Decentralisation of Energy Generation, Centralisation of Energy Lawmaking

Reflections About the Origins and Evolution of Swiss Energy Law

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Abstract The energy sector has been subject to regulation since ancient times. The mechanisms of regulatory activity in this sector run like a red thread through history. New regulations are often born out of necessity (for example because of limited energy resources or today because of climate objectives). Switzerland's energy law was originally a cantonal matter. Over the course of time, more and more competences have been transferred to the federal level. This, together with the increasing complexity of the subject matter of regulation, has led to a conflicting legal

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framework that renders it nearly impossible, even for experts, to answer everyday questions of competence with the necessary clarity and without much effort.

1 Introduction

The development of regulation in the Swiss energy sector has been and continues to be a constant process, strongly driven by technical progress. In his fundamental work "Energy Law" from 2005, Jagmetti identifies four successive priorities of regulation for Switzerland, starting with industrialisation in the late nineteenth century: (1) security aspects, (2) supply, (3) conservation of nature and landscape and finally (4) the market.[1] However, these domains have not evolved as separate fields. Rather, they have complemented each other. This has been accompanied by an increase in complexity and growing conflicts of interest and by a steady increase in the density of regulation.[2]

Jagmetti's observations also reveal another aspect: to support his remarks, he refers primarily to laws enacted on the federal level. As will be shown below, in the context of Switzerland's federal structure and organisation, this means that regulatory activity has increasingly been transferred from the cantons to the federal level. We are therefore dealing with a form of centralisation. At the same time, paradoxically, energy supply in Switzerland is—politically desired—developing (again) in exactly the opposite direction, namely towards electricity that is largely produced on a decentralised basis and as far as possible in a climate-friendly manner. This primarily concerns photovoltaic systems.

With a view to the desired decarbonisation of energy supply, electricity is the key energy source today, already accounting for 25% of Switzerland's total final energy consumption.[3] This article therefore primarily focuses on the development of the regulation of the electricity industry since the founding of the state, but not without establishing cross-references to other areas of energy legislation and the time before that, insofar as they appear to be useful for understanding the overall context. In the following, the legislator's approach to the challenges of regulating the electricity industry in a federal context will be critically examined and finally illustrated with examples. It will be demonstrated that the increasing complexity of the energy sector has had an important impact on the evolution and quality of energy regulation in Switzerland.

To present the development of Swiss energy law in a comprehensive manner would go far beyond the scope of this contribution. In over 150 years of development, there have been countless important events, technical, economic and political

[1] Jagmetti (2005), p. 11.

[2] Jagmetti (2005), p. 16.

[3] Swiss Federal Office of Energy (2019b), p. 4.

developments, from industrialisation and two world wars to the digital age. This is also not a historical investigation, especially since I limit myself mainly to the analysis of typical legal sources, namely the legislative materials, mainly produced by the Federal Council, which automatically narrows the perspective. However, since the focus is on the creation of federal competences and on the way in which these competences were used by the legislator, this approach seems to be appropriate here. From this perspective, the following are just a few of the highlights that I believe have a certain significance for the electricity industry. The selected highlights also form a kind of temporal bracket around the entire Swiss energy law, i.e. the basic regulation on the use of hydropower[4] around 1900 on the one hand and the electricity market regulation at the beginning of the twenty-first century on the other.

2 Energy Law: Origins and Essence

2.1 Subject Matter of Energy Law

The term "energy law"—like the term "regulation of the energy sector"—cannot be defined conclusively. However, for the purpose of this paper, it is necessary to provide a consistent framework for the terms used.

From a material point of view, it would be quite justifiable to describe all law as energy law that has a connection to the topic of energy production and use. The large scope of this field is, however, demonstrated by the four main areas of regulation or "tendencies",[5] as Jagmetti calls them (security, supply, conservation of nature and landscape as well as the market). From a political point of view, this ranges from climate and environmental policy (coping with climate change and the conservation of natural resources) to economic policy (security of supply and competitiveness) and social and structural policy (affordable energy supply and fair distribution of revenues).

As already mentioned, this article deals with the regulation of the electricity industry and there primarily with what I would like to call "nominal energy law" or "energy law in the narrow sense". I am referring to the law that "wants to be" energy law, i.e. the law that directly regulates, for example, the use of hydropower. Occasionally, however, cross-references are made to "functional energy law" or "energy law in the broader sense". This refers to norms that primarily have a different focus, such as environmental law, including water protection, regional planning law or antitrust and competition law, but which also have a material connection to energy.

[4] Hydropower accounts for a good 55% of today's domestic electricity production (Swiss Federal Office of Energy 2019a, p. 2).

[5] Jagmetti (2005), p. 11.

2.2 *Energy Regulation as a Historical Constant*

The topic of energy supply and use has already occupied our extinct ancestor Homo Erectus since he learned to control fire about one million years ago.[6] Regulation in the broad sense of the term also began early on. For example, the use of wood was already subject to antique regulations. In the third century, the Roman Emperor Alexander Severus assigned forest management to the same institution that was responsible for the administration of the public baths. Haas suspects that this was a new regulation of the supply of firewood, which had previously been carried out via intermediaries.[7] It is possible that the excessive use of resources from the operation of these same thermal baths had resulted in bottlenecks in the supply of wood, which even then had a connection to ancient social and environmental policies.[8]

The use of water power to drive mills and saws can also be traced back to ancient times.[9] One example from the baroque era is Zurich, whose Grand Council made the use of wood the subject of regulation by means of so-called "mandates". This was intended to guarantee both the supply of wood and the protection of wood as a natural resource.[10] In the *Hoch-Obrigkeitliche[n] Mandat, Betreffend die Versorg- und Beschirmung der Holz- und Waldungen* from 1717, for example, the following lines can be found (loosely translated from the original text formulated in old German language):

> To our great regret, we have had to learn that in many places of our territory the inhabitants are robbing themselves of this treasure by excessive and unsustainable consumption and extinction of the woods. It is time to understand that if this danger is not recognised, there is reason to worry about such a general damage to the land, which our descendants would have to pay a great deal for [. . .].[11]

Here, too, the close links with other areas of interest and policy, in particular the aspect of intergenerational sustainability of natural resource use, are evident. Finally, water rights that are still valid today and that recently occupied the Federal Supreme Court of Switzerland also go back to the time of the so-called Ancien Régime.[12] These arbitrarily selected examples show that since ancient times there seems to

[6] Berna et al. (2012), p. 1215 et seq.

