

# Mozambique: Commercial and Industrial (C&I) Solar Applications

## *Model Business Case: On-grid C&I Solar Project*



### INTRODUCTION

Commercial and industrial (C&I) solar applications offer businesses the opportunity to save costs, particularly those operating in off-grid areas that often depend on expensive diesel generators for power. For grid-connected businesses, investing in C&I solar only makes sense if the electricity they purchase from the utility is either more expensive than the solar technology or if the service is unreliable. Mozambique's electricity network, which is operated by the national power utility, Electricidade de Moçambique (EDM), is not yet fully interconnected, with three separate grids in the country's southern, central and northern geographic regions. The southern grid in the provinces nearest to the capital, Maputo, is fairly reliable, with few reported prolonged power outages. In contrast, the central and northern grids are less reliable and experience more outages

Grid electrification represents the least-cost option for the majority of the population, driven mainly by the relatively low energy supply cost for EDM, which sources the majority of the country's power from the Cahora Bassa Hydropower Plant at very low cost.<sup>1</sup> The EDM tariff for medium voltage customers is thus relatively inexpensive at approximately EUR 0.07/kWh, which means businesses are disincentivised from investing in alternative power solutions such as solar, except in cases where there is considerable diesel power usage.

1) "Mozambique Geospatial Options Analysis: Towards Universal Electrification," Prepared for the World Bank by Massachusetts Institute of Technology, Tata Power Delhi Distribution Limited, and IIT-Comillas, (February 2019).

## TARGET AUDIENCE

This Model Business Case (MBC) analyses the financial feasibility of a hypothetical C&I solar PV project serving a grid-connected industrial facility in Mozambique (“the Project”). This MBC assesses whether it makes economic sense for the industrial facility to invest in a C&I solar installation (i.e., if this transition would save the business money). The solar PV system includes batteries, and the output of the system will be fully consumed by the customer to completely replace EDM grid electricity and diesel back-up power. No surplus electricity production is fed into the grid.

A detailed financial analysis of the Project was conducted on a lease-to-own (LTO) basis to determine its viability and its cost savings potential. The target audience of this MBC includes (but is not limited to):

- Owners or lessors of grid-connected commercial, agricultural or industrial property who might consider solar PV to reduce electricity costs; and
- Project developers and their investors, who may be interested in pursuing opportunities for development of C&I solar projects in Mozambique.

## KEY ASSUMPTIONS

This MBC is based on several assumptions which are described below. The assumptions presented in the analysis are mainly based on publicly available information gathered through desk research and local stakeholder interviews. A detailed feasibility study would be required to determine the actual applicable costs and parameters for specific projects.

### Technical assumptions

**Table 1** presents the assumptions related to the C&I customer load characteristics, largely based on data obtained from existing large-scale industrial facilities in Mozambique. It is assumed that the C&I customer is located in the northern province of Nampula with poor grid stability and utilises a diesel generator for back-up power.

**TABLE 1.** Customer load characteristics

CUSTOMER LOAD CHARACTERISTICS	UNIT	VALUE
EDM customer category	-	Medium Voltage <sup>2</sup>
Maximum power demand	kW	264 <sup>3</sup>
Annual electricity consumption	kWh	604,800 <sup>4</sup>
Portion of annual load supplied by grid	%	75% <sup>5</sup>
Portion of annual load supplied by diesel generator	%	25% <sup>6</sup>

2) Based on data obtained from a local C&I facility.

3) Based on data obtained from a local C&I facility.

4) Based on data obtained from a local C&I facility.

5) Assumption based on local stakeholder consultations.

6) Assumption based on local stakeholder consultations.

Table 2 presents the assumptions related to the diesel generator capacity and costs.

