Legal 500
Country Comparative Guides 2025

Switzerland

Renewable Energy

Contributor

MLL Legal

Dr. iur. Wolfgang Müller MBA

Partner | wolfgang.muller@mll-legal.com

Jacques Johner

Partner | jacques.johner@mll-legal.com

Luca Henn, MLaw

Associate | luca.henn@mll-legal.com

Adrian Eugster, M.A
HSG in Law and Economics

Associate | adrian.eugster@mll-legal.com

This country-specific Q&A provides an overview of renewable energy laws and regulations applicable in Switzerland.

For a full list of jurisdictional Q&As visit **legal500.com/guides**

Switzerland: Renewable Energy

1. Does your jurisdiction have an established renewable energy industry? What are the main types and sizes of current and planned renewable energy projects? What are the current production levels? What is the generation mix (conventional vs renewables) in your country?

Switzerland boasts a well-established renewable energy sector, with hydropower as its foundation. Hydropower – primarily from large-scale storage and run-of-river plants – accounts for up to 60% of the country's renewable electricity generation, with an annual production potential of 37,350 GWh. In European terms, Switzerland ranks fourth for hydropower's share in electricity production. Other significant renewable sources include wood, waste, ambient heat, solar, biofuels, biogas, and wind, in descending order of use. Collectively, renewables supply more than 70% of Switzerland's electricity.

Solar power has seen rapid expansion, with a 19% increase in electricity production in 2023 (4,624 GWh), driven by a surge in installations. Wind energy, while still a minor contributor, grew by 12% in electricity production in 2023 and by 76% in installed capacity over the past four years. The energy mix remains heavily reliant on hydropower and nuclear energy, but the share of other renewables is steadily increasing. Switzerland's advanced energy sector, with companies such as ABB, Hitachi Energy, Climeworks, and Leclanché, underpins its technological leadership in renewables and grid innovation.

While existing nuclear plants may continue to operate if they meet stringent safety standards, the construction of new nuclear facilities is currently prohibited. However, this policy is under political review amid ongoing debates about long-term energy security.

2. What are the key developments in renewable energy in your country over the last 12 months?

In 2023, Swiss voters approved the Climate and Innovation Act, effective from 1 January 2025. Together with the revised CO2 Act and the Energy Act (EnA), this legislation advances the 2050 Energy Strategy, focusing on expanding renewable energy, reducing reliance on imported fossil fuels, and increasing energy efficiency.

Key recent developments include:

- Expansion of wind energy, such as the Sainte-Croix wind farm in the Jura region and Axpo's plans for up to 30 new wind projects.
- Growth in energy storage solutions, including battery systems (BESS) in Grisons and Aargau.
- An increased role for bioenergy, now representing a third of renewable energy, with solid biomass as the largest component.
- Substantial growth in solar power, with annual generation projected to reach 28.3 TWh by 2035.
- New legislative requirements for solar installations on new buildings over 300 square meters, and streamlined approval processes for retrofits, including heritage properties.
- Local mandates for district heating connections, often utilizing lake water.

These developments underscore Switzerland's commitment towards a sustainable energy future. However, some initiatives, such as the "*Solarexpress*" program for Alpine solar projects, face challenges from objections, economic constraints, and technical hurdles.

3. What are your country's net zero/carbon reduction targets? Are they law or an aspiration?

Switzerland's objective is to achieve net-zero greenhouse gas emissions by 2050, a commitment that is formally established in the Climate and Innovation Act, which formally came into effect on 1 January 2025. This objective is congruent with the provisions of the Paris Agreement, incorporating interim targets for the years 2030, 2035 and 2040. The law was endorsed through a public referendum, thus positioning Switzerland as a pioneering nation in legally committing to net-zero emissions.