[7] Haas (2006), p. 130, with a reference to a calculation of the consumption of firewood on page 244.

[8] Haas (2006), p. 244 et seq. and 252; he remains skeptical with regard to the link to environmental considerations.

[9] Grewe (2009), p. 429 et seq.

[10] Schindler (2019), p. 279.

[11] Mandat (1717), p. 204 et seq.: "*Weilen wir aber zu unserm nicht geringen Bedauern in Erfahrung bringen müssen, wie dass an vielen Orten unserer Bottmässigkeit unsere Angehörige durch übermässiges und landesverderbliches Geuden und Austoten der Hölzern sich dieses Kleinods also berauben, dass wann hierwider nicht erforderliches Einsehen gethan wurde, nicht unzeitig zu besorgen wäre, es möchte hieraus ein solcher allgemeiner Landsschaden erwachsen, dessen unsere Nachkommen sich nicht wenig zu entgelten haben wurden.*"

[12] BGE 145 II 145; Föhse (2019), p. 444 et seq.

have been a need to establish rules for the use of energy sources for various motives. This article will not go back too far in time. Rather, it begins with the founding of the Swiss Confederation in 1848. In the following sections, the rough constitutional lines will be delineated and compared with the regulatory priorities mentioned by Jagmetti.

3 Milestones in the Regulation of the Electricity Industry

3.1 Levels of Government and Basic Jurisdiction

Switzerland ("the Swiss Confederation" [*Schweizerische Eidgenossenschaft*]) has a federal structure consisting of 26 cantons (Art. 1 BV).[13] In accordance with the Swiss system of federalism, the cantons are sovereign "except to the extent that their sovereignty is limited by the Federal Constitution" (Art. 3 BV)—this norm is already found with almost identical wording in the first constitution of 12 September 1848 (there also in Art. 3).[14] With regard to the competences under constitutional law, this means that the Confederation and the cantons must share "sovereignty". Moreover, it implies that the Confederation must (only) fulfil duties in those areas where limits to cantonal sovereignty are provided by the Federal Constitution (Art. 42 BV). The Confederation should only take on those tasks "that the Cantons are unable to perform or which require uniform regulation by the Confederation" (Art. 43a para. 1 BV). In view of the history of modern Switzerland, which in 1848—apart from the short period of the Helvetic Republic from 1798–1803—emerged from a federation of sovereign states (the cantons) of strongly contrasting socio-cultural areas, this can be regarded as an obvious decision.[15]

In the following sections, the tendency towards centralisation in energy law regulation will be documented. For this purpose, it will be necessary to trace the development of the relevant federal competences in the constitution. In the absence of federal competence, the member states, i.e. the cantons, are entitled to legislate. The following overview of the development of constitutional competences will be based on the three federal constitutions since the founding of the Swiss Confederation, i.e. those of 1848, 1876 and 1999, and it will take the regulation of hydropower as its starting point. Moreover, the focus will be on the main areas of regulation mentioned by Jagmetti. Cantonal law will only be included on a selective basis where it seems appropriate.

[13] Federal Constitution of the Swiss Confederation *("Bundesverfassung der Schweizerischen Eidgenossenschaft" vom 18. April 1999 [BV, SR 101]).*

[14] However, the term "sovereignty" was subject to intensive debates in the so-called *Tagsatzung*, the assembly that was responsible for drafting the first Swiss constitution (Kölz 1992, p. 578; Schweizer 2014, p. 83; Jaag 2015, p. 149).

[15] Tschannen (2016), p. 95.

3.2 Hydropower

3.2.1 From Wood to Coal

Even at the time when the state was founded around 1850, wood was still the main energy source in Switzerland, accounting for 88% of the total. This was followed by peat (9%) and coal (3%). Hydropower accounted for only 1%.[16] As far as the first constitution of 1848 is concerned, one can be brief about energy law. There are no competence norms that would concern nominal energy law, nor are there any that would concern functional energy law. The constitution of the young nation (understandably) had other focal points, above all the question of the structure of the federal parliament as a unicameral national representation, as a "*Tagsatzung*" or in a bicameral system based on the model of the United States of America, the question of the structure of electoral law and the three powers, or the fundamental relationship between the Confederation and the cantons.[17] Conversely, this means that "energy" as a potential subject matter of regulation was entirely in the hands of the cantons.

Barely 26 years after the founding of the state, the totally revised constitution of 29 May 1874 was the second constitution to come into force in Switzerland. The constitution of 1874 is a key enactment for energy law. At the beginning, however, it was also free of energy law ballast (not considering Art. 24 BV 1874, which provides for the supervision of the hydraulic engineering and forest police, which for the time being was still limited to the high mountain areas, and the legislative competence regarding fisheries according to Art. 25 BV 1874).

For various reasons,[18] however, wood-based energy supply came to an end as early as the 1860s. Wood and peat were increasingly replaced by coal. Swiss coal consumption rose exponentially from this point on and flourished from the early years of the twentieth century until the mid-1960s, when it disappeared just as quickly and was replaced mainly by oil.[19] The main consumers of coal were—before electrification—initially the railways, gas works (for the production of so-called "town gas" by coal gasification, especially for public lighting) and industry (steam engines). From the beginning of the twentieth century, heating systems in residential buildings were also added.[20]

[16] Kupper and Pallua (2016), p. 16; today the shares in total energy consumption are as follows: petroleum fuels (13.9%), motor fuels (35.4%), electricity (25.0%), gas (13.5%), remainder (12.2%) (Swiss Federal Office of Energy 2019b, p. 4).

[17] Kölz (1992), p. 554 et seq.

[18] Kupper and Pallua (2016), p. 16 et seq.

[19] Kupper and Pallua (2016), p. 22 et seq.; Swiss Federal Office of Energy (2019b), p. 3.

[20] Kupper and Pallua (2016), p. 32 et seq.