**TABLE 2.** Diesel generator characteristics

PARAMETERS	UNIT	VALUE
Diesel generator capacity	kW	400 <sup>7</sup>
Diesel generator CAPEX	EUR/kW	€239 <sup>8</sup>
Diesel generator lifetime	Years	10 <sup>9</sup>
<b>Annualised capital cost</b>	<b>EUR/year</b>	<b>€9,566<sup>10</sup></b>
Diesel price per litre	EUR/litre	€1.32 <sup>11</sup>
<b>Annual diesel cost</b>	<b>EUR</b>	<b>€80,031<sup>12</sup></b>
<b>Annual O&amp;M costs</b>	<b>EUR</b>	<b>€7,141<sup>13</sup></b>
<b>Total diesel power annual cost</b>	<b>EUR/year</b>	<b>€96,738<sup>14</sup></b>

Table 3 presents the assumptions related to the technical parameters of the C&I solar power system.

**TABLE 3.** Solar PV system technical assumptions

SOLAR PV SYSTEM PARAMETERS	UNIT	VALUE
PV system capacity	kWp	668 <sup>15</sup>
Battery capacity	kWh	3,900 <sup>16</sup>
Inverter capacity	kW	600 <sup>17</sup>
Annual module degradation	%	0.5% <sup>18</sup>

7) Based on data obtained from a local C&I facility.

8) Based on local data obtained from pre-feasibility studies conducted by FUNAE. This translates to a total diesel generator CAPEX of EUR 95,656 (i.e., EUR 239/kW multiplied by 400kW).

9) Based on data obtained from a local C&I facility.

10) Derived by dividing the diesel generator CAPEX by its lifetime.

11) Mozambique Diesel Prices, 16-Jan-2023; [https://www.globalpetrolprices.com/Mozambique/diesel\\_prices/](https://www.globalpetrolprices.com/Mozambique/diesel_prices/). It is worth noting that diesel is more expensive in other provinces outside Maputo. This higher cost was not considered in the analysis. Factoring this higher cost into the analysis will result in higher cost savings to the C&I facility switching to solar power.

12) Based on a diesel consumption rate of 0.4 litre/kWh (Annaratone D., Steam Generators: Description and Design. Milano: Springer, 2007).

13) Based on a fixed O&M cost of US\$15/kW and a variable (non-fuel) O&M cost of US\$0.01/kWh (Source: <https://www.mdpi.com/2071-1050/9/3/372/pdf>; and Lazard's Levelized Cost of Energy Analysis).

14) Derived by adding the annual diesel cost, the annualised capital cost and the annual O&M cost.

15) Sized based on the total power demand of the C&I facility.

16) Sized based on the total power demand of the C&I facility.

17) Sized based on the total power demand of the C&I facility.

18) "Uganda: Captive Power - Model Business Case: Solar PV for Commercial and Industrial Facilities," GET.invest Market Insights, (2020): [https://www.get-invest.eu/wp-content/uploads/2020/11/GETinvest-Market-Insights\\_UGA\\_Captive\\_MBC-Facilities\\_2019.pdf](https://www.get-invest.eu/wp-content/uploads/2020/11/GETinvest-Market-Insights_UGA_Captive_MBC-Facilities_2019.pdf)

### Macroeconomic assumptions

The Euro (EUR) to Mozambican metical (MZN) exchange rate is assumed to be 66.5.<sup>19</sup> Based on projections for Mozambique, annual inflation is assumed to be 6% over the life of the Project,<sup>20</sup> while the annual MZN to EUR depreciation is assumed to be 1.5%.<sup>21</sup>

### Taxes

A corporate income tax rate of 32% was applied to the Project. A standard Value Added Tax (VAT) rate of 16% is applicable to the equipment and services required for the Project in addition to an import duty of 7.5% on any imported equipment.<sup>22</sup> Two scenarios were considered for the analysis: (i) a scenario with VAT and import duty exemptions; and (ii) a scenario without VAT and import duty exemption. A VAT rate of 9.92% (62% of 16%) was applied to the customer’s grid electricity tariffs, as EDM levies VAT on only 62% of end-users’ total invoices.<sup>23</sup>

### Capital costs

Table 4 presents the capital cost assumptions for the Project.<sup>24</sup> The estimated costs are based on data obtained from local stakeholders. It is assumed that the system will be depreciated via straight line depreciation over its 25-year lifetime at a rate of 4% per year.

