Public Discourses on (Sectoral) Energy Policy in Switzerland

Insights from Structural Topic Models

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Abstract Energy transitions are based upon policy choices of sovereign nation states. Hence, politics plays a role in determining which policies governments implement and which sectors are targeted. Our chapter looks at the evolution of public discourse on energy policy as one important factor reflecting policy discussion and contestation within the political arena. Our descriptive and explorative analysis of the early public discourse in Swiss energy policy between 1997 and 2011 contributes to three main issues. First, it makes a case for the disaggregation of energy policy and its public perception to add to our understanding of energy transition pathways. We argue that looking at sectoral discourses as well as sectoral policy outputs allows for a more comprehensive understanding of the idiosyncrasies of Swiss energy policy regarding temporal as well as sectoral variation. Second, an increased politicization of energy policy may affect future policy choice, and thus any account on energy transition policy needs to scrutinize potential feedback effects from policies that manifest via policy discourse. Third, and on a more

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methodological stance, we argue that our approach to use news media as a representation of the public discourse via structural topic models can help to explore and explain the evolving national policy priorities regarding energy transition.

1 Introduction

The most central task for effective climate policy is the fundamental restructuring of the way in which we produce and consume energy—a process generally referred to as energy transition. The policies associated with energy transition are needed for nations to fulfill their emission goals under the Paris Agreement, given that energy consumption for electricity generation, transport and heating and cooling of buildings is contributing massively to CO₂ emissions in most countries. To honor their international commitments, nations have implemented a plethora of different policies to convert their economies from using mainly fossil fuels to economies based on renewable energy consumption and an efficient use of energy within the past 30 years.

The resultant national energy governance, i.e. which policies governments implement and which sectors are targeted by these policies, is idiosyncratic. While most nations follow a rough pattern starting from green industrial policy to later add pricing policies and finally ratchet up the policy mix,¹ the concrete choices about which sectors are addressed to what extent vary widely between countries. In our contribution, we heed the calls of different scholars for the joint analysis of different sectors and their associated policies.² More precisely, we first make a case for the increased disaggregation of energy policy and its public perception and discourse to add to our understanding of energy transition pathways. To this end, we argue that our descriptive and explorative analysis of the public discourse in Swiss energy policy between 1997 and 2011 allows for a more comprehensive description and understanding of the idiosyncrasies of Swiss energy policy regarding temporal and sectoral variation.

Second, the path-dependent character of national energy policy, which has been stressed in previous scholarly work,³ means that former decisions in energy policy have strong implications for future choices. In this chapter, we argue that comparative research should go beyond explaining policy adoption. Energy transitions are long-term policy projects that have distributive effects. If policies are increasingly contested and politicized, this may affect future policy choices. Politicization might be visible in increased discourse after policy-making. We suggest that researchers use public discourse to monitor contested policies.

¹ According to Meckling et al. (2017).

² Stokes and Breetz (2018).

³ Aklin and Urpelainen (2013); Unruh (2002).

Third, our approach to use news media as a representation of the public discourse via structural topic models can help to explore and explain patterns within energy policy discussions and the evolving national policy priorities regarding the energy transition.

We descriptively map the development of the Swiss energy policy discourse over the years 1997–2011 by looking at different sectors and comparing discussions on different instruments. Our guiding questions are: How does media discourse develop over time and which factors are associated with (low) high levels of discourse? Drawing on an extensive news media content analysis of the two leading Swiss quality newspapers, we first show how climate change relevant energy policy was reflected within the media. We link our insights from these media discourses with actual policy outcomes as well as incidences of popular referendums on energy policy to gain some leverage over the question whether policy-making of the Swiss government has been more responsive to issues or sectors that loomed large on the public's agenda or whether we cannot establish any connection. Second, we depict how specific discourses and debates around energy policy developed over time. To explain this variation in the Swiss discourse on energy policy, we submit that through the discourse a potential political space opens for the formulation of and debate on alternative solutions.

2 How News Media Can Approximate Public Discourses

We measure our theoretical construct “public discourse” by texts in newspapers. Along with other research streams like politicization research⁴ that heavily draw on news content to capture their phenomenon of interest, we do not equate concept and measurement. However, we want to explain directly why the news media appears to be the premium choice for our research interest, especially by highlighting the advantages of the text-as-data/content analysis approach on the basis of newspapers.

Newspaper reporting provides researchers with an accessible medium through which one can assess national tendencies in issue framing or general topics of discourses.⁵ And although other media outlets such as TV or social media have gained tremendous ground over the past 30 years, newspapers still maintain their inter-media agenda-setting power.⁶ This means that issues picked up by leading quality newspapers actually influence reporting in other outlets such as social media,⁷ TV or radio. This ability of news media to influence the national conversation on certain policy issues is forcefully shown in the study by King et al.,⁸ who find

⁴De Wilde et al. (2016).

⁵Broadbent et al. (2016), p. 6.

⁶Vliegienthart and Walgrave (2008); Golan (2006).

⁷King et al. (2017).

⁸King et al. (2017), p. 776.

that “exposure to the news media causes Americans to take public stands on specific issues, join national policy conversations, and express themselves publicly—all key components of democratic politics—more often than they would otherwise.” This suggests that quality newspapers can serve as a valid proxy for the general media landscape.

Moreover, news media reporting impacts on individuals as well as policy-makers. On the one hand, publicly available information is crucial to the formation of individual political preferences.⁹ Additionally, media content is often found to be closely linked to public opinion on given issues.¹⁰ On the other hand, policy-makers tend to rely on opinions represented in the media when trying to gauge public opinion,¹¹ considering published opinion as an approximation of public opinion.¹² Thus, the news media is an important source of information for any inquiry on discourses in national energy politics.

For our contribution to this edited volume, we use data on Swiss newspaper reporting on climate change and energy transition policy as a starting point.¹³ In recent years, text-as-data approaches have gained in popularity within political science research.¹⁴ Especially topic models have come into use more often to analyze large amounts of data without having to refer to (expensive) human coders. The specific unsupervised automated content analysis method used in this contribution is called structural topic modeling (STM). It allows scholars to include covariates that affect the topical prevalence and furthermore analyze the effect of covariates on topic proportions on the document level.

In our contribution, we apply these automated content analysis tools to understand how the public discourse on energy policy has evolved over time and whether we can gain general insights into potential future discourses. In the following section, we present general assumptions on the development of energy policy discourses over time and across newspapers. We then introduce our data and STM as a novel method to study energy policy discourses via newspaper data. A discussion of our results and of possible avenues for future research concludes our chapter.

⁹Gilens (2001).

¹⁰Bauer (2005); Oehl et al. (2017); Sampei and Aoyagi-Usui (2009); Schaffer et al. (2021).

