allowed to interpret the lack of significance of many indicators of decentralization, then the picture fits the manifold theoretic links detected in the theory chapter very well: There are simply too many contradicting directions of decentralization effects on problem-solving effectiveness for the majority of decentralization effects to show a clear direction. In fact, it is very likely that some have canceled each other out and could therefore not be detected using a statistical approach of association.

Importantly, no hypotheses can be corroborated or refuted for the relations found in link 3 (direct-democratic, electoral and personnel decentralization), as they were not found to have implementation arrangements as intermediaries. Hence, these *direct* relations were not targeted when theorizing, and the hypotheses therefore do not apply.

Thus, the study can only corroborate H_2 for perceived local autonomy reducing efficiency, hosting probabilities and stakeholder efficacy ratings. It does so via a negative effect of a higher number of organizations and of a higher number of veto players, a lower intensity of agreement and a lower intensity of trust. These in turn reduce either efficiency, stakeholder efficacy ratings or both. In contrast, H_1 needs to be considered as falsified in scope of the current study.

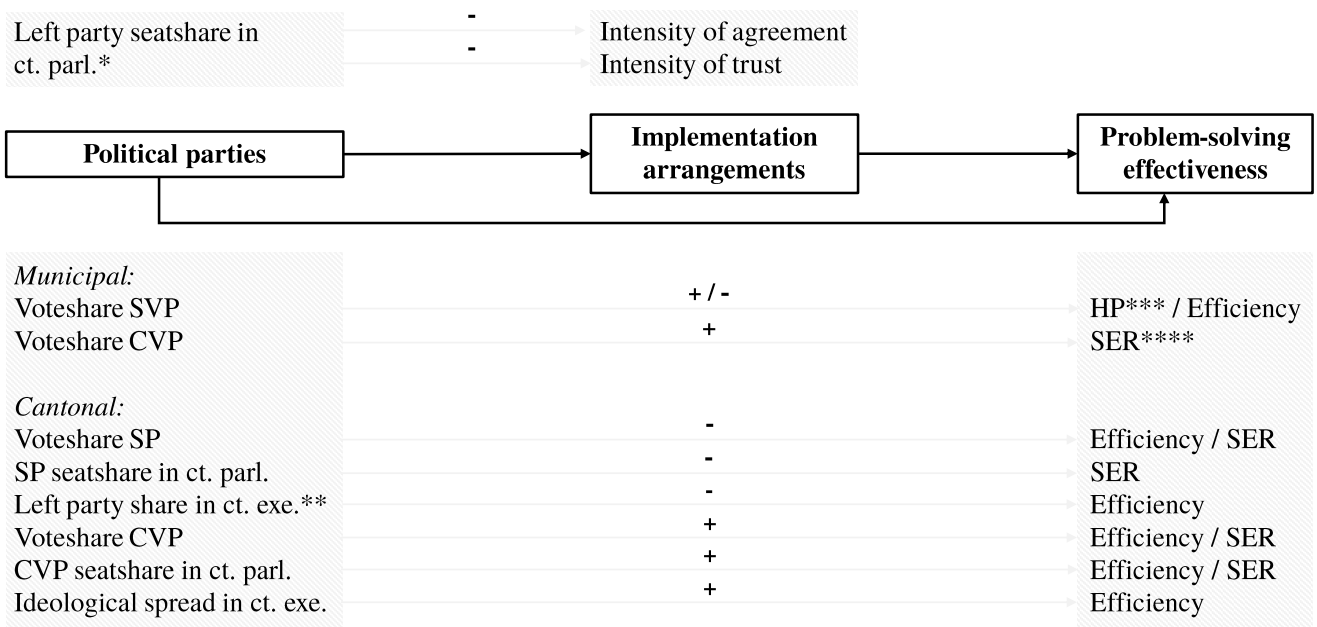
10.1.2. Political party effects

The analytical framework has conceptualized political parties as contextual actors, not as participants in an implementation arrangement. In consequence, political partisan impacts were modeled only for links 1 and 3. Figure 10.2 summarizes these effects graphically. Effects are first summarized and interpreted, before the hypothesis is assessed.

The links

In the Swiss multi-level context it is obviously difficult to suggest a single interpretation for cantonal and federal party effects: Switzerland's party

Figure 10.2: Graphical overview over partisan effects.



Notes: * "Ct. parl." stands for "cantonal parliaments". ** "Ct. exe" is short for "cantonal executives". *** "HP" is an abbreviation of "hosting probabilities", and **** "SER" stands for "stakeholder efficacy ratings".

system is highly fragmented, and parties are notoriously weak (Ladner 2014). Still, for interpretation, the study had to depart from the relatively strong assumption that parties of the same name yet in different cantons share ideological similarity and political priorities to a very large extent. Moreover, the study needed to incorporate the assumption that cantonal and federal parties show large degrees of congruence. Even though it is debated to what extent these assumptions can empirically be maintained (Giger et al. 2011), making them has been a basic requirement for the interpretation of partisan effects in the present study. Therefore, with the exception of the GLP, only strongly nationalized parties following Bochsler's (2016) study were used. Comparisons of cantonal parties would otherwise not be possible in a purely statistical setting like the one proposed.

Regarding effects of partisan variables on Swiss wind energy implementation arrangements, there is only one statistical finding for which robust evidence could be found: The share of left-party seats in cantonal parliaments has been associated negatively with agreement and trust intensity. Interestingly, the negative effect on trust and agreement could not be found for individual left parties, such as the GPS or the SP. Rather, it is the combined share of parties on the left that demonstrates said effect. But what makes a stronger left in cantonal parliaments increase conflict and mistrust in the implementation arrangement?

As a potential driver behind this controlled correlation, it seems likely that the left's focus on greater biodiversity and on other environmental and (visual) landscape protection could be the reason. In fact, developers have argued for a long time now that their environmental assessment tasks have been growing in number and scope over the years (Interviews 15 and 20). Certainly, the main piece of legislation that governs environmental requirements is a federal law — the Federal Act on the Protection of the Environment —, not a cantonal one. Hence, there is no difference across cantons to be expected from legal stipulations on environmental protection, only from its cantonal implementation. In consequence, the additional share of environmental assessment tasks to developers must have come directly from the federal level, and cantonal party strengths cannot logically have been the reason for these. Nevertheless, cantons have much leeway for rule creation in the domains of spatial planning as well as regarding the protection of flora and fauna, in addition to forests. And they translate the procedure of the federal integrated environmental assessment (IEA) into an organizationally defined procedure of cantonal law. It is in these domains that left parties have had the opportunity to push for stricter requirements. Stricter requirements

are then expected to increase conflict and mistrust in the implementation arrangement. Obviously, there is no automatism that stricter or more requirements increase conflict and mistrust, but it seems highly likely, since the potential sources of conflict are greater in scope and in number. Moreover, in view of the fact that planning for additional requirements is costly for developers, it seems appropriate to depart from the expectation of greater conflict due to additional requirements.

Unfortunately, there is not much systematic evidence for the Swiss case that would allow to test the argument of the political left on the cantonal level having pushed greater environmental planning requirements. On the cantonal or municipal level no study has been found that has tested the partisan engagement with outcomes on biodiversity, energy or, more specifically, wind energy. On the national level, however, there has been recent evidence that left and center parties have indeed been more active in engaging with the issue of biodiversity (Reber et al. 2023). But there is also older evidence of cross-cutting advocacy coalitions on the dimensions of progressives/conservatives and agriculture/environmental protection, where progressives in the agriculture faction have argued similarly to conservatives in the environmental protection faction (Moser 2006). Thus, in this older reading, biodiversity engagement cannot be said to follow the left-right divide.[301] Hence, the finding of the cantonal left pushing for greater requirements in environmental planning cannot really be tested for its plausibility, given the current state of the literature.

In contrast to this study's single finding of partisan effects on implementation arrangements, there are plenty of statistically robust controlled correlations between partisan variables and problem-solving effectiveness. These relations were found on either a municipal or on a cantonal level. Again, these findings must be seen in the light of the assumptions on cross-level and cross-cantonal party similarity for parties of the same name.