**TABLE 4.** Capital cost assumptions

CAPITAL COSTS	UNIT	UNIT COST	TOTAL COST WITH VAT AND DUTY EXEMPTION	TOTAL COST WITHOUT VAT AND DUTY EXEMPTION
Solar PV cost <sup>25</sup>	EUR/kWp	€1,385 <sup>26</sup>	€741,842	€925,077
Battery cost	EUR/kWh	€179 <sup>27</sup>	€560,936	€699,488
Development costs	EUR/kWp	€150 <sup>28</sup>	€100,200	€100,200
<b>Total CAPEX</b>			<b>€1.40M</b>	<b>€1.72M</b>

19) Currency conversion as of 3 December 2022.

20) Mozambique Inflation Rate: <https://tradingeconomics.com/mozambique/inflation-cpi>

21) Calculated based on MZN/EUR historical exchange rate data.

22) PwC: <https://taxsummaries.pwc.com/mozambique/corporate/taxes-on-corporate-income>; <https://taxsummaries.pwc.com/mozambique>; and <https://www.get-invest.eu/market-information/mozambique/>

23) EDM Business Plan 2020-2024: <https://www.edm.co.mz/sites/default/files/documents/Reports%2C%20Reports%20and%20Accounts/BUSINESS%20PLAN%202020-2024.pdf>

24) Capital costs include the cost of the power generation system (solar PV modules and inverters), the battery bank, balance of plant (mounting structures, cables, etc.), cost of freight, taxes (onshore and offshore), applicable duties, project development costs, design and installation costs.

25) Includes cost of modules, inverter and balance of plant.

26) Based on local data gathered from pre-feasibility studies conducted by FUNAE.

27) Based on local data gathered from pre-feasibility studies conducted by FUNAE.

28) Based on local stakeholder consultations.

## Operating costs

The Operations and Maintenance (O&M) costs will be borne initially by the leasing company during the lease term, while the customer will bear these costs (including the battery and inverter replacement costs) after the lease term. It is assumed that the annual O&M cost will be 1.5% of the total capital cost of the Project.<sup>29</sup> It is also assumed that the O&M cost will escalate by 6% annually in line with inflation. **Table 5** presents the assumed costs of battery replacement in the 8<sup>th</sup>, 15<sup>th</sup> and 22<sup>nd</sup> year of operation and inverter replacement in the 16<sup>th</sup> year of operation. The replacement costs are based on an annual price reduction assumption of 3% compared to the initial investment.<sup>30</sup>

**TABLE 5.** Component replacement cost assumptions

COMPONENT	TOTAL COST WITH VAT AND DUTY EXEMPTION	TOTAL COST WITHOUT VAT AND DUTY EXEMPTION
Battery replacement cost – Year 8 <sup>31</sup>	€439,630	€548,219
Battery replacement cost – Year 15 <sup>32</sup>	€355,214	€442,951
Battery replacement cost – Year 22 <sup>33</sup>	€287,006	€357,897
Inverter replacement cost – Year 16 <sup>34</sup>	€52,042	€64,897

## Grid electricity costs

Electricity tariffs for commercial and industrial customers in Mozambique include active power charges, reactive power charges, maximum demand charges, loss charges and fixed charges.<sup>35</sup> These grid power charges are completely eliminated with the installation of the captive solar power plant. **Table 6** presents the grid electricity cost assumptions used in the model, which are based on the electricity bill of an existing industrial facility and are in line with EDM charges for medium voltage customers. It is also assumed that grid electricity costs will escalate by 6% annually in line with inflation.