¹¹Herbst (1998).

¹²Schaffer et al. (2021).

¹³Oehl (2015); Oehl et al. (2017); Schaffer et al. (2021).

¹⁴E.g. Tvinnereim and Fløttum (2015); Tvinnereim et al. (2017).

3 The Evolution of Public Discourse on Energy Transition Policies

While the transitions in the energy sector we have been observing globally over the past 20 years are certainly accelerated by technological progress, they are based upon policy choices of sovereign nation states. Certainly, outcomes of international climate negotiations, such as the Paris Agreement, act as an external accelerator of energy transitions. In the end, however, national governments are firmly in the driving seat with respect to the pathways towards decarbonizing their economies. As a result, politics is supposed to play a major role in energy transition pathways. We thus heed the call from transition scholars to more closely look into the politics of energy transition.¹⁵

3.1 *Explaining Energy Transition Policy*

Energy policy adoption and change are the outcomes that have primarily been analyzed in different literatures, including political science and political economy, but also within the public policy literature. With respect to the political science literature, scholars have argued that governments' energy policy choices depend on a plethora of factors such as domestic political institutions,¹⁶ the national energy mix,¹⁷ governing parties,¹⁸ as well as coalitional politics.¹⁹ In general, one would assume that public policy in democracies will depend on the public's stance towards the societal goal of energy transition. That is, according to normative theories of democracy, governments should be responsive to the public's demand on issues. Studies in the transition and political science literatures that focus on how public discourses as a dimension of demand shape policy change or how media discourses can be linked to feedback effects of policy, however, have so far been rare.²⁰

Within the policy literature, the Advocacy Coalition Framework²¹ or the multiple streams model have been prominent choices to describe when crucial events happened or "windows of opportunity" opened for policy change. Most notably, the Fukushima incident is portrayed as such a focusing event for accelerated energy transition pathways in many different countries.²² Such focusing events may lead to

¹⁵ E.g. Markard et al. (2016).

¹⁶ Aklin and Urpelainen (2013).

¹⁷ Schaffer and Bernauer (2014).

¹⁸ Cao (2012); Schaffer and Bernauer (2014).

¹⁹ Meckling and Jenner (2016).

²⁰ Notable exceptions include: Kern (2011); Isoaho and Markard (2020).

²¹ Ingold (2011); Ingold and Fischer (2014); Markard et al. (2016).

²² Hermwille (2016); Kammerer et al. (2020); Markard et al. (2016); Rinscheid (2015); Wittneben (2012).

policy change through public pressure and upcoming elections,²³ further exposing the importance of public opinion and media discourses for policy choice.

Our contribution seeks to add to both literatures by considering the relationship between public discourses and public policy as well as between public discourses and other political events.

We argue that there are two shortcomings within the literature that we address in a preliminary attempt here. First, energy policy and decarbonization pathways should not be addressed in an aggregated fashion. It becomes increasingly unsatisfactory to link broad measures of e.g. public demand for climate change or energy transition policies to an aggregated measure of policy output without differentiating whether the measure targets the transport or buildings sector or whether the policy instrument used is a carbon tax or an information campaign on energy efficiency.²⁴ Energy policy is not one monolithic block and we submit that disaggregating national energy policy choices into sectors, policy instruments or other meaningful units can add to our understanding of idiosyncratic pathways and delivers a more accurate representation of the whole picture. Second, research has overly focused on policy adoption.²⁵ In our view, research should move on from the study of what determines countries' energy policies to the question of what happens after policy adoption.²⁶ To this end, we stress the importance of contestation in politics and that researchers need to account for an increased politicization as it may impact on future policy choices.²⁷ In considering both discourses toward policy adoption and policy contestation as well as politicization in our descriptive analysis, we expect interesting first insights into the level of contestation of different policies. Eventually future contributions might seek to theorize a priori about different impacts of policies on their contestation and politicization within the policy discourse.

In the following paragraphs, we formulate assumptions about the evolution and development of public discourse on energy policy in general before we turn to our data and test our assumptions on the early media discourses in Switzerland.

3.2 Differences in Energy Policy Discourse

A public debate over issues that interest the general public is a key element of democracy. Especially regarding topics that newly emerge on the national agenda,

²³ Jahn and Korolczuk (2012); Kammerer et al. (2020); Wittneben (2012).

²⁴ Schaffer et al. (2021).

²⁵ Hughes and Urpelainen (2015); Jenner et al. (2012); Jenner et al. (2013); Schaffer et al. (2021); Ward and Cao (2012).

²⁶ Béland (2010); Schaffer and Bernauer (2014); Sewerin et al. (2020).

²⁷ Meckling et al. (2017); Béland et al. (2020); Isoaho and Markard (2020); Lüth and Schaffer (2021).

media discourse can shape public discourse which is observed by policy-makers.²⁸ Accordingly, scrutinizing the development of the public discourse on energy policy in its early stages can add interesting insights to the debate on policy adoption and change. As energy policy is becoming more central to achieve societal goals such as a reduction of CO₂ emissions, lower risk from nuclear energy, or energy independence, these policies become ever more salient in the public discourse. With the increased salience of climate change as a topic on the international as well as the national agenda, the importance of energy issues within the national public discourse should increase. Accordingly, we would expect that the overall prevalence of energy policy topics within newspapers should increase over time (*assumption 1*).

As we have emphasized above, seeing the discourse over energy policy as one monolithic block might not do justice to the differences that exist with regards to topics, sectors or instruments of energy policy. That is, beyond the overall changes in the prevalence of energy policy in public debate, we aim to disaggregate our data to consider variation in discourse between different energy sectors.

This leads to the following questions: Which sectors in energy policy are emphasized in the debate? What are the broader narratives that guide the discourse? We submit that differences in the public discourse may arise from two main reasons: (1) differences arise from policy-making and (2) differences arise from the independent role of news media.

On the level of policy-making (1), the strength of public discourse may change in the course of the legislative process. On the one hand, before policy-making takes place, general news media reporting varies with legislative activity as the news media report about parliamentary debates or governmental policy choices. On the other hand, legislative activity induces feedback effects after policy-making that will enter media discourse and politicize issues surrounding energy policy.

More concretely, the political decision in favor of the transition to a low-carbon economy and the policies associated with it give governments considerable leeway concerning their selection of instruments and sectors to target. This difference in policy-making focus of the government may result in varying reporting on different energy policy issues within news media. Thus, we expect that news media reporting mirrors policy-making activity (*assumption 2a*).

In line with the policy-cycle model,²⁹ not only the reporting of sectoral policy output during the legislative process can cause a higher prevalence in public discourse, but—once implemented—policies can also lead to feedback effects and politicization. Policies targeted to replace, for example, fossil fuel-based energy with renewable, low-carbon energy generate private distributional effects for firms and individuals. They create winners and losers and these distributional *consequences may lead to an increased politicization of media discourse*. Accordingly, we would assume that such policy feedback and politicization effects emerge after sectoral policy output (*assumption 2b*).

