



Approval of the Bischofshofen hydropower plant

Decision and background information

May 2016

Background

In the past 4 months, 5 German sellers have announced that they will start selling EKOenergy. 2 of them have started and a 3rd will start within days.

For technical and legal reasons it is difficult for them to sell electricity from German power plants as EKOenergy. E.g. Germany doesn't allow that subsidised energy is sold to specific consumers (because it belongs to the public in general, as these are paying the subsidies for it). That's why German sellers are usually interested in renewable electricity from other countries, in particular from neighbouring, German speaking countries.

In March we got a concrete and urgent demand for Austrian hydropower from one of our German sellers. We immediately started the process of finding Austrian hydropower that would be eligible for EKOenergy.

The seller suggested to sell electricity from the hydropower plant Bischofshofen, a power plant owned by Salzburg AG. According to their information, this power plant fulfills the newest and the strictest criteria. In 2015, a new fish pass was built within the framework of the Austrian implementation of the Water Framework Directive („Nationale Gewässerbewirtschaftungsplan“ ; National Water Management Plan).

The same power plant is also used for the sales of OK Power in Germany, which is one of the best known ecolabels in Germany.

They also informed us that they were interested in other Austrian hydropower, and asked if we could recommend them any.

Research

We contacted different experts and local people (NGOs, universities, independent offices, local fisher associations) commonly known for their expertise about hydro/river management or for their concrete knowledge of the local fish situation. We asked them about Bischofshofen and its environmental impact.

One expert claimed that the attraction flow is not strong enough, the used enature fish pass is still controversial among experts and there is not much fish left in the river. We have not yet been able to check the first claims. The last claim is related to the ecological status of the whole river (see also links in the attachment).

Another expert told the fishpass fulfils very strict criteria from the guidelines from the Austrian Federal Ministry for Agriculture, Forestry, Environment and Water Management (Bundesministerium für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft) and therefore is „exemplarily equipped“.

There were no alarming news or facts found on the internet (e.g. no articles about local demonstrations or complaints against the power plant).

Extra elements

- Hydropower always has an impact and our activities should help to minimise these impacts. The money of the environmental fund, resulting from the sales of this hydropower, could be used for restoration works on or along the Salzach river. Our concrete cooperation with the involved experts and companies will allow us to detect where we can make the highest impact.

- This is a start to bring EKOenergy to Austria, a country where we haven't been very active yet.

- Until now, our search (via contacting and asking experts, NGOs,...) for other potential eligible power plants was not fruitful. In the following months, we will continue our search for eligible power plants and are sure to find others.

Decision

As the new fish passage has been built in 2015 according to the latest standards, we agree to allow that the electricity from the Bischofhoven hydropower plant can be sold as EKOenergy.

The decision is valid for 1 year. During that year we will intensify our contacts with Austrian river experts and follow up if enough water is released into the fish passage and for attracting the fishes towards the fish passage.

The contributions of the Environmental Fund could be used for further nature restoration projects in the basin of the Salzach.

Annex 1 : What we know about the hydropower plant

Source: <https://www.salzburg-ag.at/herkunft/unsere-kraftwerke/kraftwerk-bischofshofen-2596/>

- run-of-river power station
- built between 1982 and 1984 → started working in 1984
- 2 Kaplan bulb turbines with horizontal shaft
- catchment area: 2.736,00 km²
- average annual production: 70.200 MWh
- bottleneck performance: 16,00 MW
- Head: 9,00 meters
- Design flow: 202,00 m³/s
- has shallow water zones and a fish pass

Source: “Wo saubere Energie herkommt. Kraftwerksgruppe mittlere Salzach” (Salzburg AG)

- large storage power plants in the Tauern (power plant group Großglockner-
- Kaprun (Verbund Hydro Power GmbH), Stubach power plants (ÖBB) and the Gasteiner Tal group (Salzburg AG) empty their reservoirs, especially during winter months → increases water supply Mittlere Salzach
- the first of five built hydropower plants at the mittlere Salzach by Verbund Hydro Power GmbH and Salzach AG
- horizontal arrangement of the machines → low design of the plant
- The weir consists of three ten-meter wide fields with (pressure) segments and attached jam door
- 2004/2005: renewal control system
- backwater area was built in coordination with the “Pinzgauer Schnellstraße S11” (something like a country road)
- 2009: built of groynes (cross constructions made of stone obliquely to the to the flow device → constrict the flow cross-section, flow speed increased, higher safety from floods by preventing a silting up
- plant already had a near-natural bypass channel when they built it in the 80s
- in 2015: this **bypass channel** replaced by a more modern fish pass, basins sizes orientates on the biggest local fish (Huchen (Danube salmon)), for swimming weak fish (f.e. Koppen (bullhead)) → transition between the basins continuous
- 2.8 km long backwater area → shallow water areas and spawning places for fish
- **fishway**:
 - total length: 310 m
 - number of basins: 69
 - average depth: 90 cm
 - endowment: 250 liters of water / second
- More data:
 - commissioning: 1984 (maschine set 1) and 1985 (maschine set 2)
 - storage space: Water level 547.80 m above sea level