3.2.2 The Beginnings of Electrification: The Struggle for Water

Electrification began in the early 1880s.[21] At that time, electricity was also generated from hydropower in Switzerland for the first time. In contrast to coal, which had to be imported, hydropower provided a domestic source for renewable energy. This opened up completely new opportunities but also raised fundamental questions about water sovereignty, the granting of rights of use and the distribution of the revenues.[22] The Federal Council's comments from 1905 are illustrative of this:

> As a mountainous country, Switzerland possesses a number of relatively easily exploitable hydropower sources, which constitute a considerable part of the national wealth and whose value has risen significantly since electricity has begun its global conquest and the technology of converting hydropower into electrical energy has experienced a tremendous upswing. Thanks to this progress, we in Switzerland are able to replace coal, which we have to purchase from abroad, by hydropower as a source of power to a very significant extent. [...] This means that the national authorities must also concern themselves more than before with the issue of Swiss hydropower. Our primary responsibility is to ensure that, when Switzerland switches over to the electrical operation of its railways [...], the hydropower that is necessary for this purpose will be available.[23]

In accordance with the basic constitutional order, the cantons were initially competent for regulation. The enactment of a corresponding framework regulation by the Confederation was politically complex and therefore difficult.[24] It began with a petition (*Gesuch*) from the "Central Executive Committee of the Swiss Frei-Land Company" (*Centralvorstand der schweizerischen Gesellschaft Frei-Land*) in April 1891, whose main concern was to monopolise hydropower at the federal level and to state, among other things, that the use of hydropower and the transmission of electricity generated from hydropower should be a federal matter.[25] The Federal Council took this concern as an opportunity to have the subject examined in greater depth in a report that appeared 3 years later (1894) and which, as it turned out afterwards, provided guidance for the future organisation of water use in

[21] Kupper and Pallua (2016), p. 37 and 53; Föhse (2015), p. 126.

[22] See also Jagmetti (2005), p. 410 et seq.

[23] Federal Council (1905), p. 223: *"Die Schweiz besitzt als Bergland eine Summe von verhältnismässig leicht verwertbaren Wasserkräften, welche einen erheblichen Teil des Nationalvermögens ausmachen und deren Wert bedeutend gestiegen ist, seitdem die Elektrizität ihren Siegeszug durch die Welt angetreten und die Technik der Umwandlung der Wasserkraft in elektrische Energie einen ungeheuren Aufschwung genommen hat. Durch diesen Fortschritt erreichen wir in der Schweiz, dass in einem sehr bedeutenden Masse die Steinkohle, welche wir aus dem Ausland beziehen müssen, als Krafterzeugerin durch die Wasserkraft ersetzt werden kann. [...] Daraus ergibt sich die Notwendigkeit, dass sich auch die Landesbehörden mehr als bisher mit der Angelegenheit der schweizerischen Wasserkräfte beschäftigen. Wir haben in erster Linie dafür zu sorgen, dass, wenn die Schweiz zum elektrischen Betrieb ihrer Bahnen [...] übergehen wird, die nötige Wasserkraft zu diesem Behufe zur Verfügung steht."*

[24] Federal Council (1905), p. 224.

[25] Federal Council (1894), p. 820.

Switzerland,[26] even though it took almost 25 years to draft the new regulation[27] before it came into force with the Water Rights Act (WRA)[28] on 1 January 1918.[29] This includes the creation of the necessary constitutional basis in the form of the new Art. 24bis BV 1874 (which was promoted by a popular initiative)[30] and a mandatory constitutional referendum on 25 October 1908.[31]

In the run-up to the vote, the Federal Council rejected a popular initiative, which called for extensive centralisation at the federal level, and basically confirmed its position, already formulated in the 1894 report, that water sovereignty and regulatory powers should essentially remain with the cantons.[32] The parliament responded to the initiative with a counter-proposal prepared by a commission of experts, which was further adapted during the parliamentary debate. The initiative committee subsequently withdrew its proposal.[33] With Art. 24bis BV 1874, adopted on 25 October 1908, it was now laid down at constitutional level that the Confederation should (at least) have basic legislative competence in the field of hydropower.[34] Furthermore, the Confederation was supposed to act as the licensing authority in intercantonal relations in the event of a dispute as well as in international relations. In contrast, the fees and charges arising from water use were the responsibility of the cantons (see Art. 24bis BV 1874).[35] This is still the case today (Art. 76 para. 4 BV).

3.3 The Safety of Electrical Installations as a Milestone?

As is not uncommon, the work of the legislator was overtaken by events during the discussions surrounding water sovereignty. The dangers of using electricity were soon recognised. As early as 1902, the Federal Council therefore felt compelled[36] (in my opinion without the necessary constitutional basis)[37] to regulate the safety of

[26] Federal Council (1894), p. 820.

[27] Federal Council (1912), p. 669.

[28] Water Rights Act *(Bundesgesetz vom 22. Dezember 1916 über die Nutzbarmachung der Wasserkräfte, Wasserrechtsgesetz [WRG, SR 721.80]).*

[29] See AS 1933 189.

[30] Federal Council (1907), p. 624.

[31] Federal Council (1912), p. 45.

[32] Federal Council (1894), p. 821.

[33] Federal Council (1908b), p. 475.

[34] Federal Council (1912), p. 672.

[35] Federal Council (1908a), p. 7 et seq.; Jagmetti (2005), p. 410 et seq.

[36] Federal Council (1899), p. 787.

[37] Federal Council (1899), p. 790. From a legal point of view, the reasons given in the Federal Council dispatch for the legitimacy of the legislation do not seem very convincing (the dispatch states that the Federal Assembly had already decided this beforehand and that, in the meantime, legislation in civil and criminal matters had also become a federal competence). It goes without saying that the Federal Assembly cannot give itself competences that it does not have under the

electrical installations by means of a federal law (the EleG[38])—an issue that may have become more urgent after a fire had broken out in the Zurich telephone exchange on 2 April 1898 due to a lack of safety precautions.[39] As Jagmetti points out,[40] the fact that the issue of security was initially reflected in (centralised) federal law was probably due in large part to the complexity of hydropower from a political point of view and to coincidence, rather than to a deliberate strategy, although the problem had been known for some time. The necessary constitutional basis was not established until 1908, when the constitutional provision on hydropower was introduced in Art. 24bis para. 9 BV 1874 (now Art. 91 para. 1 BV).