²⁸ Herbst (1998).

²⁹ Howlett et al. (2009).

As a Swiss singularity, we introduce the role of direct democracy separately. While governmental policy-making clearly is a factor determining discourse on specific energy policy issues, the role of direct democratic decision-making on the energy policy discourse is less clear. In general, to what extent direct democracy helps or hinders a successful energy transition is still an understudied phenomenon.³⁰ Singular events such as referendums on energy policy issues require media space to trace arguments and the general debate.³¹ Therefore, a mediated public debate around popular initiatives or referendums is supposed to heighten issue-specific salience (*assumption 3*).

In addition to these policy-specific factors, we refer to the independent role of news media (2) as a second explanatory factor that may explain variation within and between (sectoral) public discourse on energy issues. One of the basic functions of news media as an agenda setter is to communicate to people what issues to think about³² and to provide a marketplace of ideas.³³ Moreover, news media can serve as an important actor especially in the early stages of energy transition that we focus on. In their agenda-setting and gate-keeping role,³⁴ media outlets can first bring ideas into the discourse; and they can, second, transport important alternatives and thus nuance ongoing debates on energy policy. Referring to the work of Eilders et al. (2004), Tresch³⁵ speaks of a dual role that newspapers take in referendum campaigns: “Through news coverage, newspapers inform the public about the issue positions and frames of the competing camps and convey information between political actors and citizens. In editorials and commentaries, in contrast, newspapers become political advocates in their own right that raise their voice, set an agenda, pursue policy options and try to shape public opinion”. In sum, newspapers as agenda setters could seek to stress issues differently to encourage the wider public to focus on certain sectors more heavily (*assumption 4*). Thus, differences in salience between sectors may emanate from the newspapers’ agenda-setting role in emphasizing certain issues.

4 Data and Methods

4.1 Data

The newspapers that form the basis of our analysis are the two newspapers of record with broad coverage in the German-speaking part of Switzerland: the *Neue Zürcher*

³⁰Biber et al. (2016); see especially Rinscheid and Udris (2021).

³¹Marcinkowski and Donk (2012).

³²McCombs and Shaw (1972).

³³Entman and Wildman (1992); Van Cuilenburg (1999).

³⁴Bernauer et al. (2015).

³⁵Tresch (2012), p. 288.

Table 1 Newspaper data used

Newspaper	(A) Data basis: Total Articles (Scraping)	(B) Total MaxQDA (human-coding, climate change relevant ^a) ^b	(C) Data universe for Structural Topic Model
Tages-Anzeiger	674,098	1615	1594
Neue Zürcher Zeitung	895,486	1886	1836

^aOehl (2015); Oehl et al. (2017)
^bEnglish translation of search string used: (climat! OR greenhouse! OR global warming) AND (renewable energ! OR energy polic! OR refining OR feed-in! OR emissio! OR emissions trading OR certificate trading OR (green OR white) AND certificate) OR combined heat OR cogeneration OR power solutio! OR energy solutio! OR CO2 OR carbon OR energy efficiency OR energy saving OR extraction OR exploitation OR geotherm! OR (solar w/5 (power OR energy) OR (wind w/5 (energy OR power)) OR hydro! OR agricultu! OR waste management OR forest OR wood!). For more information on the procedure, see Oehl et al. (2017); Oehl (2015) or Schaffer et al. (2021).

Zeitung (*NZZ*) and the *Tages-Anzeiger* (*TA*). All published articles by the *NZZ* and the *Tages-Anzeiger* between of January 1997 and 31st of December of 2010 were scraped from wiso.³⁶ This procedure yielded over a million articles (see Table 1 below). Then, a search string was used to select potentially relevant articles. Afterwards, the articles were manually coded determining whether the articles were relevant, i.e. whether they covered climate change or energy policy issues. This substantially decreased the sample and led to the text corpus in column B of Table 1.

For our structural topic models, all the articles were then assembled into a common text corpus and preprocessed (column C in Table 1). This included the removal of stop words, punctuation and numbers. In addition, words with an extremely low or extremely high occurrence were removed by using a specific percentage as a threshold. While nearly every automated content analysis removes certain words, the exact definition of the limits, in this case the specific percentage, can vary.³⁷ In our case, words with less than 1% or more than 99% appearance were removed. The same applies to extremely short or extremely long articles. The last step of the preprocessing includes the removal of capitalization and the removal of word endings of conjugated verbs or plural nouns. This then leaves just the “word stem”, which is especially useful for languages that change the word ending according to the sentence the word is placed in.³⁸

³⁶See Oehl (2015) and Oehl et al. (2017).

³⁷Lucas et al. (2015), pp. 256–258.

³⁸Lucas et al. (2015), p. 258.

Table 2 Example: two topics pertaining to renewable energy

energi, energien, erneuerbar, energieeffizient, energiepolitik, erneuerbaren, programm, massnahmen, . . .	Renewable
strom, energi, solarstrom, kraftwerk, wassserkraft, produzieren, solarzellen, pro, produziert, netz, kwh, . . .	Renewable

4.2 *Structural Topic Model*

Previous applications of automated text analysis have shown that the method offers a great advantage especially for large amounts of text dealing with the same general topic.³⁹ For the specific academic research area of climate change and climate policy, the method was successfully applied to analyze the public’s perception of air pollution and climate change from open-ended surveys.⁴⁰ Further, topic modeling was used to identify the most central topics in a collection of more than 800 academic articles in the area of environmental sociology.⁴¹ STM is also perfectly suited for this study, as we have already categorized the collected articles as relevant to the topic of “climate change”.

In order to determine the most important factor in any topic modeling (the k number of topics), different models were calculated with $k = 20/40/. . .80/100$. Subsequently, these models were validated by analyzing the semantic coherence as well as the exclusivity of topics. The semantic coherence is maximized when the words that are most probable in a single topic frequently co-occur, while the exclusivity analyzes to what extent words which often occur in one topic tend to occur in another topic. Both validation steps were done by using a data-driven approach as well as human coding. In the end, the model with a k number of 100 was chosen as the best fitted model for our purpose. But a high number of topics also means that some topics of the same general subject overlap. As can be seen in Table 2, these two different topics of the same model both describe the supply of “renewable energy”.

Since we are interested in the prevalence of general subjects such as, for example, “renewable energy sources” or “buildings”, the prevalence of all topics that had the same overall theme was added up. It is therefore possible that the sectors in the following analysis can consist of one or multiple topics.

