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Energy cooperation between the EU and Switzerland

Partners by destiny in search of a new model

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How does EU energy policy influence the energy policy of its neighbors—and vice versa? The relationship between the EU and Switzerland offers important insights into this question. The case is particularly intriguing: the Swiss energy system is closely interconnected with those of its surrounding neighbors from the EU. However, in contrast to members of the European Economic Area (EEA) and the Energy Community, Switzerland does not automatically implement parts of the EU *energy acquis*.

A dedicated Swiss-EU electricity agreement sought to address the potential regulatory gaps. Albeit negotiated since 2007, this agreement has not yet been concluded, since the EU has made the conclusion of the electricity agreement dependent on the conclusion of an overarching institutional agreement with Switzerland. However, the Swiss government hesitates to conclude the institutional agreement because it is highly controversial among Swiss voters and in the current political landscape unlikely to stand the test of a referendum.

In the absence of an electricity agreement, electricity relations between Switzerland and the EU remain largely unstructured and often depend on informal cooperation. Increasingly, this model reaches its limits: as the integration and institutionalization of the EU energy market moves on and regulatory gaps widen, the need for regulated and institutionalized cooperation increases.

The conclusion of a more tailor-made bilateral agreement with Switzerland is unlikely for at least two reasons. Legally, the EU's ever-growing *energy acquis* has resulted in a densely regulated and institutionalized internal energy market. The high

The gradual integration of EU energy policy has implications for the national energy policies of its neighbors. While members of the European Economic Area (EEA) and the Energy Community implement large parts of the EU's *energy acquis*, other third countries are also affected. Switzerland—physically integrated in the European energy grid but lacking a formalized mechanism of regulatory adaptation with the EU—is an interesting case in this respect, not least because of its implications for a UK-EU relationship post-Brexit. Currently, an EU-Switzerland electricity agreement is being negotiated but its conclusion remains highly uncertain. This briefing paper highlights that either outcome—with or without an electricity agreement—has important implications for the Swiss energy transition, Swiss access to European bodies of energy policy-making, and Swiss renewable investors. Yet, even without an electricity agreement, interdependence between the Swiss and EU electricity systems will increase, creating pressure to find alternative forms of cooperation.

degree of formalization restricts the scope for carve-outs for Switzerland. Politically, ongoing discussions related to Brexit link any negotiations with outsiders to the fundamental question about the EU's future relations with third countries. In this context, decision-makers in Brussels and Member State capitals have adopted a principled approach that seeks to ensure the integrity of the EU internal energy market and prevents 'cherry-picking' by partners. At least for as long as Brexit is pending, EU negotiators are unlikely to offer concessions to Switzerland.

Despite unresolved questions about the future relationship, Switzerland and the EU are doomed to be closely bound. Many physical links connect the Swiss and the European energy infrastructures. These links will remain in operation for the time being, enabling cross-border flows of electricity and gas, both of which contribute to the security of energy supply. Nevertheless, the form of cooperation—with or without an electricity agreement—has far-reaching implications for the degree of legal harmonization, investments into renewable energy, Swiss access to European bodies of energy governance, and the achievement of the goals set in Switzerland's national energy strategy, the Energy Strategy 2050. The following paragraphs provide an overview of the two scenarios.

Scenario 1: with an institutional agreement and an electricity agreement

An electricity agreement provides guidance on the development of Swiss energy governance as well as legal certainty regarding the commercial terms of trade with the EU. Notably, regulatory integration enables “market coupling”, a mechanism facilitating cross-border trade of electricity. Market coupling will benefit actors engaging in cross-border trade, e.g., larger utilities and large pump storage plants.

Legal harmonization with the EU would partially restrict the choice of permissible policy instruments to achieve the goals of the Swiss Energy Strategy 2050. Compliance with EU state aid rules would require that Swiss large-scale renewable producers may be financially supported only by market-responsive schemes, such as green certificates or feed-in premia (whose size is preferably determined by auctions). Hence, with an agreement, the current support measure for large Swiss hydropower plants, which will expire in 2022, could not be renewed. This is a matter of concern for Swiss cantons, who want to preserve legal leeway for the creation of new federal hydropower support schemes if needed to achieve the targets of the Energy Strategy 2050. As far as small-scale renewable producers are concerned, most of the Swiss support measures are compatible with European law. Even after the general phase-out of direct subsidies starting in 2023, the current structure of grid charges provides indirect financial

incentives for prosumers; these indirect incentives remain permissible under European law.

