



Demonstration of Sustainable Hydropower Refurbishment

M7 Data Collection for PBF model

Work Package	WP5 – Societal services
Responsible	Agnès Barillier, EDF
Milestone reached	October 6 th 2025

Task: T5.6 - Biodiversity Footprint – Responsible: EDF, Agnès Barillier

Milestone: M7 Data Collection for PBF model

To carry out a biodiversity footprint assessment using the Product Biodiversity Footprint (PBF) approach, it is necessary to have project data available using a Life Cycle Assessment (LCA) approach and a complementary semi-quantitative approach based on the indicators defined in D.5.2.

LCA data

They concern the “construction” phase of a project and its “operation/maintenance” phase over its life cycle. The data acquired allow to assess the project's impacts relating to “reliable” LCA indicators Level I – according to chapter 3.2.3 of the commission recommendation (EU) 2021/2279 of 15 December 2021 -, namely, Climate change, Ozone depletion, Particulate Matter and Freshwater eutrophication.

The key data collected were identified based on previous LCA and Greenhouse gas (GHG) studies conducted at EDF Hydro: concrete, steel and earthworks/underground works contribute for at least 80 per cent of the total greenhouse gas emissions associated with the construction of a project; copper contributes significantly to impact categories such as eutrophication and mineral resource use.

Table 1. Quantities for LCA analysis of Vouglans Saut-Mortier (VSM).

Concrete	14 292 m ³	Different types of concrete
Steel	764 tons	Different types of Steel
Earthworks (soil)	15 000 m ³	Preparatory and main works
Construction machinery	12 536 hours	Different kinds of machines
Copper	22 tons	

GHG Reservoir emissions

As the reservoir won't be modified by the project, no new data is required (present situation is already available).

Semi-quantitative data

According to D5.1 "Hydropower pressure assessment", some indicators are not concerned or modified by the project (Fragmentation: indicators L1 to L9; Riparian zones: indicators R1 to R4). The main parameters influenced by Vouglans Saut-Mortier project are related to Flow alteration, Pollution and Aquatic habitat categories.

All key parameters for these indicators have been collected for the current situation (natural flows; hydro peaks characteristics (minimum and maximum flow, ramping rates, number of hydro peaks); fish species; habitat vulnerability; 10-year floods flow; water temperature; etc.).

For the various future hydrology scenarios, depending on climate change, the data will be retrieved from the scenarios generated by the digital twin (WP2).

DISCLAIMER / ACKNOWLEDGMENT

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This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No. 101147310