From the 100 topics assembled within the topic models, we identified 36 energy policy relevant topics; thus, the majority of topics were not relevant for our interest. For example, Table 3 shows that topics that were not relevant for our specific interest concerned the implications of global warming as well as international

³⁹STM itself is the result of a multi-stage development of the Latent Dirichlet Allocation (LDA); see Blei and Lafferty (2009). While the LDA, as one application in the broader field of probabilistic topic modeling and mixed-membership models, does not allow the inclusion of covariates in its original form, STM does.

⁴⁰Tvinnereim and Fløttum (2015); Tvinnereim et al. (2017).

⁴¹Bohr and Dunlap (2018).

Table 3 Example: two irrelevant topics from the STM

grad, erwärmung, celsius, global, globale, jahrhundert, meeresspiegel, anstieg, wuerd, wahrscheinlichkeit, temperatur, koennt, temperaturen, wert, etwa	Implications of global warming
klimakonferenz, uno, kyoto, bali, protokol, entwicklungsland, konferenz, verhandlungen, industrieland, usa, staaten, laender, industriestaaten, nairobi, montreal	International negotiations

negotiations. The data on energy policy output is from Schaffer and Bernauer (2014) and Schaffer et al. (2021).

5 Development of Energy Policy Discourse in Switzerland 1997–2011

The period of investigation for this chapter might be seen as the beginning of climate change related energy transition policy in Switzerland.⁴² By the start of the period, a proposed CO₂ law had just been discarded after consultations had taken place. On the international level, the IPCC had released its 2nd assessment report; again confirming the workings of man-made climate change and the potentially disastrous consequences of an ongoing business as usual. Two years later, the international community agreed on the Kyoto Protocol, the first-ever binding international treaty to combat climate change. Having ratified an international agreement on climate change, states were supposed to comply by enacting policies to reach their prescribed goals.

Central to the national responses to climate change were policies that target energy production due to its large contribution to CO₂ emissions as well as *energy efficiency policies*. Thus, *energy policies helping to decarbonize the economy* by, e.g., switching from fossil fuels to renewable energy were a popular choice. This increased relevance of energy policy within governments’ agendas led us to stipulate that the overall prevalence of energy policy topics within newspapers would increase over time (*assumption 1*). Figure 1 shows the prevalence of articles including energy policy topics with respect to all articles published in the respective Swiss newspapers of record, the *NZZ* and the *Tages-Anzeiger*.⁴³ Overall and counter to our assumption 1, there is no general upward trend throughout the time period. Instead, we can see that from 1997 up until 2002 there is a slight downward trend in the prevalence of energy policy topics within news media discourse. From 2002 onwards until around 2006, however, we observe a sharp increase in the prevalence of energy policy

⁴²C.f. Rieder and Strotz (2018), p. 25.

⁴³As our Fig. 1 reports the prevalence of energy policy topics in relation to all daily media content, reported % on the y-axis are very small.

Fig. 1 Prevalence of energy policy topics with respect to total reporting by *NZZ* and *Tages-Anzeiger*

topics. From 2006 until 2011, again, the prevalence of energy policy topics in relation to total news reported decreases. If we recall our assumption, the main rationale for an increase was supposed to emanate from an increase in policy-making activity to target CO₂ emissions and, linked with this activity, public discourse on and politicization over energy policy.

Let us now take a look at the developments with respect to legislative activity on energy policy in Switzerland. We will concentrate on the largest and most relevant activities here.⁴⁴ Directly from 1997 onwards, the Swiss Parliament debated and drafted a revised version of the CO₂ Act to comply with the Kyoto goals of an 8% reduction of GHG emissions and passed the bill by 1999. This CO₂ Act is the main legal basis for regulating CO₂ emissions in Switzerland. Although it is an encompassing piece of legislation that generated a lot of debate about its design and about who would be responsible for its initiation, we can observe from Fig. 1 above, that there is comparatively little attention within the media discourse.⁴⁵ This is a notable finding suggesting a decoupling of the early policy process and news media discourse that has, for example, also been found by Tresch, Sciarini and Varone.⁴⁶ Nevertheless, the law contained a provision for a CO₂ levy⁴⁷ to be

⁴⁴For more information on the history of Swiss energy policy, see Rieder and Strotz (2018).

⁴⁵Also, the Energy Act (EnG) dates to this period (1998), which may also have contributed to an increase in public discourse with respect to energy.

⁴⁶Tresch et al. (2013).

⁴⁷The term “levy” is used “to distinguish the CO₂ levy from a conventional tax, since the revenue from the levy is not channeled into the national budget, but is returned in its entirety to the population (via reduction of health insurance premiums), to businesses that pay for it (in the form of a cut in old-age pension contribution), and the buildings program”, IETA (2015), p. 3.

implemented if voluntary measures toward CO₂ reductions were not successful, which—literally—fueled the debate from 2002 to 2006, as we will show below.

So, what moves public discourse over energy policy topics? In our theoretical part, we have assumed that public discourse might be determined by news media reporting on (discussions of) upcoming legislative activity (*assumption 2a*). Contrarily, one might expect public discourse to be highest in the implementation and evaluation phase of a policy,⁴⁸ that is when the consequences from policies become apparent and a given issue is politicized (*assumption 2b*).

These differences in the timing of public discourse notwithstanding, actual policy-making in the area of energy policy is supposed to be linked to differences in news media attention. In Fig. 2, the bars represent energy policy output.⁴⁹ One may observe the peak of overall policy adoptions to occur somewhere around 2009, while the mode of the prevalence of energy policy in our news media data is clearly in the year 2006. Accordingly, one may speculate whether policy either follows public discourse with a 2–3-year lag or whether the cumulative change in policies from the years 2002–2004 triggered discussion in 2006. The former would rather support assumption 2a, while the latter would be in line with our politicization assumption 2b. In any case, there does not seem to be an apparent co-occurrence of governmental policy in the area of energy and the overall public discourse on energy. But before we turn to our more disaggregated descriptive analysis, we need to consider other important political events and their impact on the overall energy policy discourse, most importantly national referendums.

While the public does not have an active role in everyday energy policy-making, in a direct democratic setting as in Switzerland, referendums on specific issues will need to be voted on from time to time. Referendums are relevant for our analysis for two reasons: First, we might expect a lot of public discourse on the respective issue. Our assumption 3 accordingly stipulated that these popular referendums should go together with a high level of public discourse on energy issues, as media within direct democracies assume their role in informing the public.⁵⁰ Second, a “no” to a proposed law might imply that the respective policy has little chance of being implemented. Not considering referendums and the potential policies on energy that may *not* manifest (after a lost referendum) may bias our descriptive analysis. Within the time period in question for this chapter, there were seven referendums on issues of energy policy that are depicted and explained in Fig. 2. Notably, in 2000⁵¹

⁴⁸Jann and Wegrich (2007).