The expansion of EU rules and practices to Switzerland would impact investment decisions in Swiss renewables. Because of its leveling effect on wholesale prices and enhanced cross-border trading opportunities, market coupling might redirect investment flows in Switzerland to lower-cost generation sources (hydropower and solar photovoltaics), resulting in less diversification of the Swiss renewable energy mix. This tendency could be reinforced by technology-neutral support schemes that are set in a competitive manner and expose investors to electricity price risk. However, prospective imbalances in renewable energy generation, even with a strong tilt towards hydro and photovoltaics, are less of a concern with efficient cross-border trade (e.g., through market-coupling). Market coupling also brings about new business opportunities for Swiss producers of electricity, in particular Swiss pumped storage plants that could market their flexibility across the border.

For Swiss energy governance, this scenario has two important ramifications. First, full market integration will render the proper balancing of the energy system easier. This will provide relief for the Swiss Transmission System Operator (TSO) Swissgrid, which currently has to accommodate unscheduled electricity flows from the EU in its network. Second, an agreement would provide a more predictable framework for professional energy investors, lowering the perceived policy and market risk currently attached to investment in Swiss renewables. This would reduce the cost of financing of utility-scale renewable projects in Switzerland and help achieve the goals set by the Energy Strategy 2050. Investors in smaller-scale distributed renewable energy projects are less sensitive to policy and market risk, because of their mix of financial and non-financial motives. Hence, they will be less affected by whether or not an electricity agreement is reached. Even though the new EU regulations on renewable energy are not (yet) part of the negotiated electricity agreement, Europeanization will therefore affect the implementation of the goals of the Energy Strategy 2050.

Finally, the conclusion of an electricity agreement will also be relevant for the access of Swiss actors to important bodies of EU energy governance. Switzerland currently participates—to varying degrees—in European bodies that coordinate cross-border flows of energy as well as in commercial platforms that facilitate cross-border trading of electricity. An electricity agreement will likely enhance the opportunities of Swiss key actors to shape European energy governance by formalizing or securing their roles within important European bodies (Hofmann, Jevnaker, & Thaler, 2019). Most notably, these include observership of the Federal Electricity Commission (ElCom) in the Agency for the Cooperation of Energy Regulators (ACER), Swissgrid in the European Network of Transmission System Operators for Electricity (ENTSO-E), and the

Swiss Federal Office of Energy (SFOE) in bodies of the European Commission and the Council (see Table 1).

Although Switzerland will still not enjoy the same formal position as EU member states, its increased formal access will provide it with more opportunities for shaping European energy policies. Still, coordination among Swiss key actors (SFOE, ElCom, and Swissgrid) will be important for turning access into influence. In addition, Swiss influence will continue to rely on informal contacts, technological know-how, and the structural power arising from its important transit function for European electricity flows.

Table 1. Swiss channels of influence to European actors, bodies and institutions

Channel	Representative	Current status	With Agreement	Without Agreement
ACER	ElCom	Partial observer	Full observer	Risk of exclusion
Council of Ministers	SFOE/EDA	Occasionally invited on informal technical level	Observer at formal technical level	Risk of less access
ENTSO-E	Swissgrid	Member without voting rights	Voting rights	Risk of exclusion
Electricity Coordination Group	-	-	Participation	No change
Electricity Cross-Border Committee	-	-	Observer status	No change
European Commission	SFOE/EDA	Bilateral contacts	More access	Less access
Florence Forum (EERF)	ElCom, SFOE	Observer	No change	Risk of exclusion
Informal Meeting of EU Energy Ministers	Federal Council or SFOE	Observer	No change	Risk of less access
International Balancing Platforms	Swissgrid	Member or observer	No change	Risk of exclusion
Operational TSO agreements	Swissgrid	Contracting party	No change	Risk of less solidarity/ tighter legal supervision
Transmission System Operators (TSOs)	Swissgrid	Bilateral contacts	No change	Risk of tighter legal supervision by EU

Source: Hettich et al. (2020), pp.88-89

Scenario 2: without an institutional agreement and an electricity agreement

Without an electricity agreement, conditions of trade may deteriorate over time, most likely leading to less cross-border trade and reduced import capacity than in a scenario with an agreement, to inefficiencies in the European and Swiss electricity system, and to higher wholesale prices in Switzerland. To the extent that higher electricity wholesale prices in Switzerland translate into higher electricity retail prices for Swiss consumers, this might create disadvantages for energy-intensive industries and vulnerable consumers. In other countries, increasing electricity prices, whether they are causally related to energy policy or not, have led to controversial political debates. A similar development in Switzerland could create challenges for the social acceptance of the Energy Strategy 2050. However, higher prices might also create incentives to reduce electricity consumption and to deploy higher-cost generation and storage technologies within Switzerland.

