

SONNET – SOCIAL INNOVATION IN ENERGY TRANSITIONS

Co-creating a rich understanding of the diversity, processes, contributions, success and future potentials of social innovation in the energy sector

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Research report on *CITY-LEVEL COMPETITION FOR SUSTAINABLE ENERGY in SWITZERLAND*



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About SONNET: SONNET is a research project that aims to develop an understanding of diversity, processes, contributions and future potential of social innovation in the energy sector. It is co-funded by the European Commission and runs for three years, from 2019-2022. The SONNET consortium consists of 12 partners across Europe, including academics and city administrations. For more information, please visit our website: <https://sonnet-energy.eu>

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Authors: Leticia Müller, Benjamin Schmid, Jörg Musiolik

Contact Person: joerg.musiolik@zhaw.ch

1 FOREWORD

SONNET (Social Innovation in Energy Transitions) brings diverse groups together to make sense of how social innovation can bring about a more sustainable energy sector in Europe. The project aims to co-create a rich understanding of the diversity, processes, contributions, successes and future potentials of social innovation in the energy sector (SIE). We define SIE as combination of ideas, objects and/ or actions that change social relations and involve new ways of doing, thinking and/ or organising energy. As part of this work, we make use of an embedded case study approach to build a better understanding of the development of diverse SIE-fields (e.g. participatory incubation and experimentation, framings against specific energy pathways, local electricity exchange) over time. Our research questions that frame the case study work are:

- How do SIEs and SIE-fields emerge, develop and institutionalise over time?
- How do SIE-field-actors and other field-actors interact with the 'outside' institutional environment and thereby co-shape the SIE-field over time?
- What are the enabling and impeding factors for SIE-field-actors and other field-actors to conduct institutional work and change the 'outside' institutional environment?

A SIE-field is an arena/space that includes a specific SIE as well as SIE-field-actors working on it and other field-actors enabling and/or impeding it. In this arena/ space these actors take one another and their actions into account and have a shared (but not necessarily consensual) understanding of a SIE and of their relationship to other actors. They recognise (but not necessarily follow) shared norms, beliefs and rules. SIE-fields are often not homogenous but are composed of actors with diverse and contradictory aims and interests. An example: The UK cooperative energy field includes SIE-initiatives and SIE-field-actors (e.g. Brighton Energy Co-op, Cooperative UK, Community Energy England, UK Government, City of Brighton), who have a shared understanding of an SIE, which exists as 'organising under cooperative principles to generate renewable energy'.

The structure of this report is as follows. Section 2 provides a summary of the SIE-field relevant for this report and lists some key insights. Section 3 outlines the boundaries of the SIE-field and shows how it has been studied in the country context. Section 4 shows a visual development of the SIE-field. Section 5 tells the historical development of the SIE-field over time, including analytical/ interpretive reflections from the SONNET researchers and quotes from the actors involved in the field developments. Section 6 outlines key research findings, providing answers to the three research questions. Section 7 outlines recommendations for policymakers based on the findings. Finally, Section 9 outlines the methodological approach and includes a more detailed timeline of the SIE-field and its actors.

2 CITY-LEVEL COMPETITION FOR SUSTAINABLE ENERGY

How is the SIE-field defined? In the SIE-field under study, we focus on energy competitions that happen at the **city level**. With the term *city-level competitions for sustainable energy* we refer to diverse formats in which participants strive to rank themselves, gain or win something in order to foster sustainable energy pathways. There are different formats of competition being considered, namely, competition “between cities” and competition “within cities”. These formats can address changes within the city administration (e.g. in “between city competitions”) or target changes of individual behaviour (e.g. in “within city” competitions, which take place within the city between different stakeholder groups). What links these formats is that they apply a competitive approach to promote and mainstream sustainable energy consumption and production pathways. Our broad understanding of competition includes games, voluntary comparisons, rankings, benchmarking, etc. and does not necessarily imply defeating others. Participants can strive, amongst various things, to gain an award or label or win goods (money/prices/lower costs) but also recognition, a feeling of empowerment, opportunities for marketing or for creating political capital, and fun.

What is specific about the Swiss case?

This report examines the SIE-field of *city-level competition for sustainable energy* in Switzerland. Two essential aspects are specific to the Swiss case. First, Switzerland has one of the most pronounced federal systems worldwide, with the cantons (states) and the municipalities (the lowest administrative level) having extraordinary autonomy. This is also reflected in the energy system and policy, positioning cities and municipalities as key players in the energy transition, both in terms of their leeway and their capacity for autonomous activities. In the Swiss context competition formats have thus been important to trigger the development of local energy related structures and measures through competitions between cities. Second, and in some contrast to the first point which emphasises the decentralised nature of the Swiss case, the examined SIE-field’s development has for a long time been strongly influenced by a key initiative, the *EnergieStadt* (“Energy City”) label, due to support and involvement from the federal government. Through this initiative, cities can be labelled as “energy cities” by collecting points for different items listed in the *EnergieStadt* catalogue on topics

like urban planning and strategy development, municipal building standards, energy supply and waste management, mobility, and communication cooperation (more details on the label's mechanisms can be found on p.20). The *EnergieStadt* initiative turned out to be highly institutionalised and well adopted in Switzerland, leaving little space for other competitive formats between cities to arise outside the label's framework. However, while the key initiative set the scene for the SIE-field of city-level competition for sustainable energy to unfold, further competitive formats were then developed, particularly in the "within cities format" which were either directly triggered by SIE-field actors like working groups and municipal commissions, or indirectly benefitted from the existing tools and mechanisms of the *EnergieStadt* label.

Key insights

For the SONNET project, the SIE-field of city-level competition for sustainable energy is particularly interesting because through different formats of competition between cities and within cities, a number of important issues for social innovation in energy transitions are revealed. In particular, it illustrates that:

- The *EnergieStadt* label played a key role in Switzerland in activating and coordinating changes at the local administration level to create local sustainable energy pathways. The label involves more than merely the granting of an award or label. Rather, the heart of the label is a process-oriented quality management system, which contributes to creating more competition in the SIE-field by incentivising more cities to participate and raise the minimum criteria for awarding the label over time. By participating in the label, municipalities become integrated in a scheme in which they are repeatedly subject to a re-audit process. This means that continuously renewed expectations exist in receiving and maintaining label certification and thus, **energy issues are anchored in the administration** and on the agenda of municipal legislative and executive bodies.
- The process-oriented quality management system of the *EnergieStadt* label means that while the label is highly institutionalised, it is also highly reflexive and can adapt to changing cultural and political conditions in Switzerland. By **being able to adapt**, the label has managed to stay

a relevant and useful tool for municipalities to continuously motivate each other to improve while pursuing their local sustainable energy pathways.

- As *EnergieStadt* is set up as a label, the expectation was that cities and municipalities primarily compete with each other for visibility and recognition. While cities have shown to be motivated to compete with each other, our research showed that the process-oriented quality management system also fosters cooperation, offers a platform for networking, information exchange, and builds capacities for the institutionalisation of energy policy. As a consequence, the label does not necessarily result in social relations becoming more competitive, **but rather more cooperative or “coopetive”**
- While the *EnergieStadt* label set the scene, **further competitive formats have emerged**, especially in the form of competitions within cities. Some of these initiatives, like energy schools, emerged directly under the umbrella of the *EnergieStadt* label. Others, like *Spiel Energie* used the existing resources and capacities created by the label to foster more awareness around energy of citizens but did not emerge from the label directly. A further type of initiative that is currently not considered within the boundaries of the label, like “Bike to Work”, emerged outside the SIE-field of city-level competitions for sustainable energy but are recognised by the label as a valuable competition format, regardless of whether the city is involved.
- There is some evidence that the **SIE-field boundaries may be changing** and, in this process, will depend less on the institutional framework of the *EnergieStadt* label. In particular, there is a shift within the label from energy policy to more general climate policy, which may open up space for more citizen engagement in local politics. To involve more citizens, initiatives use gamified competitions that target behaviour changes around energy and climate topics by making them more fun and tangible to citizens. This is opening up space for a greater variety of initiatives to exist.
- In the case of Switzerland, while the *EnergieStadt* label does not define the SIE-field, the regulative and normative institutions created around it as a well-defined but highly flexible and adaptable framework, have made the label a **crucial enabling body for local energy policy**,

where municipalities that pursue the label tend to generally be more motivated in creating sustainable pathways.

3 Introduction to CITY-LEVEL COMPETITION FOR SUSTAINABLE ENERGY in SWITZERLAND

In the case of Switzerland, typical SIE-field actors are city administrations, utilities, governmental agencies, research bodies, and civil society organisations. In an initial phase, we see the SIE-field of *city-level competition for sustainable energy* emerging from an early initiative, namely the *EnergieStadt*, or “energy city” (later known as a label). The *EnergieStadt* is an initiative under the “between cities” format of competition, where municipalities and cities today strive to be certified under both social and technical standards which cities choose from a catalogue of items which are set by a management association and with this. Based on the definitions of the SIE-field boundaries, it is difficult to identify activities that may have constituted a SIE-field before 1988 when the *EnergieStadt* initiative emerged. Any activities that existed would have been extremely diffused, with no observable comparability in the types of actors involved and formats of competitions/challenges. The SIE-field therefore starts in 1988 and lasts until the present day. It marks the establishment of the first identifiable initiative, which sets the scene for city-level competitions that have shaped sustainable energy pathways at the local level ever since.

Additional initiatives - especially in the within city format - only emerged from 2015 onwards, after the *EnergieStadt* label was already well established and embedded in the landscape. In the emergence phase of the SIE-field, the label was taken up by the federal government as part of the larger Energy 2000 programme from 1990 to 2000, further ‘consolidating’ the role of the label as the exemplary initiative in the SIE-field. Prior to the label, municipalities were not active in energy policy and so, the label was instrumental for energy discourse and developing new initiatives in the SIE-field towards sustainable energy pathways. New SIE-initiatives such as 2000-Watt Areal, *Energieschulen* or energy

schools and *Spiel Energie* that followed were heavily influenced by the existing framework created by the *EnergieStadt* label, which was supported by the federal government. The more prominent SIE-initiatives in both the “between”- and “within cities” formats function under the shared understanding that city-level competitions for sustainable energy can benefit from tools and guidance provided by the existing framework of the *EnergieStadt* label. In this SIE-field, most SIE-initiatives can be seen as being nested SIE-initiatives within the framework of the *EnergieStadt* umbrella organisation, as many emerged from the label directly or were indirectly supported by the label by working towards gaining points for a specific item. Based on this, we observe that in Switzerland, the framework of the label plays a central role in shaping the boundaries of the SIE-field:

“The goal of the [Federal *Aktionsprogramm Energie* (“*Energy Action Programme*”) 2000] was to motivate municipalities to undertake activities in energy efficiency and renewable energy. The *EnergieStadt* label plays a central role in this by acting as a cross-section program, an umbrella for all activities municipalities pursue” (Interviewee 2)

In Switzerland, municipalities indicate on their town sign, which label rank they have achieved. The *EnergieStadt* label became a de-facto format for energy related competition between cities. The label has made it more difficult for competing formats to emerge, whereas in other countries like Germany and France, labels and other competition formats emerged in parallel to each other and continue to exist in rather diffused SIE-field. We therefore consider the SIE-field as highly institutionalised in Switzerland.

Based on this, we consider the function of the *EnergieStadt* label to be twofold and differentiate between the label as an SIE initiative where we consider the specific operative instruments made available to cities to collect points and be certified, and the label as influencing the SIE-field boundaries through its institutionalised processes and publicly available resources, playing an enabling role in the establishment of further initiatives with new actors like research bodies or civil society organisations in a later phase of SIE-field development.