⁴⁹Various information sources were used to code policy output (Schaffer and Bernauer 2014; Schaffer et al. 2021) including IEA and EU databases, country reports to the UNFCCC, and information from national environmental and energy agencies to code the data for the dependent variable. Especially useful in this context were the IEA database on Climate Change Policies and Measures (IEA 2018) and the national communications (NCs), which Annex I countries to the Kyoto Protocol submit under the UNFCCC.

⁵⁰Tresch (2012).

⁵¹In 2000, a referendum about energy taxes with the purpose to encourage renewable energies took place. The population had to express itself on three proposals: a popular initiative on solar energy (*Solar-Initiative*) and two governmental proposals, namely a measure for the promotion of renewable energies (*Förderabgabe*) and a constitutional article to introduce an eco-tax

Fig. 2 Prevalence of topics over time. Bars indicate number of energy policy adoptions in a given year. Dashed lines mark times of popular referendums on energy policy topics during the period between 1997 and 2011. (a) 24.09.2000 Popular initiative on solar energy (Volksinitiative 'für einen Solarrappen (Solar-Initiative)'); (b) 24.09.2000 Government proposal for the promotion of renewable energies (Verfassungsartikel über eine Förderabgabe für erneuerbare Energien (Gegenentwurf zur Volksinitiative 'für einen Solarrappen (Solar-Initiative)')) (Förderabgabe); (c) 24.09.2000 Government proposal on a constitutional article to introduce an eco-tax (Verfassungsartikel über eine Energielenkungsabgabe für die Umwelt (Gegenentwurf zur zurückgezogenen 'Energie-Umwelt-Initiative')) (Energielenkungsabgabe); (d) 02.12.2001 Referendum on Energy tax not VAT (Volksinitiative 'für eine gesicherte AHV - Energie statt Arbeit besteuern!'); (e) 22.9.2002 Referendum Electricity Market Act (Elektrizitätsmarktgesetz (EMG)); (f) 18.05.2003 Popular initiative "Strom ohne Atom"

(nuclear phase-out) (*Volksinitiative 'Strom ohne Atom - Für eine Energiewende und schrittweise Stilllegung der Atomkraftwerke (Strom ohne Atom)'*); (**g**)
18.05.2003 Popular initiative "MoratoriumPlus" (*Volksinitiative 'Moratorium Plus - Für die Verlängerung des Atomkraftwerk-Baustopps und die Begrenzung
des Atomrisikos (MoratoriumPlus)'*) (extension of nuclear construction stop)

the Swiss population rejected the introduction of incentive taxes to promote renewable energies, such as the “solar cent” or taxes on non-renewable energies to promote renewable energies.⁵² Moreover, the draft of the Electricity Market Act (*Elektrizitätsmarktgesetz EMG*) was rejected in 2002. The initial purpose of this act was to liberalize the market for electricity, and it contained provisions on renewable energies. A proposition to phase out nuclear energy and to extend the moratorium on the construction of new nuclear power plants (*MoratoriumPlus*) was also rejected in 2003, showing little will from the Swiss population to go beyond the existing regulation in terms of energy supply or to promote renewable energies.⁵³ Comparing these referendum events that took place in a relatively short time period between 2001 and 2003 (see the dashed lines in Fig. 2) with the overall prevalence of energy policy in the news media discourse, again, there is no apparent co-occurrence. While this is not in line with our assumption 3, others have found that the level of media coverage and public discourse on referendum campaigns varies widely between issues. Marcinkowski and Donk,⁵⁴ for example, find in their study that the topic of international politics yielded a large number of articles, whereas immigration and traffic issues led to less coverage. Thus, we may conclude that either the topics relating to energy policy on the ballot did not spark an above-average discourse in the media, or we need to consider the specific sub-issue the referendum was about in order to account for the referendum’s impact on media discourse.

In summary, the aggregated information from an overall consideration of public discourse on energy policy topics is not detailed enough to distinguish whether the observed peak around 2005 can be linked—for example—to an emergent discussion around the Electricity Supply Act from 2007 (*Stromversorgungsgesetz, StromVG*) or whether the final introduction of a CO₂ levy (as stipulated within the CO₂ Act) in 2007 was responsible for the heightened level of energy policy discourse. To this end, we have argued that one needs to account for different energy policy issues or sectors about which there was discussion and that structural topic models can assist researchers in these more fine-grained analyses.

Figure 3 depicts how the prevalence of topics related to different sectors⁵⁵ published in the respective Swiss newspapers developed over time. The y-axis

(*Energielenkungsabgabe*). The three proposals had in common that they would have raised a tax on non-renewable energies. Compared to other countries, the proposed levels of taxation were rather low, but there was substantial opposition from industrial associations, who campaigned against all three proposals. The coincidence with prices spikes in the oil market in the summer 2000 led to a rejection of all proposals in the popular vote.

⁵²Wüstenhagen et al. (2003).

⁵³After these 7 referendum decisions within only 3 years, the Swiss people were granted some 12 years until they were asked to vote on energy matters again in 2015, SFOE (2019), p. 29.

⁵⁴Marcinkowski and Donk (2012).

⁵⁵The following sectors are considered in our analysis: energy supply (power and heat generation), transport (public and private), buildings and appliances. The categorization used here is in accordance with Schaffer et al. (2021).

Fig. 3 Prevalence of topics regarding different sectors

shows the sector percentage in relation to all climate-change relevant articles (i.e. column C in Table 1) and not to the total of articles published in the newspaper.

So, do we see stark differences in how news media discourse evolved within those four sectors, and can we gain additional insight regarding the importance and timing of actual policy output? First, we see that there is variation in the prevalence of sectoral topics both over time and between sectors. Topics relating to energy sources in power and heat generation (energy supply) clearly enjoy the highest prevalence, while appliances apparently were not much of a discussion item within the public discourse. Second, similar to the overall picture, we also see the peak in media discourse concerning energy supply (and also regarding buildings) in the year 2006.