At the same time, this positive effect could be somewhat counterbalanced by limited investments resulting from perceived risks and reduced access to international trading opportunities. Hence, in the no-agreement scenario, national security concerns gain more weight and the achievement of the Energy Strategy 2050 requires incentives for a balanced portfolio of electricity generation technologies, with sufficient options to invest in domestic storage and to market flexibility. Among others, this may require investments into renewable energy sources that are more difficult to implement in Switzerland; in fact, meeting the need for flexibility by increasing fossil electricity production through new gas-fired power plants would contradict the objective to reduce national carbon emissions.

A way to indirectly support domestic renewables, particularly large-scale ones, and secure flexibility would be to establish a capacity mechanism, such as the proposed “strategic reserve” tentatively envisaged by the Federal Council. A well-designed replacement for the current support schemes might alleviate concerns about declining domestic production and, concurrently, provide incentives to invest in renewable energy. Regarding the buildup of (system-serving)

storage capacity, the structure of grid charges may provide decisive incentives to invest; to date, however, such incentives for building storage have remained limited to pump storage plants.

Without an electricity agreement, Switzerland may also be increasingly excluded from European energy governance bodies (see Table 1). The process of exclusion has already started, but assessments of how severe it might become differ. This uncertainty arises because decisions on future access of third countries like Switzerland are highly political and dependent on developments in the context of Brexit. Formal access points of Switzerland that may be put at risk include ACER, ENTSO-E, and forums under the European Commission. A loss of formal access will render the physical management of the Swiss electricity grid even more challenging and it will reduce Swiss capacities for electricity imports. Only the continuing physical interdependencies between the Swiss and EU electricity grids as well as informal channels of influence (e.g., the Pentalateral Energy Forum) may still provide Switzerland with some limited, yet increasingly instable influence.

Partners by destiny: policy diffusion and the need for cooperation

Even in a scenario without an electricity agreement, the EU likely continues to affect Swiss energy policy. This is because challenges and opportunities experienced in the energy transition are similar, which may cause policies to diffuse across borders. For example, achieving the objectives of the Energy Strategy 2050 requires improving framework conditions for investing in domestic capacity, not least in light of an upcoming phase-out of financial support for Swiss renewables. Here, European regulation could serve as a source of inspiration. Rules on streamlined permitting procedures and regulatory predictability could lower the perceived policy risk for investments in Swiss renewable generation and hence reduce the financing cost of Swiss renewable projects. Similarly, in line with EU law (Directive 2018/2001), the conditions for Swiss small-scale renewable producers could be further improved by enabling peer-to-peer trading and promoting self-consumption.

However, influence is not one-sided but involves a significant degree of interdependence. This is a direct consequence of a high degree of network interconnectedness. With currently 41 interconnectors to its neighbors, no other country is physically as deeply integrated in the electricity grid of Continental Europe as Switzerland. This has two important ramifications for the Switzerland-EU energy relationship.