SIE-initiatives: “Within cities” and “between cities” formats

Within the SIE-field, the different formats of city-level competitions help understand how different organisers, participants, and goals mean SIE-initiatives, while organised with competition in mind, may result in more comparison than competition.

Table 1: Two formats of competition and their characteristics in Switzerland

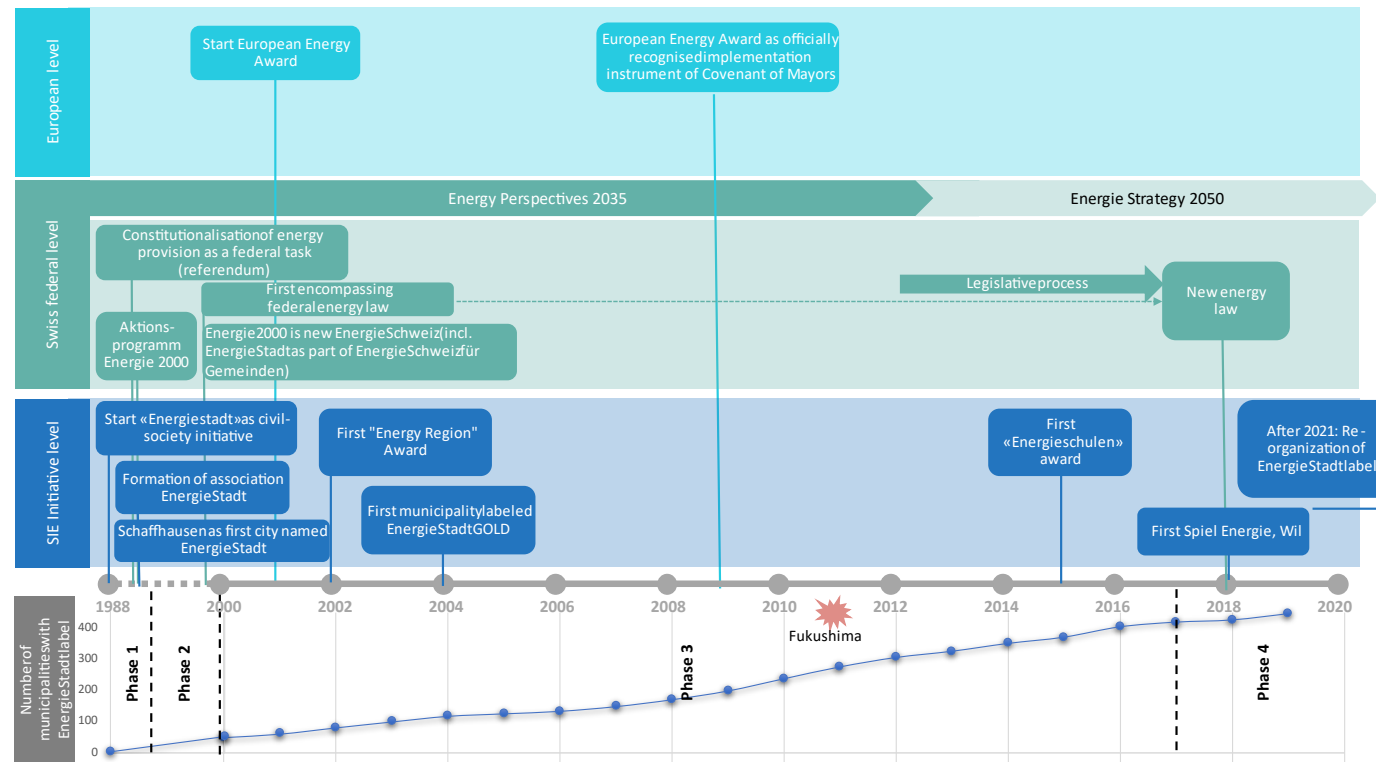
Formats	Within Cities	Between Cities
<i>Focus</i>	Often focus on behaviour changes of different target groups	Focus on changes within city administrations to better address energy issues (local paths and local energy policy)
<i>Participation type</i>	Citizens, households, firms, districts, schools, etc. as participants	City (administration) as a participant
<i>Organiser</i>	City administrations, NGOs, research organisations	Independent body/association, federal government
<i>Level of competition</i>	More competition (e.g. challenges)	More comparison (e.g. benchmarking)
<i>Process</i>	More ad hoc, sometimes based on experiments and/ or pilot projects	Very structured, highly institutionalised, continuous quality management approach (e.g. re-audit every 4 years)
<i>Reward</i>	Being the winner, monetary, fun	Recognition, benchmarking with other cities
<i>Examples</i>	Spiel Energie, 2000-Watt Areal, Energie Schule, Social Power	<i>EnergieStadt</i> Label/ European Energy Award, Energie Regionen

Within the SIE-field, there are initiatives that follow the ‘between cities’ formats. Under this format, city administrations are the participants and compete/compare themselves to other cities. Under this format, we consider the SIE-initiatives **EnergieStadt label** at the national level and the **European Energy Award** at international level. On the city level, the *EnergieStadt* label is highly operational with clear steps to follow. Under the label, cities can become certified by fulfilling agreed upon criteria selected from the label catalogue, which may range from designing a new waste management strategy to installing new photovoltaic systems. The catalogue is very comprehensive and allows cities the flexibility to set a strategy best suited to their needs. It is the main benchmarking instrument Swiss cities use and is repeatedly cited when outlining strategic sustainability goals within local administrations. The European Energy Award extends the commitments of the *EnergieStadt* label to the EU level, where participating national organisations with similar goals to the *EnergieStadt* label agree on shared norms, standards, and criteria to follow in their national contexts (see section 5 in this report for more detail).

To show the diversity of SIE-initiatives with different levels of competition, organised in both the within cities and between cities format, and involving a range of actors we additionally look at three SIE-initiatives that emerged under the framework of the *EnergieStadt* label: The **2000-Watt Areal, Energy Schools, and Energy Regions**. These SIE initiatives are interesting to consider because they are well-established SIE-initiatives that cover areas not directly covered by the label itself and exhibit different levels of competition. 2000-Watt Areal and Energy Schools follow more of a “within cities” format, whilst Energy Regions can be understood as a “between cities” initiative. Lastly, in a clear “within cities” format, we take a closer look at an initiative, **Spiel Energie**, that emerged in a city under the framework of the label but without direct support from the label. This SIE-initiative helps to display the diversity of initiatives emerging in recent years that may involve citizens as participants and use the within cities format of city-level competitions to make energy topics more accessible to citizens.

4 Timeline of CITY-LEVEL COMPETITIONS FOR SUSTAINABLE ENERGY

The following innovation timeline shows the most important activities and events that contributed to the development of the SIE-field city-level competitions for sustainable energy. The timeline depicts four levels: 1) activities at the European level, the Swiss federal level, the level of SIE initiatives, and lastly, a graph showing the cumulative number of cities and municipalities that were certified as energy cities over the considered timeframe (1988-2020).



5 Emergence and development of CITY-LEVEL COMPETITIONS FOR SUSTAINABLE ENERGY over time

In Switzerland, the emergence and development of the SIE-field is closely intertwined with the formation of the *EnergieStadt* label and thus can be traced back to the late 1980s and especially early 1990s. It must be emphasised that in the case of Switzerland this label was embedded in the federal energy action programme, which meant that the label became an important instrument for developing energy policy early on. The label has therefore had an uncontested predominant position in municipal energy policy, henceforth structuring the SIE-field for subsequent forms of city-level competition.

“In Switzerland, nothing equivalent to the *EnergieStadt* label has emerged as we have been working on this topic for 30 years” (Interviewee 1)

Against this backdrop, the SIE-field *city-level competition for sustainable energy* in Switzerland is best understood as a SIE-initiative that also shapes the boundaries of the SIE-field. After the *EnergieStadt* label had helped establish major institutional structures by establishing rules and expectations for municipal activities in sustainable energy and thus had pre-shaped city-level competitions for sustainable energy in Switzerland (Phases 1 and 2), additional SIE-initiatives emerged within cities, between multiple cities, or as an international collaboration on the European level (Phase 3). Finally, recent years marked a widening of the SIE-field, where more initiatives especially in the “within cities” format are emerging while still relying on the existing structures shaped by the *EnergieStadt* label (Phase 4).

Phase 1: 1988 - 1993: The nucleus of the SIE-field: Emergence of the *EnergieStadt* initiative from civil society and its integration into the federal programme *Aktionsprogramm Energie 2000*

The *EnergieStadt* initiative was launched by environmental associations WWF Switzerland, the Swiss Energy Foundation (SES), and the Swiss Society for Environmental Protection in 1988. At first, the main idea of the initiative was to provide advice to local administrations on energy issues, based on which a strategy for the design and implementation of municipal energy policy could be developed. At its conception, *EnergieStadt* was not a label and functioned more as a consulting service. On its own, the initiative lacked a clear scope of the types of activities were considered and the organisational structure was not clear on which actors in municipalities would be involved in the initiative.

A key factor in the early development of the *EnergieStadt* initiative and thus, the emergence of the SIE-field, was the constitutionalisation of energy policy at the federal level in 1990. For a long time, Switzerland's energy system and energy policy have been strongly subsidiary and decentralised, with cantons (Swiss federal states) and municipalities as major public actors (Sager 2014). There was no comprehensive energy policy at the federal level. It was only after the oil crises and with the emerging climate and sustainability debates that the need for comprehensive national energy policy increased, driving forward an energy transition towards renewable energy and energy efficiency. After a referendum in 1990, energy policy was incorporated into the Swiss constitution, which authorised the federal government to formulate principles for energy production and consumption, though cantons and municipalities retained a lot of their autonomy in energy policy. As part of this enhanced federal energy policy, the *Aktionsprogramm Energie 2000* (Energy 2000 action programme) was launched under the aegis of the Swiss Federal Office of Energy (SFOE) aiming to achieve quantified targets in the "rational use of energy" and "use of renewable energies" within 10 years. To achieve these targets, the programme was built on three pillars: the first pillar consisted of legal measures; the second pillar

was made up of conflict resolution groups for contentious topics like the disposal of radioactive waste and an energy politics dialogue group to help ensure the programme's long-term success; the third pillar, focused on coordinating voluntary and communicative measures involving various public and private actors (Kupper & Pallua, 2016; Balthasar, 2000). It was above all the focus on voluntary and communicative measures that led to the *EnergieStadt* initiative gaining its key role in the examined SIE-field.

Within the Energy 2000 action programme, the civil society initiative *EnergieStadt* received growing support from federal funds and became a part of the programme with the aim of involving as many cities and municipalities as possible in the initiative. This also meant that responsibilities were increasingly transferred from the environmental associations, which launched the initiative, to the *Energy 2000 programme*, i.e. the SFOE. In 1991, a private association, the *Trägerverein EnergieStadt*, was founded to manage the initiative, which allowed *EnergieStadt* to retain its civil society nature (despite ongoing federal support). In 1992, the initiative was extended to the French-speaking part of Switzerland and in 1996 to the Italian-speaking part.

“The recognition awarded under the Energy 2000 action programme marked a major leap forward. Initially, it was a private organisation of a few "wild" people, but with the Energy 2000 action programme came government support” (Interviewee 2)

In the years that followed (Phase 2), this support and embedding in federal politics not only led to the initiative quickly becoming known in many municipalities but also led to a progressive institutionalisation of the initiative, especially by defining the scope of the initiative by formalising a labelling process, officially converting the initiative into a label (cf. phase 2 for details of the label).

'Outside' institutional environment shaping the development of the SIE-field

In SONNET, we consider a SIE-field to be nested in a larger encompassing institutional environment, consisting of both formal and informal institutions. We are interested in understanding how dominant institutions (regulative, normative and cultural cognitive elements) within the 'outside' institutional environment influence the emergence and development of SIE within a SIE-field.