To meet its 2050 climate neutrality goal, Switzerland has set ambitious greenhouse gas reduction targets: 50% until 2030, 64% on average until 2039, and 75% by 2040, compared to 1990 levels. It also sets sector-specific targets, including complete building and transport emissions reductions and a 90% reduction in industrial emissions by 2050. Switzerland plans to remove 2 million tonnes of CO2 a year by 2050 through bioenergy with carbon capture and storage (BECCS) and direct air

capture (DACCS). The federal government has developed roadmaps and conducts regular reviews, with the Climate and Innovation Act mandating monitoring, reporting, and policy mechanisms to align with scientific insights and technology.

In light of the 2050 climate neutrality goal, many cantons impose specific obligations on the construction and renovation of buildings. The canton of Zurich, for example, requires that new buildings meet their heating and hot water energy needs without using fossil fuels.

4. Is there a legal definition of 'renewable energy' in your jurisdiction?

Under the Swiss Electricity Supply Act (ESA) and the EnA, renewable energy is defined to include hydropower, solar energy, geothermal energy, wind energy, and biomass energy. This definition is more limited compared to the EU Renewable Energy Directive (RED II) and for example does not include tide and other ocean energy, landfill or wastewater plant gas and biogas. This more restricted definition partly may be due to the regional location of Switzerland and commonly used infrastructure.

Swiss law supports the move to renewables through regulations like CO2 targets for vehicles and tax breaks or loans for energy-saving renovations, using smart meters. Funding for these incentives is from a surcharge on the grid, collected and then given to a special fund.

5. Who are the key political and regulatory influencers for renewables industry in your jurisdiction? Is there any national regulatory authority and what is its role in the renewable energy market? Who are the key private sector players that are driving the green renewable energy transition in your jurisdiction?

Switzerland's renewable energy sector is shaped by federal, cantonal and municipal authorities, as well as private stakeholders.

- **Federal Level:** The Federal Council sets national energy policy, with the Swiss Federal Office of Energy (SFOE) responsible for implementing federal energy policies, including incentive programs such as feed-in tariffs (FiT), tax incentives and subsidies, as well as grid modernization and international energy partnerships. The Federal Inspectorate for Heavy Current Installations (ESTI) oversees safety and environmental compliance for electrical infrastructure.
- **Cantonal and Local Level:** Cantons and municipalities have significant autonomy and may introduce stricter local measures, such as mandatory energy performance certificates. For example, the canton of Geneva introduced such a mandatory energy performance certificate as an indicator of a building's energy consumption.
- **Private Sector:** Key players include Swissgrid (national grid operator), Axpo (largest producer), Alpiq, BKW, and Romande Energie. Corporate initiatives – such as corporate power purchase agreements (PPA) or SBB's use of 100% renewable traction power and the Coalition for Green Energy and Storage led by EPFL and ETH – demonstrate strong private sector leadership in the energy transition.

6. What are the approaches businesses are taking to access renewable energy? Are some solutions easier to implement than others? If there was one emerging example of how businesses are engaging in renewable energy, what would that be? For example, purchasing green power from a supplier, direct corporate PPAs or use of assets like roofs to generate solar or wind?

In Switzerland, companies can access renewable energy through a variety of means. Many procure green power from utilities through guarantees of origin, while others invest in their own generation, primarily solar, but also small hydro or biomass, depending on the location. Larger companies are increasingly utilising long-term PPAs to secure stable prices and support new renewable projects, including those in foreign countries. Some companies engage in co-investment in solar or wind farms, participate in energy platforms, or adopt sustainability certifications such as ISO 50001. Government support in the form of subsidies, tax reductions and R&D incentives at federal and cantonal level is also encouraging adoption. The combination of incentives and a stable economic base renders Switzerland a compelling location for renewable energy ventures.

One emerging example of this is the use of PPAs. Despite the relatively limited number of PPAs that have been signed in Switzerland to date, there have been ongoing national initiatives to promote its utilisation. One such opportunity is "*Solarexpress*". There is considerable potential for PPAs in Switzerland over the coming years.