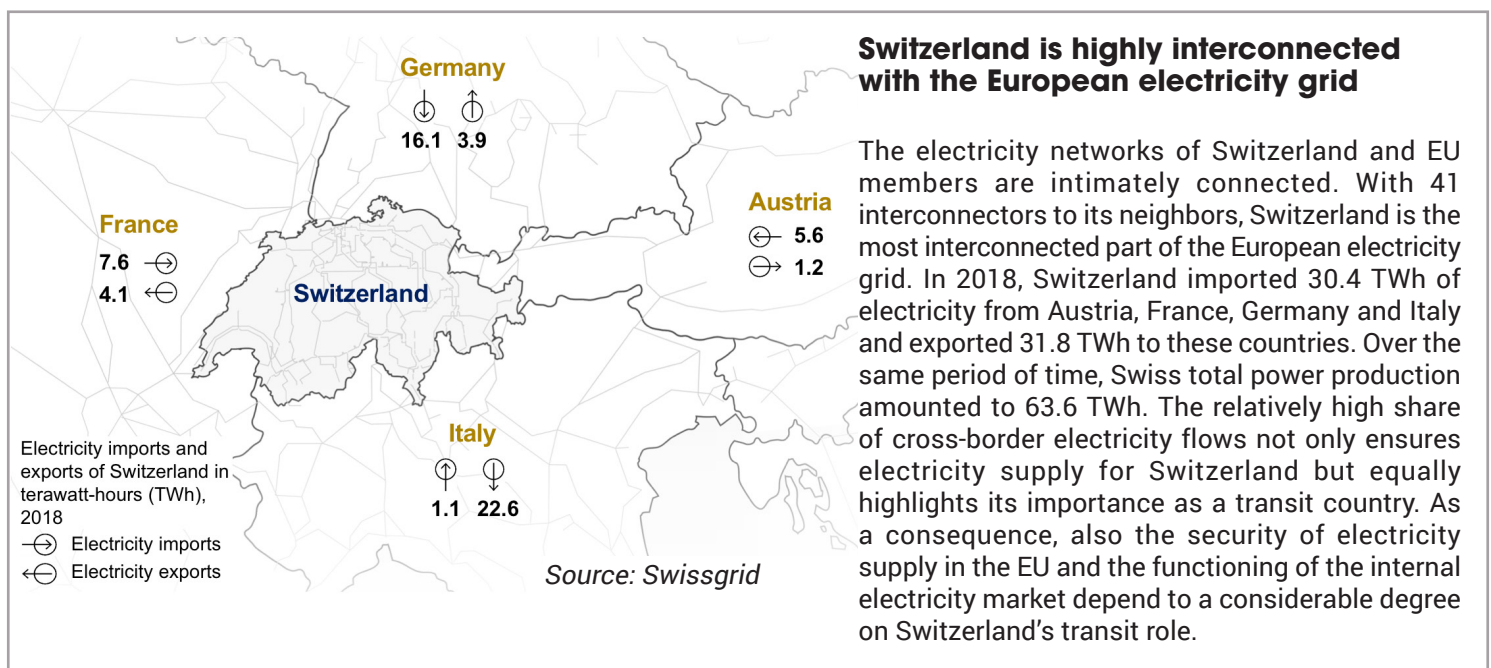
First, interconnectedness implies that disruptions in grid stability or security of supply would be equally disastrous for the EU as for Switzerland. Already today, Swiss non-consideration in cross-border capacity calculations threatens stable grid operation. Growing volumes of traded electricity in the EU's internal market cause large amounts of unscheduled electricity flows through the Swiss network. This results in significant system stress—in extreme cases risking a blackout—that requires strong reactive measures by Swissgrid. The planned expansion of flow-based market coupling in the EU throughout the coming years will increase cross-border flows significantly, thus exacerbating the current situation.

Second, the EU is unlikely to complete its internal energy market for electricity without Switzerland. Under the current situation, Italy cannot implement

flow-based market coupling due to large electricity flows via the Swiss border, which cannot be accounted for in the capacity calculation. The important role of Switzerland as a hub for electricity flows through the Continental European Grid consequently hints at an energy relationship in which also Switzerland has something to 'offer'.

These two issues highlight that Swiss-EU energy relationship may be less asymmetrical than sometimes portrayed. An electricity agreement would resolve the current discrepancy between physical and regulatory integration. However, the Swiss relevance for grid stability and the completion of the internal electricity market may necessitate a minimum of cooperation even in the absence of an electricity agreement in its current form. Three scenarios (or their combination) appear possible.

First, a successful completion of Brexit might enable the EU to revise its principled approach vis-à-vis third countries and offer Switzerland alternative forms of cooperation. This could involve issue-specific and case-by-case collaboration, a downsized electricity agreement ('electricity agreement light'), or a decoupling of the electricity agreement from the unpopular institutional agreement.



Second, cooperation under private law between Swissgrid and ENTSO-E or TSOs of neighboring countries may involve Switzerland in cross-border capacity calculation. Such contracts are already being developed, yet they only provide a second-best option for Swiss participation in market coupling. Moreover, their compatibility with EU law remains unclear, creating a degree of uncertainty.

Finally, the incoming European Commission may open new avenues for collaboration with third countries. Ursula von der Leyen appears determined to make her self-proclaimed “European Green Deal” a cornerstone of her presidency. Swiss hydropower and pump storage capacity, the highly interconnected network and proven expertise could help turn these ambitions into reality; a scenario that would in turn require common rules for efficient electricity cross-border trade.

This policy brief is based on the report “Europeanization of the Swiss Energy System”, written by Peter Hettich, Philipp Thaler, Livia Camenisch, Benjamin Hofmann, Beatrice Petrovich and Rolf Wüstenhagen for the Swiss National Science Foundation (SNF; [link to project website](#)) and published by Dike (Hettich et al., 2020).

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