For the SIE-field (and its SIE) of city-level competition for sustainable energy in Switzerland, federalism is the most important element of the 'outside' institutional environment. This applies not only to the formal state structures and processes of federalism but also to informal ideas about how collective issues are to be solved, taking local identities into account. In fact, the principle of subsidiarity—that only those tasks that exceed the capacities of the lower level should be carried out at a more central, superordinate level (Linder, 2005)—is deeply ingrained in Switzerland's political culture. Accordingly, Dardanelli (2013) describes that “quintessentially Swiss belief that 'local' decision making is in principle always preferable to 'distant' decision making” (p. 256) and recognises a mythical role of federalism in Swiss politics.

This is reflected in the formal institutions of Swiss federalism, where the constitution stipulates that all policy areas that are not explicitly delegated to the federal level fall within the competence of the cantons and municipalities. And even in areas where the federal level has authority, the shaping and implementation of policies generally remains of federal nature. Typically, the federal government only issues framework legislations, which are then specified and implemented in the individual cantons and municipalities (Sager et al. 2014).

This means that subnational actors are usually not only implementation actors but are themselves involved in policymaking. This is not only underpinned by the allocation of competencies, but also by their own capacities. The municipalities and cantons enjoy extensive fiscal independence (Strebel, 2011) and the municipalities alone provide about 45% of civil servants and are responsible for about 30% of total public expenditures (Geser, 2004). Despite this significant role, the 2202 Swiss municipalities (FSO, 2020) are on average very small and are therefore often dependent on inter-municipal cooperation or cantonal support while they are

also embedded in a culture of strong local identity and regional competition (e.g. regional taxes). Cooperating and competing at the same time – or "coopetition" in certain areas is thus an important feature of the Swiss institutional context. These aspects have a strong influence on the "between cities" competitions and how competitive formats evolve and what factors can explain the diffusions and the success of the *EnergieStadt* label. After all, the label relies as much on cooperation as it relies on competition. It is geared towards independent elaboration of own municipal energy policy, while at the same time promoting cooperation between municipalities through knowledge exchange. It thus reflects existing institutions of autonomy and cooperation between municipalities in Switzerland in general as well as with respect to energy. In accordance with the subsidiarity principle, energy supply has long been the responsibility of the municipalities, while a significant involvement of the federal government is a relatively new development. This continues to be reflected in the design of the energy system itself, with many municipalities owning their own energy supply company—whether as part of the municipal administration or as private companies with a majority stake held by the municipality. This constitutes an additional factor that increases the leeway and thus the relevance of municipalities in sustainable energy pathways and in supporting how new competitions and challenges are introduced within cities (e.g. with strong support of the local municipalities; c.f. phase 4 below). Particularly in the case of "within city" competitions, where real measurements of energy data can be important, cooperation with the electricity suppliers is indispensable. However, the resources and expertise of many municipalities in the SIE-field of energy policy are often limited due to their small size, which makes them dependent on cooperation in this area as well.

Against this background, the federal political institutions have a decisive influence on the configuration and development of the examined SIE-field. Firstly, they lay the foundation for the importance that municipalities and cities have in shaping sustainable energy pathways through energy policy based on their capacity and leeway for action. Secondly, the federal level provides certain supportive framework conditions for SIE initiatives (specifically in the case of the *EnergieStadt* label) with the understanding that the design and implementation of initiatives takes place locally and on a voluntary basis. This may also help explain why competitions within cities and municipalities are not standardised and thus, difficult to identify and map out outside of the *EnergieStadt* label.

Phase 2: 1994-1999: Institutionalisation of *EnergieStadt* as a label and a cornerstone of the SIE-field

In 1994 an evaluation took place as part of the Energie 2000 programme, in which *EnergieStadt* and the German-Danish “Brundtland City” projects were compared based on their similar goals in promoting local energy politics (Wortmann & Rieder 1994). Following the very positive evaluation, *EnergieStadt* was reorganised and converted into a label, which could from then on be awarded to cities and municipalities under precisely defined conditions (Balthasar, 2000). Through this process, the established label conditions created a formalised system for competitions between cities and regions. Equally, this process laid the foundational guidelines and conditions (described below) that shaped the SIE-field by working as a catalyst for developing local sustainable energy pathways in different cities and regions.

From 1995 onwards, an independent label commission was appointed for certification. The label itself remained organised in the private association *Trägerverein EnergieStadt*, of which all participating energy cities are members. This association is responsible for setting said guidelines and conditions of certification. The system created at the time has not significantly changed to this day and will be shortly introduced in what follows.

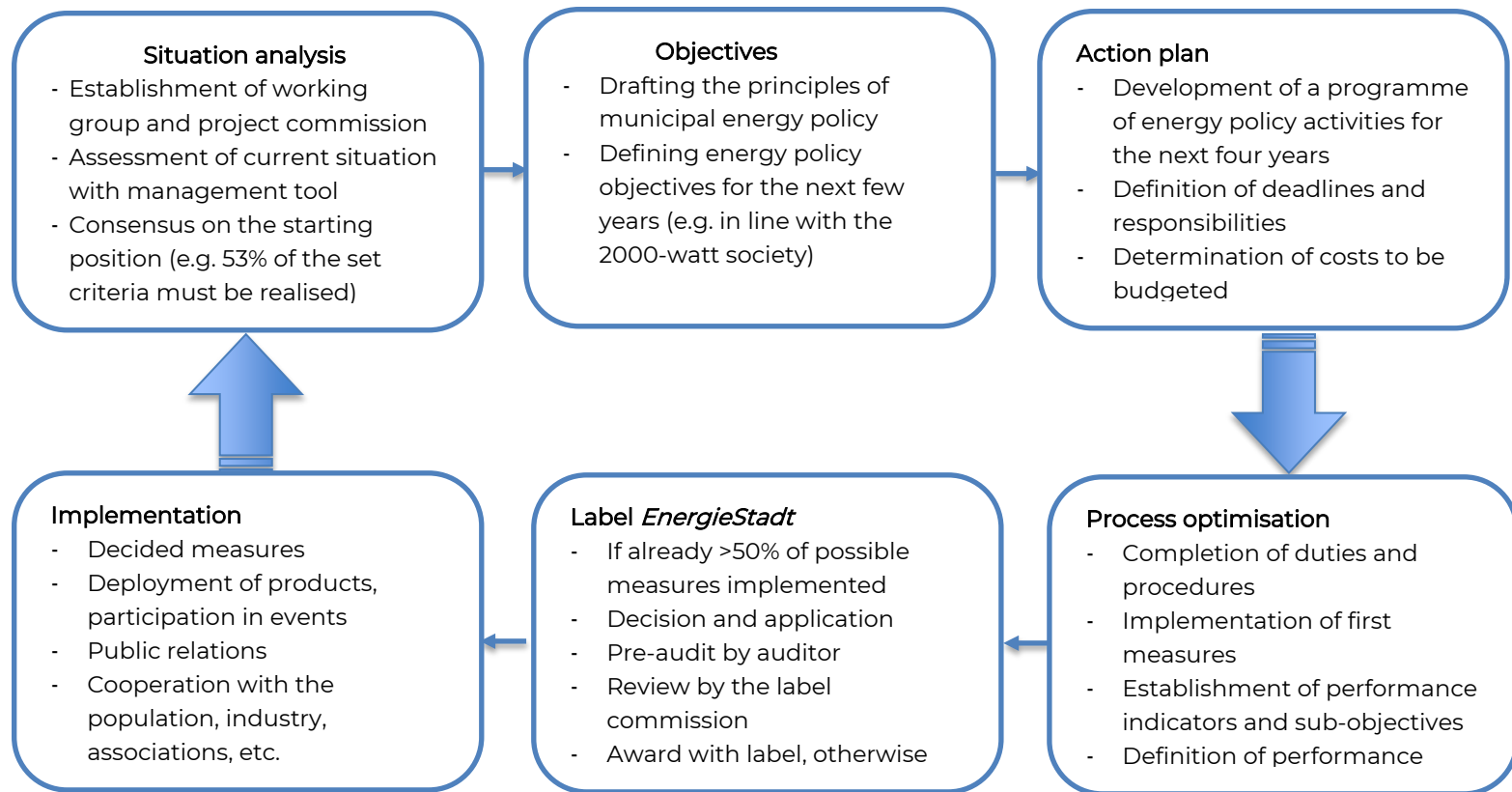


Figure 1: Management-Cycle of EnergieStadt (adopted from Trägerverein EnergieStadt, 2016, p. 7, own translation)

Introduction to SIE-initiative *EnergieStadt* label

While the SIE-field boundaries are heavily shaped by the label's mechanisms which are managed through the *Trägerverein EnergieStadt*, it must still be understood as an initiative in its own right at the individual city level. This box therefore looks at the operative mechanisms at play which allow cities to compete between each other. Fundamentally, the label pursues the following goals in individual cities and municipalities:

- “Ongoing energy policy assessment—as a management and controlling instrument creating publicity for the city
- Introduction of management and quality aspects into the municipal energy and climate policy with a tailor-made package of measures and a controlling and reporting system.
- Concretising of the concerns of initiatives in the field of sustainable development, such as Agenda 21, or in the field of climate policy, such as the Climate Alliance or the Covenant of Mayors.
- Implementation of the objectives of the *EnergieSchweiz* programme and the Energy Strategy 2050, as well as cantonal energy strategies at municipal level, within the framework of a sustainable process with long-term impact.
- Orientation guide for municipalities that are on the way to the 2000-watt society and intend to initiate corresponding measures.”

(Association *Energiestadt*, 2016, p. 4, own translation)

When a city or municipality decides that they would like to become certified as an energy city, local administration representatives will enter a consultation process with a private *EnergieStadt* consultant who will ideally accompany the city's journey through to certification. Together with the consultant, the city will decide on a suitable strategy for achieving their local energy policy goals by consulting the label's catalogue of possible measures. The catalogue is made of 79 activities that cities may agree to implement. The activities are wide-ranging in energy, climate and mobility, in order to give cities a lot of space in shaping their own pathway to sustainable energy. Each activity or measure is worth between 2 and 10 points, where more important long-

term activities are worth more points. As the *EnergieStadt* label strongly focuses on the capacity of each individual city or municipality, the number of points necessary for achieving the label is flexibly adjusted and case dependent.

The label functions in a subsidiary manner and can be adapted to the specific circumstances: The municipalities themselves define where they want to go, and the scheme provides support for this path. The possible measures municipalities can adopt are holistic in nature and are intended to cover the entire municipal scope of action. They are divided into 6 areas: 1) Planning and foundation work, 2) municipal buildings, 3) municipal energy supply, 4) mobility, 5) internal organisation, 6) communication & cooperation.

In its strategy, *EnergieStadt* is a programme of width. Instead of relying on individual pilot municipalities as lighthouses, the idea is to involve as many municipalities as possible in the scheme so that at least some actions are taken in local energy transitions. Finally, the label functions according to the principle of “above-average”: cities or municipalities only receive points for things that can be regarded as above average and what is considered average changes over time. For example, in the past cities got points for building a school building according to *Minergie* standards, but since it has become standard practice, they no longer receive points for this.

Regulative, normative and/ or cultural cognitive institutions

In SONNET, we differentiate between regulative, normative, and cultural cognitive institutions that might shape the development of the SIE-field. Regulative institutions encompass laws, rules, standards, and policies; normative institutions are norms and value systems; and cultural cognitive institutions include conceptions of reality, binding expectations as well as common beliefs.