- impeller diameter: 3600 mm
- Nominal flow: per 111 m³ / s
- 2 three-phase synchronous generators with horizontal shaft
- Rated apparent power: per 9,500 kVA
- power dissipation into the medium-voltage network of der Salzburg Netz GmbH (30 kV)

Source: <http://www.verbund.com/pp/en/run-of-river-power-plant/bischofshofen>

(only additional information, no repetition of what is mentioned in the Salzburg AG sources)

- Region: Austria, Salzburg (federal state)
- commissioning: 1986 ← → Salzburg AG says 1984/85
- power plant is between two other plants (Urreiting and Kreuzberg-Maut)
- power plant is situated perpendicular to the flow axis
- power house was built over an area of about 42/33 m and rises an average of 15 m above the level of Under water on
- horizontal mounting of machine units
- weir: three fields (each 10 m wide) with a dam height of 10.60 m
- weir piers: 37.50 m long and 3 m wide, designed with rounded ends and stepped under the water side
- **fish pass: on the left side**

Source: <http://www.meinbezirk.at/pinzgau/lokales/fischwanderhilfen-verbinden-lebensraeume-d1371235.html> (from 04.06.2015, 15:04) but formulated by the Salzburg AG

- the first stage of the **Nationale Gewässerbewirtschaftungsplan (NGP) (National Water Management Plan)** aims to **unimpeded walking ability of fish in so-called "priority stretches of water" until the end of 2015** → concerns the Salzach upriver to Mittersill
- in the following months (so after 04.06.15) Bischofshofen has to adapt to new standard for fish passes
- results in Bischofshofen (and Urreiting) are monitored by the **fish ecologists Dr. Regina Petz-Glechner and Prof. Helmut Mader (BOKU in Vienna)**

Source: <https://saverio-energie.de/kraftwerk-bischofshofen-oesterreich/>

The spring of the Salzach is located in the Kitzbühel Alps. On its 225 km journey through Austria and Germany it unites with other rivers and streams and rapidly increases in the flow of the river. The Salzach is one of the largest alpine rivers and has much water

Annex 2 : National Water Management Plan and maps

5.2.4 Ziele und Schwerpunkte der Maßnahmenplanung im NGP 2015

Für die Gewässer, die sich in einem schlechteren als dem guten Zustand oder guten Potential befinden, soll der Zustand auch in den nächsten Jahren schrittweise verbessert werden.

5.2.4.1

Hydromorphologische Belastungen - Fließgewässer: Für die Hauptbelastungskategorien wird davon ausgegangen, dass mit folgenden Maßnahmenkombinationen der gute Zustand bzw. das gute Potenzial in der Regel erreicht wird:

1. Bei größeren Stauen und Stauketten ist der gute ökologische Zustand bzw. das gute ökologische Potenzial durch Schaffung und Vernetzung von Lebensraum zu erzielen. Die entsprechenden Maßnahmen, mit denen dies mit hoher Wahrscheinlichkeit erreicht werden kann, sind die Wiederherstellung des Kontinuums im Fischlebensraum, die Anbindung von Zuflüssen (und Nebengewässern) und insbesondere die Strukturierung der Stauwurzeln.
2. Bei regulierten Gewässerabschnitten ist der gute Zustand bzw. das gute ökologische Potenzial ebenfalls durch Verbesserung und Vernetzung von Lebensraum zu erreichen. Die entsprechenden Maßnahmen, mit denen dies mit hoher Wahrscheinlichkeit erreicht werden kann, umfassen die Wiederherstellung des Kontinuums, die Anbindung von Zuflüssen, sowie Strukturierungen im Gewässerbett, insbesondere mit lokalen Aufweitungen.
3. In Restwasserstrecken ist ein ausreichender Mindestabfluss erforderlich, um mit hoher Wahrscheinlichkeit den guten Zustand zu erreichen bzw. in erheblich veränderten Gewässern der für die Erreichung des guten Potenzials erforderliche Mindestabfluss.
4. Bei Schwallstrecken sind zur Erreichung des guten ökologischen Zustands bzw. guten ökologischen Potenzials bauliche Maßnahmen zur Schwalldämpfung z.B. Ausgleichsbecken (wenn technisch und wirtschaftlich möglich) oder Maßnahmen zur Minimierung der Auswirkungen des Schwalls wie z.B. Restrukturierungen, Nebengewässeranbindungen notwendig.