29) [https://www.get-invest.eu/wp-content/uploads/2020/11/GETinvest-Market-Insights\\_UGA\\_Captive\\_MBC-Facilities\\_2019.pdf](https://www.get-invest.eu/wp-content/uploads/2020/11/GETinvest-Market-Insights_UGA_Captive_MBC-Facilities_2019.pdf)

30) Zambia: Solar PV and Hydro Mini-Grids: Model Business Case: Solar PV Mini-Grid for Rural Electrification," GET.invest Market Insights, (2020): [https://www.get-invest.eu/wp-content/uploads/2020/10/GETinvest-Market-Insights\\_ZMB\\_Mini-grid\\_-MBC-Solar\\_2019-1.pdf](https://www.get-invest.eu/wp-content/uploads/2020/10/GETinvest-Market-Insights_ZMB_Mini-grid_-MBC-Solar_2019-1.pdf)

31) "Open Sourcing Infrastructure Finance for Mini-Grids," Crossboundary Energy Access, (2020); and <https://www.solarreviews.com/blog/are-lithium-ion-the-best-solar-batteries-for-energy-storage>

32) Ibid.

33) Ibid.

34) Based on an initial cost of EUR 176/kWp inclusive of VAT (Source: Uganda: Captive Power - Model Business Case: Solar PV for Commercial and Industrial Facilities, GET.invest Market Insights, 2020).

35) EDM Electricity Tariffs: <https://www.edm.co.mz/en/website/page/electricity-tariffs>

**TABLE 6.** Customer grid electricity cost assumptions

COST COMPONENT	UNIT	UNITS/MONTH	COST/UNIT (MZN)	COST/UNIT + VAT (MZN)	TOTAL COST (INCLUDING VAT) (MZN)	TOTAL COST (INCLUDING VAT) (EUR)
Active power charge	kWh	37,800	4.78	5.25	198,608	2,988
Reactive power charge	kVArh	12,450	1.43	1.57	19,583	295
Loss charge	kWh	505	4.78	5.25	2,653	40
Peak demand charge	kW	264	497.03	546.34	144,145	2,168
Monthly flat fee	-	-	3,207.25	3,525.41	3,525	53
<b>Total monthly cost</b>					<b>MZN 368,515</b>	<b>€5,543</b>

### Financing structure and lease assumptions

It is assumed that the Project will be deployed on a LTO basis. Under this structure, the solar provider/leasing company finances and installs the solar PV system at the customer's premises and leases it to the customer for a fixed monthly leasing fee over an agreed upon period of time, after which the system is transferred to the client. Two scenarios were considered: (i) a scenario where the customer is required to make an upfront payment of 20% of CAPEX, while the leasing company provides an additional 20% equity; and (ii) a scenario where the customer makes no upfront payment, and the leasing company provides 40% equity. Table 7 presents the assumptions of the Project lease terms under each scenario.

**TABLE 7.** Project lease assumptions

PROJECT LEASE TERMS	UNIT	WITH VAT AND DUTY EXEMPTION		WITHOUT VAT AND DUTY EXEMPTION	
		VALUE (20% UPFRONT)	VALUE (0% UPFRONT)	VALUE (20% UPFRONT)	VALUE (0% UPFRONT)
Customer upfront payment <sup>36</sup>	EUR	€280,596	€0	€344,953	€0
Fixed monthly leasing fee	EUR	€26,739	€34,568	€32,872	€42,496

It is assumed that the balance of the capital costs will be credit financed via EUR-denominated debt at an interest rate of 8.5% by the leasing company over the lease term.<sup>37</sup> The LTO term is assumed to be seven years under both scenarios.<sup>38</sup> It is also assumed that the required rate of return for the leasing company to consider the Project attractive is 15%.<sup>39</sup> It is worth noting that the monthly leasing fee assumptions represent the minimum fees required to achieve this target equity return.

36) Derived by multiplying the total CAPEX under each scenario by the required customer upfront payment percentage.

37) Local stakeholder consultations.

38) <https://news.energysage.com/solar-leases-vs-ppas/>

39) "CrossBoundary Energy fully exits first fund at 15% net internal rate of return (IRR), raises \$40M to continue to scale financed solar for businesses in Africa," CrossBoundary Energy, (17 November 2020).