The development of the SIE-field can be understood as a continuous chain of institutionalisation, in the course of which municipal sustainable energy pathways and the related formats of competition emerged and developed. The first link in this chain of institutionalisation was that the mechanisms of the *EnergieStadt* label were formalised and established as a central

instrument of a federal programme to advance the energy transition—in the sense of standardisation (regulative) but also in the sense of a normative institutional change (*'how things are supposed to be done'*) as potentials for municipal activity were increasingly recognised and as the label became the standard mean to advance these activities (*"to advance local energy policy, one uses the EnergieStadt label"*).

The second link in the chain was the institutionalisation of energy (transition) policy in municipal structures as such, which may be considered as an effect of the label i.e., the SIE-field activities. First of all, the widespread use of the label helped to create an expectation that municipalities should be active in energy transition, thus following and adopting broader cultural institutions on how public problems ought to be addressed (see box on 'outside' institutional environment, p. 16) (cultural institution). However, the key element in this link of institutionalisation (understood as tacitly or explicitly agreed upon rules constraining or enabling activities of actors that provide stability and meaning to social life) was that the establishment and development of energy (transition) policy in municipalities no longer depended solely on individuals who were driving the cause as the label required formal embedding of energy policy in municipal processes. This includes the creation of new commissions or working groups on energy issues within the municipalities as well as new networks with relevant actors (e.g., other municipal departments, energy providers, local initiatives, etc.) (inside and outside the administration), the development of comprehensive energy concepts and strategies and regular agenda-setting through the re-audit process (regulative). Added to this is the pressure of expectation that has resulted from the periodic exchange with the *EnergieStadt* consultants (normative):

"Throughout the whole *EnergieStadt* process we had certain pressures [in the development of a municipal energy strategy] because we had stipulated this process. Also, [the advisor of *EnergieStadt*] looked over your shoulder and may have said 'the action plan states that you are creating an energy concept'. Please implement this!" (Interviewee 3).

The third link in the institutionalisation chain of the SIE-field was the transfer of the energy city concept to other areas and scales, for instance to regions, districts, and to other countries (see phase 3 on page 27). This can be understood as a further institutionalisation of the norm to consider voluntary labels and related processes as a probable means of promoting the energy transition (normative, cultural).

While during the second and third institutional link of the field was characterized by formalization, standardisation and subsequent scaling of the label concept, the fourth phase is marked by the softening of previously established processes and content, i.e., the blending and overlapping of the established, energy-related institutions with other themes and formats. . This includes new concepts for the problem perception, e.g. that the energy issue should be understood more integrally as a climate issue or that it should be mixed with smart city issues (cultural), new expectations, e.g. on citizen participation (normative), and new formats that function independently of the label, but continue to be based on the regulatory (capacities in the municipal administration) and normative (use of labels, voluntary) institutions created.

Although the basic labelling process remained largely the same, the specific foci changed over the years. Particularly due to public awareness and the competition between leading cities, the goals set in the individual municipalities have become more rigorous and ambitious (which can be interpreted as another effect of the labelling process). Whilst the main focus used to be on informing the population about energy issues in the past, leading municipalities today have become ambitious in implementing their energy strategy: This means conducting stricter monitoring and having energy and climate plans for the next 20-30 years which lay out pathways towards the 2000-watt society or even reaching net zero goals. Larger municipalities and cities have been particularly active in taking on leading roles whilst competing to become front runners.

The label aimed not only at introducing individual, stand-alone measures in energy cities but also to anchor the energy issue firmly in municipal politics. With the growing number of energy cities, the label thus made a major contribution to the formation of the SIE-field by co-creating the structures for municipal activities in the energy sector, for instance by incentivising the municipalities to form new formal bodies such as energy commissions responsible for coordinating and implementing encompassing energy strategies.

"We put great emphasis on the institutionalisation of the process: There needs to be a working group/commission to deal with the issue. It needs to deal with the topic annually. There has to be an institutionalisation in order to get the *EnergieStadt* label, not only by working on the content but by showing that it is anchored in the organisation [of the municipality]. This is a mandatory point to get the *EnergieStadt* label" (Interviewee 1).

Moreover, the function of the label depends on the size of the municipality. Larger municipalities and cities often already have developed extensive expertise in the energy domain. Introducing the label then usually results primarily in organisational changes, which are intended to break through the prevailing silo structures typically created by the various departments. These municipalities, in particular, develop new projects and competition formats within cities (c.f. phase 4). In smaller municipalities, on the other hand, this is less of an issue than a lack of specialist expertise. The label's contributions then tend to lie more on the content level, with the *EnergieStadt* catalogue of measures as well as implementation aids and *EnergieStadt* consultants as experts.

"Apart from the *EnergieStadt* process, there were actually no other external organisations / programs from the federal government or the canton that triggered, influenced or accelerated the process of the energy concept [in St. Gallen]" (Interviewee 3).

Institutional work conducted by SIE-field actors and other field-actors

In SONNET, institutional work is understood as activities of field-actors, including SIE-initiatives, that aim to create, maintain, and transform institutions. Based on Lawrence et. al (2009), we consider the importance of practices over accomplishments. In the SIE-field of city-level competitions for sustainable energy in Switzerland, practices of creating and maintaining institutions can be identified, though very few to no practices can be identified aimed at transforming institutions.

In the SIE-field of city-level competitions of sustainable energy in Switzerland, practices of four collectives of SIE-field actors are worth noting: First political actors at the federal level, second, members of the *Trägerverein* (the managing association of the *EnergieStadt* label), third, local administrations at the municipal and city level, and fourth, *EnergieStadt* consultants.

By embedding the *EnergieStadt* initiative into the larger Energy 2000 programme, practices of federal actors can be understood as “overtly political work,” in creating institutions by reconstructing the rules under which the *EnergieStadt* initiative operates: Instead of continuing to function as a consultation service for cities, the initiative was reconfigured into a label with a flexible but clear path to certification. While this reconfiguration process was “shaped” by conscious actions from actors at the federal level together with the environmental organisations responsible for the initial initiative, less conscious but arguably equally impactful institutional work was done in shaping practices of local energy politics around the rules and norms set by the *EnergieStadt* label. Due to the concept of receiving recognition by being certified as an *EnergieStadt*, the practice of competing by fulfilling requirements was institutionalised and became central in maintaining the boundaries of the SIE-field, by competitive practices being reproduced. The institutional work around maintaining practices of competing is evident when looking at different initiatives that have emerged in the SIE-field like the *EnergieStadt* Gold label, where ambitious municipalities that have already been certified intend to further maintain competitive practices to continue shaping energy politics towards sustainable pathways.

The *Trägerverein EnergieStadt*, is arguably the most instrumental collective of actors in maintaining institutions, as it was explicitly created to manage the *EnergieStadt* label by being responsible for the management cycle (see Figure 1, page 16) and maintaining the catalogue of

possible measures cities can choose to pursue to become certified. Based on the monetary resources and source of knowledge and experience the label has to offer, the label acts as an enabling factor for cities and municipalities to follow sustainable energy pathways by implementing measures prescribed by the label catalogue (reproducing practices) and thus, creating and maintaining institutions in their own cities. For example, one long-term measure outlined in the label catalogue is to create a municipal energy strategy (i.e. the practice of creating institutions for embedding local energy politics), which cities will do with the guidance of knowledgeable actors (both collectives like the *Trägerverein* but also individuals like energy city consultants) whose practices shape and are shaped by the institutions (like the organisational structure of the *Trägerverein*, the management cycle and the specific certification measures within the catalogue).

While the *Trägerverein* maintains governance practices of the label, it is important to recognise that actors behave rather reflexively. As changing meanings and norms may be affecting the boundaries of the SIE-field to adopt a broader vision on climate, the *Trägerverein* has been conducting institutional work to maintain its position as a management body of the label and thus to a large degree the SIE-field. For example, since 2020 the label catalogue includes climate adoption measures which go beyond just energy. As practices in the SIE-field had been strongly structured around energy, these measures show the ability of the *Trägerverein* to adapt to changing meanings while maintaining institutions around governance practices as well as competing practices.

With this, there is little empirical evidence of practices that aim to transform institutions in the SIE-field of city-level competitions for sustainable energy, as no alternative practices have been legitimised enough to undergo an institutionalisation processes that would erode the institutionalisation processes of the *EnergieStadt* label. While competitive formats outside the boundaries of the SIE-field (like competitions by MyBluePlanet, and research institute initiatives like Social Power) function to a certain degree under different norms and organisations than initiatives within the SIE-field, they still depend on the capacities that cities have created by shaping their local energy policy around the institutionalised practices of competition.

Phase 3: 2000-2017: Internationalisation and diversification of the SIE-field within the boundaries of *EnergieStadt*

The *EnergieStadt* label had been strongly institutionalised in the 1990s and thus had pre-structured the SIE-field, the third phase from 2000-2017 was characterised by two developments: First, the *EnergieStadt* label was internationalised by combining the idea of the label with other similar initiatives in Europe, thereby creating the 'European Energy Award'. Second, the SIE-field diversified by introducing additional complementary competitions under the umbrella of the *EnergieStadt* label, such as the Energy Regions, the 2000-watt sites, and energy schools.

Policies and policy making

Specific policies and their formation are relevant for the development of SIE-fields. This section analyses such policies in terms of their relevance to this SIE-field, the governance levels involved, how SIE-field-actors and their interests are taken into account in the policy-making processes, and the extent to which the resulting policies empower SIE-field-actors.

With its focus on the city level, the examined SIE-field and its actors primarily influence the shaping of energy policies at the local level. In the case of the *EnergieStadt* label, this is expressed by the fact that apart from various procedural measures which institutionalise energy policy at the local level in the first place (establishment and formalization of energy policy in municipal processes), it also includes several substantive aspects (specific policy content e.g. the supply of municipal buildings with renewable energy). By means of the label, the SIE-field thus influences the genesis and direction of local energy policies, for example, when a municipality introduces a local support scheme for renewables. Furthermore, it is often on the basis of this policy that new SIE-initiatives (e.g. new cities following the label process) have emerged within the SIE-field. This may be understood as a self-reinforcing interaction between the SIE-field and local energy policy.

Besides the local level, the SIE-field is affected by various other policies. At the national level, the SIE-field was mainly affected by the adoption of a comprehensive energy policy in 1990 and the creation of the Energy 2000 action programme (later to become "SwissEnergy for

Municipalities"), in which the *EnergieStadt* label was embedded as a lighthouse project and with which there has been in-depth collaboration over the years. It is unlikely that without this early integration into federal policy, the label would have achieved its predominant role in Switzerland's municipal energy policy. Other policies at the federal level include the Energy Strategy 2050, which gave great relevance to the energy issue and can therefore also be seen as a driver for development in the SIE-field as the energy topic became more relevant overall thus expectations on municipal administrations to advance local energy transition activities increased.

Finally, there are also policies at the cantonal level that bear relevance to the SIE-field. Firstly, it is often the content of cantonal energy policies that have an indirect influence on the SIE-field, in that they serve as a reference for communal energy policy (this applies, for example, to the buildings sector, which is the responsibility of the cantons under the Federal Constitution). A major development in this respect has been the creation of the so-called "Model cantonal energy regulations" (MuKE n)—inter-cantonal negotiated standard energy regulations in the building sector, which aim to harmonise cantonal policies in this area. In this area, synergies were created with the content of the *EnergieStadt* label. Secondly, there are some cantons that rely directly on the *EnergieStadt* label in their policies towards their own municipalities. Some cantons, for instance, set the goal for their municipalities to become energy cities or anchor some aspects of the label in their own spatial planning. However, there are considerable differences between the cantons, with some cantons not having a comprehensive energy policy themselves.