In Fig. 4, we further divide the topics within the energy supply category into topics pertaining to the different energy sources: nuclear, renewable or fossil. Here, we see a remarkable difference in the prominence of topics in the overall discussion. While most of the discourse in energy policy concentrated on how to deal with power and heat generated from *renewable sources* during the beginning of our period and peaking around the year 2000, topics pertaining to *fossil energy sources* were comparatively less prevalent in this first period. According to our disaggregated Fig. 4, the referendums on the solar initiative as well as the government proposal for the promotion of renewable energies (*Förderabgabe*) in 2001 seemingly did lead to comparatively high levels of public discourse on the topic of renewables within the two main newspapers of record. This observation supports our assumption 3 on the importance of media discourse in the event of a referendum and the value of a public debate over issues that interest the general public as a key element of democracy. After the lost referendums on solar energy and a promotion levy for renewable energy (*Förderabgabe*), however, topics pertaining to renewables dropped in prevalence and never reached the same amount of relative consideration within the media

Fig. 4 Prevalence of topics regarding different sectors (accounting for different energy sources). Dashed lines mark times of popular referendums on energy policy topics during the period between 1997 and 2011. (a) 24.09.2000 Popular initiative on solar energy; (b) 24.09.2000 Government proposal for the promotion of renewable energies (*Förderabgabe*); (c) 24.09.2000 Government proposal on a constitutional article to introduce an eco-tax (*Energielenkungsabgabe*); (d) 02.12.2001 Referendum on Energy tax not VAT; (e) 22.9.2002 Referendum Electricity Market Act; (f) 18.05.2003 Popular initiative “*Strom ohne Atom*” (nuclear phase-out); (g) 18.02.2003 Popular initiative “*MoratoriumPlus*” (extension of nuclear construction stop)

discourse again. This is an unexpected finding as—following the rejection of the Electricity Market Act in the referendum in 2002 and facing the threat of the EU market liberalization—the question of renewables within the energy supply was a central one within elite discourse and it received increased parliamentary attention.⁵⁶ Moreover, the decision on the Swiss feed-in tariff (*kostendeckende Einspeisevergütung KEV*) as the prime mechanism to encourage renewable energy is associated with the adoption of the Energy Supply Act (*StromVG*) of the 23rd of March 2007 (in force from 1st of January 2008) and with the revision of the Energy Act of 1998 (*Energiegesetz EnG*) on the 1st of January 2009. These important decisions on the promotion of renewable energy seem not to be accompanied by an increased public discourse. From our visual inspection of relative topic prevalence, we may thus conclude that renewable energy was a comparatively uncontested issue during our period of analysis. From Fig. 4, we further observe that the prevalence of topics relating to power and heat generated from fossil energy sources moves somewhat counter to the renewables debate. Starting comparatively low, fossil energy topics received above-average attention between 2004 and 2007.

⁵⁶For example, notable parliamentary initiatives regarding how to change the current approach with respect to renewable energy sources were proposed by Dupraz (2004), n. 03.462 and Speck (2003), n. 03.409.

Moreover, the prevalence of nuclear energy in the public discourse has also been comparatively low but steadily increasing to reach a peak around 2007, when nuclear energy also ranked prominently in discussions surrounding the Energy Supply Act and the preparation of energy perspectives up to 2035.

The above-mentioned accumulation of policies with respect to energy supply around the years 2007–2009 can be observed in Fig. 5 below. Here, the disaggregation of policies as well as the public discourse into different sectors can bring additional information to the overall picture. For example, we clearly see that policy output concerning sources of energy supply dominates the political agenda with respect to energy issues over the whole period, whereas there are only two policies associated with regulating appliances. Policy output thus generally corresponds to the levels of public discourse. What about the timing? For example, with respect to the building (residential) sector and regarding energy supply, the peak in public discourse is observed before the respective peaks in policy output. While this suggests that public discourse over different sectors happened before important and comprehensive policy-making within these sectors took place, our visual evidence is indicative at best. For the transport sector, the prevalence of transport topics within the news media in 2004 may be driven by discussions regarding the ordinance about an emission compensation obligation for importers of fossil motor fuels coming into effect in that year.

The question of how to deal with a potential tax on motor fuels as originally foreseen within the CO₂ Act marks the start of discussions surrounding the CO₂ tax from around 2004. As stipulated above, these discussions relating to the CO₂ levy (that was decided upon in 2005 and that came into effect by 2008)⁵⁷ can probably serve as a possible explanation for the bump in overall energy policy prevalence within the public discourse (as observed in Fig. 1). The CO₂ Act and especially the coalitional dynamics within the debates over the design of the CO₂ levy have already sparked a lot of academic interest.⁵⁸ To also look into this important debate in a bit more detail, we chose to pick topics (from our 100 topic STM) that included the word stem “*abgabe*” (levy). Accordingly, Fig. 6 provides a graphic representation of the discussion on the CO₂ levy.⁵⁹ “*Abgabe*” was listed as a representative word within four different topics (see Table 2). Moreover, given that a “climate penny” (*Klimarappen*) was presented as an alternative suggestion by the Swiss Petrol Union (*Erdöl-Vereinigung*)⁶⁰ to circumvent a levy on motor fuels,⁶¹ we have also added the one topic representing the climate penny (*Klimarappen*). According to the 15 words

⁵⁷ IEA (2018).

⁵⁸ Ingold (2011); Ingold and Varone (2012); Ingold and Fischer (2014); Kriesi and Jegen (2001); Lehmann and Rieder (2002).

⁵⁹ For example, we did not use a topic that explicitly dealt with “*foerderabgabe*”, as from the 15 words it became clear that this referred to an earlier debate around the referendums in 2001 (however, it obviously counted towards the (renewable) energy supply discourse).

⁶⁰ Avenenergy Suisse (since 2019).

⁶¹ Ingold (2011).

Fig. 5 Prevalence of topics regarding different sectors. Vertical bars indicate the number of energy policy adoptions in a given year per sector

Fig. 6 Debate surrounding the introduction of a CO₂ levy

Table 4 Topics relating to the discussion surrounding the CO₂ levy

A: Topic (top 15 words ranked by prevalence)	B: Topic
<i>abgab, bundesrat, klimarappen, pro, lenkungsabgabe, treibstoffen, rappen, wuerd, liter, treibstoff, massnahmen, benzin, gesetz, inland, einfuehrung</i>	CO ₂ levy on motor fuels (Topic 57)
<i>abgab, oi, klimarappen, klimaschutz, rappen, heizuel, nationalrat, liter, cvp, ausstoss, pro, bundesrat, vanoni, inland, lenkungsabgab</i>	CO ₂ levy on heating and process fuels (Topic 3)
<i>gesetz, wirtschaft, emissionen, abgab, redukt, massnahmen, ziel, freiwillig, unternehmen, reduktionsziel, erreicht freiwilligen, verpflichtungen, umsetzung, klimapolitik</i>	Voluntary commitment (Topic 49)
<i>klimarappen, stiftung, millionen, tonnen, inland, ausland, redukt, projekt, pro, bund, ziel, zertifik, rappen, franken, beitrage</i>	Climate penny (Topic 6)
<i>abgab, gebaeudesanierungen, bundesrat, nationalrat, franken, vorlag, wab, staenderat, parlament, heizuel, millionen, massnahmen, bevoelkerung, vorschlag, pro</i>	CO ₂ levy on heating and process fuels/buildings (Topic 79)

most representative of these topics (column A in Table 4), we assigned headings for the reader to more easily relate to the (approximate) content of the topic (column B in Table 4). As the levy and the climate penny were mostly discussed together, we looked for the words that could best discriminate between the topics and assigned headings accordingly. To this end, the main difference between topic 57 and topic 3 is that 57 prominently deals with motor fuels (*treibstoffe*) whereas 3 concerns heating oil (*heizöl*). Topic 79 also includes heating oil as a top word but is referred to in the context of building renovations and can thus be discriminated from topic 57 (Table 4).