7. Has the business approach noticeably changed in the last year in its engagement with renewable energy? If it has why is this (e.g. because of ESG, Paris Agreement, price spikes, political or regulatory change)?

In recent times, the corporate participation in the field of renewable energy in Switzerland has undergone substantial growth. This expansion can be attributed to a range of factors, including ESG commitments, the need to adhere to the Paris Agreement goals, and the progressive development of pertinent regulations. This trend is evident in the wider adoption of renewable solutions, increased corporate sustainability efforts, and interest in niche sectors such as biomass and geothermal. Technological advances in solar, wind and energy storage, in conjunction with hybrid systems, offer further potential for innovation, whilst government-backed programmes such as Innosuisse support the establishment of new enterprises with a view to enhancing efficiency and developing new technologies.

8. How visible and mature are discussions in business around reducing carbon emissions; and how much support is being given from a political and regulatory perspective to this area (including energy efficiency)?

In Switzerland, the debate on reducing carbon emissions is well established and has strong political and regulatory backing. More than 230 of the major Swiss companies (like Holcim, Givaudan or Nestlé) have committed to net-zero targets and publish climate strategies in line with science-based targets (SBTi). The federal Council's long-term climate strategy provides the basis for initiatives such as carbon sequestration and the expansion of renewable energy. As of 1 January 2026, large companies and financial institutions must comply with the amended Ordinance on Climate Disclosure in line with internally recognized reporting standards used in the EU. Further, it establishes minimum requirements for net-zero roadmaps.

9. How are rights to explore/set up or transfer renewable energy projects, such as solar or wind farms, granted? How do these differ based on the source of energy, i.e. solar, wind (on and offshore), nuclear, carbon capture, hydrogen, CHP, hydropower, geothermal; biomass; battery energy storage systems (BESS) and biomethane?

Renewable energy projects in Switzerland are subject to federal, cantonal and municipal approval and various regulations depending on the project's type and size. However, in the planning approval procedure the ESTI acts as leading authority which coordinates the approval procedure, publication and submits it to cantonal authorities and specialized agencies for comments. If no (public or private) objections to the application are received and the authorities' comments are positive, a decision is issued within 30 working days. Large projects may require Environmental Impact Assessment (EIA) regulations, including noise and nature and wildlife protection, federal and cantonal zoning and land-use approvals (particularly for exceptions outside of the building zone), as well as special permits and concessions.

Onshore wind farms are strictly regulated by federal and cantonal laws. The government has issued a national “wind energy concept” under the Spatial Planning Act (SPA), identifying suitable zones for turbine construction. Each canton must enact its own structural plan to designate the intended site as an appropriate zone. New wind farms with ≥20 GWh/year output are of national interest and thus must be weighed against other national interests.

Swiss law declares solar energy systems mandatory on the roofs and facades of new buildings with a floor area exceeding 300 square meters. Ground-mounted or large rooftop PV systems generally necessitate only a building permit. Solar installations integrated into the roof or facade of a building are subject to notification to the relevant building authorities and object of local regulations.

10. Is the government directly involved with the renewables industry (auctions etc)? Are there government-owned renewables companies or are there plans for one?

Often shares of major energy companies are partly owned by cantons and publicly listed. The Swiss government supports renewable energy through various programs, including subsidies for solar systems and incentives for industrial energy efficiency. The SFOE oversees energy security, market conditions and infrastructure planning, while coordinating national energy research and innovation. Since 2023, the government has increased support with direct investment contributions for large-scale solar and wind projects, offering accelerated

approval and co-financing for projects that meet strategic thresholds. Alpine solar installations produce significant amounts of electricity during the colder months, a time when lowland solar panels often underperform. Approximately half of the electricity from projects in this region is expected to be generated in winter, aligning with peak demand.

11. What are the government's plans and strategies in terms of the renewables industry? Please also provide a brief overview of key legislation and regulation in the renewable energy sector, including any anticipated legislative proposals?