In 2000, the 50th energy city was awarded. In addition, the Energy 2000 programme came to an end and was incorporated and significantly expanded under the new EnergieSchweiz programme. This programme aimed to promote energy efficiency and renewable energy through voluntary measures. The *EnergieStadt* label was embedded in a sub-programme thereof, namely *EnergieSchweiz für Gemeinden* (Swiss Energy for municipalities), which aims to

“motivate and sensitise municipalities and cities to activities in the field of energy efficiency and renewable energy by a competitive labelling process. Here the *EnergieStadt* label

assumes a central position as a cross-sectional program, as an umbrella for all activities that municipalities and cities do in this area” (Interviewee 2).

With the *EnergieStadt* label acting as an *umbrella system*, attempts were made to introduce other labels or awards in areas that were thus far inadequately covered by the *EnergieStadt* label itself. This attempt to coordinate various activities under the *EnergieStadt* label was also motivated by the need to prevent the sprawl of certificates, which could overburden the cities and municipalities.

“We are definitely interested in not tangling everything up too much, what fits well we try to integrate into the mother label. As a municipal representative, I must say that I have no desire to participate in 7 certificates. For me it is good if I can say that we do *EnergieStadt* and that covers a large part of it. What doesn't fit well should be made available separately as an additional offer” (Interviewee 1).

The years after 2000 witnessed the internationalisation of the label and the launch of several further initiatives, usually linked to the *EnergieStadt* label or at least to institutional structures it has shaped.

European Energy Award

Starting in 2001, the concept of the *EnergieStadt* label was internationalised with the launch of the European Energy Award (EEA). It made use of experiences of the Swiss *EnergieStadt* label system as well as two further regional schemes from Austria (*Energieeffiziente Gemeinden e5* in Voralberg) and Germany (*Aktionsprogramm 2000 plus* in Nordrhein-Westfalia). After long-lasting information cooperation between these schemes, the EEA was more formally institutionalised in 2003. Hence, the EEA is not necessarily a “new” initiative but the expansion and integration of the *EnergieStadt* label in a European setting—the *EnergieStadt* label *is* the European Energy Award in the Swiss case. This formal integration of the label in the EEA has since had an effect on the SIE-field by influencing how the label is managed. Through the EEA, there have been important changes in the content (i.e. changes in criteria in the catalogue) which from this point onwards had to be

accepted by consensus of all national organisations.

By 2020, the EEA had been adopted in eight European countries, using different names: *e5 Program für energieeffiziente Gemeinden* in Austria, *cit'energie* in France, *PacteClimate* in Luxembourg, *EnergieStadt* in Switzerland and Liechtenstein, and finally *European Energy Award* in Germany, Monaco and Italy (alternatively *ComuneClima* in Italy). In seven other countries, the EEA was introduced as a pilot project (Belgium, Croatia, Greece, Poland, Romania, Serbia, Ukraine). All in all, 1'639 local authorities participated in the EEA, covering a total population of 65 million people (EEA 2020).

EnergieStadt Gold

In 2014, the *EnergieStadt* label, resp. the EEA was further extended by introducing a new rank, *EnergieStadt Gold*. While the conventional *EnergieStadt* label focuses more on the broad integration of as many municipalities as possible, the Gold label adopted the idea of lighthouse cities and municipalities. In order to receive the label, more points must be achieved overall, and it is imperative to have a strategy to achieve reduction targets by 2035. Another aspect of the *Gold* label is internationalisation. Although it is based on the *EnergieStadt* label, it is awarded throughout Europe by the umbrella organisation EEA, and in Switzerland in cooperation with the *Trägerverein EnergieStadt*. The idea behind this approach is that particularly innovative cities and municipalities are more likely to compete with other pioneering municipalities and want to learn from each other, and that with such a focus other cities throughout Europe could become interested. Finally, 2009 marked a further step in the anchoring of the label on the European level: *EnergieStadt*, respectively the European Energy Award, became an officially recognised implementation instrument for the Covenant of Mayors of the EU.

Apart from the international dimension, several other initiatives emerged (of both the within and between cities formats) in Switzerland that address problems and actor groups not adequately

covered by the *EnergieStadt* label, such as regions, building areas, and schools. Yet, most of these formats emerged under the umbrella system of the label while they were based on a competitive labelling process and often supported by local municipal actors.

In 2002, the *Energie-Region* (energy region) concept emerged to address collaborative approaches of multiple municipalities. In 2012, the *2000-Watt-Areal* (2000-watt site) certificate was awarded for the first time, designated for certain district like areas within a city. Finally, in 2015, three schools were certified as *Energieschulen* (energy schools). Further information about these new initiatives are shown in the box below.

Introduction to SIE-initiatives

Several SIE-initiatives have emerged within the institutional environment of the *EnergieStadt* label, which cover various areas and scales that are not addressed in the SIE-field through the label itself. These initiatives are also based on certain criteria that have to be fulfilled in order to receive an award or label, even though this process is formalised to varying degrees and the competitive element is not applied to the same degree throughout.

2000-Watt-Areal:

One such initiative is the *2000-Watt-Areal*. By focusing on spaces like building complexes, the *2000-Watt-Areal* covers an area which is not directly covered by the *EnergieStadt* label itself. Since 2012, the *2000-Watt-Areal* certificate distinguishes between energy-, resource- and climate-efficiency in existing and new building projects. Due to its more rigid certification process and more formalised requirements, this certificate is comparable to the *EnergieStadt* label (Kellenberger, 2018). There is also an institutional connection to the *EnergieStadt* label, as the supporting association *Trägerverein EnergieStadt* acts as a certification body for the *2000-Watt-Areal*/certificate. This initiative is an excellent example of how new formats have been introduced under the umbrella of the *EnergieStadt* label, which feature analogous mechanisms to those of the label but address scales and needs not addressed by the label itself (*Trägerverein EnergieStadt*). While cities and municipalities can compete by comparing themselves to others

through benchmarking, it may be the self-declaration and obligation that motivates municipalities to participate and less the comparison and benchmarking with others.

Energieschule:

Yet on another scale, *Energieschule* (energy school) is an award for schools that engage in an in-depth and continuous engagement with the topic of energy. The first three energy schools were awarded in 2015. The aim is to reduce the school's energy consumption, increase the share of renewable energies and promote the careful use of energy and mobility. In order to be recognised as energy schools, schools must meet certain conditions similar to those of the *EnergieStadt* label, namely the organisational anchoring of the energy topic by forming an energy committee, the compliance with a criteria catalogue, and the implementation of activities over one year. As part of the *Energieschule* process, other initiatives with a competitive character emerge, such as the participation in "Bike to school", in which teams of students compete to see who can accumulate more biking kilometres over a certain period of time on the way to school. In 2020, there were 16 schools that had received this award. *Energieschule* certification is also administered by the *Trägerverein EnergieStadt* (*Trägerverein EnergieStadt*).

Energie-Region:

The *Energie-Regionen* (energy regions) is the least competitive in design and aims for inter-communal cooperation of several municipalities, their inhabitants, local businesses and other local organisations to jointly pursue energy-political goals. The objective is to implement sustainable energy pathways in the regional context and to give it visibility, as well as to create a solid foundation for the responsible bodies to be operational in the long term. This regional level is not covered by the *EnergieStadt* label and the energy regions thus may be considered a complement to the label but without the same degree of formal structures and certification process. However, awarded energy regions are supported by the Swiss Federal Office of Energy in the promotion of renewable energy and energy efficiency.

Energy regions can be regarded as boundary initiatives in the SIE-field of "city-level competition for sustainable energy" as the comparative-competitive elements in this initiative are not strongly developed. Nevertheless, there are certain conditions for participation, such as formal organisation in inter-municipal bodies and cooperation, in order to ultimately obtain funding from the federal government. Furthermore, the declaration as an energy region creates a certain

pressure to act as well as legitimisation for energy-related activities, which classify it as an SIE-initiative in its effect. In 2020 there were 24 energy regions.

Parallel to the introduction of these various label-like structures where different actor groups (like schools or groups of municipalities, for example) strive for certification, new formats with competitive elements have emerged within energy cities or in regions. One example is the Seeland solar platform. The platform was launched by various energy cities in the *Energie-Region* Seeland and ranks the municipalities by the percentage of PV covered area. The winner is awarded a prize. Further examples of different formats of competitions (with different levels of competition) have evolved primarily in cities and municipalities already awarded the *EnergieStadt* label and are further discussed in the fourth phase of SIE-field development.

SIE changing social relations

In SONNET we think of social innovation in the energy sector (SIE) as combination of ideas, objects and/or actions that change social relations and involve new ways of doing, thinking and/or organising energy.

At the outset of the analysis of this SIE-field was the idea of city-level energy competition formats where participants strive to rank themselves, gain or win something, and that focus on particular local energy topics (e.g. energy savings) which contribute to specific energy pathways.

In their design, the SIE-initiatives in this SIE-field (the certification as *EnergieStadt* in particular), are certainly geared towards comparing participants and thus, put them in competition. Such a competitive social relationship between municipalities in the “between cities” format of competition is not unusual for the Swiss case, as municipalities also compete in other areas like tax competition, for example. However, as our analysis revealed, implementing the formats of the SIE-initiatives did not necessarily lead to a competitive situation. With the occasional exception of politicians in executive offices or among best-performers (especially within the *EnergieStadt* Gold label: “Who is best?”), the competitive element (vis-a-vis other municipalities) does not seem to be the decisive mechanism for ongoing participation, implying that the social relationship

does not change towards supposed 'rivals'. Rather, these SIE-initiatives often strengthened the cooperation between municipalities by making infrastructures, networks and resources available for this purpose.

“I always say that we are in the *EnergieStadt* family. There are many energy cities working together, also in the region, agglomeration, etc. Then you know which are the most ambitious municipalities in terms of what we do together, what we can exchange, what we can learn from each other” (Interviewee 1)

Change in the social relationship that emanates from SIE thus rather goes in the direction of more cooperation. This becomes particularly evident in the participation of larger cities in the *EnergieStadt* label, such as Zurich, Basel or Geneva, which do not actually depend on the label's resources but nevertheless participate for reasons of solidarity and thus, support smaller municipalities. In addition, while the relationship between municipalities tends often to be more cooperative than competitive in practice, the sharing of knowledge and resources enables the emergence of new competitive formats.

Overall, however, the most important effect of the SIE is the change in the role of municipalities in the energy transition. While energy policy was often of little relevance before, actors who make up the SIE-field contributed to the fact that municipalities are increasingly seen as active and formative actors in the energy transition. To what extent this development can be attributed to the activities of the SIE-field is difficult to assess quantitatively. Nevertheless, significant influences are likely (Interviewee 4).

Phase 4: 2018-2021: Transcendence of the SIE-field beyond the *EnergieStadt* label and introduction of new formats of competition

In recent years (2018 to present), a number of developments suggest that the boundaries of the SIE-field are moving beyond the institutional framework of the *EnergieStadt* label, while at the same time, still building on the institutional foundation laid by the label: First, new small initiatives have emerged which may become part of the SIE-field. As they do not operate under the umbrella

organisation of the *EnergieStadt* label directly, they may challenge some of the label's norms and regulations, which have until recently been instrumental in maintaining the SIE-field boundaries. Second, political shifts and organisational changes within the label itself may cause the role of the label inside the SIE-field to change.

What is causing the change?

Through the situation analyses conducted as part of *EnergieStadt* management cycle, energy consumption and CO₂ emissions from civil society became more explicitly known and increasingly addressed by city administrations and other actor groups. To address behaviour change in energy of local citizens, different kinds of participatory initiatives such as energy dialogues or information campaigns became more frequent. To achieve greater participation rates, informational campaigns in individual municipalities were organised as competitions and challenges and have often set very concrete targets that are easier to grasp for individuals who are not familiar with the energy sector. For example, the initiative *Spiel Energie* in Wil (see box below) aims at greater citizen participation in energy topics through competitions and challenges that make energy a more fun and tangible topic for the average citizen.

