

ALMADA



CITY COUNCIL

Business Plan

Reshaping Almada's Climate fund



Contents

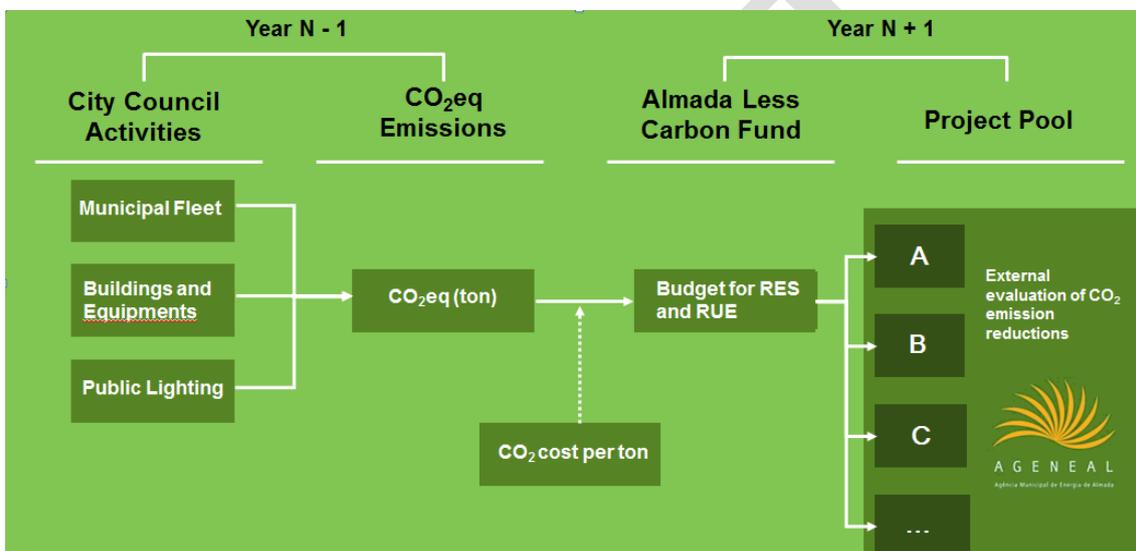
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1. Almada's Climate Fund

Almada's Municipality large range of competences and responsibilities imply the development of several activities which are associated with energy consumption and greenhouse gas emissions (GHG).

In order to reduce its carbon footprint, Almada's City Council created the Almada Less Carbon Fund in 2009, a pioneer initiative amongst local authorities in Portugal and Europe.

The Fund is a voluntary scheme which fosters the City Council's investment in energy efficiency and renewable energy. It is supported by a simple economic valuation of the GHG generated by the City Council's regular activities. In the next picture a overall approach of the fund is explained.



Once the CO₂eq annual emissions attributed to the city council's activities are computed, a price per ton of CO₂eq is defined and applied to the global emissions. The total amount that results from the computation of annual emissions and carbon price is included in the next year budget for the municipality in a specific item dedicated exclusively to investments in energy efficiency and renewable energy. The fund is managed by the Almada Municipality, integrated in its yearly budget and the technical support is given by the Local Energy Management Agency of Almada.

Based on the depicted methodology, the total amount available is applied for funding projects and measures identified in a pool of possible interventions. The selection criteria involve cost estimates, return on investment evaluation and GHG emissions reduction potential.

Projects are qualified for funding through the Almada Less Carbon Fund after an independent evaluation developed by the Local Energy Management Agency of Almada, AGENEAL, in order to guarantee that the principles of additionality and sustainability are followed. AGENEAL also ensures the monitoring and evaluation of the projects in order to quantify the real CO₂eq emission reductions achieved.

Actions already developed (main results)

Under these financing schemes a series of projects have been developed such as:

- Tele-management system for the public lighting
- Solar hot water in 100% municipal sports facilities
- 100% LED traffic lights
- Energy efficient lighting and HVAC systems in municipal buildings
- Energy certification of municipal buildings
- Electric vehicles for the municipal fleet
- Efficient lighting in historical monuments
- Use of biomass waste from parks and gardens for heat production

Two of the most impressive achievements interventions are the tele-management system for the public lighting which includes dimming and the solar hot water in 100% municipal sports facilities. The tele-management project has been able to reduce the energy needs from public lighting in roughly 40% on almost 1200 light points, i.e, a reduction of nearly 0,6 GWh and 300 tons of CO₂eq. The savings estimated, which include maintenance and electricity cost savings, point to 80.000,00€ of yearly savings. The installation of solar water on all municipal sports infrastructures resulted on a consumption reduction of natural gas of about 0,5 GWh and a reduction of almost 40.000,00€ just on energy cost savings.