## RESULTS

Based on the assumptions described above, the financial analysis yielded the following conclusions:

- The target leasing company EIRR of 15% is achieved under all the four scenarios considered. The Project's minimum Debt Service Coverage Ratio (DSCR) is also above the threshold of 1.2 typically required by lenders (meaning that the generated cashflows will be sufficient to service debt) under all scenarios.
- Under the 20% upfront scenario with exemptions, the Project is attractive with a project IRR of 8%, project payback period of 6 years, 41% average annual customer cost savings, total customer cost savings of EUR 3.07M and customer payback period of 14 years.
- Under the 0% upfront scenario with exemptions, the Project is more attractive to the leasing company, with a project IRR of 9.5% and project payback period of 5 years; however, it is less attractive to the customer, with 36% average annual customer cost savings, total customer cost savings of EUR 2.70M and customer payback period of 17 years due to the higher total lease payments.
- Under the 20% upfront scenario without exemptions, the Project is also attractive to the leasing company, with a project IRR of 8% and project payback period of 6 years; however, it is much less attractive to the customer, with 27% average annual customer cost savings, total customer cost savings of EUR 2.03M, and longer customer payback period of 19 years due to the higher lease payments required to cover the higher CAPEX resulting from VAT and import duties.
- Under the 0% upfront scenario without exemptions, the Project is still attractive to the leasing company, with a project IRR of 9.5% and project payback period of 5 years; however, it is least attractive to the customer, with 21% average annual customer cost savings, total customer cost savings of EUR 1.57M, and the longest customer payback period of 20 years.

The results of the financial analysis are summarised in [Table 8](#).