On the municipal level, the vote share of the SVP has been found to be positively associated with the probability of a municipality hosting a wind energy project. The same vote share is also associated with lower efficiency in

301 The issue of climate-related energy-policy has been salient especially for the parties of the GLP and the GPS on the national level since 2007, but not very strongly for the SP (Lüth and Schaffer 2022). But whether this means that the green parties have argued more in favor of renewable-electricity infrastructure development or biodiversity (see Tafarte and Lehmann 2023; Dulluri and Raț 2019; Jackson 2011) cannot be stated.

the authorization procedures. The following driver behind these associations was suggested: Municipalities with a higher share of farmers tend to have higher vote shares for the SVP. Farmers, in turn, have disproportionately often initiated wind energy projects. At the same time, just because there are more projects in municipalities with a higher SVP vote share does not mean that the process itself is also more efficient. In fact, what could be detected is that such projects tend to fare worse in terms of efficiency, because the SVP also seems very critical of such projects that one key demographic of its voter base tends to initiate more frequently. This would mean that the non-farmer SVP vote share tends to be disproportionately critical.

For the center party of the CVP, vote shares by municipality and on the cantonal level as well as CVP seat shares in cantonal parliaments have been unequivocally associated positively with stakeholder efficacy ratings and efficiency. It appears that the center is the only party that is not subject to the dilemma between the growth of wind energy capacity and environmental protection in the so-called "green-green dilemma" (Tafarte and Lehmann 2023; Jackson 2011), as seen on the left side, and not too generally critical of such large-scale and community-changing projects, as seen on the right side. On the national level, at least, there has been evidence that the political center has been significantly more successful in getting its parliamentary requests adopted (Wirz and Vatter 2015; Brüschweiler and Vatter 2018). This would suggest that the CVP has been successful in forging compromises and getting them adopted. While evidence for the cantonal and municipal level is lacking, the (self)understanding of the center parties as those "effecting compromises" could be understood to be plausible for the case of wind energy.

Nevertheless, the finding also triggers questions about the other center party, the GLP: Its foundational promise has been to successfully fuse green development with market-oriented liberalism (Stadelmann-Steffen and Ingold 2015, 2023). These would be very fitting ideological traits to promote large-scale green infrastructure projects. But why is there no discernible effect for them? On one hand, this null finding could be interpreted materially, making the case that the party has not managed to successfully merge "green" and "liberal" considerations. On the other hand, the GLP is a very young party (GLP Schweiz 2023) and has grown to other cantons than ZH and SG, let alone municipalities, only recently, if at all. Its absence in municipal politics over a large part of the observed time span thus cannot logically explain an effect. In other words, the GLP might not have had enough time to show its systemic engagement. Still, from the data that there is since 2008 on the national level, the GLP does not show exceptional pro- or contra-commitment

as well, which would have likely been detected even in the presence of this limitation.

On the cantonal level, one striking finding is that the vote shares of the SP, its seat share in cantonal parliaments and its seat share in the cantonal executive are negatively associated with efficiency and stakeholder efficacy ratings. The negative effect persists even after including various controls, such as the language region, population size and density among many others. There are three possible interpretations: The first is that the SP could have generally advocated for greater participation in infrastructure. This could explain the effect, because larger implementation arrangements have been found to have a negative effect on efficiency and stakeholder efficacy ratings of wind energy projects. Secondly, the finding could also be an indication that the SP's stance on the "green-green dilemma" has favored biodiversity and other environmental concerns over the construction of wind energy projects (driving up requirements, as explained above). As a third explanation, the finding could also be interpreted in the light of the position of the SP in cantonal political institutions that tend to be dominated by center-right parties (see Vatter et al. 2020a; Bochsler and Bousbah 2015). It could also be the case that the cantonal SP understands itself as "an opposition" to center-right. Therefore, the finding could also be read as seeking to block the (center-right) governmental proposals on advancing wind energy in cantonal parliaments.

Yet the effect for the SP points the analyst to a conundrum: The SP's negative effect should also be visible for the other left party, the GPS. Why is it not? Wurster and Hagemann (2019) have interpreted their null finding of green-party effects on renewable-energy outcomes in subnational units of Austria, Germany and Belgium as evidence that postmaterialist convictions of green parties are secondary to an economic effect driving poorer subnational units to invest more strongly in renewables. This could explain why there are no left-effects but not the marked difference between the SP and the GPS. What difference between these parties could explain the difference in outcomes? There are four possibilities: Either the GPS has shown a less strong advocacy for participation in wind energy projects than the SP, the GPS has demonstrated fewer concerns for biodiversity or other environmental protection, the GPS has demonstrated significantly more support for wind energy projects than the SP, or the GPS has simply been much less present on the municipal and cantonal levels, making it hard to show a self-standing effect. Given the similar track record regarding the environment of both parties and given the GPS's identity of being a "grassroots-party" having developed out of a social movement (Ladner 2008; Church 1995; Seitz 2023),

along with the green party's likely stronger issue-ownership on biodiversity, the first two suggested party difference possibilities seem unrealistic. The last two, however, are more credible. The GPS might have been significantly more equally divided on the issue of wind energy than the SP, therefore showing a null effect. Or it could be that, historically, the GPS' low vote shares in cantons, and especially in more rural municipalities, have not made a difference.

Further tests have shown effects of the partisan composition of the cantonal executives: On one hand, there is a negative effect of the left-parties' seat share in cantonal executives on problem-solving effectiveness. On the other hand, there is a positive effect of greater ideological spread of parties included in the cantonal executive. Ideological spread refers to the difference between positions of parties on the left-right dimension. It seems likely that the traditional consociationalism in cantonal executives (Bochsler and Bousbah 2015) is able to incorporate greater polarization in cantonal executives, meaning a reduced share of center parties while there are higher shares of left and right parties. This suggests that polarization leads to decision-making that takes more viewpoints into account, allowing for more effective decision-making. This would essentially point to the same effect as detected for the CVP. Wind energy projects seem to require a political compromise, but an incorporation of a broader spectrum of parties, while keeping in steadfast consociational decision-making mode, could be found to be positive for problem-solving effectiveness. It seems probable that the greater incorporation of viewpoints in cantonal executives leads to greater agreement in the overall implementation arrangement. Greater agreement is associated with higher problem-solving effectiveness. In contrast, a stronger left in cantonal governments without an increase in polarization (meaning that a stronger left is to the detriment of a weaker right) has been found to have a negative effect on problem-solving effectiveness. This can be interpreted as a lower "integration force" of consociationalism, as there is not such a great diversity of opinions that can lead to better decision-making. Moreover, the left's negative impact (ceteris paribus) could be due to a stronger call for greater participation in the planning of wind energy projects or to a stronger focus on developing and incorporating biodiversity and other environmental regulation requirements into implementation.

Boundary conditions for interpretation

Passing through aspects of implementation, only the left-party seat share in cantonal parliaments has been found to have a robust indirect effect on problem-solving effectiveness. At the same time there are many partisan variables that show a direct effect on problem-solving effectiveness that cannot logically be mediated or moderated by the measured aspects of implementation arrangements. For these latter variables, the question about potential mediators or moderators needs to be asked. As mediators the success or failure of integrating a partisan interest in a wind energy policy could be analyzed. Next to office- and vote-seeking, adopting legislation that maximizes the realization of partisan interests is, from a rational choice perspective, a key function of political parties (Strøm 1990). Evidence of partisan success in policy-seeking would then measure to which extent parties are satisfied about the adopted piece of legislation. Only when this partisan effect would have been established could one begin to speak about causality of the detected partisan effects on problem-solving effectiveness.

Moreover, the findings must be limited in that the key characteristic of cantonal and municipal party systems is their diversity, thus questioning the basic assumptions on which the examination of partisan effects has been built: their comparability. At the turn of the millennium, Ladner and Brändle found 14 nationally active parties, 180 cantonal parties and about 5,000 local parties (2001, 45ff.). The simplification of understanding cantonal and federal parties with the same name as the same party is thus controversial, even if this study has incorporated only highly nationalized parties (see Bochsler et al. 2016, GLP since 2008) into its sample. However, in defense of the modeling approach, Giger et al. (2011) have found that these nationalized parties vary less strongly in programmatic direction across cantons than two similar parties (of different names) in the same canton.