3.4 The Issue of Energy Supply as a Milestone?

Electricity began its triumphal advance after the First World War, after it had still been considered a luxury good at the turn of the twentieth century. Initially, it was used primarily for public lighting or the operation of trams in the cities.[41] The lack of fuel made the dependence on foreign countries obvious, so that industrial enterprises also began to replace coal with electricity. Efforts to bring electricity into the home also began in the 1920s. But it took until the 1950s and 1960s before electrification was fully implemented.[42] In 1945, for example, only 1% of households had a vacuum cleaner or refrigerator; by 1970, these figures had risen to 86 and 82% respectively (electric cookers and, in particular, electric irons had been quite common since the pre-war period).[43]

When the constitutional basis for the use of hydropower was created in 1908 and the Federal WRA came into force in 1918, the focus was probably less on supplying the general population with electricity (in the sense of a basic supply), but rather on the use and expansion of hydropower itself and the hoped-for reduction of dependence on hard coal imports from abroad.[44] On the one hand, this picture emerges from the Federal Council dispatch on the constitutional amendment, in which the issue of supply is at best indirectly reflected (in particular in the form of the obligation to obtain a permit for the transfer of electricity abroad and the probably

Constitution. To what extent the competence to legislate on civil and criminal law is relevant here is difficult to see, unless one assumes an enormously broad concept, especially of civil law, under which one could subsume almost any regulatory activity. It rather seems as if the matter has been taken on by necessity—regardless of the division of competences defined in the constitution.

[38] Electricity Act *(Bundesgesetz vom 24. Juni 1902 betreffend die elektrischen Schwach- und Starkstromanlagen, Elektrizitätsgesetz [EleG, SR 734.0]).*

[39] Federal Council (1899), p. 787.

[40] Jagmetti (2005), p. 11.

[41] Kupper and Pallua (2016), p. 42.

[42] Swiss Federal Office of Energy (2019b), p. 3.

[43] Kupper, Pallua (2016), p. 44 et seq. and 53.

[44] Jagmetti (2005), p. 411.

desired reduction of foreign dependency).[45] On the other hand, there is the dispatch on the WRA, where the Federal Council makes a pointed statement on what it considers to be the central aspect of the "exploitation" of hydraulic power—namely the "interest of the general public in this national resource". Just as important—as already in the debate on the constitutional provision—was the social and economic component, the question of participation in the new resource as "national wealth" and the prevention of price increases for fiscal purposes or through speculation.[46]

Finally, this is also in line with the state of technical development and the degree of electrification at the time, which had not yet reached households. From the federal government's point of view, the focus was on railways as potential customers, as well as cities for public lighting and trams and, increasingly, industry.[47] At the time, Switzerland was still a "coal country" and thus became increasingly dependent on foreign countries at the turn of the twentieth century.[48] Consistent energy supply policy only began later, after the Second World War.[49]

However, it is interesting to note that Art. 55 let. d WRA stipulates that hydropower concessions can also contain provisions "on the tariffs for the supply of the generated power, on the power to be supplied free of charge or at preferential prices, on the reduction of electricity prices in case of increased profit, [and] on the supply of power to a region". The standard obviously aims at avoiding that fiscal objectives of the state or speculative activities hinder the development of power plant capacity. With approximately the same wording, it is still part of the WRA today (only the term "power" was replaced by "electrical energy" as of 1 May 1997). Today, however, it is obviously in conflict with the new electricity market regulation, which has been in force since 2008. In the course of the drafting of the StromVG,[50] the rule seems to have been overlooked. As a result, Parliament has made more or less unsuccessful attempts to improve it. The rule should, however, have been deleted.[51]

The topic of supply therefore came into focus later. From an energy history perspective, the 1950s seem to have been a decisive turning point in this respect. In step with strong economic growth, energy consumption also increased exponentially,[52] so that historians see these years as an epochal change or a threshold period from industrial to consumer society.[53] The Federal Council's 1957 dispatch in

[45] Federal Council (1907), p. 624 et seq.

[46] Federal Council (1912), p. 674.

[47] Federal Council (1912), p. 676.

[48] Kupper and Pallua (2016), p. 24 (about coal extraction in Switzerland).

[49] Kupper and Pallua (2016), p. 64.

[50] Electricity Supply Act *(Bundesgesetz vom 23. März 2007 über die Stromversorgung, Stromversorgungsgesetz [StromVG, SR 734.7]).*

[51] Kratz (2016), p. 434. Kratz sees the problem, but does not comment on it.

[52] Swiss Federal Office of Energy (2019b), p. 3.

[53] Kupper and Pallua (2016), p. 55.

favour of the creation of a constitutional provision on nuclear energy is a good illustration of the new emphasis on "security of supply".

> Keeping pace with the development of nuclear research and technology has become crucial for our country. Without its own oil and coal deposits, Switzerland has shifted to the intensive exploitation of the country's most important energy sources, namely hydropower. However, our own energy sources are currently only able to satisfy about 33 percent of our total raw energy requirements (hydropower 24, firewood 9), and we are dependent on imported energy sources for the rest.[54]

After the creation of the constitutional basis on 24 November 1957[55] and with the definition of exclusive federal competence, things moved quickly. On 23 December 1959 the Federal Assembly passed the Atomic Energy Act (*Atomgesetz*).[56] In 1964, for example, the energy supply company BKW announced that it was planning to build a nuclear power plant in Mühleberg near Bern. Construction began just 3 years later, in 1967. Test operations began in 1971, and the nuclear power plant was connected to the grid in 1972 (the Beznau I nuclear power plant went into operation in 1969).[57] The Mühleberg power plant was taken off the grid at the end of 2019. From a political point of view, nuclear energy remains controversial, and the applicable law aims primarily at the protection of public policy interests, such as public safety (the safe operation of power plants) and security (the protection of the population) and public health. From a legal point of view, centralisation is less problematic in this field, both from a federalist perspective and in view of the legal challenges. On the contrary, it was the right choice.

