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Revision of the Federal Electricity Act (Acceleration of the Conversion and Expansion of the Electricity Grid)

Swissgrid position paper

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1 Initial situation

Since 2019, the Federal Electricity Act of the Conversion and Expansion of the Electricity Grid («Electricity Grid Strategy») has provided new framework conditions for faster, coordinated expansion of the grids in Switzerland. Its provisions will simplify procedures allowing exemption from sectoral plan and planning approval requirements. Whenever sectoral plan and planning approval procedures are required, however, these new provisions have so far only led to minor improvements.

Further acceleration of the approval process is urgently needed, especially as the federal government wants to shorten the procedures for the planning and construction of large power plants for renewable energies as part of the **legislation on accelerated procedures** in order to rapidly drive forward the expansion of production. This will further exacerbate the grid situation.

Given the current approval processes, grid expansion is increasingly falling behind schedule compared to the expansion of power plants. The direct consequences of this are economically inefficient grid congestion and limited power plant generation. These costs are borne by the end consumers. **Unless further measures are taken, the goals of the energy transition and secure grid operations will be jeopardised, which could also have a negative impact on Switzerland's security of supply.**

Having recognised this, the Federal Council initiated a consultation process on the revision of the Federal Electricity Act on 26 June 2024. The aim is to further accelerate the approval processes for the renovation and expansion of the grids, which Swissgrid very much welcomes.

2 Overhead lines have proven their worth – they are reliable, robust and cost-effective

An **overhead line principle** is to apply in the transmission system in the future. **Swissgrid welcomes this.** Underground cables are to be the exception and, according to the current draft bill, the option to use them should only be evaluated if certain criteria are met.

Overhead lines are the technical standard in the Swiss transmission grid and have proven their worth. They account for **99 percent of the Swiss transmission grid**. In the event of technical disturbances or natural disasters (e.g. lightning, ice, falling trees), overhead lines are usually available again within a few minutes or hours. Underground cables, on the other hand, often remain out of service for weeks or months, as a disturbance usually causes damage to the cables themselves. The maintenance of underground cables is not only more complex and more expensive, but their service life is also shorter. The service life of an overhead line is around 80 years, while that of a cable line is around 40 years.

Physical phenomena and operational challenges significantly limit the use of underground cables. If the proportion of underground cabling in the transmission system increases, the overall challenges and costs of ensuring secure grid operation (including avoiding damage to energy infrastructures) will rise. **From a technical and operational point of view, the proportion of underground cables in the transmission system should be kept low.** When evaluating the option to lay underground cabling, it is important to consider not only the specific line section, but also the grid as a whole – for technical and operational reasons (repair time, voltage maintenance, reactive power compensation and grid restoration).

Underground cables are between two and ten times more expensive than overhead lines. These are costs that are borne jointly by all Swiss electricity consumers. One of the sections of the Beznau – Birr extra-high-voltage line is a good example of the cost ratio. The 1.3-kilometre underground cable section cost CHF 20.4 million, while the 5.2-kilometre overhead line section cost CHF 13.6 million. This makes the costs for the underground section of the Beznau – Birr line about six times higher than for an overhead line over its entire service life.

3 No obstacles to line replacement: reaching objectives more quickly

In the future, it should be possible to authorise the replacement of an existing line at the same location without the need for a sectoral plan procedure. The new line will continue to comply with the regulations on protection against non-ionising radiation and noise. **This provision is essential to enable Swissgrid to achieve its goal of accelerating procedures.**

By dispensing with a sectoral plan procedure when replacing lines with equivalent elements, the procedure can be accelerated by at least two to four years. This is very good news, as a large part of the existing transmission system will have to be replaced in the coming decades. Around two-thirds of the transmission system and electricity pylons are now between 50 and 80 years old and will soon reach the end of their technical service life. **The number of grid projects will therefore multiply in relation to the last 20 years. Approval processes need to be significantly accelerated in order for these projects to be implemented in a timely manner.**

4 Priority over other national interests to recognise the importance of the grid

In the draft bill, the Federal Council proposes that implementing new transmission system elements should always take precedence over other national interests. Swissgrid welcomes this new provision. The new regulation is intended to give additional weighting to the interest of implementing new transmission system elements. Nevertheless, individual cases will continue to be analysed and interests weighed up.

This provision is based on the concept of national interest for production plants for renewable energies in accordance with the Electricity Act. In the future, solar and wind energy plants in the national interest will a priori be site-specific and will outweigh other national interests.

5 More efficient planning thanks to regional coordination

According to the draft law, grid operators should involve the relevant cantons and other affected parties, which primarily means other grid operators (in particular grid level 3), in the grid planning process comprehensively and in good time. Swissgrid welcomes this new provision in the interests of a needs-based, environmentally friendly and economically efficient high-voltage and extra-high-voltage grid.

Close cooperation with the cantons and grid operators at an early stage is crucial for optimising the spatial planning of the grids. It allows bundling options to be identified, which therefore ultimately helps to speed up approval processes. This is already evident in the «Studio Generale» project in Ticino, in which Swissgrid is playing a pioneering role. Within the project, the Canton of Ticino, Swissgrid, SBB and Azienda Elettrica Ticinese (AET) successfully worked together to find an optimal solution for power lines and

spatial development. The experience gained from «Studio Generale» shows that regional grid coordination creates advantages and added value for all the players involved.

6 Conclusion: no transition without transmission!

The «Revision of the Federal Electricity Act (Acceleration of the Conversion and Expansion of the Electricity Grid)» is a decisive step towards accelerating the urgently needed renovation and expansion of the Swiss transmission grid. If the approval processes are speeded up, overhead lines are given priority and lines are replaced efficiently without delay, grid expansion can better keep pace with the expansion of renewable energies in the future, which will in turn have a positive impact on Switzerland's security of supply. **Swissgrid welcomes and supports this draft law in the interests of grid stability, cost efficiency and, ultimately, a successful energy transition.** The energy transition will not succeed without a strong and modern grid. In short, there can be **no transition without transmission.**

Further information can be found in our statement (in German).