

SMALL HYDROELECTRIC POWER PLANTS IN THE CZECH REPUBLIC



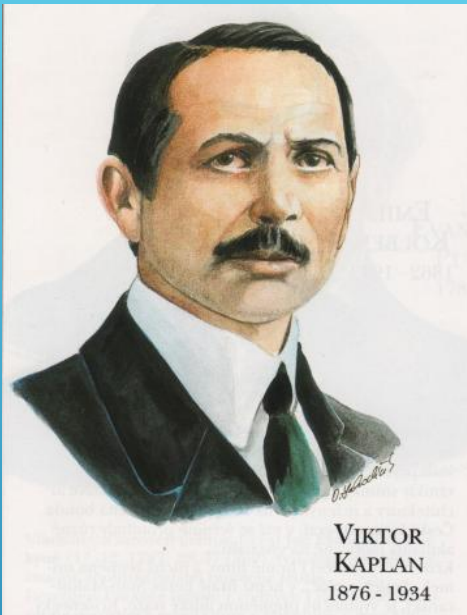
History – Present - Future



SPVEZ

- ▶ **Association of Entrepreneurs for Using Energy Sources**
- ▶ **Around 300 members**
- ▶ **Specialized service – technical and legal advice available to our members**
- ▶ **Commenting on prepared laws and decrees**
- ▶ **Communication with public authorities**





VIKTOR KAPLAN



*** 27 Nov 1876 Mürzzuschlag,
Austria-Hungary**

**† 23 Aug 1934 Unterach am Attersee,
Austria**

**Engineer and inventor of Kaplan
turbine (1910 – 1918)**

**Professor at German Technical
University in Brno**

**280 patent applications
in 27 countries**

1918 – Manufacturing based on Kaplan´s design and calculations started in Ignaz Storek factory in Brno

March 1919 – Commissioned in spinning mills in Velm (Lower Austria)

Field tests launched by Artur Budau, professor at Vienna Technical College

In operation till 1952



KAPLAN TURBINE



IGNAZ STOREK – ENGINEERING PLANT AND FOUNDRY IN BRNO, CZECHOSLOVAKIA



**Kaplan turbine made
by this company - the first
installation of its kind in the
world**

**1919 – 2019: hundredth
anniversary of Kaplan
turbine and its practical use**

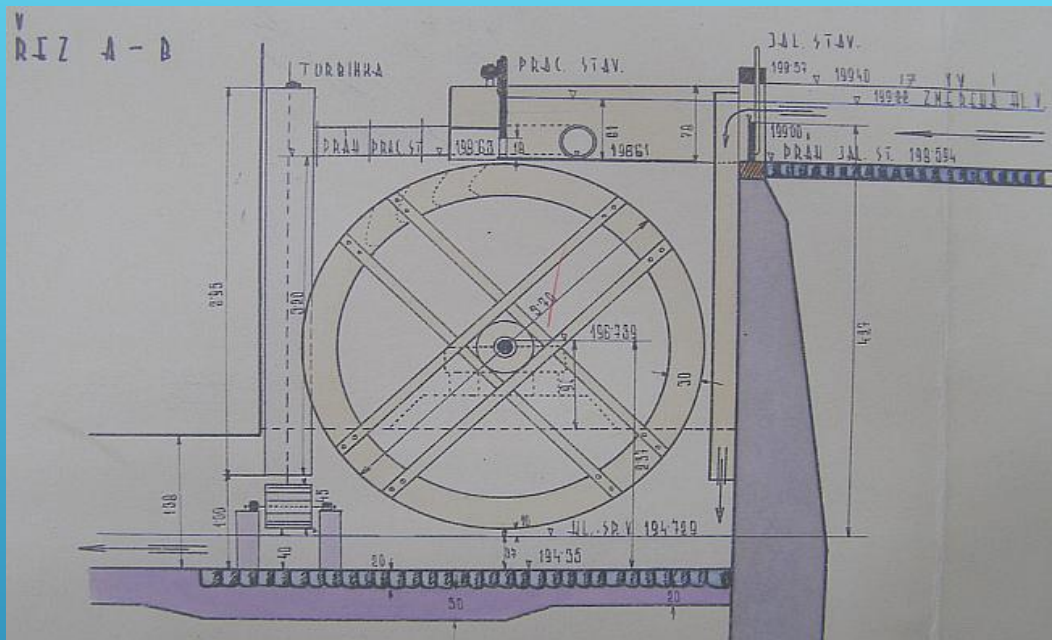
**A number of original Storek-
Kaplan turbines are still
in operation not only in the
CR.**

- ▶ *Around 300 pieces
produced by 1948*

ING. JAROSLAV SLAVÍK



- ▶ **Viktor Kaplan's student, assistant, close associate and friend**
- ▶ **Kaplan's patent attorney**
- ▶ **Significantly contributed to settling complex patent cases concerning the Kaplan turbine.**



Czechoslovakia in 1930

- ▶ **15,500** works using hydraulic energy
- ▶ a total of **16,932** installed water engines
- ▶ **71 %** (nearly **12,000**) were water wheels with the average installed mechanical capacity of **4.6 kW**.