Figure 6 shows the prevalence of these singular topics on the CO₂ levy over time to zoom into the main discussion expected to have driven the observed overall peak around 2006 (c.f. Fig. 1). As mentioned above, the CO₂ levy was included in the 2000 CO₂ Act; however, it was not immediately effective. Voluntary agreements by industry to cut their CO₂ emissions were the initial measure to bring Switzerland in line with its 10% emission reduction goal defined in the Kyoto Protocol. Only if the voluntary agreements were not sufficient to reach this goal, in a second, subsidiary phase, a CO₂ levy (tax) would be introduced.⁶² Accordingly, from Fig. 6 we can see that the first topic mentioning a levy and showing increases in prevalence within the public discourse is indeed the one associated with the voluntary agreements (topic 49). Prevalence of this topic increases steadily, representing the phase (2000–2002) in which the private sector could sign voluntary agreements to reduce CO₂ emissions. By 2002, however, it became obvious that the voluntary measures would not suffice to reach the 10% reduction goal compared to 1990 levels by 2010.⁶³ Thus, from 2003 onwards, debates over a potential CO₂ levy and whether it would be levied only on heating and process fuels (topics 3 and 79 in Fig. 6) or also on motor fuels (topic 57 in Fig. 6) began that ended with the formal introduction of the CO₂ levy on heating and process fuels in 2008. In the course of this debate, opponents of a levy on motor fuels mobilized, and the Swiss Petrol Union (*Erdöl-Vereinigung*) presented the climate penny (*Klimarappen*) as an alternative to the ongoing discourse (topic 6 in Fig. 6), which was later taken up by the government in public consultation and eventually led to the abandonment of a CO₂ levy on motor fuels.⁶⁴ These real-world developments are picked up quite well by our 5 topics; for example, the discussion around a levy on motor fuels (topic 57) and a levy on heating and process fuels (topic 3, topic 79) dominated the public discourse especially in the years between 2003 and 2008. Also, the topic “*Klimarappen*” gains in prevalence throughout this same period. After the Bundesrat had decided on a compromise solution, namely a levy on heating and process fuels in combination with the “*Klimarappen*”, and parliament had voted upon it by 2005, questions on the concrete design dominated the discourse. In our Fig. 6, this is manifested by the increased importance of topic 79 that unites the levy on heating and process fuels and the building sector in the discussions from 2005 onwards. In this context, the set-up of how to recycle revenue from the levy back to the population and how to link revenue to further measures in the building sector through the Buildings Program (*Gebäudeprogramm*) was a topic of public discourse.

In making assumptions about the public discourse above, we mentioned potential differences between newspapers and their reporting on energy issues as one explanation. We assumed that newspapers might take different foci and stress different

⁶²Lehmann and Rieder (2002).

⁶³Ingold (2011); Prognos (2002).

⁶⁴It is quite remarkable that a private actor and interest group proposed a policy alternative that later was adopted.

Fig. 7 Prevalence of energy policy topics with respect to total reporting by the NZZ (dashed line) and the Tages-Anzeiger, split by covariate “newspaper”

elements or sectors of a discourse. The newspapers used for our STM are two leading quality newspapers in Switzerland that are considered to have different ideological leanings. While the *NZZ* is considered to be more conservative, the *TA* is more center-left leaning.⁶⁵ In Fig. 7, we can see that for the overall prevalence of energy policy topics within the total articles featured in the newspaper, the only notable finding is that the *TA* seems to dedicate more relative space to topics of energy policy compared with the *NZZ*.

Again, using such an aggregated measure to compare the two newspapers may not show large differences between them. The devil might be in the details regarding which newspaper pushes a certain topic while potentially neglecting another. Taking the debate about the CO₂ levy presented above, we might take a look whether both newspapers reported on all topics or whether some topics (e.g. the climate penny) were discussed more often in one of the newspapers. The debate at the level of single topics is very well suited for such a detailed comparison. To this end, Fig. 8 shows the estimated mean difference in topic proportions for the two newspapers. Indeed, we can see some interesting variation. First, we cannot observe any difference between the two newspapers regarding the topic of voluntary commitment and the—arguably most controversial—discussion on a levy on motor fuels. Second, the reporting and discussion on the climate penny is comparatively based more within the *NZZ*. But the real difference lies in the coverage on the levy on heating and process fuels (combustibles). Here, topic 3 (*abgab*, *oi*, *klimarappen*, *klimaschutz*, *rappen*, *heizoel*, *nationalrat*, *liter*, *cvp*, *ausstoss*, *pro*, *bundesrat*, *vanoni*, *inland*, *lenkungsabgab*) mostly dominates the discussion within the *Tages-*

⁶⁵C.f. Stauffacher et al. (2015).

Fig. 8 Estimated mean difference in topic proportions based on covariate newspaper

Anzeiger, while topic 79 (*abgab, gebauedesanierungen, bundesrat, nationalrat, franken, vorlag, wab, staenderat, parlament, heizuel, millionen, massnahmen, bevoelkerung, vorschlag, pro*), which links the CO₂ levy to the building sector, is mostly covered by the *NZZ*. To what extent this relates to their more conservative platform remains open, but nevertheless very subtle differences in the coverage of certain topics can be observed. Overall, however, Swiss media rather stick to their non-interventionist style of reporting elite discourses.⁶⁶ Media and communication studies might find it interesting to explore these issues closer with respect to climate and energy policy.

In conclusion, we had expected a general increase in the importance of energy policy within the public and news media discourse during the early period of the Swiss energy transition. In our content analysis of all articles published by the two leading newspapers and consecutively using structural topic models, we found that the overall energy policy discourse was dominated by the discussions surrounding the CO₂ levy. While these discussions can explain most of the above-average increase in public discourse around the years 2004 and 2008, discussions on potential market mechanisms to promote renewable energy were also consistently led. While this is speculative given our exploratory analysis, one might argue that the heightened public discourse led to profound and stable compromises and served the idea that all parties were heard before passing legislation, which might, for example, have prevented a referendum on the Electricity Supply Act of 2008.