“If you try to do something purely informational, you’ll only have the people participate that already know about the topic and are generally interested in it. No one else will come. But as soon as you have a game, something where people can win, all of a sudden more people will be interested.” (Interviewee 4)

Challenges are also increasingly organised by other actors like private companies with vested interests, and not-for-profit organisations (e.g. MyBluePlanet, a Swiss NGO) who can only marginally be considered as SIE-field actors. Challenges by MyBluePlanet, for example, take a gamified approach to changing behaviours but their challenges are linked to broader sustainability issues (e.g. mobility, water consumption, and nutrition). The competitive format of these challenges suggest that they are

moving closer to the SIE-field of city-level competition for sustainable energy. Currently they do not include city administrations as actors in their initiatives and therefore, are not considered by other SIE-field actors to be operating in the same SIE-field. This may however be changing. For example, the international "Bike to Work" initiative promotes a healthy lifestyle and targets a reduction in carbon footprint in the mobility space. While the initiative has not been considered as an initiative in the SIE-field of city-level competitions for sustainable energy, it has now been incorporated into the label catalogue so cities and municipalities can gain points for promoting "Bike to Work". As the initiative does not focus on sustainable energy per se and since city administrations are not directly involved in the initiative, it is not considered an SIE initiative, though its proximity to the SIE-field is indicative of the field boundaries starting to change.

In addition, research institutes are contributing to the potentially changing SIE-field boundaries by bringing together diverse actors on competitions as experimentation projects. Nudging, interventions, and gamification approaches have become a trendy field of research. Different pilot projects and experiments have been set up together with municipal partners in order to analyse and change consumer behaviour. One such example is the Social Power Project, which was led by two research organisations and the public utilities of two cities, Lugano and Winterthur. For the project "Social Power", an App was developed by SparklingLabs to test the effectiveness of competitions in enabling changing energy behaviours in citizen groups selected to participate (Wemyss et al., 2018). Such initiatives may become increasingly important for cities as they require active citizen participation through gamified competitions which on the one hand reduce energy consumption and on the other hand, allow cities to learn more about energy behaviour from their citizens directly.

It is important to emphasise that while boundaries may be changing and these new within-cities initiatives are emerging outside the institutional framework of the *EnergieStadt* label, they rest on the capacities built through the structure that the label framework provides. For instance, though "Bike to Work" is not an idea that originated within the label, its inclusion in the label catalogue means that municipalities who pursue the label may be more inclined to get involved and support

"Bike to Work" in their municipality. *Spiel Energie* (Energy Game), as another example, is a single municipality's initiative that uses the synergies created by the *EnergieStadt* label, the local utilities company, and an existing yearly event to design an innovative "within city" competition (see box below).

Introduction to SIE-initiative "Spiel Energie"

«Spiel Energie» is a year-long programme in the City of Wil aimed at creating awareness and change in their citizen's energy behaviour through small competitions and campaigns that engage with energy topics in a playful manner. The initiative emerged through what became the flagship event of the program, namely the "Energie Trophy." In order to appeal to a wider audience (in this case average citizens and adolescents who are typically not engaged in energy topics), the event was organised as part of the existing and much-visited annual "Spielfest Wil". The idea of the Energie Trophy was to collect stamps at different stations in the areas of electricity, heating and mobility and end by making a personal energy commitment based on an individual's energy behaviours. By collecting enough stamps, participants could have their name added to a raffle and win a prize. Using the momentum of the event, monthly activities, mostly in the form of small challenges, were organised around energy topics. As the initiative evolved, existing smaller competitions in the field of energy such as the "Solarcup" and "Bike to Work" were also organised under the "Spiel Energie" programme. These different activities target different groups though they tend to keep school children and particularly adolescents in focus both as participants and co-organisers/volunteers of activities.

On the local level, the initiative was conceived and organised by the individual working for both the city, as the responsible for *EnergieStadt* Wil and working for utilities TB Wil:

"The idea was to soften the look of the *EnergieStadt* logo by working together with TB Wil, which had a good image in the city. *EnergieStadt* alone was not professional enough and troubled by a 22-year long history...There was a lot to gain with this new appearance" (Interviewee 5)

The idea of "Spiel Energie" was created by individuals in the City of Wil and is not in itself part of the *EnergieStadt* catalogue. However, *EnergieStadt* Wil allowed for the framework conditions

where the idea of getting citizens more involved in energy topics in a playful manner arose. The existence of Spiel Energie then justified the need for an *EnergieStadt* budget, through which the full program was subsequently financed in Wil. The label's organisational structure was also key in sharing experiences from Wil: Spiel Energie has been featured in the label's best practices report on multiple occasions.

Based on the trust that Spiel Energie had fostered in the community, it also created the basis for the city's first "Smart Community Dialogue" where citizens were invited to a co-creation process of the city's smart city strategy. In Wil, the pursuit of a smart city strategy may be changing the boundaries of the SIE-field, as innovations in energy at the city level are increasingly considered under the 'smart city' framework and the structures of *EnergieStadt* are becoming increasingly intertwined and may be blurring the boundaries of the SIE-field.

To conclude, in many Swiss cities new initiatives with a wide range of goals like involving more citizens are being introduced and tested. However, most of these initiatives are rather experimental and context specific. These projects are still not organised in a joint network or national program and so it is difficult to grasp how many similar initiatives with a competitive nature have emerged in individual cities and municipalities. In addition, it is rather unclear if these new formats are standardised. Beyond initiatives organised by city administrations with a clear competitive element for sustainable energy, it is unclear which initiatives will indeed become part of the SIE-field and which will not, as there is currently no evidence that the various actors recognise each other's actions and operate under certain shared norms.

Changing role of the *EnergieStadt* label in the SIE-field city-level competitions for sustainable energy

So far, it is unclear how the boundaries are changing and in which way and so we address the events that may be having an effect and discuss the different potential pathways the SIE-field may be taking in the coming years.

First, in the course of the referendum debate in 2017 on the Energy Strategy 2050, the *EnergieStadt* framework, which considered itself to be a non-political programme, became increasingly politicised. In debates, the *EnergieStadt* label took centre stage on national energy debates, as it had acted as an instrument for incentivising local energy policies. With this, cities and municipalities positioned themselves to be in favour or against the label. As a result of the adoption of the Energy Strategy 2050, energy became a prominent topic on the political agenda.

Second, the organisational structures of *EnergieStadt* itself are being restructured from 2021 on. This mainly involves a withdrawal of the *EnergieSchweiz for Municipalities* programme from the operational and strategic management of the *EnergieStadt* label. Before, many services of *EnergieStadt* label were financed and implemented within the framework of the programme *EnergieSchweiz for Municipalities*. From 2021 onwards, the label will be implemented and financed entirely by the supporting association *Trägerverein EnergieStadt*, including market-relevant activities, coordination and support of advisors, as well as further developments in terms of content, which were previously the responsibility of the programme. Cities and municipalities will continue to receive funds from the federal government or the Swiss Federal Office of Energy (SFOE) if they receive the label. This restructuring is due to financial policy reasons. Through the support provided through the *EnergieStadt* label, energy cities were given preferential treatment and quasi-contributions were made to a private association. From now on, the SFOE wants to support all municipalities more directly with measures, regardless of whether they are energy cities. While not much will change for the individual energy cities, there will be additional costs for the supporting association and a shift in responsibilities.

Third, there have been developments within the framework of the *EnergieStadt* label with regard to content, which were due to its integration into the European Energy Award. The same measures (at least in terms of title and topic) must be listed in the label catalogues in all 12 member countries of the European Energy Award. As in other member countries there had been a shift from energy-only towards more holistic approaches on climate, CO₂ and sustainability. These topics also became a stronger focus of the *EnergieStadt* label, which was previously rather limited to energy topics. Since 2020, for example, climate adaptation measures have been included in the *EnergieStadt* label (as a pilot project).

These changes inside the label structure may be leading to its role and therefore the SIE-field boundaries to potentially change in the following directions: First, active citizen participation in energy may become increasingly important and acknowledged by city administrations, which may lead to boundaries widening to include citizen-initiated challenges/competitions, which are sometimes only marginally supported by city administrations and are not necessarily replicated between cities. Second, the SIE-field boundaries may widen to include broader competitions in sustainability and climate action due to the content changes of the catalogue. Third, it is possible that based on the aforementioned changes within the label itself, the label loses some of its power as the main initiative within the SIE-field. As the label is generally well regarded, the extent to which the role of the label will actually change remains questionable and to be seen.

Contestations and relations between actors

To better understand institutional changes, the SONNET team also analyses SIE-field contestations, i.e. debates among SIE-field-actors and/ or other field-actors over SIE-field structures and processes. These contestations can 'unsettle' the existing institutional environment (without necessarily changing it). This is complemented with an analysis of the relationships between these actors, providing the preconditions for these contestations.

For the analysis of contestations and relations between actors in the examined SIE-field in Switzerland, it is useful to distinguish between two levels: First, the level of the *EnergieStadt* label and its environment, and second, the SIE-field as a whole, which largely operates under the institutional and organisational structures of the label.

Within the structures of the *EnergieStadt* label, actor relationships and networks are highly institutionalised and formalised. This pertains firstly to the relationships in the governance of the label itself, institutionalised through the association structure. This high degree of formalisation is partly due to early cooperation of the association with state actors, which created pressure for the formalised relations within the association and the need for external certification bodies and energy city consultants. Relationships with key actors are consolidated through appointments to the bodies of the association (board, label commission). For example, various cantons or the association of municipalities and cities are involved in the governance of the label through such positions. There are also relationships with important associations, such as the homeowners' association (especially at regional level) or regional trade associations, with which less formalised relations are maintained. A pronounced institutionalisation within the label structures also pertains to the relationships between the various municipalities that bear the label, as regular exchanges with other cities are part of the label's institution itself, e.g. within the framework of regularly organised conferences for regional exchange of experience.

Contestations within the label architecture refer to the label's content and its governance: Regarding its content, there is a continuous discourse about what exactly should be included in the catalogue of criteria for certification. This process is highly institutionalised: The catalogue of criteria is revised annually, and minor changes can be resolved by the board of the *EnergieStadt* association. However, major changes must be approved by the association's 650 members, which occasionally results in cumbersome processes. A current example of this is the debate about how much the label's focus should be extended from primarily energy issues to broader CO₂ and climate issues. The integration of the label into the European Energy Award is a key element in this negotiation process, as a consensus must be reached among all the label's organisations in the individual countries for major changes. Regarding governance, contestations within the label architecture concern the proximity and arrangement of the relationship to federal institutions, in particular the link to the *SwissEnergy for Municipalities* programme of the Swiss Federal Office of Energy. After a close cooperation between the label and this federal programme had been

established since the 1990s, within which the label was directly supported, a contestation arose in the last few years as to whether such direct state support of a private enterprise was justified. As a result, from 2021 onwards there will be a stronger separation between the label and the programme and state support by the federal government will from now on not depend on whether a municipality is an *EnergieStadt*. This contest can be understood in the sense that a former SIE-field-actor in the SIE-field, the federal programme, will be more excluded from the field for fiscal policy reasons and thus become an actor in the 'outside' institutional environment.