Legal and financial framework

Currently there are strong overall budget constraints and public accounting rules that make investments on energy efficiency not as fast as expected. Investments, especially large amounts of public money, are severely restricted which undermines the development of projects that are not strictly associated with fundamental attributions and competencies of local authorities. Still, rising costs for energy have been perceived as an opportunity for investment although a critical factor makes it difficult to couple energy consumption and energy billing. In fact, all bill payments are concentrated on the financial office since there is still no analytical accounting although it is a project being developed by the municipality. This can come as an opportunity and also a risk for the current reshaping of the Almada's climate fund since the current scheme will need to be updated if analytical accounting is to be set-up.

2. Reshaping the Almada's Climate fund

Opportunities for improving the current scheme

The current fund scheme has been detailed in the previous section and it has been widely successful since the money for investment on projects does not come directly from the beneficiary's department budget. This has created a demand for the fund as each department management realized there could be synergies from energy efficiency projects and their own goals without spending its budget (for example: a school needs a lighting refurbishment. If a project with efficient lighting is proposed, all the investment can be made exclusively through the fund).

This has led to successful cross sectoral/interdepartment alignment on RES/RUE investment overcoming one of the most constant barriers. Also, the fact that a third party ensured the technical screening of the projects, in this case the Energy Agency, made it possible to access

more interventions (that would otherwise not be put through the screening from an energy perspective) and guarantee they are set maximizing energy efficiency.

Still, some opportunities for improvement have been defined namely the need to have a clear vision of the savings obtained and couple the fund to the savings in order to leverage it and make it more self sustained. These objectives can be perfectly obtained by transforming the fund with a revolving philosophy.

In order to take chance of the work already developed and also to minimize risks from projects from which energy savings do not generate large amounts of savings in monetary terms, a hybrid solution is defined. This solution uses the existing mechanism but mimicks the inflow to fund of energy savings and outflow to “client departments” based on the result of the projects.

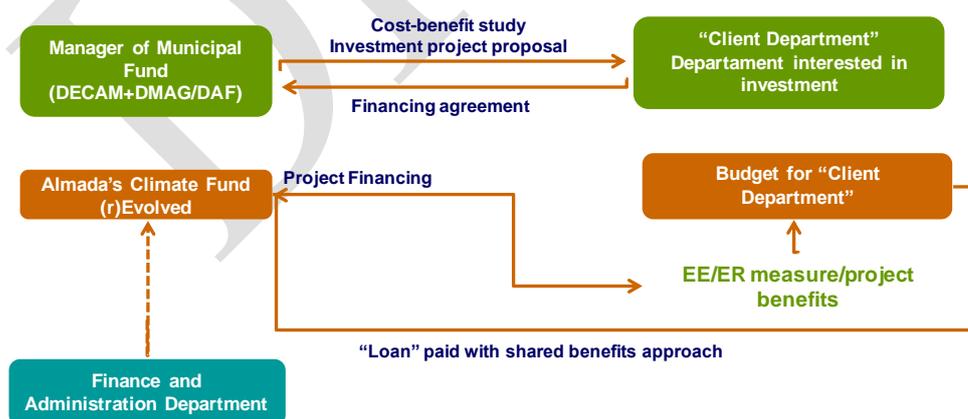
3. Almada’s climate fund (r)evolved – a first approach

Since the fund is already set up, it could be useful to maintain the current scheme of CO2 valuation to maintain a “base load” for investment. This means the fund will have a fixed budget determined yearly plus a variable portion to be fed by the savings of the projects. It will be a yearly minimum value fund (in the form of budget) with additional value from the savings derived from the investments made

The savings will then be shared between the client department and the fund with the largest benefits for the most interesting projects in terms of cost-benefit. If a project as a long payback time most savings should be directed to the fund.

Methodological approach to Almada’s climate fund (r)evolved

The scheme envisaged for the revolving fund in Almada, is supported on the one depicted in the reference documents of the project, with the necessary adaptations for the local context, following the improvements discussed in several training sessions and input from the main local stakeholders.



Adapted from “Internal performance contracting – Intracting”, Energy Cities, 2013



The shared benefits approach

The most important innovation is the shared benefits approach which assumes different sharing schemes between the fund and the “client department” based on the characteristic of the project. The main assumptions and objectives are to ensure the sustainability and leveraging of

the fund, automatically prioritize the most cost-benefit projects and to benefit directly the “client department”. This will be done with increases in the budget of the “client department” on the investment year+1 alongside with increase on the fund in a shared proportion of the savings. The need to benefit directly the “client department” comes from the fact that the energy bills are paid by the financial department and not directly by the “client department” budget. Inversely the financial department will see its budget decreased in the same proportion of savings.

For a project with a very high return on investment the proportion of savings to the fund and client department will be 50/50 until the end of the project lifetime. This ensures that the fund is reimbursed and gets extra funds if the payback time is small and the project lifetime is bigger.

