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Mining “White Coal”: The Hydro-Electrification of the Alps, 1880-1955.

In the first half of the twentieth century, a long-standing trend in the hydrology of the Alps—Europe’s water tower—gradually began to reverse. For millennia, the thousands of glacial lakes created in the region during the previous ice age had steadily been disappearing, victims of the erosive power of flowing water. The human inhabitants of the Alpine region also contributed to this process, draining lakes to win additional farm land. After the turn of the twentieth century however, the number of Alpine lakes began to increase. These bodies of water were the products of human engineering, and from this point onwards, it was human activity that determined the hydrology of the Alps. Europeans had decided to bend rivers and move mountains in search of “white coal”: Alpine water power. The conversion of existing lakes into reservoirs and the creation of new lakes behind mighty dams were the physical expressions of a fundamental transition in the industrial European energy system. From the last quarter of the nineteenth century, until the 1950s, Alpine water power was second only to coal in Europe as an energy source for generating electricity. A postwar United Nations study estimated that Alpine water power generated one-quarter of all electricity on the continent.

My dissertation seeks to explain this fundamental energy transition. How did the idea to exploit white coal emerge? Who had the power to decide how to utilize Alpine water power? How was the scope of white coal exploitation determined? What role did environmental factors play in the exploitation of Alpine water power? Finally, what was Alpine hydroelectricity used for, and what does this reveal about European conceptions of energy, environment, and the economy? These are the main questions which my work poses. In exploring them, I hope to contribute to a better understanding of historical energy transitions and their consequences at a time when world leaders are busy debating the merits of “green” energy. By focusing on an era when the Alps were prized as a region of energy resources, I also hope to refine our historical understanding of this iconic landscape.

To answer these questions, I have turned to European historical sources concerning water management, energy, electricity, and technology. These include the archival files of regional and national governments, as well as an abundant international literature left behind by publicists, trade associations, and multiple congresses. Archival files from the Deutsches Museum in Munich shed light on efforts to convey the merits of white coal to the public.

I argue that it was European governments whose policies effected the exploitation of white coal because it fit their conceptions of the power economy—the proper way to convert, distribute, and utilize energy. Of course, notions of the power economy changed significantly during this period. The total character of the First World War marked a fundamental turning point in European energy conceptions, and these changes found expression in new manners of exploiting white coal. Before 1915, Alpine hydroelectricity was generated in small, scattered facilities for the benefit of private enterprise. Thereafter, European states promoted the systematic, large-scale development of their Alpine water resources as part of an effort to achieve national economic independence. In the interwar years, white coal became entangled between visions of cooperation and autarky in the European economy. The autarkic model gained impetus with the rise of the National Socialists in Germany. White coal played a crucial role in Nazi energy policy, most prominently in decision for *Anschluss* with Austria. In the postwar period, Alpine water power was an important aspect of the European economic recovery.