Another limitation is given not by their diversity but by the limited force of parties to shape policy in Switzerland. “Switzerland is not a party state”, Ladner (2014, 54) has asserted, denoting that Swiss political parties are weak and fragmented in international comparison. They are weak to the extent that partisan effects are weak to non-existent as compared to other federal countries (Arens 2020), and they have largely been second to the policy-making impacts of professionalized and long-standing interest groups (Kriesi 1980; Fischer 2012; Vatter 2020). In Switzerland, patterns of coordination among different governments have indeed been found to only be marginally affected by political parties, being predominantly shaped by institutional

opportunities and constraints (Bochsler 2009; Thorlakson 2009). Hence, testing for partisan effects in Switzerland would amount to testing a "least likely" case, not only on the cantonal but also on the federal level. Regarding the politics of renewables, Stadelmann-Steffen et al. (2020) found parties not to matter with regard to the deployment of small-scale hydropower. In light of these findings, it could be considered unlikely to detect partisan effects. In such a logic, partisan effects could be expected to be more directly observable in countries with stronger parties and fewer institutional constraints. Put differently, if one can find partisan effects for Switzerland, then it is likely that partisan effects are more strongly present in a more "typical case" country.

Assessing the partisan hypothesis

Based on the knowledge from the scant literature on the topic of wind energy authorization procedures, section 4.4. had derived a very traditionally sounding hypothesis. Based on surveys and observations of left-right differences on votes concerning the promotion of wind energy on the national level (Geisseler 2023; Vuichard et al. 2021; Cousse et al. 2020), H_3 was formulated. It expects left parties to support wind energy authorization procedures more than the center and right parties. Greater support, in turn, is expected to be associated with greater problem-solving effectiveness.

In light of the various findings discussed above, this hypothesis cannot be corroborated. Indeed, as has been demonstrated in the present study, the political center tends to have a positive effect, whereas the left overwhelmingly has a negative effect, if any. From right parties, no unequivocal effect could be discovered.

Crucially, however, this refutation cannot be read as a falsification of the "parties do matter" hypothesis of the partisan effects theory (Hibbs 1992; Schmidt 1996). Parties have been shown to matter, just not in a way that one could have expected based on the votes of the Swiss national parliament (see Vuichard et al. 2021). But the essential take-away is the fact that, even if there is an effect, the direction and magnitude of partisan effects depends very much on the questions parties can regulate on each level of government — even within one and the same topic. The fragmented results are indeed a reminder of two issues: First, partisan effects differ across levels of government, even within the same party. This confirms the parties' programmatic diversity and makes quantitative comparative studies on partisan effects across levels more difficultly justifiable. Second, the fragmented findings serve as a reminder

that the distribution of competences across levels of government matters for the detection of possible partisan effects.

10.1.3. Wind energy authorization procedures in Switzerland and Europe

Besides testing for decentralization and partisan effects in Switzerland, this study has also aimed at providing an overview over wind energy authorization procedures in Switzerland and at investigating such authorization procedures in a larger European context. It thereby sought to help identify the *systematic* functioning of Swiss wind energy authorization procedures instead of analyzing them ad-hoc and individually, as has been done so far in the literature. The purpose of the European study was to go beyond placing Switzerland in a larger context, as the European study primarily sought to detect how decentralization affects the performance of European wind energy authorization procedures.

The summary shall begin with pointing out the key characteristics of Swiss wind energy authorization procedures; however, first a brief explanation of what they are is in order: Wind energy authorization procedures are executed by implementation arrangements, based on competences stemming from various federal and cantonal policies in the fields of the environment, energy, spatial planning and construction. These implementation arrangements contain public and private organizations that work together — or against each other — to produce an individual-concrete permit on a wind energy project. In Switzerland, a construction permit is the final permit needed for authorization, as opposed to operation or grid permits in many other countries. Depending on the canton, project size and location specifics, cantons or municipalities hand out final construction permits.

The study found the following important parameters for wind energy projects in Switzerland: There have been 17 cantons that host wind energy projects, while nine does not (yet).[302] Of a total of 85 wind energy projects, seven of them are bicantonal. There are 121 municipalities that are involved

302 The criteria of selection were following: The project was either of a "standard" or "low capacity" type (see section 5.2.2.) and received its met mast authorization between 01.01.1998–31.12.2018. The observed range of time for duration was 01.01.1998–31.12.2021. For early projects, the additional condition was formulated that cantonal pre-planning in cantonal structure plans is not sufficient, at least a developer must already be involved to count a perimeter as a project.

in wind energy projects as hosts. Every 10th municipality in the French-speaking part is a host, in the German-speaking part it is about every 20th. Host municipalities are substantially less densely populated and larger in terms of territory than non-hosts. They are more rural and are home to a higher number of farmers. The longest currently ongoing process has been running since 1998. When examining the phases of the authorization procedure, one can detect extreme values in almost all phases. On average, the longest phase is the fixation and validation of a perimeter in the cantonal structure plan that serves as a basis for later, more detailed spatial planning instruments. The entire authorization procedure of a mean wind energy project (mean in all stages) is modeled to take about 15 years. In terms of municipal votes, 73% of binding local land-use plan or construction-permit votes have been in favor of concrete projects. Acceptance has declined more recently. Since the Swiss have accepted the Energy Strategy 2050 in May 2017, of six binding local land-use plans or construction permit-votes three have been accepted and three have been refused. Statistically significant explanations for lower problem-solving effectiveness were found to be a longer phase of elaborating and validating the cantonal structure plan, a greater extent of associational complaints and a higher federal coordination and assessment workload.

Examining the relations between organizations in wind energy implementation arrangements, the following results stood out: Public agencies collaborate strongly with each other and with developers, yet less so with proponent and opponent NGOs. For collaboration beyond what is required by law, one can see that it is the public agencies that engage in such voluntary initiative among each other. With regard to conflict, the clear main sender and recipient of conflict in such implementation arrangements are opponent NGOs. In turn, they are also the category of stakeholders that — by far — receive the lowest amount of trust in an otherwise strongly trustful implementation arrangement.

In comparison to Switzerland, where the mean (modeled) wind energy authorization procedure takes 15 years, in Europe it takes 3.5 years on average (see Ceña et al. 2010). Switzerland's average authorization procedure takes more than 2.5 times longer than the most extreme case in Europe in the sample, Portugal (ibid.). Switzerland is also on the bottom of most ranks concerning deployment: In European comparison, it has very low installed capacity and also only a very small percentage of the potential that is harvested for electricity.

On the European level, investigations into effects of decentralization found a positive relation with the efficiency of the authorization procedure. With high confidence it can be stated that authorization procedures are more efficient in European countries that foresee greater regional differences in authorization procedure design. With less confidence it can be stated that there is a positive effect of a more institutional measure of decentralization on efficiency. Slightly puzzling is the additional result that lower efficiency is associated with greater installed capacity. The study may attach a label of medium confidence to this result. These European-level results present two points of contrast with the results from the Swiss case. These shall be explained in the following, starting with the effect of decentralization on efficiency.

When comparing the role of decentralization on the performance of wind energy authorization procedures in Europe and in Switzerland, a positive effect of greater decentralization (as self-rule and as regional policy differences in authorization procedures) on the efficiency of wind energy authorization procedures has been detected for Europe, whereas the opposite was found in Switzerland. There, greater decentralization has been found to lower efficiency. How can this seeming contradiction be resolved?

Prima facie, the European result would mean that in the 22 selected European countries, a positive effect of the "laboratory federalism" hypothesis (Brandeis 1932) would dominate over a negative effect that might also be present, albeit less strongly. The positive formulation of this hypothesis generally states that greater performance can be traced to a greater expected force of innovation and diffusion when multiple units work in parallel to solve a problem. In contrast, the negative formulation suggests that multiple units attempting to solve a problem in parallel leads to blocking and to less efficiency. If one assumes both forces at play in all countries simply with different degrees of dominance over each other, the case of Switzerland could be regarded as an "extreme" case (following Seawright and Gerring's (2008) case selection terminology) conforming to the negative ideal-type, where a blocking effect strongly dominates over a possible innovation effect of federalist organization. This also means that the Swiss case could be well-predicted with the European models but would simply show extreme values. However, taking the models of the European study that most accurately explain the efficiency of European countries' wind energy authorization procedures, the Swiss procedure would be predicted to take only four years instead of the 15 that it takes on average in reality. Hence, this shows that the Swiss case cannot be well-predicted by using more general European comparative data, making

it a deviant case instead of an extreme case, as the European mechanism of efficiency explanation cannot be applied to the Swiss case (i.e., the theory does not hold). However, the status of Switzerland as a deviant case rather than an extreme one in Europe questions the plausibility of the exploratory European findings from a methodological standpoint and equally calls for material explanations.