In bilateral negotiations with the EU, the issue of further liberalising Switzerland's electricity market is receiving significant attention. Currently, the ESA regulates the market conditions and aims at securing security of supply. Greater liberalisation is expected to enhance overall economic efficiency by aligning prices more closely with marginal costs. Moreover, it would likely lead to a convergence of Swiss electricity prices with those of the EU countries' marginal costs. Liberalisation and increased competition are also anticipated to foster technological innovation by creating stronger incentives for efficiency. These dynamic incentive effects represent the primary long-term benefits of electricity market liberalisation. Key factors include exchange rate fluctuations, economic developments within the euro area, and trends in electricity demand and energy policy – such as subsidies for renewable energy and the nuclear phase-out.

12. Are there any government incentive schemes promoting renewable energy (direct or indirect)? For example, are there any special tax deductions or subsidies (including Contracts for Difference) offered? Equally, are there any disincentives?

Cantonal incentives typically take two forms: direct subsidies for energy efficiency measures and tax incentives. The ESA includes a sliding market premium to support hydropower, photovoltaics, wind, and biomass. This mechanism compensates the gap between a fixed tariff and actual market revenues, ensuring stable returns and protecting operators from market risks.

Developers of projects incurring at least CHF 75,000 in planning costs may receive funding covering 40% of eligible expenses. From 2025 onwards, there is a right of option between an investment contribution and the floating market premium for wind turbines and hydropower projects. Applications or project planning grants must be submitted to SFOE or Pronovo.

13. How does the structure of the natural gas industry in your country impact the price of electricity? Are there any plans to de-link the price of renewable electricity from gas prices?

In 2023, Switzerland's natural gas consumption was 30,977 GWh, accounting for 10% of the country's total final energy consumption. This is a clear decrease, indicating a gradual shift towards alternative energy sources. Meanwhile, domestic biogas production is increasing (45 biogas plants in 2023). Most is used in combined heat and power plants, while some is supplied to customers in the public and commercial sectors. Switzerland is heavily dependent on imports because of its negligible domestic natural gas reserves and limited biogas production. Thus, it is exposed to external price volatility and supply disruptions, which can affect electricity prices. Biogas imports accumulated in 2023 to 2,834 GWh.

Switzerland's gas supply is linked to the EU – a more competitive EU gas market with diverse sources (e.g. LNG imports, pipeline diversity) can lower wholesale gas prices, indirectly affects electricity prices in Switzerland. From 1 January 2027, Switzerland will disclose electricity origin (labelling) quarterly, replacing the current annual system. This will make it easier to see the source of electricity, allowing consumers to make better choices and suppliers to match supply to demand. These measures aim to keep electricity prices stable by not being linked to volatile fossil energy markets.

14. What are the significant barriers that impede both the renewables industry and businesses' access to renewable energy? For example, permitting, grid delays, credit worthiness of counterparties, restrictions on foreign investment, regulatory constraints on acquisitions; disputes/challenges?

Certain barriers for access to renewable energy remain. A complex web of federal, cantonal, and municipal regulations must be navigated by renewable energy projects, which can lead to inconsistencies and delays in project development. For example, hydropower and wind projects face complex regulatory approvals and stringent environmental assessments, especially in alpine regions, which often lead to delays and higher costs. Wind farms

can face local opposition due to visual and noise concerns. Obtaining permits for renewable energy projects in Switzerland is often a protracted endeavour. On average, new projects require between 5 to 10 years to complete, with objections and legal proceedings potentially extending this timeline to 20 years. Such delays can hinder the timely expansion of renewable energy infrastructure. In addition, Switzerland still relies heavily on imported electricity, some from non-renewable or nuclear sources, in winter, dampening the urgency for domestic renewable energy expansion.

15. What are the key contracts you typically expect to see in a new-build renewable energy project?

A grid connection agreement (e.g. with Swissgrid) outlines the terms and conditions for connecting a renewable energy system to the electricity grid. It includes technical specifications, connection schedules and responsibilities for any infrastructure upgrades that may be required.