In any case, as energy policy-making does not necessarily progress in a uniform manner adding important legislation year-by-year, the discourse on energy policy

⁶⁶Cammarano et al. (2010).

does not either. National and international circumstances, such as the financial crisis from 2008 onwards,⁶⁷ may possibly crowd-out discussions on energy or climate issues, while domestic debates on one energy policy issue (CO₂ levy) may sustain interest and potentially increase the prevalence of other energy policy issues (renewable energy remuneration) as well. Indeed, policy sequencing⁶⁸ may well describe the pathways observed in Swiss energy policy from 2008 onwards.

Looking at the developments presented here with hindsight in our explorative analysis of the public discourse, Switzerland did eventually meet its Kyoto Protocol targets, although some sectoral sub-targets were not met. Most notable for our descriptive analysis here is the transport vs. the building sectors trajectory. While the transport sector emissions were 10% above the 1990 level in 2012 (and should have been 10% below), the building sector's emission target was met and even undercut with a 16% reduction.⁶⁹ The proposed CO₂ tax on motor fuels, which represented a contested issue in terms of competitiveness but also inequality issues,⁷⁰ was replaced by the *Klimarappen* Initiative of the Swiss Petrol Union (*Erdöl-Vereinigung*). And although the emission gap that still exists in the transport sector has narrowed, a CO₂ tax on motor fuels has to this day not seriously re-entered the policy-making process—a case in point showing the political difficulty in seriously decarbonizing the transport sector.⁷¹

A central finding from our research is that it pays off to disaggregate reporting on the energy transition or equally climate change. Without a discussion on energy policy topics within the media, important topics such as the energy transition within the buildings and transport sector may not be discussed and thus are neither on the public nor on policy-makers' list of priorities.

6 Conclusion

Given the path-dependency of energy policy, it is of eminent importance to look at how topics evolve to account for today's realities. Our chapter aimed to contribute to and argue on three main points. First, in providing the whole picture, we suggested that energy policy and decarbonization pathways should not be addressed in an aggregated fashion, and we stressed the importance of disaggregating both the supply and demand of energy policies to more closely map the politics of energy. In this chapter, we chose to look into different energy-relevant sectors and visually traced the development of public discourse in each of these sectors. Our strategy seems warranted given the widely differing trajectories of topic prevalence

⁶⁷Geels (2013); Scruggs and Benegal (2012).

⁶⁸Pahle et al. (2018).

⁶⁹IEA (2018).

⁷⁰Thalmann and Vielle (2019).

⁷¹Thalmann and Vielle (2019).

concerning our four sectors. Whereas news media discourse regarding energy sources in power and heat generation (energy supply) as well as regarding buildings both peak at similar points in time, the prevalence of discussions surrounding transport issues peaks earlier, and appliances are barely featured within the public discourse. Our explorative analysis linking the sector-specific discourse to sector-specific policy output as well as political events (referendums) then showed that the news media discourse on energy policy was mostly driven by two major policy discussions: by the design of the CO₂ tax and the discussion around how to deal with renewable energy sources. In fact, the peak of the Swiss energy policy discourse—which happened between 2004 to 2008—occurs just before and during a peak in policy-making in the years 2007–2010. While our visual inspection cannot make a causal argument about discourse triggering policy-making, one may at least claim that the level of discourse in a sector is related to the level of policy-making (Schaffer et al. 2021). Vivid public discussions between 2004 and 2008 around those two topics might have helped reach a compromise and circumvent further referendums. Concerning the importance of media discourse around referendums on energy policy, we also found a meaningful connection especially with respect to referendums on renewable energy after disaggregating into different issues regarding energy supply. However, we do not see a connection regarding referendums on nuclear energy. One reason for this difference may be that public and news media discourse is higher with respect to comparatively “newer” topics (renewables) than on discussions surrounding nuclear energy where the public presumably already has formed an opinion and arguments are well known.

The second issue we wanted to highlight with our contribution pertains to the timely study of policy contestation and the politicization of energy policy. We argued to look beyond policy adoption and to systematically study how policies affect politics.⁷² Energy transitions have non-neglectable distributional effects, which can be used to campaign against more stringent energy policy (as one could observe with the 2021 referendum on the revised CO₂ law).⁷³ While winning coalitions may help to break carbon lock-in,⁷⁴ increased politicization from losers of the process may have negative consequences on their continuation or change towards more ambition. In our explorative analysis we could observe only slight feedback effects due to the discussion on policy alternatives to the CO₂ levy on motor fuels. It remains to be seen whether politicization and an increase in contestation of energy policy happened within the decade from 2010 to 2020.⁷⁵ Given the only slight increase in energy prices (compared to other countries embarking on

⁷² Béland (2010).

⁷³ Schaffer (2021); Schaffer and Magyar (2021).

⁷⁴ Meckling et al. (2015).

⁷⁵ Rinscheid and Udris (2021) give a first indication in their analysis of three energy-related referendums and find—for two of these—more media attention compared to a baseline of other referendums in the same period; see also Duygan et al. (2021), who find contestation of the Energy Strategy 2050 in their stakeholder survey.

energy transition and heavily subsidizing renewable energy such as Germany) and the overall satisfactory performance of Switzerland due to strong efficiency gains, we would expect only a moderate contestation. Nevertheless, the popular rejection of the complete revision of the CO₂ Act at the ballot in June 2021 may continue to lead to a higher level of contestation in the public debate as the climate crisis unfolds and action is needed.⁷⁶ Politicization of the public discourse is further assumed to go hand in hand with political parties distinctly positioning themselves and competing on energy policy issues.⁷⁷

A third goal of our contribution was to explore how new unsupervised content analysis methods can inform policy analysis and studies on energy transition. Topic models can help identify certain topics and their prevalence over time, while structural topic models can add further relevant insights by using different document-level covariates. In our case, we differentiated between the coverage of the two main newspapers of record in Switzerland, the *NZZ* and the *Tages-Anzeiger*. We found that with respect to energy policy topics and their general salience within the discourse, there was little meaningful difference. As expected, the newspapers stressed different issues in their reporting. For example, the *NZZ* emphasized retrofitting buildings in connection with the discussion on the CO₂ levy, while the *Tages-Anzeiger* did not. As energy policy becomes an ever more contested issue, the agenda-setting of media outlets or their power to structure the discourse might as well increase in importance in the future. Communication scholars may be interested in further exploring these developments.

For future research, the obvious extension is to scrutinize how the public discourse evolved in the 2010s. The guiding question would be whether the level of discourse did actually again reach the heights experienced around the years 2004 to 2008. Can we still see that there are sectoral differences, or has energy politics become more encompassing to include all sectors, for example with the discussion of the Energy Strategy 2050? Our data and explorative analysis may serve as groundwork for such efforts.

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⁷⁶ <https://www.nzz.ch/schweiz/gegner-des-co2-gesetzes-reichen-referendum-ein-ld.1596012>.

⁷⁷ Schaffer and Lüth (2021).

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