There are two possibilities at explaining the contrasting results materially: Swiss deviancy might be explained by the fact that the Swiss political system has put much more emphasis on input legitimacy in international comparison (Sager et al. 2017a) — with the "social acceptability" requirement even reaching well into the implementation stage of policy-making (Schenk 2000). Expecting that input legitimacy starts to cause non-linear changes in public policy-making after a certain threshold of strength, it could well be argued that strong decentralization coupled with strong legitimacy requirements in implementation arrangements in wind energy cause "errant" outcome behaviors that cannot be explained with couples of variables that are at points below the threshold. This is — in fact — an assumption of distributional "tail behaviors" known in the social sciences as largely unforeseeable and unpredictable (Taleb 2010, 2013). In this sense, the Swiss case represents a change in theory, not different values on the ranges explained by the same theory.

A second material explanation could lie in the reversal capacity that the authorization policy design might have on the effect of institutional decentralization on efficiency. In the European case, the indicator capturing the strength of regional differences of the authorization procedures within countries has demonstrated to be a mediator, inverting the decentralization effect on efficiency from negative to positive (see section 9.4.). In the Swiss case, no such effect — this was tested in detail in chapters 6–8 — could be found. Yet the Swiss score in the European-level indicator of authorization differences does not show particular strength, compared to, e.g., Belgium, which hosts two completely different authorization systems for Flanders and Wallonia. This medium-sized Swiss score could explain that there is no reversal effect of regional differences for more institutional measures of decentralization in Switzerland.

Yet the contrast is likely to be — at least partially — due to methods, different context sensitivity and different indicators of institutional decentralization tested for both the Swiss and the European case: As Mueller et al. (2017) wrote and as has already been cited above, "decentralization does not equal decentralization". The details of the indicators matter (see Feld

and Schnellenbach 2011). The incorporation of context, which has been ample for the Swiss case and decidedly less strong in the European case, has always mattered not only in decentralization studies (Mueller et al. 2017; Biela et al. 2013; Mao 2018) but also in the sparse literature on wind energy authorization procedures (Lauf et al. 2020; Pettersson et al. 2010; Liljenfeldt 2015; Toke et al. 2008). In consequence, effects of decentralization on environmental outcomes in the environmental federalism literature have been strongly ambiguous, with studies finding positive (Wälti 2004; Müller-Brandeck-Bocquet 1996; Pollack 1997) or negative effects (Oates 2001), ambivalent (Karapin 2019) or no relations at all (Keman 2000; Scruggs 2003). In view of the contrasting findings on decentralization effects in the literature, the contrasting findings between the present Swiss and European cases do not come as a surprise — especially given that they were measured differently (Europe: RAI by Hooghe et al. 2016; Switzerland: Mueller's index (2015, 2022); see chapter 3.1.2.). However, as mentioned time and again, confidence in the findings are especially strong for Switzerland and, due to the lack of detailed incorporation of context in the European case, less so for Europe.

Aside from the contrast between decentralization effects on efficiency between the Swiss and the European case, there is also a tension between the Swiss experience and the European finding of lower efficiency being correlated with higher installed capacity. As previously announced, this second point of contrast also merits further explanation: From a point of view of the standard economic assumption it seems illogical that greater duration (lower efficiency) of the authorization procedure leads to more installed capacity. Yet there is one plausible explanation to this counter-intuitive finding: On the European level, there are indications that longer authorization procedures are associated with a reduction in project opposition. Thus, the data support the argument that longer procedures are associated with greater acceptance by the people affected. Higher acceptance could further deployment to a stronger extent than greater duration (lower efficiency) reduces it. This might also have to do with many countries in the European set being in the European Union: Because of the EU's considerable legislative activity in the field, these countries have experienced increased rule-density "from the top" including additional environmental requirements for renewable electricity deployment.

Intuitively, however, the inverse direction of the relation seems much more plausible: The standard economic argument of lower efficiency leading to less added capacity because a longer procedure generates higher costs is often

heard and cannot be brushed aside. Yet again, the European data show that there are also likely to be countereffects that outweigh it: Greater installed capacity also means that authorities have had more experience in going through authorization procedures and have permitted wind energy projects in a greater variety of physical, territorial and economic conditions. It is suggested that this experience has likely led to a growth in requirements about issues to assess and to a further formalization and bureaucratization of the procedure, leading to less efficiency but higher installed capacity. Hence, it is suggested that this latter effect of growth in requirements and formalization, which go along with an increased installed capacity, has led to longer authorization procedures. Certainly, the hypothesis of growth of requirements has also been discussed for the Swiss case, even though the standard economic argument of greater efficiency leading to greater deployment may be argued to apply much more strictly (see section 5.2.3.). This is because the growth in rule density that could reduce or even overturn the standard efficiency argument's effect is presumably lower than in countries in the European Union (and thus in the European study).

10.2. General contributions

This study set out to investigate the implementation problem of wind energy authorization procedures in Switzerland and in Europe and to detect effects of decentralization on how these procedures can be made more effective and efficient. In terms of social relevance, the research project has been guided by seeking ways to help the political system effectively mitigate climate change. But it has also been motivated by contributing to debates on how to address the severe biodiversity crisis and by the recurring criticism of economic inefficiency of public subsidies in renewable-electricity infrastructures. It has also been high time that there is research that evaluates outcomes based on the legal stipulation of Art. 14 of the Federal Act on Energy, which has prescribed that cantons foresee speedy authorization procedures for their renewable electricity infrastructure projects.

Concerning academic relevance, the current study has sought to primarily advance the nascent literature on energy federalism (e.g. Balthasar et al. 2020; Stadelmann-Steffen et al. 2020). To this end, it has aimed at establishing a coherent theoretical framework, with which other researchers may realistically address questions of policy performance of institutions: Using results based on data from three original surveys and 20 interviews, aspects

of implementation arrangements have been relevant intermediaries of institutional effects on the performance of policy outcomes and should be included in analyses of concrete energy policy outcomes. This study's focus on the politics of implementation based on dynamics of the "implementation polity" (Hjern and Porter 1981), as called for by the literature (Sager and Gofen 2022), has aimed to add value. Moreover, using original data from three original surveys and 20 interviews, the present study has provided one of the few comparative implementation analyses that the literature has advocated for (Hupe 2014). Furthermore, one cannot neglect the "energy" in energy federalism: Regarding wind energy policy, the research project has provided an in-depth treatment of the crucial deployment determinant of authorization procedures, especially for Switzerland but also for Europe.

Having briefly summarized the social and academic relevance of the present study, the contributions shall now be elaborated on in greater detail, mirroring the points raised in the introduction. This means that the triad of polity, policy and politics is followed.

Polity

This study has followed a "polity on policy" design and discovered that some aspects of decentralization can be said to influence the problem-solving effectiveness of wind energy authorization procedures. Many indicators of decentralization have shown a null effect, some showed a positive and others a negative effect. But in fact, the results of this study are very much in line with the various findings of the literature on environmental federalism, where effects of federalism were shown to have predominantly null (see Scruggs 2003; Keman 2000), but also positive (e.g. Müller-Brandeck-Bocquet 1996; Pollack 1997) and negative (e.g. Oates 2001). What is novel is that this study could show this ambivalence for a topic of energy federalism in extensive scope and depth. The multidirectional findings further underline that the nexus of spatial planning, energy policies and environmental policies does not seem differently affected by decentralization than more typical environmental policy outcomes that have been previously tested.