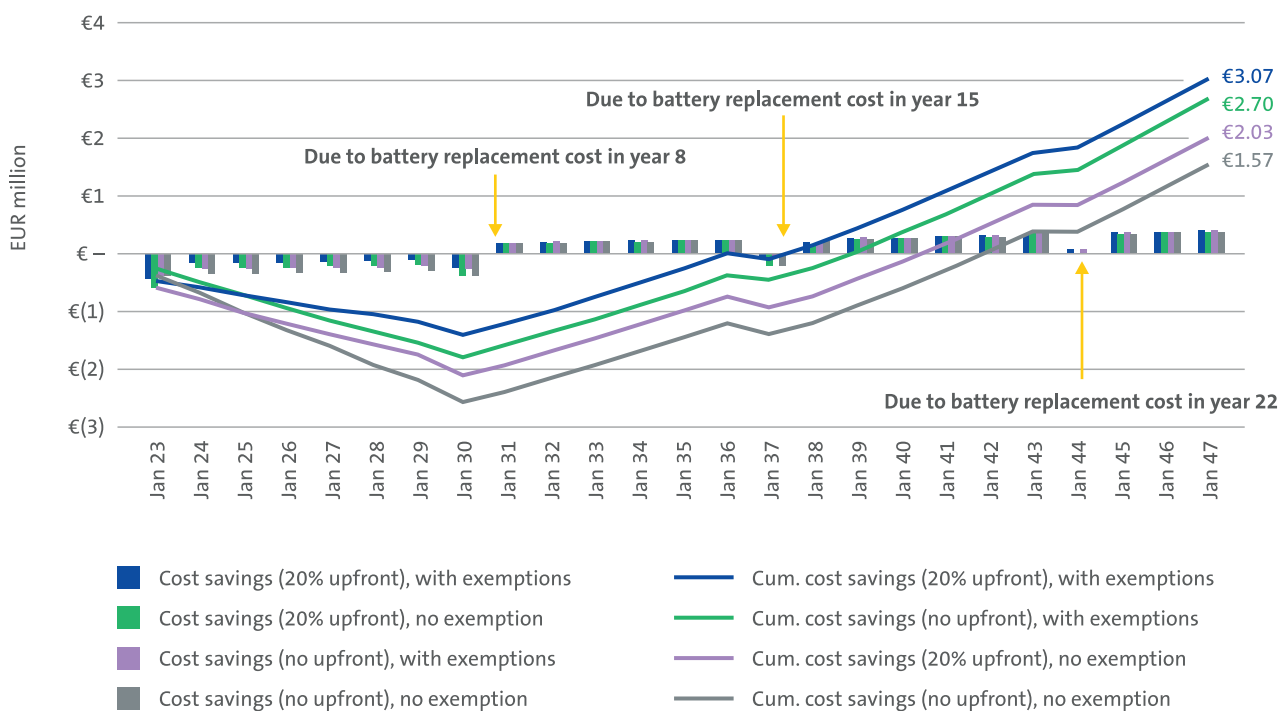
**TABLE 8.** Financial analysis results

INDICATOR	WITH VAT AND DUTY EXEMPTION		WITHOUT VAT AND DUTY EXEMPTION	
	20% UPFRONT	0% UPFRONT	20% UPFRONT	0% UPFRONT
<b>CUSTOMER</b>				
Avg. annual electricity cost without solar	€301,187		€301,187	
Avg. annual cost savings	€122,975	€107,896	€81,300	€62,762
Avg. annual cost savings (%)	40.8%	35.8%	27.0%	20.8%
Total cumulative cost savings	€3.07M	€2.70M	€2.03M	€1.57M
Total lease payment (including upfront)	€2.53M	€2.90M	€3.11M	€3.57M
Positive cumulative cost savings year	14	17	19	20
<b>LEASING COMPANY</b>				
Total lease payments received (excluding upfront)	€2.25M	€2.90M	€2.76M	€3.57M
Total operating expenses	€175,887		€216,228	
LCOE	€0.19		€0.23	
Net CF to leasing company	€385,934	€577,625	€474,451	€710,109
After tax equity IRR	15.0%	15.0%	15.0%	15.0%
After tax project IRR	8.0%	9.5%	8.0%	9.5%
Equity NPV	€0	€0	€0	€0
Project payback period (years)	6	5	6	5
Avg. DSCR	1.47	1.91	1.47	1.91
Min. DSCR	1.28	1.64	1.28	1.64



Figure 1 illustrates the estimated annual electricity cost savings that can be realised by the customer with the installation of a solar PV system over the lifetime of the solar system under all scenarios. As shown, the customer’s electricity expenditure with solar PV is higher than the avoided grid and diesel power costs during the initial 7 years due to the lease payments. After the lease contract ends, the customer begins to accumulate savings, with dips in savings recorded in Years 8, 15 and 22 due to battery replacement costs. At the end of 25 years, the customer’s cumulative cost savings are higher under the 20% upfront scenario due to lower total lease payments.

