The Swiss-CH Electricity Agreement:
Implications for Switzerland

Generation, Supply and Transmission of Electricity

ESI/AEM – Rolf Endriss

Introduction

Energy is fundamental for our society and if we talk about it all the time there is also a reason:

The energy need is increasing, but resources are not unlimited

Climate change - Are we late?

Picture: Blatten landslide

We all remember the images of the Blatten landslide on May 28th. Unfortunately, we were also affected by a natural disaster in Ticino last year and other areas are at high risk (see Brienz). Even in our latitudes, the effects of climate change are perceptible.

It is possible, we certainly know that the situation has pushed politics in the last decade towards a more sustainable orientation towards environmental protection and the achievement of climate neutrality. In this regard, I recall:

Globally:

- Kyoto Protocol 1997, ratified 2003-2005
- Paris Agreement 2017
- European Green Deal 2020

And at the national level:

- Energy Strategy 2050 -> new Energy Act (accepted 21.05.2017)
- New law on climate and innovation -> Climate neutrality accepted (accepted 18.06.2023)

Measures that have conditioned our society and started the energy transition and consequently also the regulatory framework, in particular I recall the “Mantelerlass” with the revision of the laws and ordinances of the electricity sector, which came into force this year.

Renewable energy - What has changed?

Picture: Switzerland's largest alpine solar power plant is located at an altitude of 2500 meters on the Muttsee dam in the canton of Glarus and produces clean electricity thanks to almost 5000 solar panels.

First of all, it must be said that awareness of the value of energy has changed, especially if we are talking about renewable energies which, as we know, are more expensive and less flexible.

For the electricity sector, the development of renewable energy and in particular photovoltaic plants, the impact is structural, both for the distribution network and for the supply of energy.

The distribution network was originally designed for a unidirectional flow of energy, i.e. from centralized production to final supply, through the various levels of transport and transformation.

The propagation of photovoltaic systems brings with it an important paradigm shift, as the energy flow becomes bidirectional with the injection into the grid of the energy produced by decentralized photovoltaic systems.

Energy communities - What does it imply?

Picture: LIC the first Swiss energy community settled by AEM

The development of renewable energy has also led to a new form of sharing the energy produced by photovoltaic plants, i.e. energy communities, in various forms (ZEV, LEG, etc.). In this way, it is possible to increase local self-consumption and better value the investment for the producer and provide green energy while saving on grid costs and taxes for the consumer.

Conceptually it is not complex, but on a technical, administrative and legal level it is not immediate and requires the support of the distribution network operator.

However, it is important to consider this new element in the industry as they will be important components for the management and stability of the network. Energy communities make it possible to optimize self-consumption and reduce the need from large production plants. For distribution companies, there is therefore an impact both at a technical-managerial level and at the level of commercial relations with the customer.

Infrastructure - Is our network outdated?

Picture: Grid levels scheme by Swissgrid

Fortunately not, but extensions and adjustments are necessary.

The basic infrastructure as we know it will remain as such and will be expanded in particular for the injection of energy from new plants from renewable sources into the grid. However, the dynamism of flexible energy flows from renewable energies is changing the way the grid supply and stability are being managed.

To overcome these new needs, we rely on new technologies and data analysis. Real-time information on production and consumption is in fact essential to guarantee the stability of the network and minimize costly deviations from forecasts, in this sense artificial intelligence is also an increasingly fundamental tool.

In terms of infrastructure, storage systems for grid regulation are also becoming increasingly important. For seasonal storage, major projects are planned with the dams of hydroelectric plants (winter reserves), while for daily operation a lot will be invested in large batteries at substations (BESS).

Energy - What impacts?

Picture: energy data collection with smart meters

In August, the energy tariffs for next year were published, which provide for a general reduction in the price. This is good news, but we know that this is not always the case and that geopolitical situations can have a significant impact on the international energy market, which we also suffer as consumers.

The revision of the Energy Supply Act introduced measures to mitigate market risks, for example by reducing market exposure through long-term supply contracts with PPAs (Power Purchase Agreements) for partial portfolio coverage (structured purchase).

