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Study on secondary flow losses modelling in compressor cascades using Reynolds Averaged Navier-Stokes techniques

Document:

Budget

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Chapter 1

Budget Description

The aim of this document is to present the associated costs of the project. The costs will include consumed electricity, software licenses, computing equipment, and human resources.

The electricity cost will be calculated according to average kilowatt per hour price in Spain on the thesis presentation date, which is around 0.20 €/kWh. The total energy consumption has been 465 kWh, see the estimation in the project report. The software licences are usually sold as annual subscriptions. The following software licenses were required to conduct the study:

- **Microsoft 365:** Software such as Excel, for the creation of tables and quick calculations, and Word, for creation of figures, have been used. The personal annual license has a cost of 69€.
- **Matlab:** Part of the simulation data has been post-processed using Matlab language scripting. The annual price for an individual license is 860€.
- **Ansys Student:** The Ansys Student version is a limited version exclusive for academic use. It is available for free at their website.

The computer used to perform the simulations and write the thesis has the following specs:

- CPU: i5-6600
- GPU: AMD RADEON RX 480 8GB
- RAM: 16 GB
- Storage: 1TB HDD + 500GB NVME SSD

Even though it was already property of the student, its original price will be accounted for the budget, which is 1000€.

Regarding the human resources cost, 12€/h will be assigned, which represents the standard gross cost incurred by companies when hiring an undergraduate intern.

Chapter 2

Budget

Source	Time (h)	Hourly Rate (€/h)	Energy Consumption(kWh)	Electricity Fee (€/kWh)	Cost (€)
Supplies					
Electricity	-	-	465	0,2	93,00 €
Software					
Matlab	-	-	-	-	860,00 €
Office	-	-	-	-	69,00 €
Ansys	-	-	-	-	0,00 €
Equipment					
Computer	-	-	-	-	1.000,00 €
Human Resources					
Student's Dedication	600	12	-	-	7.200,00 €
Total					9.222,00 €

Table 2.1: Project Budget