FIGURE 1. Customer annual electricity cost savings



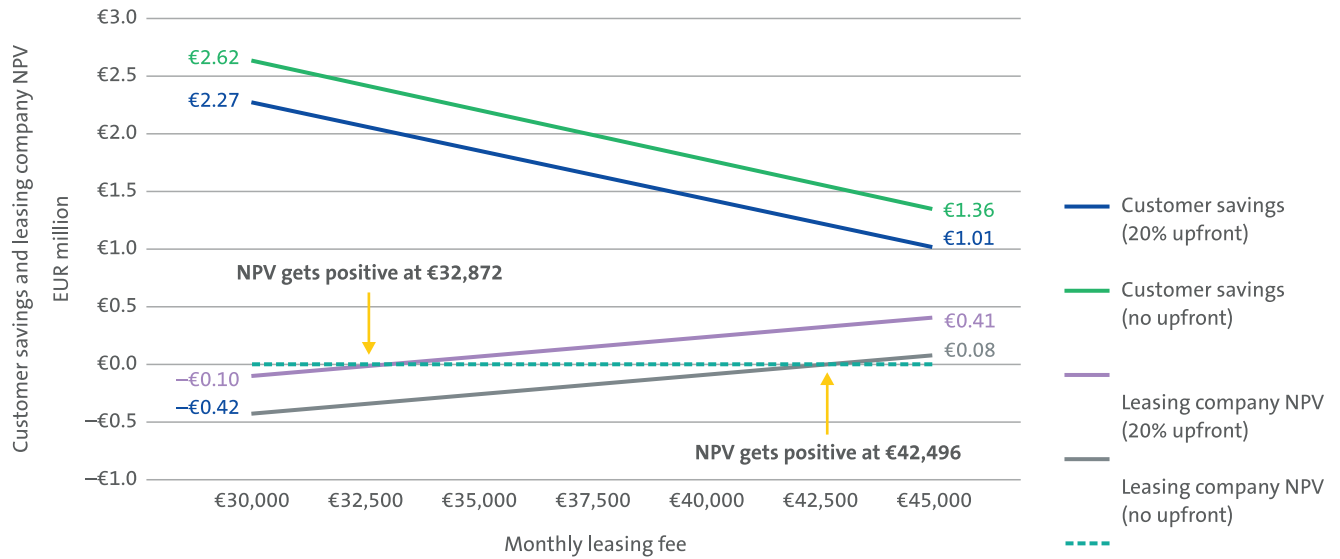
## SENSITIVITY ANALYSIS

A sensitivity analysis was conducted to determine the impact of changes in key assumptions on the customer savings and leasing company equity NPV, as well as on the leasing company’s EIRR and minimum DSCR as measures of the viability of the Project under the scenario without VAT and import duty exemption.

### Monthly leasing fee scenarios

Figure 2 presents the impact of increases in the fixed monthly leasing fee on the total customer cost savings and the leasing company’s equity NPV. The results show that the leasing company can only achieve a positive NPV by charging a monthly leasing fee of at least EUR 32,872 and EUR 42,496 under the 20% upfront and 0% upfront scenarios, respectively, while the total customer cost savings stay positive.

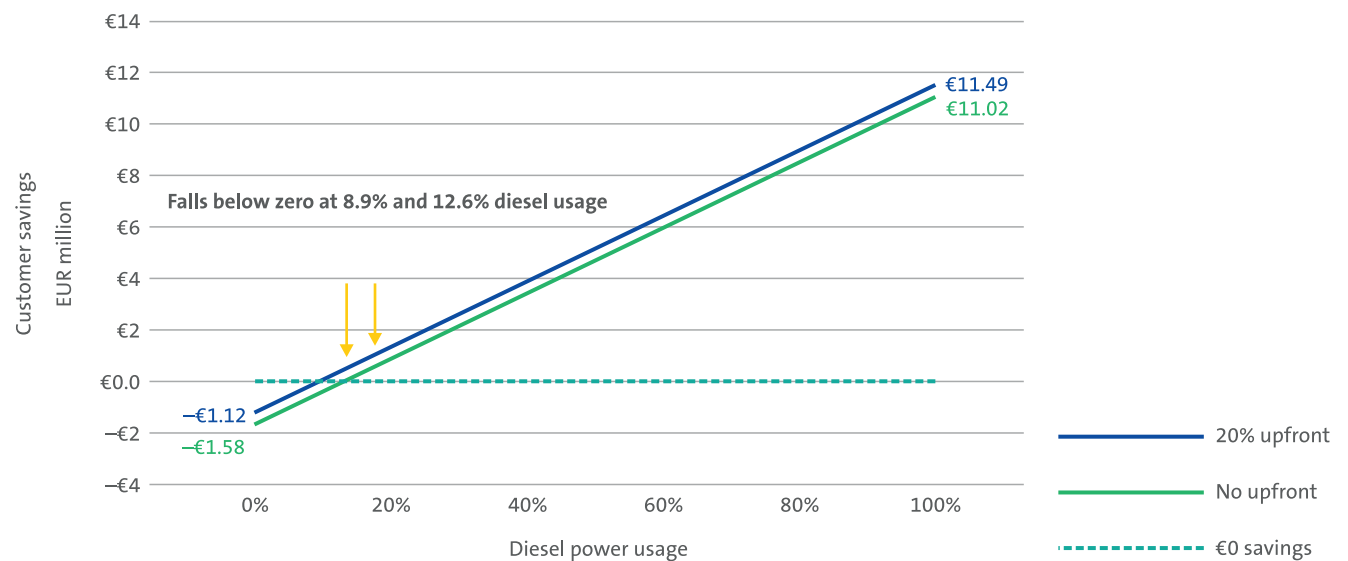
**FIGURE 2.** Customer savings and leasing company equity NPV at various monthly leasing fees



