

# **ROYALTIES AND FISCAL EQUALIZATION – THE CASE OF SWISS HYDROPOWER**

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## **Overview**

As the sole domestic source of energy in Switzerland, hydropower is a central pillar of the Swiss energy system, and it is to play a key role in mitigating climate change and phasing out nuclear energy, such as envisaged with the energy strategy 2050. But, due to market liberalization and low electricity prices on the European market, the profitability of hydropower plants came under pressure in the past decade. As a consequence, the distribution of the water resource rents is politically debated, and no compromise has been found so far among the different stakeholder groups. Those can mainly be separated into representatives from mountain cantons and lowland cantons. As defined in the federal constitution, the former are the “waterlords”, holding the property rights on the natural resource water. Accordingly, they have the right to grant water-use concessions and receive royalties, the so-called “water fees”, from the hydropower companies. The latter, in turn, are mainly owned by lowland cantons, who are the principal shareholders of Swiss electricity companies.

The water fees are regulated by federal and cantonal legislation. The rules of implementation and the maximum rate that can be applied by the cantons is defined in the federal Water Rights Act, which has been established in 1916. Since then, this rate has been increased several times by the federal parliament. Currently, the maximum rate is fixed at CHF 110 per kilowatt installed capacity, and the applied rate is adjusted to hydrological fluctuations. Hence, the current water fees are physically determined and do not account for economic facts, such as fluctuating electricity prices. This is a political-economic consequence of the original debates at the beginning of the 20<sup>th</sup> century, as well as of the above mentioned separation between the owners of the water resources and of the capital in the hydropower companies, and the traditional monopolistic structure of the Swiss electricity system. However, with the ongoing liberalization of the electricity market the producers’ and distributors’ monopoly rents partly disappeared. As a consequence, the battle about the distribution of water resource rents has been relaunched.

Currently, different options are under consideration. Those include, amongst others, flexible water fees fully or partly accounting for electricity price variations, and an integration in the federal and cantonal fiscal equalization schemes. The latter refer to the transfer of fiscal resources across jurisdictions with the aim of reducing fiscal disparities, i.e. the differences in public revenue raising or in fiscal capacity among territorial entities (e.g., cantons, municipalities), and to allow sub-central governments to provide their citizens with similar sets of public goods and services at a similar tax burden. On the national level, fiscal equalization does not account for royalties from natural resources, while the water fees are included in the inner-cantonal schemes in the two mountain cantons of Grisons and Valais. Those two cantons are the largest recipients of water fee payments. In addition, they play a crucial role in the ongoing debate, since municipalities with hydropower plants also participate in these royalties (Betz et al., 2018; Hediger, 2018).

## **Methods**

Using yearly production data and accounting for the ownership structures of the hydropower companies in Switzerland, we compare in a first step the financial flows from water fees, dividends and fiscal equalization between the different cantons, and particularly calculate the “attributed” water fee payments according to the shareholdings of cantons and municipalities in the different companies. This gives a first insight into the financial flows from hydropower within Switzerland. In a second step, we investigate the prospective impacts of different electricity price and water fee scenarios on *a*) the national (i.e., inter-cantonal) level, and *b*) on municipal finance and fiscal equalization in the canton of Grisons, which serves for illustrative reasons as a case study. Using cantonal data and the official model for calculating the fiscal equalization scheme, we calculate for each of the above scenarios the resulting impacts on municipal and cantonal finances.

## Results

Given the above mentioned ownership structures, our calculations show the major part of attributable water fee payments is with the lowland cantons. As an example, the case of Grisons shows for the year 2016 that 116 of the 124 million CHF total water fees are attributed to public entities (cantons and municipalities). About 11.5% of these payments are indirectly paid through their shareholdings by the canton and municipalities Grisons themselves. The city and canton of Zurich, as the major shareholders of hydropower plants in Grisons, are in the same way charged about 33.5%, while other public entities (mainly other cantons) cover the remaining 55%. Taking the picture of water fees and hydropower in the canton of Zurich, 34.5% of the water fees are attributed to the city and canton of Zurich, while the “residual value” is mainly covered by the remaining shareholders of Axpo Holding AG, the biggest player in the market (Betz et al., 2018). Additional results will follow, from an extended analysis covering the financial flows induced by water fees in all 26 cantons of Switzerland (*work in progress*).

The case study of Grisons, where water fee revenues correspond to about 6% of the cantonal budget and where municipalities and the canton equally share the water fees, reveals that – as a consequence of the well designed fiscal equalization scheme – all municipalities would either suffer or benefit from a decline or increase in water fees payments. Changes in water fee payments would have a direct effect on the financial resources available in municipalities granting hydropower concessions, and through the fiscal equalization mechanisms an indirect effect on the financial situation in all other municipalities, as well as on the cantonal finances. But, depending on the scenario, some hydropower municipalities could also switch from resource-strong to resource-weak, and vice versa, in these cases, and consequently be either better off or worse off within the inner-cantonal fiscal equalization. Moreover, for some municipalities, the share of the revenue generated by water fees can amount to more than 40% of their yearly budget. Finally, the canton would not only be affected by the changes in water fee receipts, because it has to balance the fiscal equalization payments.

## Conclusions

When analysing changes in the current water fee scheme in Switzerland, the impact on the local finance and fiscal equalization in the affected cantons must be taken into account. The latter primarily aims at reducing disparities. As a consequence, the principles applied are the same across Switzerland. However, different circumstances and preferences lead to differences in the measurement of the resource potential and cost elements at the national and cantonal levels, and thus to differences in the fiscal equalization schemes. The inclusion of water fees in the resource equalization of the cantons of Grisons and Valais, as well as the request to also include it in the national resource equalization must accordingly be considered against this background. In Grisons and Valais, substantial royalties flow to those municipalities where the hydroelectric power plants are located. The resulting inner-cantonal disparities are mitigated by the cantonal resource equalization. On the national level, water fees seemingly contribute less to the creation of inter-cantonal disparities. Rather, the financial flows within the national resource equalization generally exceed those of water fees substantially, at least for the resource-weak cantons, with the sole exception of Grisons. The latter is a good example to illustrate the role of water fees and fiscal equalization and their impact on municipal and cantonal budgets. But, it also reveals that one must expect induced impacts on public expenditure, and thus on the economic development on the cantonal and municipal level. These must additionally be examined in order to draw a complete picture of the prospective impacts from changing the water fee scheme. Indeed, changes in royalties and dividends will have an impact on the economic and social development and to jobs in peripheral communities. Ultimately, those are social and political issues that require political-economic decisions in the federal system. In this regard, it is also important to notice that the water fees (royalties) represent only a part of the resource rents arising out of the use of hydropower. By focussing on water fees, the dividends mainly flowing to lowland cantons are neglected. In economically prosperous periods, those are at least equally important as the water fees, and therefore must also be taken into account if the water rates in the national fiscal equalization should be considered.

## References

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