Also in the 1950s (1958), the electricity networks of Germany, France and Switzerland were connected at the substation in Laufenburg. This laid the foundations for Switzerland's international electricity trading and significantly increased the volume of (already existing) cross-border electricity exchange, while at the same time strengthening grid stability—and thus the security of supply.[58] Electricity now made its way into households, and coal was replaced by oil, which in the early

[54] Federal Council (1957), p. 1148: "*Für unser Land ist es nachgerade zu einer Schicksalsfrage geworden, mit der Entwicklung der Atomforschung und der Atomtechnik Schritt zu halten. Ohne eigene Erdöl- und Kohlenvorkommen hat sich die Schweiz auf die intensive Auswertung der wichtigsten landeseigenen Energiequellen, nämlich die Wasserkräfte, verlegt. Unsere eigenen Energiequellen vermögen aber zur Zeit nur etwa 33 Prozent des gesamten Rohenergiebedarfs zu befriedigen (Wasserkraft 24, Brennholz 9), und für den Rest sind wir auf importierte Energieträger angewiesen.*"

[55] See AS 1957 1027. Available at https://www.amtsdruckschriften.bar.admin.ch.

[56] Atomic Energy Act *(Bundesgesetz vom 23. Dezember 1959 über die friedliche Verwendung der Atomenergie, Atomgesetz [AtG, AS 1960 541]).* Available at https://www.amtsdruckschriften.bar.admin.ch.

[57] Föhse and Drittenbass (2017), p. 169.

[58] Föhse (2014), p. 8; Kupper, Pallua (2016), p. 50 et seq.

1970s, shortly before the oil crisis, accounted for around 80% of Switzerland's total energy consumption.[59]

3.5 Spatial Planning, Nature and Heritage Conservation

As far as nominal energy law is concerned, after the creation of the EleG and WRA, the Confederation—apart from the legislation on nuclear energy—for a long time abstained from the temptation to intervene in the electricity industry in a regulatory manner. For the sake of completeness, only the constitutional provision for pipelines for the transport of liquid or gaseous fuels (*Rohrleitungsanlagen zur Beförderung flüssiger oder gasförmiger Brenn- oder Treibstoffe*) of 5 March 1961 and the Pipelines Act (*Rohrleitungsgesetz*) that was based on this provision should be mentioned as exceptions.[60] Apart from this, the Confederation left the field to the cantons, particularly with regard to electricity supply. The cantons usually considered the supply of electricity to be a public task and largely took charge of it themselves.[61] Today, the electricity industry is still cantonal and municipal, i.e. state-dominated.[62] The entire electricity supply in Switzerland was therefore initially established and managed under cantonal and municipal aegis and responsibility—in terms of legislation, supply and enforcement.

However, the strong economic growth from the 1950s onwards also had equally strong external effects on the land requirements of settlements and urban areas, on waste generation, pollution of the environment and the emission of greenhouse gases. This brought spatial planning, nature conservation and environmental protection more and more into the focus and led to a series of constitutional and legislative changes with varying degrees of centralisation, which are primarily attributable to functional energy law and also affect the electricity industry.[63] However, these issues did not only gain relevance as late as the 1960s but already in the early 1950s with the creation of the constitutional provision for water protection in 1953,[64] whereupon the Federal Assembly passed the Water Protection Act on 16 March 1955 (*Gewässerschutzgesetz*).[65] This was followed by a constitutional amendment on the protection of nature and heritage (27 May 1962), the basis for the Nature and

[59] Kupper and Pallua (2016), p. 55 and 59; Jagmetti (2005), p. 13; Swiss Federal Office of Energy (2019b), p. 3.

[60] Federal Council (1960), p. 1581; Pipelines Act *(Bundesgesetz vom 4. Oktober 1963 über Rohrleitungsanlagen zur Beförderung flüssiger oder gasförmiger Brenn- oder Treibstoffe, Rohrleitungsgesetz [RLG, SR 746.1]).*

[61] Jagmetti (2005), p. 12.

[62] Swiss Federal Office of Energy (2019a), p. 41 et seq.

[63] Jagmetti (2005), p. 14 and 32, provides a survey.

[64] Federal Council (1953), p. 240.

[65] Federal Council (1955), p. 552.

Cultural Heritage Protection Act (*Natur- und Heimatschutzgesetz*[66]) of 1 July 1966, and a constitutional amendment on spatial planning (14 September 1969),[67] the basis for the 1979 Spatial Planning Act (*Raumplanungsgesetz, RPG*[68]). Moreover, the constitutional basis for the 1983 Environmental Protection Act (*Umweltschutzgesetz*) was adopted by the people and the cantons already on 7 February 1971.[69]

It was not until 23 September 1990 that the Energy Article (after a first attempt in 1983 had failed)[70] was adopted—again a constitutional provision that is part of nominal energy law (Art. 24octies BV 1874), the predecessor of today's Art. 89 BV.[71] This was followed by the Decree on Energy Use (*Energienutzungsbeschluss*)[72] and in 1998/1999 finally by the first Federal Energy Act (*Energiegesetz*),[73] which has already been replaced by the current Energy Act (EnG)[74] that was passed by the Federal Assembly on 30 September 2016.

3.6 The Market

Around the turn of the millennium, market liberalisation increasingly became the focus of electricity sector regulation. An initial attempt was made to open up the electricity market by, among other things, granting everyone the right to use the network of a third party—as had already been done in the gas sector.[75] However, the Electricity Market Act (*Elektrizitätsmarktgesetz, EMG*)[76] did not survive the referendum, so that this project was postponed.[77] It was only in a second attempt—and under the new title Electricity Supply Act (*Stromversorgungsgesetz, StromVG*)—

[66] Nature and Cultural Heritage Protection Act *(Bundesgesetz vom 1. Juli 1966 über den Natur- und Heimatschutz [NHG, SR 451]).*

[67] Federal Council (1969), p. 568.

[68] Spatial Planning Act *(Bundesgesetz vom 22. Juni 1979 über die Raumplanung, Raumplanungsgesetz [RPG, SR 700]).*

[69] Federal Council (1970), p. 1609.

[70] Federal Council (1984), p. 902.

[71] Federal Council (1989), p. 902.

[72] *Bundesbeschluss vom 14. Dezember 1990 für eine sparsame und rationelle Energienutzung.* See AS 1991 1018. Available at https://www.amtsdruckschriften.bar.admin.ch.

[73] Energy Act *(Energiegesetz vom 23. Juni 1998 [EnG, SR 730.0]).* See AS 1999 197. Available at https://www.amtsdruckschriften.bar.admin.ch.