Maps from the “Gewässerbewirtschaftungsplan 2015” (National Water Management Plan)

Source:

http://wisa.bmlfuw.gv.at/wasserkarten/gewaesserbewirtschaftungsplan-2015/fluesse_und_seen/ngp_omassn_stoffl_bel/ngp_omassn_quer_laengs.html

→ something needs to be done concerning the river accessibility but there already is a fish pass in the map

http://wisa.bmlfuw.gv.at/wasserkarten/gewaesserbewirtschaftungsplan-2015/fluesse_und_seen/ngp_orisiko_chem_schadstoffe/ngp_orisiko_wanderhindernisse.html

→ no risk that the measures for fish passes can not be implemented until 2021

http://wisa.bmlfuw.gv.at/wasserkarten/gewaesserbewirtschaftungsplan-2015/fluesse_und_seen/ngp_omassn_geplant_quer_laengs/ngp_omassn_geplant_quer_laengs.html

http://wisa.bmlfuw.gv.at/wasserkarten/gewaesserbewirtschaftungsplan-2015/fluesse_und_seen/ngp_omassn_geplant_quer_laengs/ngp_omassn_geplant_restwasser.html

→ measures to be taken until 2021 but Keine Restwasserbelastung bzw. Herstellung des Basisabflusses im gesamten Wasserkörper bis 2015 umgesetzt

http://wisa.bmlfuw.gv.at/wasserkarten/gewaesserbewirtschaftungsplan-2015/fluesse_und_seen/ngp_omassn_stoffl_bel/ngp_omassn_hydromorph_bel.html

measure to take: hydromorphological:

http://wisa.bmlfuw.gv.at/wasserkarten/gewaesserbewirtschaftungsplan-2015/fluesse_und_seen/ngp_orisiko_chem_schadstoffe/ngp_orisiko_hydromorph_bel.html

→ Risk analysis of surface water bodies in view of a possible missed targets 2021
safe risk about hydromorphological burden/load

http://wisa.bmlfuw.gv.at/wasserkarten/ist-bestandsanalyse-2013/fluesse_und_seen/belastungen/obel_eingr_hydro.html

→ Ratio Sunk: Barrage 1: 3 to 1: 5 or surge with significant impairment

http://wisa.bmlfuw.gv.at/wasserkarten/gewaesserbewirtschaftungsplan-2015/fluesse_und_seen/ngp_omassn_stoffl_bel/ngp_omassn_restw_schwall.html

http://wisa.bmlfuw.gv.at/wasserkarten/ist-bestandsanalyse-2013/fluesse_und_seen/belastungen/obel_eingr_morph.html

→ there is a hydrological impact in 2013 (Laufstau (Länge ≥ 100 m bzw. > 500 m bei 100 km^2 Gewässern) Running ropes (length ≥ 100 m or > 500 m at 100 km^2 waters)

http://wisa.bmlfuw.gv.at/wasserkarten/gewaesserbewirtschaftungsplan-2015/fluesse_und_seen/ngp_orisiko_chem_schadstoffe/ngp_orisiko_morphologie.html

→ Risk analysis of surface water bodies in view of a possible missed targets 2021
safe risk concerning structural change in 2021

http://wisa.bmlfuw.gv.at/wasserkarten/gewaesserbewirtschaftungsplan-2015/fluesse_und_seen/ngp_orisiko_chem_schadstoffe/ngp_orisiko_hydrologie.html

→ Risk analysis of surface water bodies in view of a possible missed targets 2021
safe risk considering the hydrology (Storage, residual water, flood) will not be accomplished

http://wisa.bmlfuw.gv.at/wasserkarten/gewaesserbewirtschaftungsplan-2015/fluesse_und_seen/ngp_orisiko_chem_schadstoffe/ngp_orisiko_gesamt.html

summary result: about Risk analysis of surface water bodies in view of a possible missed targets 2021 -> Targets will be missed.