- ▶ **CR after 1989 – renaissance of small hydroelectric power plants**
- ▶ **Renewal, recommissioning (especially micro installations) as well as building new installations**



- ▶ **Situation in CR as at 31 December 2018**
 - ▶ 1,442 of small hydroelectric power plants in operation
 - ▶ 351 MW of total installed capacity
 - ▶ yearly production 927.2 GWh of electricity
- ▶ **The numbers above include micro-hydropower installations of up to 0.1 MW comprising**
 - ▶ 979 small hydroelectric power plants
 - ▶ total capacity only 38 MW
 - ▶ yearly production only 89.4 GWh of electricity

SITUATION IN SMALL HYDRO IN CR





Roughly one third of „small hydro“ in the Czech Republic, with regard to the installed capacity as well as amount of generated electricity, continues to be state-owned:

**Povodí
ČEZ**

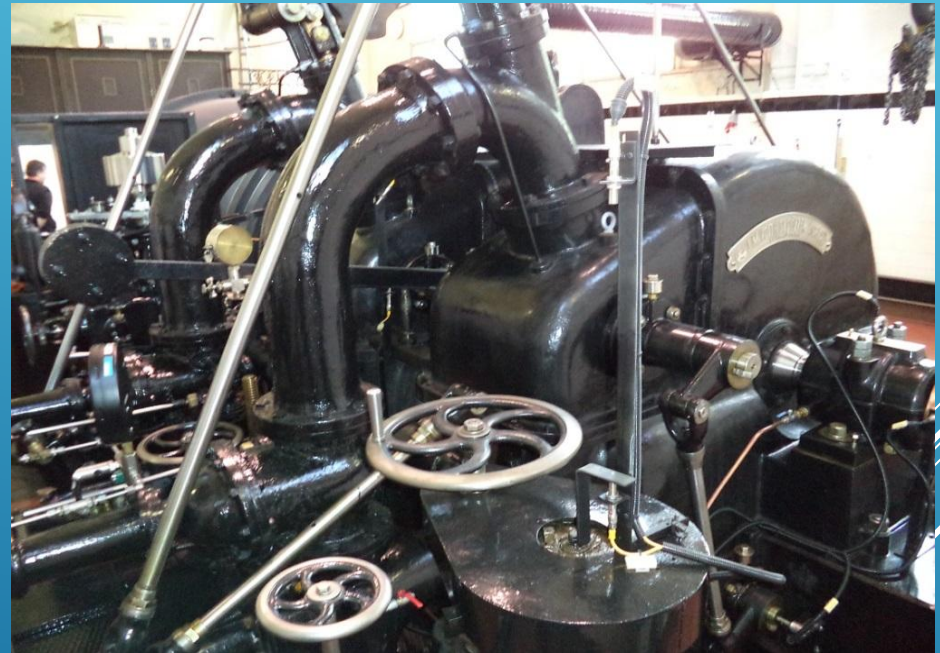
**1/3 OF SMALL HYDROELECTRIC
POWER PLANTS IS STATE-OWNED**

▶ **A great number of small hydroelectric power plants have historically valuable technological parts.**

▶ **It is in the public interest to keep these valuable parts operational for future generations.**



HISTORICALLY VALUABLE SMALL HYDRO PLANTS



▶ **This public interest is not adequately reflected and supported in the Czech small hydro operational support scheme.**



- ▶ **SPVEZ prepared an analysis of possible future small hydro development in the CR.**

POSSIBILITIES OF SMALL HYRDO DEVELOPMENT IN CR

- ▶ **Further small hydro development is associated with numerous important functions and benefits for the quality of life and the environment.**





- ▶ **A number of objective reasons make us believe that further sustainable development of small hydro, albeit marginal, deserves nationwide support and attention also in the future - not only in our country.**

SMALL HYDRO IN CR AND CHALLENGES WE FACE



- ▶ **4 “dry years” in succession**
- ▶ **Missing legislation on investment and operational support for new small hydroelectric power plants for the 2020 – 2030 period**
- ▶ **Our legislative process disproportionately favours the ecological function of watercourses over their economic use.**
- ▶ **Due to a legislative error (165/2012 Sb., on renewables support) up to 550 small hydroelectric power plants will probably not be allowed to draw operational support after 2020.**



NUMBER OF SMALL HYDROELECTRIC POWER PLANTS IN CR DROPS



- ▶ **For the first time in its modern history the CR sees such a drop.**
 - ▶ As at 31 Dec 2016, CR had 1,465 small hydroelectric power plants in operation
 - ▶ As at 31 Dec 2018, CR had 1,442 small hydroelectric power plants in operation
- ▶ **Drop by 23 plants with the lowest installed capacity where operation is no longer profitable.**





- ▶ **Ladies and gentlemen,**
- ▶ **Central Europe: thousand-year-old tradition of using water energy contributing to technological progress and upkeeping of the countryside**
- ▶ **Let us protect this legacy together so that our successors can receive it in a sustainable form.**

CONCLUSION





Thank you for your attention.

Pavel Štípský

Lenka Staňková