As far as renewable energy is concerned, there is an obligation to withdraw the surplus of photovoltaic production at a minimum price (6 cts/kWh for domestic systems). This makes it possible to sustain the higher production cost and stimulate the construction of photovoltaic systems.

Since there is greater availability of energy in summer, the prices of the products available on the market vary according to the months of consumption. An aspect that consequently also affects the overall cost of procurement and which will eventually be considered more causally through variable tariffs.

Distributor – what next?

Picture: grid evolution into interconnected stakeholders

Distribution companies play a fundamental role in the energy transition since they are at the center of the new ecosystem that is being created. The digitization process is underway with the rollout of smart meters that will make it possible to detect the data necessary to be able to communicate between the various stakeholder systems.

Smart grids are smart power grids that use digital technologies and communication systems to efficiently and flexibly manage energy production and consumption. They allow for better integration of renewables, reduce losses and improve grid reliability.

In this context, the DSO becomes the central coordinator of the grid: not only does it distribute energy, but it monitors, controls and optimizes flows thanks to data and automation. Its role is to ensure stability, quality of service and encourage the active participation of producers, consumers and prosumers.

CH/EU agreement: what changes?

Picture: main elements of the agreement

First of all, it must be said that the agreement with the EU is very important for the Swiss electricity sector to ensure a secure, resilient and economical electricity supply and touches on several key areas for energy supply and distribution.

- **EU grid integration** – Increased stability and resilience through coordinated technical cooperation.
- **Security of supply** – More reliable imports and exports, especially during critical times such as winter.
- **Liberalized market** – More competition and flexibility for consumers, with potential benefits on prices.
- **Integrated renewables** – Common European rules that encourage investment and development of clean energy.
- **Legal stability** – A clear and durable regulatory framework that is essential for cross-border operators and infrastructure.

The critical issues raised by the sector concern more than anything else the part relating to the liberalization of the market, not for the liberalization itself but for the implementation proposed by the CF with the maintenance of basic supply.

It should be noted that energy policy is currently also supported by basic supply with the use of renewable energy in the energy portfolio (tariffs), which is clearly unthinkable in this form under the free market.

ESI therefore approves the electricity agreement with the EU but rejects the national implementation project, judged to be obsolete and inconsistent with the planned market opening. It calls for simple, market-oriented regulation without new burdens or risks, rejecting any "Swiss finish" that exceeds EU standards and penalizes Swiss competitiveness. It also supports the role of AES in the implementation review process.

Summary of the advantages of the Swiss–EU Electricity Agreement

1. **Stability and costs** – Safer network, lower risk and reduced system costs.
2. **Import/export** – Non-discriminatory access to the EU market, increased winter security and summer export possibilities.
3. **Crisis management** – Participation in the prevention and coordination of energy shortages in Europe.
4. **Renewables** – Better integration and promotion of PV and wind in a transparent European market.
5. **Hydropower** – Water concessions remain the responsibility of the cantons and excluded from the agreement.
6. **Swiss guarantees of origin** – GOs recognised in the EU market.
7. **Market opening** – Freedom of choice for consumers, greater transparency and promotion of competition.
8. **EU participation** – Access to European bodies and relevant information.
9. **Legal certainty** – Clear rules and protection from arbitrary exclusions.

Questions:

The electricity agreement is linked to a gradual opening of the Swiss retail market, while maintaining a universal service at regulated conditions for certain customer groups. How do you expect the business model of utilities like AEM to evolve in this context and what are the main organisational and IT challenges you foresee?

Basically, the opening of the market is not an obstacle for electricity companies, obviously if there are the conditions to be able to operate without unfavourable regulations.

Already at present, electricity companies are adapting to the new models born with the legislative change that will be further accelerated with the agreements.

I am quite convinced that in this sense the role of companies like AEM will evolve and strengthen itself even more since they are at the center of energy management by interfacing the various disciplines (photovoltaics, heating systems, electric mobility, stable energy efficiency, etc.).