For decentralization performance studies, the study aspired to deliver two contributions: By investigating institutional effects on policy outcomes, the study wanted to go beyond the general cross-sectional (financial) measures that tend to be used to measure performance in more traditional institutional literature. To be clear: Such a polity-on-policy design is not new, its

novelty only stems from the topic focus of policies of wind energy authorization procedures and for the nascent literature of energy federalism. As a second contribution to decentralization performance studies, the study has been motivated to provide a "proof of concept" for a coherent and theoretically well-founded theoretical framework with implementation arrangements as intermediaries. The study proposed to use the analytical categories of Mayntz and Scharpf's Actor-Centered Institutionalism (Mayntz and Scharpf 1995; Scharpf 1997) to measure the performance-relevant aspects of implementation arrangements. This has allowed this study to be put on a solid (meta)theoretic footing.

However, intermediary variables, understood quantitatively in the form of mediators or moderators, can directly be estimated in a single model. So what is the advantage of such an intermediary design? It is in fact a major strength of the approach that multiple links permit the use of a large variety of methods when pursuing a polity-on-policy design: On one end, the estimation of mediation or moderator models, or more complex structural causal models using institutional treatments, implementation mediators and performance dependent variables, would be desirable and possible using the proposed analytical scheme. On the other end, a complete qualitative tracing of causal force from one variable to another would also be possible. For this, the intermediary would not even need to be understood as a variable. The approach used in the present study remains in-between, which the proposed approach also permits. Even a combination of many different methods for each link or investigations into a single link are fathomable. In consequence, what the study has proposed is a methodologically very flexible analytical scheme for polity-on-policy designs. But this is not all: Its value also resides in the fusion of Actor-Centered Institutionalism applied to implementation arrangements. Actor-Centered Institutionalism puts the analytical focus on those aspects of implementation arrangements that are important to the production of value in an implementation process. At the same time, this research projects showed that the analytical categories of Actor-Centered Institutionalism are receptive to impacts of institutions and can be used for institutional impacts assessments.

Aside from the analytical framework, the study also sought to make a second theoretical contribution: Bringing together the literature of environmental and energy federalism, Actor-Centered Institutionalism and the evaluation, implementation and network effectiveness literatures, the study has discussed and listed many possible effects of decentralization on implementation arrangements and on problem-solving effectiveness. Especially

the lists of possible mechanisms for all three analytical links (tables 4.1 and 4.2) might be of value to scholars looking for an overview over discussed effects in the environmental and energy federalism literature.

It has further been notable that effects of decentralization on authorization procedure efficiency have been found to go in different directions in Switzerland and in Europe. This shows that the exact measurement matters. Moreover, this contradiction underlines the importance of the institutional and policy context, which the analytical model also integrates in its testing. But more than that, it also points towards the possibility that decentralization has effects that differ in direction across countries *in the same policy field*. The finding emphasizes that institutional performance results are dependent on the embeddedness of institution under investigation (Granovetter 1985; Feld and Schnellenbach 2011). This basic point has been made in many policy analysis frameworks, such as the Institutional Analysis and Development Framework (Ostrom 1986), Actor-Centered Institutionalism (Mayntz and Scharpf 1995) or many others. The results here clearly put in question to which extent institutional performance effects can really be analyzed devoid of context in a more quantitative perspective. But this point of critique is unduly defeatist: The performance-relevant context could also be captured in advanced statistical analyses.

Policy

First and foremost, the general contribution to the policy literature has been the topical focus. Seeking to advance the state of knowledge on wind energy authorization procedures by comparative statistical analysis is a novel endeavor. As presented in the introduction, political science studies that have investigated the nexus between spatial planning, energy and the environment are rare, and such studies tend to be the eminent domain of geographers (Bombenger et al. 2019; Guo et al. 2020). Yet in comparison, geographers have tended to analyze other outcomes than the performance measures proposed here. Hence, the combination of an evaluation of policy outcomes based on an under-researched nexus of policy fields has been argued to be beneficial to knowledge in the policy field of wind energy.

The study also went beyond the existing and well-developed corpi of political science literatures on deployment factors (Bourcet 2020; Can Şener et al. 2018) and social acceptance for energy infrastructures (Leiren et al. 2020; Stadelmann-Steffen and Dermont 2021; Batel et al. 2013). On both

Switzerland and European level the study sought to capture the dynamics of implementation in comparative research designs. The general policy contribution of this study could be understood as one of providing a "kick-off" to comparative investigations into wind energy authorization procedures. Its contribution thus lies more strongly in the issues uncovered than in the specificities of the discovered results, as is the case of many scientific endeavors.

Politics

As announced, the dimensions of politics were visible in this study through the concrete illustration of implementation dynamics in wind energy authorization procedures. The call to overcome the political science and public management bifurcation into two disciplines (Kettl 2022; Peters et al. 2022; Nabatchi 2022) has been taken seriously in this study: Using the empirically proven analytical categories of Actor-Centered Institutionalism, this study has captured the essentials of value production in implementation arrangements. Many of these dynamics — such as conflict, trust, reputational power and actor orientations — are strongly political indeed. Their measurement has presented a double advantage: Not only were implementation politics captured with these measures, but they have also been shown to be the relevant performance criteria for decision-making in implementation arrangements. In this sense, this study can be understood as an illustration of how implementation politics have impacted the problem-solving effectiveness of wind energy authorization procedures.

In addition, the present study has formalized the "implementation polity" as the literature has called for (Sager and Gofen 2022), using the tools of social network analysis. It has been argued that the application of such tools has represented an innovative tweak for the literature on Actor-Centered Institutionalism, which so far has predominantly relied on qualitative methods. Moreover, I would argue, this study has established aspects of implementation arrangements as a valid intermediary in research designs seeking to detect institutional performance effects. Its validity stems from the evidence that the third link, examining the overall relation between decentralization and problem-solving effectiveness, has been shown to be at least partly mediated or moderated by aspects of implementation arrangements. In simpler terms, what this study has shown is that decentralization effects on policy performance pass through implementation. Certainly this might be a very obvious point, but given that the institutional performance literature has tended to

ignore questions of implementation for reasons of analytical focus, this is still a very worthy point to make.

10.3. Swiss-specific contributions to the literature

In contrast to the more general contributions elaborated above, there are also a few Swiss-specific contributions that the present study has sought to make. As above, their presentation also follows the triad of political-science perspectives of polity, policy and politics.

Polity

Regarding the Swiss energy federalism literature, this study has presented an in-depth study of effects of decentralization on Swiss wind energy authorization procedures. The contribution has been that links between decentralization and wind energy had been anecdotal in the literature on Switzerland before this research project; now they have been treated in-depth. In this sense, this study has aimed at providing much "groundwork" on which further Swiss decentralization performance studies in energy policy could be based on. In contrast to the institutionalist literature that has tended to focus on either institutional or cross-sectional fiscal outcomes as performance (e.g. Lijphart 1999; Freitag and Vatter 2009; Fischer 2015b), the performance measures applied in the present study were all identified on project level, not on a highly aggregated institutional or policy level. What has been valid in general but also within Switzerland is that there is not a single, unequivocal effect of decentralization on problem-solving effectiveness. This is in line with the findings of the decentralization performance literature (Mueller et al. 2017; Feld and Schnellenbach 2011) and also specifically with the literature on environmental performance effects of decentralization (e.g. Scruggs 2003). In fact, the ambivalent results have made it clear that decentralization effects need to be discussed on a level of its components and not of its aggregates. This is even more the case as all aggregate understandings of the concept of decentralization differ.[303]

303 Mueller's (2015, 2022) and Ladner et al.'s (2015, 2019a; 2021) measures differ markedly in their conceptualization as well as in their indicators.

Policy

The most tangible and direct contribution to the literature is that this study has provided an overview over the sector of wind energy in Switzerland. Regarding the functioning of wind energy authorization procedures in Switzerland, the study has been able to add a material perspective to the formal legal studies on the procedure. Legal scholars have already analyzed the process formally (e.g. Klaber 2014; Aemisegger and Marti 2021), meaning that they have already laid down the relevant rules-in-form. What legal scholars have not examined, however, is how the process works materially and in comparative perspective. With two surveys on Swiss wind energy authorization procedures and 20 interviews with experts in the field, this study has built and presented such a material overview without, however, neglecting the legal boundaries given by the procedure.

Moreover, much of the political science literature on the level of concrete renewable-electricity projects has focused on social acceptance (e.g. Spiess et al. 2015; Vuichard et al. 2021; Cousse et al. 2020; Walter 2014) or the effects of participation (e.g. Stadelmann-Steffen and Dermont 2021). The overarching authorization procedure in Switzerland requires an integration of both these aspects.[304] In fact, the focus on these two aspects within authorization procedures misses many performance-relevant aspects, especially the dynamics of implementation, which this study has sought to remedy.