The second level of analysis relates to the entire SIE-field, which in terms of actor relations exceeds the *EnergieStadt* label in some instances but continues to be strongly influenced by it. This is evident in the fact that one of the central contestations is about the future role of the label in the SIE-field. Individual SIE-initiatives, such as Spiel-Energie, perceive the label's structures as too stale or not innovative enough for the average citizen and develop projects that are not directly part of the label. Nevertheless, such projects often rely on institutions in local government, like the creation of a responsible position for managing energy city activities that have been shaped by the label in the first place. It is also noteworthy that the aforementioned example adopts the idea of a label in principle. In other cases, however, it is an aversion to labels per se that leads to contestations.

“There are also municipalities that have abandoned the label. [...] Some are highly active in energy policy themselves and do not believe they need the label, others have aversions to labels in general, especially to too many labels—they are ISO-damaged” (Interviewee 2).

While the different directions in which SIE-field boundaries may be changing may mean a greater separation from governmental actors, *EnergieStadt* label is attempting to network more closely with national and cantonal politics in other forms. For instance, for the first time a member of the National Council as well as cantonal representatives are to be elected to the executive board of the supporting association. While close ties already exist with the Association of Cities and Municipalities, the intent is for there to be more direct representation from the national and cantonal levels. And while there is a separation from the Swiss Federal Office of Energy (SFOE), cooperation with the Federal Office for

the Environment (FOEN) has also intensified since 2018, due to greater attention being paid to climate issues within the label. The structure set up by the *EnergieStadt* label, in particular by local energy consultants, can be used to test and introduce new measures in the climate adaptation, which makes the existing framework of the label attractive to the FOEN.

Key changes in the SIE-field over time

The examined SIE-field has been highly persistent over time, as it was shaped by the distinctly institutionalised *EnergieStadt* label. The first key moment, perhaps not key change, can therefore be attributed to the early embedding of the *EnergieStadt* label as a lighthouse project of the Energy 2000 action programme in the 1990s. As a result of this cooperation with government institutions, the label acquired its highly formalised form, which has ensured a high degree of continuity and stability since then. This continuity is exemplified by the number of cities and municipalities that bear the label, which has grown steadily over the years without any major outliers.

Only in recent years has there been a slight destabilisation of the SIE-field with regard to the role of the *EnergieStadt* label which might transpire as a second key change-though cannot yet be said with certainty. While it is difficult to conceive of the SIE-field without the *EnergieStadt* label in terms of its effect on the establishment of institutions in local energy policy, this potentially second key change raises the question of what role the *EnergieStadt* label should play in the SIE-field in the future. This is expressed in the re-organisation or loosening of the relationship with government agencies as well as in newly emerging SIE-initiatives that go beyond the established procedural and content limits of the label.

Power and power relations (power to + power over + power with)

In SONNET, power is broadly understood as the relational and structural (in)capacity of actors to mobilise resources and institutions to achieve a goal. Power relations in SIE refer to a) actors having different kinds/levels of power to mobilise SIE-related resources and/or to achieve SIE-related goals (incl. (in)equality and in/exclusion) and b) actors having power over others in SIE-related processes (including dependency, oppression & exploitation), and c) actors having power with other actors to achieve collective (SIE-related) goals.

In the SIE-field of city-level competitions for sustainable energy, competition motivates actors to achieve a common goal, namely, for cities to engage in energy politics in the between-cities format, and for different actor groups (like citizens or schools) to engage in changing their energy behaviour in the within-cities format. We see SIE-field actors as having *power with* other SIE-field actors. A good example of this, is the SIE initiative *Energie Regionen* (Energy Regions), where cities or municipalities cooperate to be certified as an energy region.

When speaking of *power over*, we speak of “dependency,” as no forms of oppression and exploitation were identified within the boundaries of the SIE-field of city-level competitions for sustainable energy. Due to asymmetrically structured power, the institutional embeddedness of the *EnergieStadt* label through mechanisms like the management cycle, cities and municipalities depend on resources and visibility gained through the label to propel their local activities and competitions in sustainable energy. *Spiel Energie*, for instance, relied on the label for justifying the establishment of the initiative to some degree. At the same time, it is important to acknowledge that the *Trägerverein* has shown great reflexivity in its ability to adapt to changing cultural relations in society (for example, climate movements gaining more agency). Starting from 2020, for example, climate measures are included in the catalogue. This reflexivity, however, can arguably be interpreted as incremental change as a continuing maintenance of *power over* municipal actors.

As has been mentioned, the SIE-field of city-level competitions for sustainable energy is highly institutionalised in the case of Switzerland. We therefore see power relations between different actor groups to a certain degree as asymmetrically structured: Actors at the federal level, for instance, have a lot of *power to* mobilise resources. Having *power to* embed the *EnergieStadt*

label into the Energy 2000 Action Programme, supported the initiative with financial, organisational, and political capital. Establishing the *Trägerverein* gave the association agency to manage the label and decide on which measures are included and which are excluded in the label catalogue. As all certified energy cities are members of the *Trägerverein*, this kind of power could be understood as *power with* cities in establishing common goals. At the same time, as cities and municipalities that are not yet part of the label are excluded from this process, the *Trägerverein* may be seen as having some *power over* pathways of local energy policies. As cities that are part of the label may make decisions to include activities from their own cities in the catalogue, different pathways of cities that are not yet participating in the label may get excluded. This could potentially help explain why comparatively few concrete examples of competitions within cities were identified in this study. Considering these power relations, the following questions arise: “do these smaller competitions even exist? If not, why not? If they do exist, why are they not more elevated in the SIE-field?”

It should be emphasised that the label is a fully voluntary programme with the aim of having as many cities and municipalities participate as possible, making the label a primarily inclusive initiative. Though municipalities may depend to a certain degree on the *Trägerverein*, having *EnergieStadt* consultants support municipalities in drawing up their plan to achieve certification, shows that the label plays an immense enabling role (*power to*).

Inter-field interactions

Due to its wide scope, the *EnergieStadt* label has been instrumental in helping municipalities engage with as well as enable SIEs. One example is the interaction between the SIE-field of city-level competitions for sustainable energy and the SIE-field of cooperative organisational models for renewable energy. One measure from the *EnergieStadt* catalogue municipalities may choose to incorporate is about “supporting sustainable projects in the areas of efficiency, renewable energy and climate protection financially” (*EnergieStadt* Catalogue, own translation). While this does not concern cooperatives directly, cooperatives are in many cases directly supported by municipalities through loans, the benevolent purchase of green energy, membership fees in

cooperatives and the provision of roof-space for free (see report on SIE-field of cooperative organisational models for renewable energy). As the measures in the *EnergieStadt* catalogue are very broad in order to enable municipalities to impact directionality of their sustainable energy pathway, there are many different ways in which the presence of cooperative organisational models for renewable energy can help municipalities achieve points to become energy cities.

Another interaction relates to the potentially increasing relevance of citizen participation in the SIE-field of city-level competitions for sustainable energy. As cooperatives rely in part on active participation, cooperative organisational models for renewable energy may become an increasingly important pathway to more citizen participation in city-level competitions for sustainable energy.

6 Summary, synthesis and conclusions

6.1 How do SIEs and SIE-fields emerge, develop and institutionalise over time?

The SIE-field of city-level competition for sustainable energy in Switzerland examined in this report provides interesting insights into how SIEs and SIE-fields emerge, develop and institutionalise over time.

First of all, it is noteworthy that from the outset the SIE-field in this case was heavily shaped by a key initiative, the *EnergieStadt* label, and for a long time the initiative shaped changes within city administrations and therefore the SIE-field boundaries. Hence, the development of the SIE-field was not convergent – with many small initiatives gradually moving towards a more integrated SIE-field through increasing cooperation – but rather sequential and nested, with the activities of one initiative (in the between-cities format) co-creating the structures for the emergence of further activities (especially in the within-cities format). After all, it was not least due to the widespread adoption of

this label that many municipalities were able to create the capacities and institutions (energy strategies, new commissions, competences in conducting projects etc.) on the basis of which they could subsequently develop their own measures and projects.

This pivotal status of the SIE-initiative *EnergieStadt* label was facilitated by its early linkage to government structures, with its integration as a lighthouse project in federal programmes (Action Programme Energy 2000 and later *EnergieSchweiz* for Municipalities). This favoured the development of the label through the provided support, but also accelerated and promoted the early institutionalisation and formalisation as a label as a consequence of this cooperation.

Furthermore, a peculiarity of this SIE-field concerns the SIE itself. In principle, the idea of a label is aimed at allowing a comparison between different cities and municipalities and thus putting them in a more competitive relationship, which is also consistent with the competitive culture of municipalities in Switzerland. However, the *EnergieStadt* label should be considered as more than just a label as it comprises a management tool and a well-structured process, which does not only emphasise competition, but also fosters cooperation, networking, information exchange, capacity building and institutionalisation of energy policy to create sustainable, local energy pathways. As a consequence, the label does not necessarily result in social relations becoming more competitive, but rather more “coopetive”: While they implement measures and collect points in order to achieve a higher rank (e.g. the *EnergieStadt* Gold label) they compete with other cities for visibility and recognition. At the same time, however, cities also cooperate throughout the label structures as for example cities that have achieved the *EnergieStadt* Gold label become role models and provide ideas on new measures, information on best practices and visions of suitable pathways for sustainable energy. Accordingly, motives for (continuous) participation in the label process were rather driven by advisory functions provided by the label, the continuous monitoring and tighten of the awarding criteria of the label, by public pressure for more engagement in energy transition, or even by solidarity of large municipalities with smaller ones.

Finally, it is noteworthy that the strong institutionalisation and formalisation of the SIE-field under the *EnergieStadt* label has led to new SIE initiatives which perceive the label structures as not innovative enough. Especially in the area of the within-cities formats of competition for sustainable energy new actors moving into SIE-field focusing especially on behaviour changes of citizen and consumers by gamification and other experimental approaches. Although such initiatives aim to go beyond the typical areas of measures of the *EnergieStadt* label with their activities and thus blur and expand the institutional boundaries of the SIE-field, they often rely on the capacities created by the label.

6.2 How do SIE-field-actors and other field-actors interact with the 'outside' institutional environment and thereby co-shape the SIE-field over time?

Central institutions for the SIE-field in the outside environment concern federalism and the strong cultural identity of regions and municipalities in Switzerland. This includes both formal institutions – which give municipalities a high degree of autonomy and responsibility – and more informal, cultural institutions which, in accordance with the principle of subsidiarity, tend to place the solution to problems first and foremost at the local level.

In their activities and in the design of the social innovation, the actors in the SIE-field take up these institutional realities and create solutions tailored to them. The label idea makes use of the high degree of local autonomy by being flexible and based on voluntary action, but also by creating capacity for action and taking the culture of regional competition into account.

While the label structures developed over time some intermediate institutional structures evolve supporting Swiss cities to find and develop their individual paths towards sustainable energy. In a later phase, further innovative projects in the within-cities format evolve with a lesser degree of institutionalisation and embedding in the label structures. However, the resulting empowerment of municipalities to shape their own energy policy and energy paths in turn helped and continues to

help to create the conditions for the implementation of the federal energy transition strategy. The SIE-fields' interaction with these outside institutional conditions may thus be best characterised as re-enforcing.

6.3 What are the enabling and impeding factors for SIE-field-actors and other field-actors to conduct institutional work and change the 'outside' institutional environment?

There are various factors which enabled and impeded institutional work in the emergence of the SIE-field. First, the early embedding of the *EnergieStadt* initiative in governmental structures and subsequent support was key in enabling SIE-field actors to reconfigure the initiative into a label and thus, setting the overarching rules and norms by which the SIE-field would primarily be governed through.