EPC contracts are becoming increasingly popular as a means of reducing the risk, cost and time associated with a project. Alternatively, the risks are allocated for each project phase by separate contracts for planning, construction management and construction or by a general contractor agreement (which includes construction management). National standards (like the SIA-norms) are used to define the work scope in detail and can be adjusted to the specific project.

To secure the right to develop a project in an area, building rights agreements are often concluded as deeds, which frequently guarantee use for more than 30 years. Investors often also purchase through SPA deals the project-vehicles from the project developers which requires thorough due diligence.

PPAs for renewable energy can allow companies access to clean energy (like solar) and support the financing and development of new renewable energy projects by providing revenue certainty to project developers. The Swiss PPA-market is still in a developing phase.

16. Are there any restrictions on the export of renewable energy, local content obligations or domestic supply obligations? What are the impacts (either actual or expected) of the implementation of the Net Zero Industry Act (EU) Regulation 2024/1735?

Switzerland does not explicitly ban the export of electricity. In fact, it often exports surplus power (notably in summer) and imports in times of shortage (winter). Swiss law does not place a special “home market first” clause on renewables. Instead, policy makers have focused on boosting domestic output. For example, in Swiss–EU bilateral negotiations on an Electricity Agreement a non-discriminatory access to the EU's internal electricity market for Swiss companies may be achieved. In practice, Swiss renewables enter the regional grid like any other generation. The domestic revised law aims to expand in-country renewable generation (hydro, solar, wind, biomass) to improve supply security, rather than creating export quotas. Switzerland focuses on enlarging domestic production to meet local demand (and stabilize prices), not on holding back exports.

The 2024 revision of the ESA introduced new obligations on utilities to source and deliver renewables to domestic customers. These “domestic supply” rules mean new renewable generation will primarily serve Swiss users. The act targets a five fold increase in solar PV (mostly on rooftops) by 2035. Those panels are intended to feed Swiss households first. It will set quota levels based on contract availability, and even mandates that a “standard product” for basic customers relies on domestic green power. Since Switzerland is not an EU member, NZIA-rules do not automatically apply domestically. However, it will alter the regional market environment. Swiss renewable suppliers (e.g. PV manufacturers, wind tech firms) will now compete with heavily supported EU producers. For Switzerland's electricity policy, NZIA's effects are indirect. Nevertheless, policymakers will monitor EU actions closely. For example, ensuring Switzerland's grid can trade freely with the EU.

17. Has deployment of renewables been impacted in the last year by any non-country specific factors: For example, financing costs, supply chain or taxes or subsidies (e.g. the US's Inflation Reduction Act)?

Factors like Germany's Renewable Energy Sources Act (EEG), China's industrial strategy and recent climate policies in the US and EU, have had both positive and negative effects on the use of renewable energy in Switzerland. Germany's EEG, with its generous feed-in tariffs, has had a big impact on the Swiss solar industry. It allowed Swiss companies to benefit equally with German firms, stimulating exports and partnerships. However, when Germany reformed the EEG in 2011 and

reduced subsidies, Swiss companies suffered as demand fell. Further, China's subsidies for solar and electric vehicles led to global technological advances that indirectly benefited Swiss firms through knowledge transfer and lower equipment costs. Lower global prices for solar systems, driven by foreign subsidies, helped Swiss consumers and businesses access cheaper solar technologies, but also increased competition for Swiss solar producers. The IRA and the EU's Green Deal Industrial Plan will have a modest overall impact on Switzerland's use of renewable energy. These foreign policies could lead to lower world prices for solar and wind technologies, potentially reducing the competitiveness of Swiss exports, but benefiting Swiss importers and consumers. The analysis estimates the welfare losses for Switzerland to be small. However, Swiss companies are rather optimistic about the opportunities and are willing to adapt to new policies.