With regards to the policy literature on factors of deployment (Can Şener et al. 2018; Bourcet 2020), institutional explanations for Switzerland have not been debated at the forefront. Rather, what political scientists using the Swiss case have tended to focus on is policies or policy instruments (Dermont et al. 2017; Ingold et al. 2019; Kammermann and Ingold 2019). Some have taken an investor's perspective (Bürer and Wüstenhagen 2009; Broughel and Wüstenhagen 2022). In the broader comparative literature, many have underlined the importance of the underresearched authorization procedures (e.g. Suškevičs et al. 2019), but few to none have gone the way of systematically comparing them across regions or countries. Comparisons on the topic (Lauf et al. 2020; Pettersson et al. 2010; Liljenfeldt 2015; Toke et al. 2008) have been limited in scope and depth, and I have not seen one for Switzerland. Hence, this study, providing a sectoral overview based on

304 In some European countries, community acceptance is not necessary in the form of citizen voting, and in some others participation is not legally required.

surveys, interviews and secondary data, has sought to kick-start the Swiss-case discussion on reforming wind energy authorization procedures.

Politics

Regarding politics, this study has found that conflict and mistrust in Swiss wind energy implementation arrangements go together. Any measure of the modes of interaction were found to not have a problem-solving effectiveness effect, as only actor constellations and actor orientations play such a role. For Swiss administrative politics in wind energy implementation, this means that the intensity and density of collaboration is not relevant to the solving of the problem. Rather, it is the number of organizations taking part and the number of veto players that shape implementation politics and the generation of value in these implementation arrangements.

On the point of the role of participation in energy infrastructure planning, this study can deliver a concrete finding: Its results point to a negative effect of greater involvement of organizations in wind energy projects. A greater number of participants in implementation arrangements, as well as a greater number of veto players, has been associated with less efficient and effective procedures for stakeholders. Thus, this result of the study sides with the part of the participation literature that has found detrimental effects of greater participation (Schroeter et al. 2016; see also Schweizer and Bovet 2016). This is contrary to Stadelmann-Steffen and Dermont's (2021) moderately positive finding of public participation in renewable energy projects on acceptance. As for the driver behind the opposite finding in the present study, it is hypothesized that it might be due to the high degree of politicization of the issue of wind energy in Switzerland. Other renewable technologies (except maybe small-scale hydropower) likely do not face such stiff technology-specific opposition.

In addition, by following the analytical categories of Actor-Centered Institutionalism for the measurement of implementation arrangements, this study went beyond the heuristic by Linder (1987), who had predicted implementation outcomes based on degrees of consensus alone. He distinguished consensus in federal parliament when writing and adopting the piece of legislation from consensus between cantonal administrations on how to implement it. In the present study, using a procedure in which legal competences are spread among all levels of government, consensus and conflict still showed to be important. Hence, this older heuristic is certainly still valid. However,

the present study has added many layers of complexity and illustration, showing that there are other important predictors of implementation outcomes, such as the number of involved organizations, the number of veto players, reputational power or trust. It also points towards the importance of the size and power of coalitions within these arrangements.

Moreover, assessing effects of implementation dynamics has meant writing an evaluation. For Switzerland, Art. 14 EnG mandates cantons to foresee speedy authorization procedures, and this also for wind energy projects. This clause has been in force since 01.01.2018, and there has been an ongoing need to evaluate whether cantons have become active in this regard. As this study has shown, with an average duration of 15 years of such procedures for wind energy projects, the Swiss are still very far away from the mean European duration of 3.5 years. The obstacles have been amply demonstrated: The efficiency of the Swiss authorization procedure is negatively affected by the time it takes to establish and validate a cantonal structure plan, by the extent of associational complaints and by the intensity of conflict and trust in the implementation arrangements. It may thus be argued that the legal obligation of Art. 14 EnG has indeed not been fulfilled.

With regard to partisan effects, their examination in the present study is very much regarded as a "first systematic effort" for wind energy politics in Switzerland. The saliency of the topic for voters and parties has certainly increased in recent years in Swiss politics (Lüth and Schaffer 2022). There has been anecdotal evidence of a non-effect of the political left (Stadelmann-Steffen et al. 2020) on small-scale hydropower deployment, but none for wind energy. Umit and Schaffer (2020) have found a survey-experimental null effect of the siting of wind turbines on electoral outcomes. In contrast to these studies null findings, the present study has found a positive effect of the CVP (observation span: 2000–2018) on the cantonal level, negative effects of the SP on the cantonal level and ambivalent findings for the SVP on the municipal level. Hence, results point to the center party of the CVP as being the most wind-energy-friendly. Nevertheless, as explained above, these results should be interpreted cautiously. Still, the treatment of partisan effects in the present study has brought some systematicity to the previously anecdotal knowledge on the topic.

10.4. Limitations and further research

Naturally, this study is subject to some limitations. As in every study, there are a few broader and some smaller ones. The broader ones are reported first.

The strongest limitation is that all analyses have been cross-sectional, with the exception of some panel analyses of decentralization effects on deployment for the European study. This is reductive and does not capture reality in its development across time. As this is the case for all cross-sectional studies, there is nothing special about the present one in this regard; however, this simplification has the following limitations: Cross-sectional regressions might compare values that have been summarized or stem from different points in time. Their direct comparison in a regression model is based on an assumption that these data show no time-dynamics. This is problematic because in reality there is barely a variable that has no time-component. Thus it should be reiterated that the results presented here are simple *model* results.

In consequence of the cross-sectionality, the author has been careful to point out at various points in the study that the findings are not causal. All results, even the most reality-prone mixed models in the European-level study or the mediation models in the Swiss comparative study, should be understood as results from controlled correlations, not as cause and effect. It is by convention only that the terms of effects, factor or phrases like "X has led or contributed to Y" were used.

A greater focus on causality than in the present study would be desirable in future research. The research designs of future studies could either go into the direction of "more depth" or could pursue "greater width". For greater depth, the three links of the presented analytical scheme could be treated as causal mechanisms, and case studies or small-n-studies could seek to establish the transmission of causal force (Beach and Pedersen 2013; Little 1991; Hedström and Ylikoski 2010) from decentralization onto implementation arrangements or from implementation arrangements to problem-solving effectiveness. In contrast, larger-n studies or statistical studies could seek to consistently incorporate aspects of time. Or they could go down the road of establishing more complex structural causal models as suggested by Pearl (2009, 2000).

Further research could also make use of the theoretic analytical model with its three-links scheme that has been called an intermediary research design. Readers were also equipped to analyze the intermediary variable of implementation arrangements using the analytical categories. The analyti-

cal model can be used for other studies that analyze effects of institutions on policy performance. In a "most likely" application, the intermediary of implementation arrangements must refer to policy outcomes that are causally close to the implementation outputs, such as decisions or individual-concrete decrees. If policy outcomes that are further removed from administration outputs are used to assess performance, an application using the intermediary of implementation arrangements is still possible, and it would indeed be especially interesting if in such least-likely cases there is still a link that can be made between implementation arrangement aspects and performance. Thus, the field of application using this simple three-links scheme embedded into Actor-Centered Institutionalism can be diverse: It could be applied to many different fields of policy and to many different institutions whose effects are being examined. Its flexibility to allow for causal mediation models on the quantitative side or the tracing of causal force on the qualitative side could spark further research on policy outcomes using polity-on-policy designs.

Certainly, the applicability of the analytical model is limited to the scope of application of Actor-Centered Institutionalism to modern European democracies: As Actor-Centered Institutionalism has been built upon Mayntz and Scharpf's studies focusing predominantly on Germany and other European democracies, it would presumably not capture the performance-relevant aspects of decision-making in non-democratic and/or historic contexts. However, it is particularly suited to dealing with implementation arrangements. If there is no arrangement because there is a single actor that implements or because implementation plays no theoretically possible role as an intermediary of institutional effects on policy performance, then the analytical scheme cannot fit.