Second, it was equally important that the formalisation of this label meant the path to certification was clear but flexible enough for it to not become a uniform panacea; this applies both to the work in individual municipalities and to the configuration of the label content itself. This goes hand in hand with the fact that in the SIE-field the voluntary nature of participation in the initiatives is emphasised, thus strengthening the self-reliance of the participating municipalities. The measures that participating municipalities must take to be certified are a clear enabling factor for city administrations to engage in local energy policy and further enable competitions within their municipalities. Apart from the formal regulation of responsibilities and capacities, the leeway for municipalities to take action for own institutional work also depends on local conditions. For example, having their own energy supplier may be decisive in whether resources can be mobilised through it (enabling SIE development) or not (impeding SIE development).

Third, an additional important enabling factor is the coopetition structures between municipalities, which the SIE-field has helped to establish and which in turn are conducive to further institutional

work within the SIE-field. The structure of the *Trägerverein* with its meetings of participating cities enabled the formation of cooperative structures, which should themselves be understood as a form of institutional work, as they shape normative and cultural institutions which explain how municipalities interact with each other. For instance, cooperation enables more exchanges of experiences and best practices between municipalities to take place by practicing cooperation. At the same time, the competitive practices that have emerged through the labelling practice enables cities and municipalities to do better than others and thus be more innovative.

Fourth, while the *EnergieStadt* label's framework create capacities for enabling city-level competitions for sustainable energy pathways as described above, its existence may act as an impeding factor for actors that are not recognised within the label as operating in the same SIE-field. This may be true for NGOs and firms, for example, who organise competitions that aim at changing energy behaviours within cities or specified group (see developments in phase 4 p. 28). Because they are currently not part of the SIE-field, they may not have access to the same resources as initiatives that city administrations are more directly involved in. City administrations themselves therefore also play a role in either enabling or impeding institutional work from actors operating outside of the SIE-field boundaries. In addition, cities that do not wish to participate in the *EnergieStadt* label, may also see its institutions as an impeding factor, as they do not benefit from the same knowledge exchange and are not part of decision-making processes within the *Trägerverein*, thus contributing to a lesser extent to institutional work.

Finally, the broad scope of the SIE-field, with many participating municipalities, is both an enabling and an impeding factor. On the one hand, this broadness enables small steps to be taken in many places, but on the other hand it can lead to a certain inertia and thus offer little incentive to particularly innovative and progressive municipalities. The emergence of new SIE-initiatives, such as the *EnergieStadt* Gold label under the umbrella of the *EnergieStadt* label, counters this trade-off by focusing on the work of such high performing municipalities.

7 Recommendations for our city partners, national and EU policy makers and SIE practitioners

SONNET city partners

- City-level competitive formats may attract a wide range of participants due to their voluntary nature. However, the results of this study show that the competitive format alone is not sufficient to achieve high impact. Rather, it must be accompanied by other mechanisms that allow for some level of cooperation through sharing of knowledge and resources.
- Competitions between cities are very different to competitions within cities. In the between-cities format (like the *EnergieStadt* label), competition is not the primary motivation to participate. In competitions within cities, however, competition is effective as a primary motivation for different actor groups (like schools and civil society more broadly) to engage with sustainable energy through competitions primarily aimed at raising awareness or changing energy behaviour.

National and EU policy makers

- When evaluating initiatives for city-level competition with regard to funding, it is imperative to not only take into account easily quantifiable outcomes, such as annual CO₂ reductions, but also to consider effects, such as the institutionalisation of municipal energy policy, which constitute essential progress towards a more sustainable energy system which are more difficult to measure.
- When participating in the design of city-level competition initiatives (such as the *EnergieStadt* label or European Energy Award) by means of national or EU institutions, it is advisable to give the municipalities autonomy in the shaping of their own energy policy and not to rely on standardised one-size-fits-all solutions.

SIE-field-actors

- It is recommended that SIE-field-actors like local administrations and the *Trägerverein EnergieStadt* label create more space for active citizen participation in energy related topics. In the Swiss context, local administrations can draw on best-practices and inspiration for successful competitions from the *EnergieStadt* label and should be encouraged to do so.

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9 Annex 1

Methodology

As this SIE-field is shaped around a single highly institutionalised initiative, the starting point in research and selecting interviews was the *EnergieStadt* label itself. Since there are a lot of different initiatives within the umbrella organisation of the *EnergieStadt* label, these different initiatives were looked at and assessed for whether they classify to be considered an initiative in the SIE-field (i.e. they exhibit some competitive character and city administrations are involved). Drawing the boundaries of the SIE-field proved particularly difficult in the case of city-level competitions for sustainable energy, since the *EnergieStadt* label's embeddedness in federal politics also meant that SIE-actors of initiatives inside the larger *EnergieStadt* structure recognise each other as actors within the same SIE-field, regardless of how competitive the initiatives were. For this reason, initiatives that exhibited some form of competition and recognised each other as SIE-field actors or SIE-initiative representatives were included in the case study to show how initiatives within a SIE-field exist that exhibit different levels of competition. After selecting the most important initiatives based directly on the *EnergieStadt* label framework, the researchers took a more explorative approach to determine whether there may be initiatives that may not be part of the label but still operate within the SIE-field boundaries. This proved to be difficult, as many identified competitions focused on sustainability more broadly and did not involve city administrations directly enough and therefore would not be considered SIE initiatives. To make sure that initiatives within the SIE-field were not excluded, all interviewees were specifically asked about other initiatives they considered to be relevant. All initiatives mentioned were then researched and if relevant, invited to an interview.

A total of six interviews were completed for this case study. The interviews were all done online via Zoom or Microsoft Teams software. If the consent of the interview partners was given, the interviews were recorded and summarised, and, in most cases partly transcribed. A complete transcription was omitted due to the funds available. The partially transcribed interviews were then coded based on a

deductive code devised and agreed upon across SONNET projects in order to enable a cross-country comparison.

The interviews were supplemented with a document analysis, using mainly documents from the interviewed organisations (based on website search of these organisations and documents directly provided by interviewees) and existing research literature on city-level competitions for sustainable energy in Switzerland.

Beyond limitations based on funding, interviews all had to be conducted online due to the Covid-19 crisis, which may have limited researcher's non-verbal observations during interviews.

Documents reviewed

Author name	Document name	Document type	Year	Link to reference
Widmer, Laurent	Das Schweizer Label «Energistadt» weckt weltweit Interesse	Article	2016	https://dievolkswirtschaft.ch/de/2016/06/widmer-07-2016/
Bundesgeschäftsstelle European Energy Award	Overview of each measure	Guidelines	2019	https://www.european-energy-award.de/fileadmin/Downloads/Oeffentliche_Downloads/Informationsmaterial/2019-09-02_Beschreibung_der_Ma%C3%9Fnahmenbereiche.pdf
Liesch, Roman; Stadelmann, Sascha	Die kommunale Energiepolitik in den Schweizer Gemeinden	Report	2018	https://www.local-energy.swiss/dam/jcr:b7f8ec2a-8550-4ea7-a84c-6415e0c9fe94/Die_kommunale_Energiepolitik_in_der_Schweizer_Gemeinden_-_Erhebung_2017.pdf
Schwickert, Barbara	2019 Jahresbericht: Trägerverein Energistadt	Report	2019	

Trägerverein Energiestadt	Massnahmenkatalog Energiestadt	Catalogue	2017	https://www.local-energy.swiss/dam/jcr:fc714717-6021-4718-87e9-67d66d3df139/Katalog_Energiestadt_2017_dt.pdf
Trägerverein Energiestadt	Neuerungen für Energiestädte und Mitgliedsgemeinden im Trägerverein Energiestadt	Report	2020	https://www.local-energy.swiss/dam/jcr:4448af9d-31f5-4d54-896f-6480d6ed8b74/20201116_Neuerungen%20f%C3%BCr%20Energiest%C3%A4dt_e_V4.1.pdf
Kellenberger, Daniel	Das 2000-Watt-Areal Mein Lebensraum von morgen	Flyer	2018	https://www.2000watt.swiss/dam/jcr:f859c9e9-6b96-466f-8288-7a625a41654c/2000_Watt_Flyer_de.pdf

List of interviewees

Code interview	Empirical description of case	Type of actor according to SONNET	Date of interview	Duration of interview	Interviewer
Interviewee 1	Label association	SIE-field actor	20.08.2020	1h	Benjamin Schmid
Interviewee 2	Label association rep	SIE-field actor	14.07.2020	1h30	Benjamin Schmid
Interviewee 3	Local policymaker	SIE-field actor	18.09.2015	1h20	Jörg Musiolik
Interviewee 4	Consultant	Other field-actor	02.12.2020	45min	Benjamin Schmid, Leticia Müller
Interviewee 5	Local policymaker	SIE-initiative	12.11.2020	45min	Leticia Müller
Interviewee 6	International organisation	SIE-initiative	08.18.2020	1h	Benjamin Schmid

10 Annex 2

Detailed SIE-field timeline

DATE	TYPE OF EVENT	DESCRIPTION OF EVENT	QUOTE & SOURCE e.g. document (D), interviewee (I)
Phase 1: 1988 – 1993: The nucleus of the SIE-field: Emergence of the EnergieStadt initiative from civil society and its integration into the federal programme Aktionsprogramm Energie 2000			
1988	SIE-field event	Start «Energiestadt» as civil-society initiative	D
1990	Institutional event	Constitutionalisation of energy provision as a federal task (referendum)	D, I
1990	Institutional event	First encompassing federal energy law	D
1990	Institutional event	Aktions-programm Energie 2000	D, I
1991	SIE-field event	A private association, the Trägerverein EnergieStadt, was founded to manage the initiative	D, I
1992	SIE-field event	EnergieStadt was extended to French-speaking part	D

Phase 2: 1994-1999: Institutionalisation of EnergieStadt as a label and a cornerstone of the SIE-field			
1994	SIE-field event	After a positive evaluation, EnergieStadt was reorganised into a label	D
1995	SIE-field event	An independent label commission was appointed for the certification process	D
1996	SIE-field event	EnergieStadt label is extended to Italian speaking part	D
Phase 3: 2000-2017: Internationalisation and diversification of the SIE-field within the boundaries of EnergieStadt			
2000	Institutional event	Energy 2000 programme came to an end and significantly expanded under the new EnergieSchweiz programme	D, I
2000	Institutional event	EnergieStadt label was embedded in a sub-programme of EnergieSchweiz, namely, "EnergieSchweiz für Gemeinden" (Swiss Energy for municipalities)	D, I
2001	SIE-field event	European Energy Award (EEA) was founded. EnergieStadt began to coordinate its activities based on norms created at the EEA level.	D, I
2002	SIE-field event	Energie-Region (energy region) concept emerged to address collaborative approaches of multiple municipalities	D
2009	Institutional event	EnergieStadt, respectively the European Energy Award, became an officially recognised implementation instrument for the Covenant of Mayors of the EU	D, I

2012	SIE-field event	2000-Watt-Areal (2000-watt site) certificate was awarded for the first time, designated for certain district like areas within a city	D
2014	SIE-field event	The <i>EnergieStadt</i> Gold label was launched	D
2015	SIE-field event	Three schools were certificated as <i>Energieschulen</i> (energy schools).	D
Phase 4: 2018-2021: Transcendence of the SIE-field beyond the <i>EnergieStadt</i> label and introduction of new formats of competition			
2018	Institutional event	Intensified cooperation with the Federal Office for the Environment (FOEN) and the <i>EnergieStadt</i> label	D
2018	Institutional event	New Energy law comes into effect	D, I
2018	SIE-field event	First Spiel Energie takes place in WIL	I
2020	Institutional event	End of <i>EnergieSchweiz</i> programme and therefore, end of <i>EnergieSchweiz</i> for Municipalities	D, I
2020	SIE-field event	Pilot project in including climate measures in <i>EnergieStadt</i> catalogue	D, I
2021	SIE-field event	Reorganisation of <i>EnergieStadt</i> label comes into force	D, I