[74] Energy Act *(Energiegesetz vom 30. September 2016 [EnG, SR 730.0]).*

[75] As provided by the Pipelines Act *(Bundesgesetz vom 4. Oktober 1963 über Rohrleitungsanlagen zur Beförderung flüssiger oder gasförmiger Brenn- oder Treibstoffe, Rohrleitungsgesetz [RLG, SR 746.1]).*

[76] Electricity Market Act, *Elektrizitätsmarktgesetz*, referendum proposal (Federal Council 2000, p. 6189).

[77] Jagmetti (2005), p. 14 et seq.

that the rules on market opening made it into the official compilation of federal legislation. However, the electricity market had already been partially opened up, as the Federal Supreme Court decided by interpretation of the Cartel Act (*Kartellgesetz*)[78]—that means by interpretation of functional energy law. One might almost say that Switzerland has stumbled into the partial opening of the electricity market. From a regulatory point of view, however, this StromVG is of great significance. What was cantonal for decades has now been taken over by the Confederation—in this long series of newly created federal competences, this is probably the most significant encroachment on cantonal competences. At that point, however, the regulatory environment had become much more complex than it had been when the WRA or EleG was adopted. The StromVG was not only intended to open up the electricity market. It also had to take into account the objectives of the constitution for a "sufficient, diverse, safe, economic and environmentally sustainable energy supply" and an "economic and efficient use of energy" (Art. 89 para. 1 BV), as well as the standards on nature and heritage protection and those on spatial planning. As if this were not enough, the provisions of the European Union were now also to be taken into account. The interconnection of energy systems means that EU regulation is also having an increasing influence on Swiss energy law.[79] The problems this has caused will be examined in the following overview.

3.7 Conclusion

The development of regulatory activity on the basis of the constitutions shows that, during the first 150 years of its existence, the Confederation has acquired more and more regulatory powers in nominal and functional energy law. The use of these powers has resulted in more or less far-reaching federal interventions. However, particularly in the area of hydropower, which is crucial to the electricity industry, the federal government has been reluctant to encroach on cantonal competences. Similarly, electricity supply remained firmly in cantonal and municipal hands until the StromVG was created. Since the new constitution of 18 April 1999 came into force on 1 January 2000, no new federal powers have been added, but the federal legislature has nevertheless intervened massively in the historically evolved structure of cantonal regulation of electricity supply.[80]

Overall, viewed from a distance, the development seems to have been less driven by political and strategic action, but rather by the needs of the times. This is illustrated beautifully by the example of the safety of electrical installations, which would probably not have got onto the political agenda so quickly without certain

[78] BGE 129 II 497, Cartel Act *(Bundesgesetz über Kartelle und andere Wettbewerbsbeschränkungen vom 6. Oktober 1995, Kartellgesetz [KG, SR 251]).*

[79] Hettich et al. (2020), p. 7 et seq. and 49 et seq.

[80] Föhse (2015), p. 131 et seq.

accidents, by impending supply shortages in the 1950s or environmental pollution later on, both of which were also countered by regulatory means. Interestingly, the same pattern can already be seen in the examples of ancient Rome and of Zurich during the Ancien Régime mentioned at the beginning. The same is true if we look at the recent total revision of the Energy Act and the ensuing decision to phase out nuclear power, which originated in a submarine earthquake followed by a tsunami in Japan that resulted in a nuclear disaster.[81]

4 Centralised Regulation of Electricity Supply

4.1 Three Perspectives on Centralisation

As explained above, the StromVG is the most severe form of intervention in cantonal competences by the federal legislator to date. As a consequence, important regulatory competences have been transferred to the federal level. The following section illustrates how the legislature of the Swiss Confederation has dealt with the complexity of the subject of energy in historically grown federal structures. This will be done by analysing three topics that can be regarded as challenges: (1) the past, (2) legal doctrine and (3) federal structures.

4.2 The Challenge of the Past

Historical developments show that electricity supply was traditionally based on a monopolistic structure with vertically integrated companies, while at the same time it was understood as a public task already early on.[82] Even today, the Swiss electricity industry is almost exclusively state-owned. Even though more and more players are now dressed up in the guise of stock companies, the state remains the dominant shareholder in most cases.[83]

From a legal point of view, this raises some fundamental questions, most notably that of state responsibility in this context. Art. 6 para. 2 EnG (heading: Concept and responsibility), states that it is for the energy industry to ensure the production, transformation, supply and distribution of energy. However, this very "energy industry" is under state control or the actors are either themselves "states" or shares of energy suppliers are state property. If one puts this in the context of the principle of legality (which is related to the rule of law), according to which "all activities of the state are based on and limited by law" (Art. 5 para. 1 BV), i.e. all state action

[81] Föhse (2014), p. 6.

[82] Föhse (2014); Föhse (2015), p. 4 and 126; Jagmetti (2005), p. 19.

[83] Swiss Federal Office of Energy (2019a), p. 41.

requires a legal basis, this means that electricity supply is a task that is ascribed to the state (here the cantons and, if applicable, the municipalities) and that is a state responsibility.

This role of the state has now been strengthened by the StromVG, Article 6 of which stipulates an obligation for grid operators to provide a basic supply, i.e. to supply the desired quantity of electricity of the required quality at all times. This also seems to imply that the state has a responsibility to ensure the supply of electricity (in German "*Gewährleistungsverantwortung*"), if not to say that the state is directly responsible to fulfil this task, i.e. to supply electricity (in German "*Erfüllungsverantwortung*").[84] The new federal energy law does not provide a clear answer with regard to the role of the state in electricity supply; so far the issue has not even been discussed. This is despite the fact that the question would be both fundamental for the future of energy supply and also entails certain legal consequences, which will be briefly discussed below.

4.3 The Challenge of the Legal Doctrine

Legal doctrine distinguishes between public and civil law. Whereas in civil law relationships one basically assumes structures in which contracting parties meet on an equal footing and can in principle freely regulate their legal relationships in the form of contracts, the situation is different in public law. Public law is characterised by unilateral and binding action by public authorities, primarily in the form of rulings[85] (*Verfügungen*). While civil law disputes are decided by a civil court, in administrative law, state authorities decide in the first instance, after which the legal dispute goes to specialised administrative courts.

