

Complete financial analysis

Arthur Guillot - Le Goff

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In this last exercise we are going to do a complete financial evaluation for your investment in a new HPP following two methodologies, one with a **fixed cost price** and another with a **variable cost price**.

Fixed cost

Setup

The investment is analysed with the respect to the investment plan for each financial item. We are going to analyse only for seven years. That correspond to the design and construction duration (5 years of construction).

Quotas for the financial items :

- Total : 67 m€
 - construction works 52,24% : 35 m€;
 - equipment 35,83% : 24 m€;
 - mechanical 8,96% : 6 m€;
 - electrical 19,4% : 13 m€;
 - hydro-mechanical 7,46% : 5 m€;
 - start-up investment 11,94% : 8 m€.

We translate those input data as the following table,

INPUT DATA			Time dynamics over the years [%]						
ITEM	Proportion [%]	Proportion [EUR]	1	2	3	4	5	6	7
Construction works	52.24	35,000,000.00	0	0	13	30	21	30	6
Equipment	35.82	24,000,000.00	0	0	2.71	4.83	21	49.67	21.79
Mechanical	8.96	6,000,000.00	0	0	0	15	35	40	10
Electrical	19.40	13,000,000.00	0	0	5	2	8	54	31
Hydromechanical	7.46	5,000,000.00	0	0	0	0	38	50	12
Start-up investment	11.94	8,000,000.00	12	11	19	17	15	14	12
Total	100.00	67,000,000.00	1.43	1.31	10.03	19.43	20.28	35.14	12.37

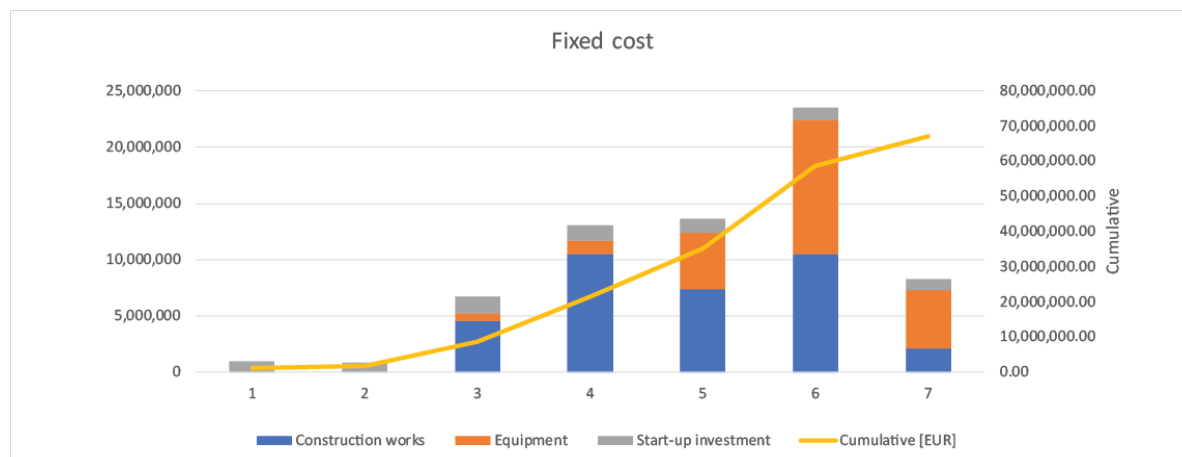
Calculation sheet

To calculate our investment cost we divide the estimated proportion cost following the time dynamics over the seven years such as:

$$Investment(y) = \frac{Dynamic(y).Proportion}{100}$$

			Time dynamics over the years [€]						
ITEM	Proportion [%]	Proportion [EUR]	1	2	3	4	5	6	7
Construction works	52.24	35,000,000.00	0	0	4,550,000	10,500,000	7,350,000	10,500,000	2,100,000
Equipment	35.82	24,000,000.00	0	0	650,400	1,159,200	5,040,000	11,920,800	5,229,600
Mechanical	8.96	6,000,000.00	0	0	0	900,000	2,100,000	2,400,000	600,000
Electrical	19.40	13,000,000.00	0	0	650,000	260,000	1,040,000	7,020,000	4,030,000
Hydromechanical	7.46	5,000,000.00	0	0	0	0	1,900,000	2,500,000	600,000
Start-up investment	11.94	8,000,000.00	960,000	880,000	1,520,000	1,360,000	1,200,000	1,120,000	960,000
Total	100.00	67,000,000.00	960,000	880,000	6,720,400	13,019,200	13,590,000	23,540,800	8,289,600

Cumulative [EUR]	960,000.00	1,840,000	8,560,400	21,579,600	35,169,600	58,710,400	67,000,000
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Variable cost

Integration of the inflation

In this method we consider some intermediate price increase following an inflation rate of $r = 1,8$ %/year.

To add the inflation to our calculus we use the parameter p as that we multiply by the intermediate *Total*.

$$p = \left(1 + \frac{r}{100}\right)^{n-1}$$

Calculation sheet