Looking for the most likely cases for implementation-arrangement intermediaries to be observed, the application of the analytical model to other renewable technologies is conceivable: What are the effects of decentralization on problem-solving effectiveness in the fields of hydropower, biomass or geothermal energy and what is the role of implementation arrangements in these fields? Either in comparative or in Swiss-specific studies, these questions need to be attacked to advance the literature on energy federalism. But also questions concerning wind energy authorization procedures are far from settled: Wind energy projects constantly evolve, new ones come, others are canceled.

When examining the smaller-scale limitations, some limitations regarding the three central sets of variables are in order. These three central sets of

variables are: decentralization, implementation arrangement aspects and problem-solving effectiveness. The reader will further be advised of certain problems with regard to the investigation of partisan effects on problem-solving effectiveness. Thereafter, some limitations and opportunities for further research for the European-level analysis shall be named.

With regard to the limits of the decentralization measurement, the validity of the measure of perceived local autonomy as an indicator of Mueller's (2015) polity dimension of decentralization may be put in question because it could be considered a subjective self-assessment rather than an objective measure of the polity. This represents a limitation because it is the only decentralization variable that consistently shows an effect in all three links. Thus, for a harder test of the polity effect, a (similar) study could be (re)run using different measures of polity decentralization. In an international comparison, the Regional Authority Index' (Hooghe et al. 2016) component of "institutional depth" and/or the measure of "representation" come to mind as possible further robustness checks, but there is quite some variety regarding indices of decentralization for European countries (see Harguindéguy et al. 2021). Specifically for Switzerland, Fiechter's (Fiechter 2010) measures could be used, for example. If a researcher were inclined to studying polity decentralization qualitatively, these measures could serve as a point of departure for the conceptualization of decentralization and/or could prove useful for the selection of case. Both a quantitative and a qualitative study would permit to further test the stability of the results that have been presented here.

Another notable limitation is that, for implementation arrangements, cantons have been treated as unified actors, as organizations speaking with one voice. In reality, many cantonal agencies deal with implementation assessments of wind energy projects, from environmental to energy and spatial planning departments. In most cases, assessment efforts are coordinated by a central office that also acts as a contact for external requests ("Leitbehörde"). Although these coordination offices have been targeted by the study's surveys, some divided the work between the competent agencies, some accorded it to a single department. This means that, unfortunately, the present study has been closed to intra-cantonal implementation politics, although these could be considered essential for the formulation of the dynamics in implementation arrangements. But it was simply not possible to do network-style surveys with more than one respondent from each canton. The focus on fewer projects, maybe a single canton, and the leading of interviews in future research could certainly increase the precision regarding involved actors and their relations in implementation arrangements.

The result that no implementation arrangement variables of the modes of interaction category of Actor-Centered Institutionalism could be shown to have effects on problem-solving effectiveness presents an access vector for further research. As an explanation of the non-effect, it has been suggested that these modes of interaction were actually constitutive of actor constellation variables instead of affecting problem-solving effectiveness variables directly. This would imply a causal sequence between analytical categories of Actor-Centered Institutionalism rather than their parallel production of problem-solving effectiveness effects. By seeking to find evidence whether actor constellations and modes of interactions are really related sequentially, studies would further the development of comparative performance studies using Actor-Centered Institutionalism. Such research could also help to clarify the boundary conditions under which the strength of collaboration or, more generally, the embeddedness of implementation actors in positive and negative coordination (Scharpf 1993; Lindblom 1965) act as determinants of policy outcomes. This is problematic because at the moment it cannot be said why there has been a lack of problem-solving effectiveness effects from modes of interaction. Is it simply the specificities of the Swiss wind energy authorization procedures, is it the measurements of problem-solving effectiveness, or is it really a systemic theoretic finding? Future research could inquire about this and deliver important theoretic value regarding Actor-Centered Institutionalism.

This leads me to pointing out a small-scale limitation of the problem-solving effectiveness measures. In the Swiss comparative study, three different measures of problem-solving effectiveness were proposed (following Knoepfel et al. 2015). They capture both efficacy and effectivity aspects of the Swiss wind energy authorization procedure. Indicators of pertinence, meaning measures of effectiveness that relate goals to the problem instead of considering goal-outcome or problem-outcome relations, as the other two concepts of effectiveness do, have been disregarded. For fuller scale evaluations, a pertinence measure in a study on wind energy authorization procedures could certainly add additional insights.

This study has also examined partisan effects on wind energy authorization procedures in Switzerland. The results of these models have suffered from problems of interpretation due to the systemic limitations of partisan diversity, weakness and fragmentation of the Swiss political party landscape (Ladner 2014). The provided suggestions why these results could be plausible have been limited and have remained somewhat speculative and tentative. Two

conundrums especially had to be left open: First, why are no effects visible for the GPS, while there is a strong effect for the other left party, the SP? Second, the same question could be put for the CVP and the GLP. This represents a puzzle that further research could investigate in greater depth.

As is the case to overcome the cross-sectionality in decentralization examinations, the incorporation of time would be an avenue worth pursuing in future attempts to detect partisan effects in wind energy authorization procedures. Or, as in some cases the same party showed to have non-consistent effects across levels of government, future research could also analyze a single party's effect across levels in the topic of wind energy authorization procedures. For example, the role of the SVP on the municipal and cantonal level, including the role of farmers, could potentially be investigated in greater depth. The analysis further showed that the central switch in the circuitry of wind energy authorization procedures, at least under current distributions of competences, are the cantons. Studies on partisan effects on wind energy projects or WE-authorization procedures in single cantons could thus also advance the literature substantially.

What is more, researchers could also combine a decentralization with a partisan argument to test the argument that partisan effects are conditional upon their institutional embedment (see Bochsler 2009; Thorlakson 2009). Such a test would take into account that the margin of action of municipal and cantonal political parties is restricted by the degree of decentralization. A municipal councilor has more competences in a highly decentralized canton than in a centralized canton. Thus, municipal parties in decentralized cantons likely play a greater role. Hence, future research could take into account that decentralization and partisan effects might interact. Equally of interest could be a qualitative assessment of the margins of maneuver of parties in a small-n comparison, say between two municipalities involved in wind energy, such as one in GR with one in VD, for example.

After an in-depth comparative treatment of wind energy authorization procedures in Switzerland, a similar study on the European level, which resorted to similar concepts and measures, was presented. Its setup was much simpler than the one for Switzerland. Data were taken from an original European expert survey. As the study has been explicitly exploratory, there are some points which could be improved: An important limitation has been given by the decentralization measure itself, as the country scores of the Regional Authority Index are weighted by population. Hence, it is not clear to what extent the results have been driven by population size instead of decentralization

itself. Future research could use unweighted decentralization measures (see Harguindéguy et al. 2021) that does not incorporate population size and then control for population size in the models. Moreover, in the study, frequentist models were kept simple with regard to the number of control variables. More elaborate tests in this regard could also be of use in future studies on the subject. Additionally and importantly, the measure of distribution of competences within wind energy authorization procedures, a survey item, could be improved on. A future survey could, for example, define a battery of questions that allows for greater variance, more validity and reliability. As only one expert per country was asked to respond to this item in the European survey that was conducted for this research project, this could be considered as problematic. This is because the representativeness of these experts with regard to the bandwidth of expert opinions on wind energy in each country can be put in question when only one is chosen.

10.5. Concluding thoughts

Using three original surveys, 20 interviews and a wide array of statistical methods and being embedded in the overall analytical framework of Actor-Centered Institutionalism, this study has sought to discover effects of the institution of decentralization on the problem-solving effectiveness of wind energy authorization procedures in Switzerland and also in Europe. Problem-solving effectiveness was measured using three indicators: the hosting probability of cantons and municipalities, efficiency and ratings of efficacy by the stakeholders themselves. In the Swiss part of the study, the Swiss cantons, municipalities or wind energy projects were compared; on the European level, countries were the units of comparison. In the Swiss context, the study further examined whether political parties have had an effect on aspects of implementation arrangements and on problem-solving effectiveness measures.

Theoretically building upon Mayntz and Scharpf's Actor-Centered Institutionalism (1995; Scharpf 1997), the study sought to build an analytical model for future researchers that seek to analyze effects of political institutions on the performance of policy-specific outcomes. Concretely, it proposed a three-link analytical scheme: The first link sought to detect effects of an institution on implementation arrangements, the second examined effects of implementation arrangement aspects on performance, and the third tested for

direct effects of an institution on performance. This design has been called an "intermediary research design".