It is precisely the typical power gap in public law (the relationship between the state and its citizens) that calls for special mechanisms for legal protection. Thus, Art. 35 para. 2 BV states that "[w]hoever acts on behalf of the state is bound by fundamental rights and is under a duty to contribute to their implementation". With regards to electricity supply, the situation is such that the supplier is usually state-controlled or directly state-owned and has a monopoly on supply.[86] Accordingly, the old Energy Act of the Canton of Bern, for example, expressly assigned the legal relationships in the supply of electricity to public law (Art. 32 para. 2 of the old EnG BE) and, if necessary, made the municipalities responsible for supply (Art. 8 para. 2 of the old EnG BE). According to Bernese practice, the electricity suppliers also had the right to decide certain aspects by ruling.

[84] Föhse (2015), p. 142.

[85] Art. 5 para. 1 of the Federal Act on Administrative Procedure *(Bundesgesetz vom 20. Dezember 1968 über das Verwaltungsverfahren, Verwaltungsverfahrensgesetz [VwVG, SR 172.021]).*

[86] Föhse (2015), p. 140 et seq.; Jagmetti (2005), p. 20, also considers legal relations under civil law to be a valid option.

Swiss electricity supply law now suffers from the fact that the legislator has failed to make a statement concerning the role of the state in the context of the new regulation, not to mention the missing clarification of the classification as civil law or public law. In the meantime, the Federal Court also had to deal with the matter—and correctly assigned the basic supply of electricity to public law under the StromVG.[87] However, a number of elementary issues remain unsatisfactorily resolved, including that of jurisdiction over disputes arising from the electricity supply relationship.[88] When centralising regulatory responsibilities, the Confederation has thus simply ignored legal doctrine in important areas, which leads to problems in legal practice.[89]

4.4 The Challenge of Federal State Structures

The principle of sovereignty of the cantons in Switzerland, insofar as it "is not limited by the Federal Constitution" (Art. 3 BV), creates a further challenge because it results in a complex system of overlapping responsibilities of the Confederation, the cantons and even the municipalities. The wide variety of federal competences that have accumulated over the years in the constitution has led over time, via the implementing legislation, to an increasingly dense federal legal network of nominal and functional energy law, which in part consciously or unconsciously overlaps with cantonal law. The cantons, in turn, also have the option of delegating certain regulatory powers to the third level, the municipalities (Art. 50 para. 1 BV).

The current rules regarding the allocation of grid costs are a good example for uncertainty arising from the complex distribution of competences. In itself, one could assume that the StromVG, which aims to increase competition in electricity markets, conclusively regulates this essential question. However, a closer look reveals that there are massive uncertainties concerning the allocation of grid costs in the context of the connection of properties to the electricity grid, both with regard to the competence to issue rules and with regard to the rules themselves or their implementation. This is due, among other things, to the fact that this topic in the StromVG overlaps with spatial planning law, where we have primarily cantonal or even municipal responsibilities (Art. 75 para. 1 BV), and, on top of that, with another federal competence in the area of promoting home ownership (Art. 108 para. 1 BV) and the relevant law (WEG[90]).[91]

[87] BGE 144 III 111 E. 5.2; Föhse (2018), p. 1235 et seq.

[88] Föhse (2018), p. 1242.

[89] Föhse (2018), p. 1245.

[90] Federal Act of 4 October 1974 on the Promotion of Housing Construction and Home Ownership *(Wohnbau- und Eigentumsförderungsgesetz vom 4. Oktober 1974 [WEG, SR 834]).*

[91] Föhse (2018), p. 1230.

The problem here is that these norm conflicts were not resolved by federal legislation in the course of centralisation. What remains is a chaos of norms and responsibilities which renders it nearly impossible, even for experts, to answer everyday questions of competence with the necessary clarity and without much effort.[92]

5 Conclusion

It is precisely the historically grown responsibilities, the constant increase in federal competences and the simultaneous increase in regulatory complexity that make electricity market regulation an extremely demanding task. Unfortunately, the Confederation has not been entirely successful in managing this challenge. Federal law is now similar to "a worn-out old carpet that covers some parts of cantonal law, but that can't prevent other parts from shining through or from (intentionally or unintentionally) coming to light".[93]

Regulation of the electricity market would have required a prudent approach and, first and foremost, a review of the initial situation, along the lines of the questions of responsibilities, competences, legal spheres and tasks. Looking back in history, an interesting pattern can be detected: in many cases, the interventions of federal law to date have been born out of necessity or a situation of distress, so to speak. As a rule, legislation of the Confederation has been relatively cautious, and the cantons have retained considerable powers (except in the case of environmental protection or regulations that primarily aim at the protection of public policy interests, such as the EleG or the Atomic Energy Act). The StromVG is different—a necessity was and is not apparent here. Rather, it appears as if a situation of distress has been created without a necessity.

References

Berna F, Goldberg P, Kolska Horwitz L, Brink J, Holt S, Bamford M, Chazan M (2012) Microstratigraphic evidence of in situ fire in the Acheulean strata of Wonderwerk Cave, Northern Cape province, South Africa. PNAS:1215–1220. https://doi.org/10.1073/pnas.1117620109

Federal Council (1894) Bericht und Antrag vom 4. Juni 1894 betreffend die Monopolisierung der Wasserkräfte. Federal Gazette BBl 1894 II 820

Federal Council (1899) Botschaft vom 5. Juni 1899 über den Erlass eines Bundesgesetzes betreffend die elektrischen Schwach- und Starkstromanlagen. Federal Gazette BBl 1899 III 786

Federal Council (1905) Botschaft vom 4. Dezember 1905 betreffend die Verwertung inländischer Wasserkräfte ins Ausland. Federal Gazette BBl 1905 VI 223

[92] Föhse (2018), p. 1239.

[93] Föhse (2018), p. 1236.