Financial flows – scenario simulations

In order to better understand the financial flows of the scheme some examples were simulated:

a) Example - Project with high return on investment

Measure	year start	Department	Investment	Savings	lifetime	Payback time	Minimum Share refund to fund	Number of years to refund
LED Traffic Lights	2015	"Transit Department"	79.000,00 €	30.000,00 €	10,0	3,2	60%	5

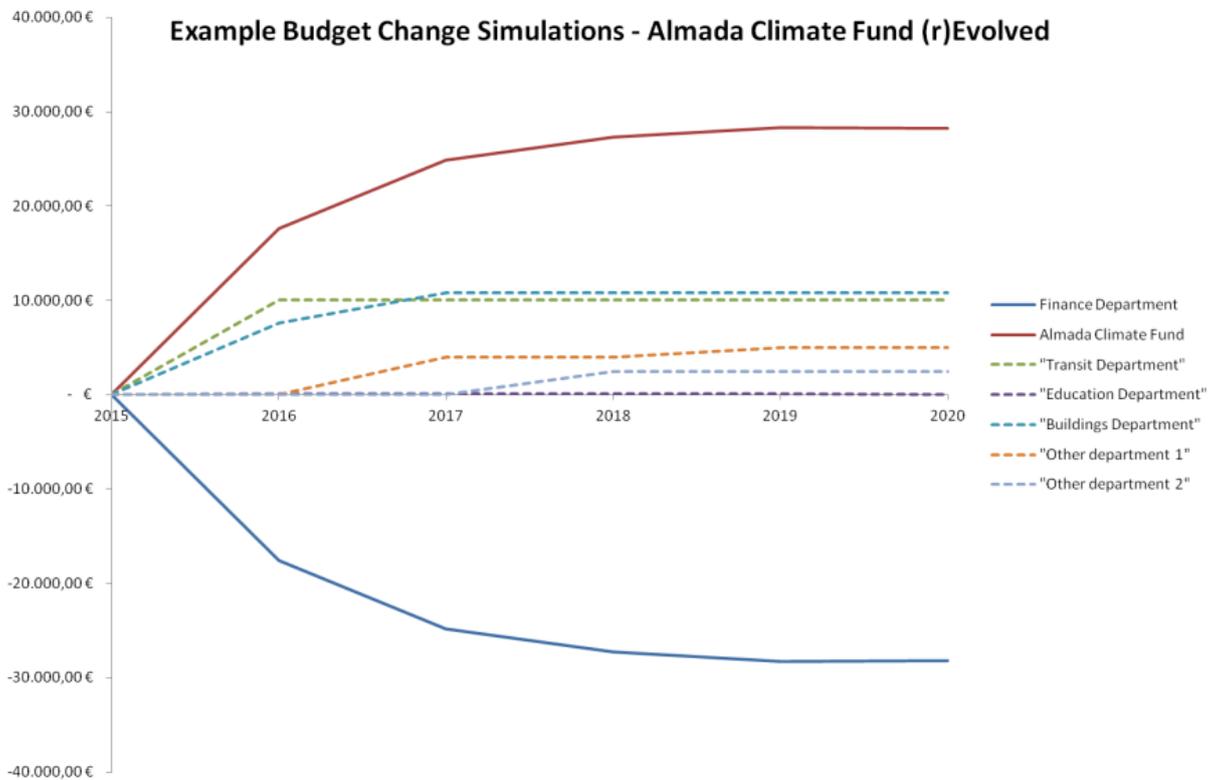
Financial Flows	To climate fund	To "client department"	From Finance Department (savings)
2015	- €	- €	- €
2016	18.000,00 €	12.000,00 €	-30.000,00 €
2017	18.000,00 €	12.000,00 €	-30.000,00 €
2018	18.000,00 €	12.000,00 €	-30.000,00 €
2019	18.000,00 €	12.000,00 €	-30.000,00 €
2020	18.000,00 €	12.000,00 €	-30.000,00 €
2021	18.000,00 €	12.000,00 €	-30.000,00 €
2022	18.000,00 €	12.000,00 €	-30.000,00 €
2023	18.000,00 €	12.000,00 €	-30.000,00 €
2024	18.000,00 €	12.000,00 €	-30.000,00 €
2025	18.000,00 €	12.000,00 €	-30.000,00 €