Empirically, this study started out by delineating facts and figures about Swiss wind energy authorization procedures and projects. It found a mean duration of 15 years in Switzerland. Compared to the European mean, as measured by Ceña et al. (2010) of 3.5 years, procedures in Switzerland take more than 4 times as long. In a total of 85 wind energy projects, 17 cantons and 121 municipalities have been involved. In the German-speaking part of Switzerland, about every 20th municipality is involved, in the French-speaking part it is about every 10th.

Analytically, the study found a positive effect of perceived local autonomy (a component of the polity dimension of decentralization) on the number of organizations and on the number of veto players involved in an implementation arrangement. Greater perceived local autonomy was further found to be positively associated with greater conflict and negatively with trust in implementation arrangements. In turn, these four aspects of implementation arrangements were found to reduce the efficiency and efficacy ratings of stakeholders of Swiss wind energy authorization procedures.

In contrast, on the European level, the study found a marginally positive relation between greater decentralization, as measured by the Regional Authority Index' dimension of self-rule, and the expansion of installed wind energy capacity. This positive finding of decentralization as self-rule stands in contradiction to the negative finding in Switzerland. This underlines the literature's argument that, when estimating the policy-making effects of decentralization, details matter (Mueller et al. 2017; Feld and Schnellenbach 2011). Decentralization effects on policy-making might also be highly dependent on context (see Lauf et al. 2020; Toke et al. 2008; Pettersson et al. 2010; Liljenfeldt 2015). In any case, this detected conundrum calls for resolution. This could be done by seeking to find the relevant context that makes decentralization effects switch sign. Or it could motivate researchers to use different measures and/or more elaborate data or methods to falsify the detected relation on an international or within-Swiss level.

With regard to the partisan effects on implementation arrangement aspects and on problem-solving effectiveness in Switzerland, the study found a negative effect by the SP (left party) on problem-solving effectiveness on the cantonal level and a positive effect of the CVP (center party) on both the cantonal and the municipal level. The SVP (right party) showed an ambiguous effect on the municipal level and none on the cantonal level.

Looking for an explanation for the peculiar outcome of negative findings of the SP, the author has brought forth the prominent argument in the literature that the left has been forced to balance trade-offs when seeking policy: The left, it has been argued, has been captured by the "green-green dilemma" (Tafarte and Lehmann 2023; Dulluri and Raț 2019; Jackson 2011), in which parties weigh a positive contribution of greater installment of wind turbines to combat climate change against their negative effect on biodiversity. It was further found that the left-right dimension is not the right dimension along which partisan effects in wind energy could be expected. In fact, the level of government is at least as relevant. The same party can have different effects across levels of government. This is in line with the literature on partisan diversity and fragmentation in Switzerland (Ladner 2014). The results also point to the strong role of institutional constraints when assessing partisan effects (Bochsler 2009; Thorlakson 2009). Hence, the value of the investigation into partisan effects has primarily been to jump-start investigations into partisan engagement on the cantonal and municipal levels on wind energy. For example, further studies of partisan effects on the problem-solving effectiveness of Swiss wind energy authorization procedures could either conduct an in-depth analysis of one political party across all levels or analyze the wind energy engagements of multiple parties within a single level of government.

Next to its academic contributions to the literature on energy federalism, its collection of data that has served to identify the sector of wind energy in Switzerland and its providing a useful analytical model for polity-on-policy research designs, the present study has also been motivated to make a practical contribution: The study investigated effects of policy design on efficiency and stakeholder efficacy ratings. It detected two significant negative effects on efficiency. First, wind energy projects have incurred systematic delays due to the elaboration and validation of the cantonal structure plan, the highest-ranking cantonal land-use instrument that establishes the broader lines of development for all territorial activities. Secondly, a greater extent of associational complaints in the procedure has been found to significantly reduce efficiency. Importantly, regarding the political discussion on running the local land-use- and the construction-phase in parallel, no effect could be found that such concentrated procedures are more efficient. The required type of local land-use plan (framework or special, etc.) has not shown any significant delay effects. With regard to stakeholder efficacy ratings on wind energy authorization procedures, more extensive assessments of federal interests and federal

coordination duties, along with a greater extent of associational complaints, have affected them significantly negatively, thus lowering effectiveness.

These practical findings, along with the results on decentralization, implementation arrangement and political party discussed above, allow for the formulation of policy recommendations.[305] Reforms of the procedure have been debated for a while, but at least since the elaboration in the Energy Strategy 2050 in the early 2010's. Since Russia had openly invaded Ukraine in February 2022 and the European Union as well as Switzerland imposed energy sanctions, the topic of energy independence has strongly gained traction.

A gentle reform of the procedure has been debated and adopted in Spring/Summer 2023 by the Federal Assembly. The new law proposes a change in competence for wind energy projects that are of at least a certain size, have at least advanced to the stage of having a legally valid local land-use plan[306] and are within an additional 600 MW of installed capacity compared to 2021 (86.7 MW; see Wind-Data.ch 2023). For wind energy projects that fulfill these criteria, the canton shall grant the construction permit, not the municipality. In some cantons (e.g. BL, FR) this is already the case. In addition, within the legal cascades after the administrative granting or denial of a construction permit for these projects, complaints can only be heard at one legal instance, the upper cantonal courts.The only exception is that the question the court must decide on is one of "fundamental significance", in which case the Federal Court is open to receiving the complaint in second instance.

However, this new Federal Act has only acknowledged efficiency as a problem in wind energy authorization procedures, not other criteria of the efficacy of the procedure, such as, e.g., transparency, competence or fairness. The politically salient issue has been that the proposal foresees a reduction of municipal involvement in the authorization procedure, which — in light of the findings — is very likely to be conducive to greater efficiency. Yet the time that could be saved clearly depends on the already existing cantonal designs. Federal authorities have announced a savings potential of up to three years in total due to this proposition (BBl 2023, 588). Even under this gentle reform, the municipalities remain veto players in the procedure, especially for the land-use plan.

305 These are presented in-detail in a separate practitioner's report.

306 (The land-use plan must be enacted by the municipality or by the canton using an instrument that can be challenged to a direct.democratic vote.)

In short, the new law is a minor procedural overhaul. It does not address the delay factors of federal assessment and coordination workload or the CSP-elaboration and validation. A more fundamental reform proposed in a BFE-mandated study by Aemisegger and Marti (2021), which has been in public consultation in early 2022, would dare to address more of the fundamental issues. Aemisegger and Marti's (ibid.) proposal foresees a federal spatial concept for larger projects and, importantly, the introduction of binding deadlines for cantons to adopt their cantonal structure plan. This proposal would further force cantons to foresee a concentrated procedure, without a municipal role in a local land-use plan or a potential construction permit. Municipalities could still partake in the federal spatial concept and would retain their capacity to lodge formal complaints against the cantonal decision in direct or accessory fashion. As the new law has been adopted, this procedural change-proposal is currently on hold.

Still, even this more wide-ranging reform proposal does not address concerns of transparency or fairness. Importantly, unless the Federal Assembly restructures competences in spatial planning more fundamentally, the main levers for reform rest on the cantonal level. Cantons decide how to design their procedure and how to involve their municipalities. They could speed up the planning process by seeking ways to rework their cantonal structure plan more efficiently. Even today, many cantons foresee the instrument of a cantonal land-use plan. The canton of NE has already used this instrument in 2014. It is also in their range of competences to define rules of transparency and make the procedure more equitable for all stakeholders involved. Cantons and municipalities could also reflect and experiment with innovative forms of participation. It is also in their competence, in the limits given by federal legislation, to define who can take a project to court.

With regard to the federal Energy Strategy 2050 and the public's focus on national-level politics, the required change of analytical but also political focus to a lower level of government seems counter-intuitive. As is the case in many political questions in Switzerland, one must indeed analyze the cantons and municipalities to deliver concrete improvements. In consequence, the pressing energy transition requires that researchers and politicians pivot to the lower levels of government earlier rather than later. Greater courage to address the more nitty-gritty details of lower-level political systems would not only be good for political science. In fact, a more efficient and effective energy transition is guaranteed to be beneficial to (human) nature.