18. Could you provide a brief overview of the major projects that are currently happening in your jurisdiction?

Switzerland is advancing its transition through innovative projects. Notable projects like the "*NalpSolar*" project are solar plants on or by Alpine water reservoirs. The ESA mandates solar installations also on large new buildings to further expand solar capacity. In 2024, Axpo and Rhiienergie inaugurated the country's largest green hydrogen plant, capable of producing 350 tonnes of hydrogen per year to support zero-emission mobility and energy storage. There are plans for a pipeline "*Alpine Hydrogen Corridor*" until 2035 with projected costs of CHF 1 billion. Another major project planned to go into operation in 2027 is the large-scale BESS in Bonaduz in the canton of Grisons. With a storage capacity of 120 MWh, the battery park will be the largest facility of its kind in Switzerland.

19. How confident are you that your jurisdiction can become a leader in newer areas like offshore wind or hydrogen?

As part of its Energy Strategy 2050, the federal government aims to increase hydropower production to 37,900 GWh by 2035 and 39,200 GWh by 2050, focusing on the renovation and expansion of existing plants and the construction of new ones, while meeting environmental standards. Switzerland is offering investment incentives for new plants and major upgrades, market premiums, and streamlined permitting and support mechanisms under the EnA to increase storage capacity and project development.

Prospects in offshore wind are non-existent due to its geography. But over 45 large onshore wind facilities produce over 160 GWh annually, two-thirds of which is generated in winter, making wind an ideal complement to summer peak hydro and solar. Switzerland shows greater promise in green hydrogen, leveraging its technological expertise, strong industrial base and growing investment in hydrogen infrastructure, as evidenced by Switzerland's largest green hydrogen plant and pipeline-plans. While not a global leader in terms of scale, Switzerland is well positioned to lead in high-value, innovation-driven niches of the hydrogen economy and in integrated solutions combining renewable electricity, storage and energy efficiency. Overall, confidence in Switzerland's renewable energy leadership is high for hydrogen and solar innovation, in line with its industrial strengths.

20. How are renewables projects commonly financed in your jurisdiction?

Switzerland's renewable energy projects are financed through a mix of mechanisms, combining public incentives, private investment and new financial instruments. Hydropower and wind companies benefit from feed-in tariffs that guarantee stable electricity prices, while many cantons offer low-interest loans and tax incentives to mitigate high costs. Support agencies such as the SFOE and Innosuisse strengthen the sector with coaching, training and funding for innovation. Large projects often attract institutional investors or partnerships with entities such as Axpo or Alpiq, while green bonds and sustainability-linked loans are gaining momentum alongside an expanding sustainable finance market. Proposals for a Swiss Green Investment Bank (GIB) by part of parliament were rejected mainly due to concerns about market distortions.

21. What is your forecast for the coming year(s) for renewable energy in your jurisdiction?

Switzerland aims to achieve carbon neutrality by 2050. This will only be achieved by expanding renewable energy and reducing imports. The government is working to secure energy supplies and support energy independence. Electricity generation from emerging renewables must increase to 35 TWh per year by 2035 (6 TWh in 2022). This will cover about half of the country's electricity needs in 2035. The rest will be met through hydropower and energy imports. To meet the 2050 goals, the country's renewable energy infrastructure must be transformed. The Swiss parliament has approved

measures to fast-track the expansion of renewables. Priority will be given to scaling up wind and solar power. Achieving this transition will require significant investments by 2035. This must be supported through a combination of public funding and private capital. However, electricity imports will continue to be vital for maintaining supply-demand balance, especially during the winter season.

Contributors

Dr. iur. Wolfgang Müller MBA
Partner
wolfgang.muller@mll-legal.com

Jacques Johner
Partner
jacques.johner@mll-legal.com

Luca Henn, MLaw
Associate
luca.henn@mll-legal.com

Adrian Eugster, M.A
Associate
adrian.eugster@mll-legal.com