b) Example - Project with low return on investment

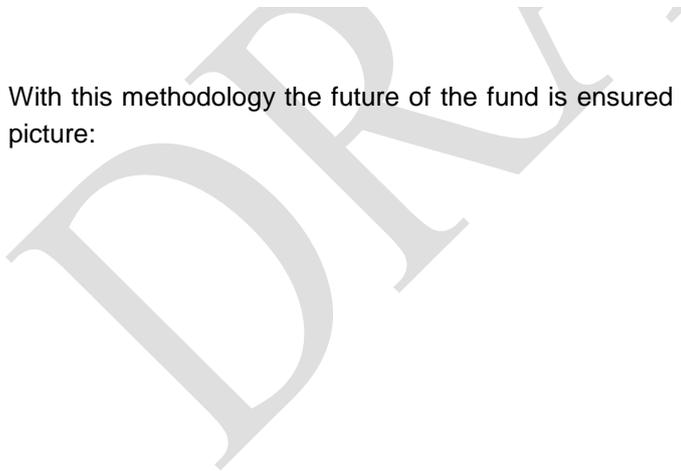
Measure	year start	Department	Investment	Savings	lifetime	Payback time	Minimum Share refund to fund	Number of years to refund
Efficient lighting schools	2015	"Education Department"	4.950,00 €	1.176,00 €	4,5	4,2	95%	4

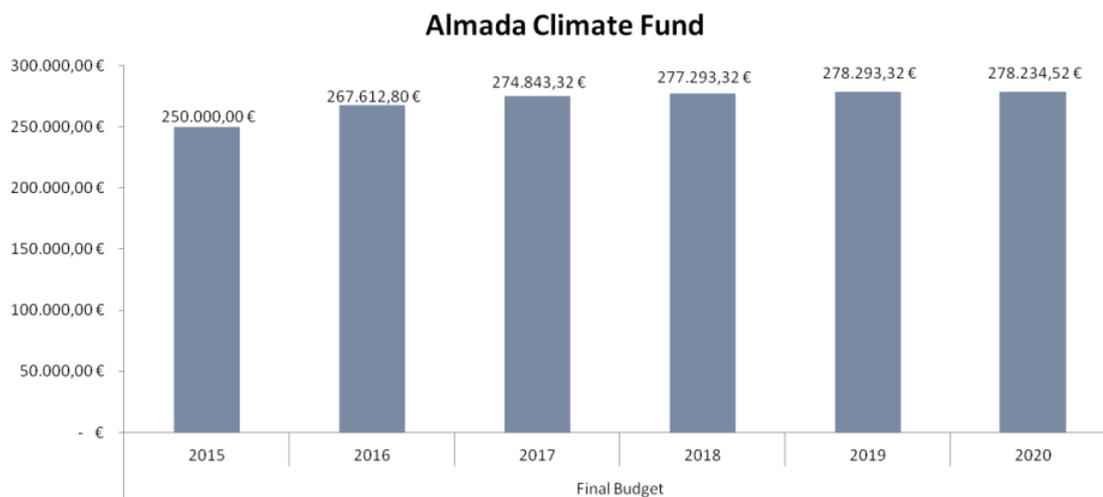
Financial Flows	To climate fund	To "client department"	From Finance Department (savings)
2015	- €	- €	- €
2016	1.117,20 €	58,80 €	- 1.176,00 €
2017	1.117,20 €	58,80 €	- 1.176,00 €
2018	1.117,20 €	58,80 €	- 1.176,00 €
2019	1.117,20 €	58,80 €	- 1.176,00 €
2020	- €	- €	- €

A set of measures were simulated for having an example on how the future financial flows can be if several measures are introduced in several different years. The next graph shows a possible evolution of the fund if these measures are implemented in several departments:



With this methodology the future of the fund is ensured as it is possible to see on the next picture:





4. Internal procedure Standard

An internal procedure standard has been developed and it comprise the main components:

- Step 0: Energy Bill/Energy Audit → Measures proposal and cost benefit analysis – CO₂, kWh, € (AGENEAL) – check partial or total funding. “Client Department” can suggest measures.
- Step 1: Agreement on measure implementation → DECAM/DAF and “client department”
- Step 2: Agreement signature → includes measure definition, savings expected, ROI, Energy Savings Index, Benefits Sharing Scheme, penalties for no-compliance
- Step 3: Investment made by climate fund
- Step 4: Annual monitoring of measure (DECAM/DAF/AGN and “client department”)
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5. Internal Contract

The internal contract to be developed for each measure (see draft in annex I) and will include the following contents:

- **Measure**: Definition of measure, expected savings (kWh, €), ROI, lifetime
- **Energy Savings Index**: Based on quotient between lifetime/ROI>1 (evaluate exceptions for ancillary benefits, pilots, opportunities)
- **Benefits Sharing Scheme**: Percentage of savings going to the fund (X) and to client department (Y). The better the energy savings index the higher the percentage to client department.
- **Financial Flows**: Budget for year+1 increased by X to the fund, Y to client department and $-(X+Y)=Z$ to financial department.
- **Term of finance flows**: Lifetime of measure – ensure refunding **and** leveraging of the fund

- **No compliance procedure:** Requirements for operation defined. If “client department” does not operate correctly no compensation on year of faulty procedure. If faulty procedure keeps on, penalty on next years budget (-X).

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