Federal Council (1907) Botschaft vom 30. März 1907 betreffend die Bundesgesetzgebung über die Wasserkräfte. Federal Gazette BBl 1907 II 624

Federal Council (1908a) Botschaft vom 24. November 1908 über die eidgenössische Volksabstimmung vom 25. Oktober 1908 betreffend Aufnahme eines Artikels 24bis (Wasserkräfte) in die Bundesverfassung. Federal Gazette BBl 1908 VI 7

Federal Council (1908b) Verhandlungen des Bundesrates vom 10. Juli 1908. Federal Gazette BBl 1908 IV 465

Federal Council (1912) Botschaft vom 19. April 1912 zum Entwurfe eines Bundesgesetzes über die Nutzbarmachung der Wasserkräfte. Federal Gazette BBl 1912 II 669

Federal Council (1953) Bundesbeschluss vom 30. September 1953 über die Ergänzung der Bundesverfassung durch einen Artikel 24quater betreffend den Schutz der Gewässer gegen Verunreinigung. Federal Gazette BBl 1953 III 240

Federal Council (1955) Bundesgesetz vom 16. März 1955 über den Schutz der Gewässer gegen Verunreinigung. Federal Gazette BBl 1955 I 552

Federal Council (1957) Botschaft vom 26. April 1957 über die Ergänzung der Bundesverfassung durch einen Artikel betreffend Atomenergie und Strahlenschutz. Federal Gazette BBl 1912 II 669

Federal Council (1960) Bundesbeschluss vom 14. Dezember 1960 über die Ergänzung der Bundesverfassung durch einen Artikel 26bis betreffend Rohrleitungsanlagen zur Beförderung flüssiger oder gasförmiger Brenn- oder Treibstoffe. Federal Gazette BBl 1960 II 1581

Federal Council (1969) Bundesbeschluss vom 21. März 1969 über die Ergänzung der Bundesverfassung durch die Artikel 22ter und 22quater (Verfassungsrechtliche Ordnung des Bodenrechts). Federal Gazette BBl 1969 I 568

Federal Council (1970) Bundesbeschluss vom 18. Dezember 1970 über die Ergänzung der Bundesverfassung durch einen Artikel 24septies betreffend den Schutz des Menschen und seiner natürlichen Umwelt gegen schädliche oder lästige Einwirkungen. Federal Gazette BBl 1970 II 1609

Federal Council (1984) Bundesratsbeschluss vom 2. November 1984 über das Ergebnis der Volksabstimmung vom 23. September 1984 (Atom-Initiative; Energie-Initiative). Federal Gazette BBl 1984 III 900

Federal Council (1989) Bundesbeschluss vom 6. Oktober 1989 über die Ergänzung der Bundesverfassung. Federal Gazette BBl 1989 III 902

Federal Council (2000) Elektrizitätsmarktgesetz vom 15. Dezember 2000. Federal Gazette BBl 2000 6189

Föhse K (2014) Die rechtliche Ausgestaltung der nationalen Netzgesellschaft im Stromversorgungsgesetz (StromVG). Dissertation, University of Bern

Föhse K (2015) Die Leiden der jungen Strommarktordnung – aktuelle Probleme des StromVG unter besonderer Berücksichtigung der Rechtsprechung zu Netzgebietszuteilung und Grundversorgung. recht 2015/3: 125–143

Föhse K, Drittenbass J (2017) Parteistellung und Rechtsschutz natürlicher Personen im Umfeld von Kernkraftwerken. SR 3(2017):167–177

Föhse M (2018) Grundversorgung mit Strom – ein Überblick zu Rechtsverhältnissen und Zuständigkeiten. AJP 10(2018):1235–1250

Föhse M (2019) Kommentierung von BGE 145 II 140. ZBl 8(219):436–447

Grewe K (2009) Die Reliefdarstellung einer antiken Steinsägemaschine aus Hierapolis in Phrygien und ihre Bedeutung für die Technikgeschichte. In: Bachmann M (ed) Bautechnik im antiken und vorantiken Kleinasien. Ege Yayinlari, Istanbul

Haas J (2006) Die Umweltkrise des 3. Jahrhunderts n. Chr. im Nordwesten des Imperium Romanum: Interdisziplinäre Studien zu einem Aspekt der allgemeinen Reichskrise im Bereich der beiden Germaniae sowie der Belgica und der Raetia. Dissertation, University of Stuttgart

Hettich P, Thaler P, Camenisch L, Hofmann B, Petrovich B, Wüstenhagen R (2020) Europeanization of the Swiss Energy System. Dike, Zurich

Jaag T (2015) Kompetenzverteilung zwischen Bund und Kantonen. In: Biaggini G, Gächter T, Kiener R (eds) Staatsrecht, 2nd edn. Dike, Zurich, pp 149–159
Jagmetti R (2005) Energierecht. In: Koller H, Müller G, Rhinow R, Zimmerli U (eds) Schweizerisches Bundesverwaltungsrecht, Band VII. Helbing & Lichtenhahn, Basel
Kölz A (1992) Neuere Schweizerische Verfassungsgeschichte: Ihre Grundlinien vom Ende der Alten Eidgenossenschaft bis 1848. Stämpfli, Bern
Kratz B (2016) Kommentar zu Art. 55 WRG. In: Kratz B, Merker M, Tami R, Rechsteiner S, Föhse K (eds) Kommentar zum Energierecht, Band I: WRG /Ele G/StromVG/RLG. Editions Weblaw, Bern
Kupper P, Pallua I (2016) Energieregime in der Schweiz seit 1800, Schlussbericht im Auftrag des Bundesamts für. Energie, Innsbruck
Sammlung der Bürgerlichen und Policey-Geseze und Ordnungen, Lobl. Stadt und Landschaft Zürich (1757-1793), Bd. 3 (1757), No. XXIII. Hoch-Obrigeitliches Mandat, betreffend, die Versorg- und Beschirmung der Holz- und Waldungen (1717). Orell und Comp, Zurich: 204 ["Mandat (1717)"]
Schindler B (2019) Kontinuität und Wandel im Verwaltungsrecht: Miszelle zum Energierecht der Barockzeit. In: Hottelier M, Hertig Randall M, Flückiger A (eds) Études en l'honneur du Professeur Thierry Tanquerel. Schulthess, Geneva/Zurich/Basel, pp 277–286
Schweizer RJ (2014) Kommentar zu Art. 3 BV. In: Ehrenzeller B, Schindler B, Schweizer RJ, Vallender K (eds) Die Schweizerische Bundesverfassung, St. Galler Kommentar. Dike, Zurich
Swiss Federal Office of Energy (2019a) Schweizerische Elektrizitätsstatistik 2018. Available at https: //www.bfe.admin.ch
Swiss Federal Office of Energy (2019b) Schweizerische Gesamtenergiestatistik 2018. Available at https://www.bfe.admin.ch
Tschannen P (2016) Staatsrecht der Schweizerischen Eidgenossenschaft. Stämpfli, Bern

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