**Diesel power usage scenarios**

Figure 3 shows the impact of increases in diesel power usage on the total customer cost savings. The results show that the Project will result in losses to the customer at diesel power usage levels below 8.9% and 12.6% under the 20% upfront and 0% upfront scenarios, respectively. This reveals that the Project will not be viable without diesel usage at the prevailing grid tariff levels.

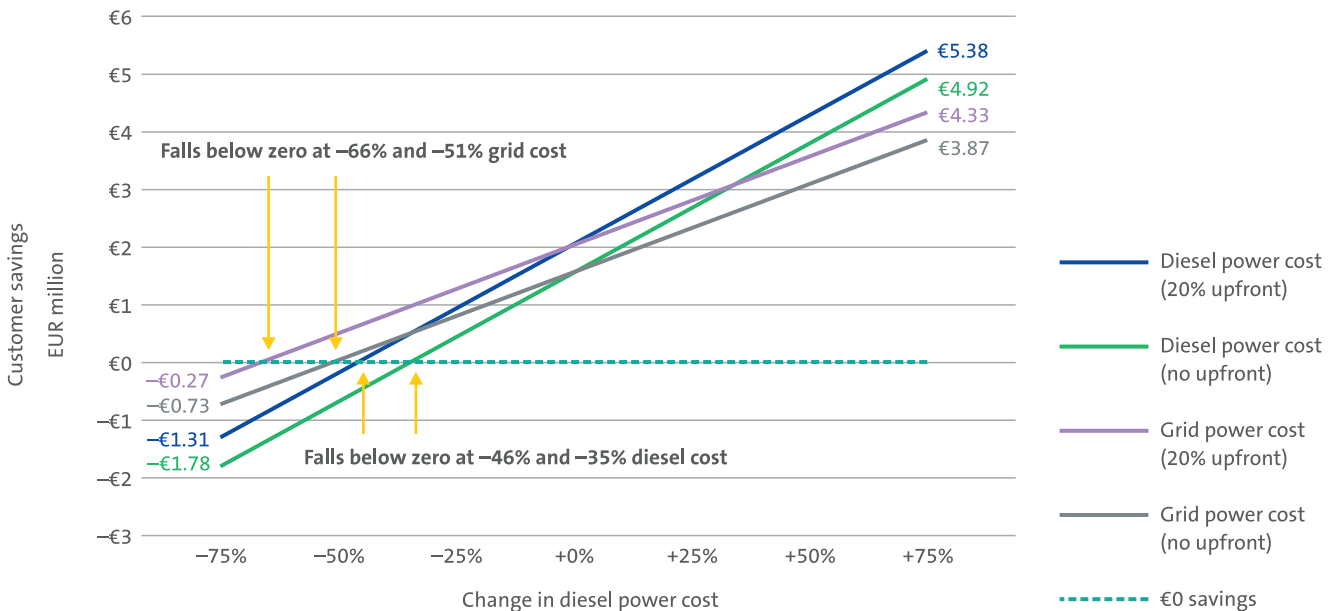
**FIGURE 3.** Customer savings at various diesel power usage levels



### Diesel and grid power cost scenarios

Figure 4 shows the impact of increases in diesel and grid power costs on the total customer cost savings. The results show that the customer will incur losses if the cost of diesel power decreases by 46% and 35% under the 20% upfront and 0% upfront scenarios, respectively or if the cost of grid power decreases by 66% and 51% under the 20% upfront and 0% upfront scenarios, respectively. This indicates that the viability of the Project is more sensitive to diesel power cost than grid power charges.

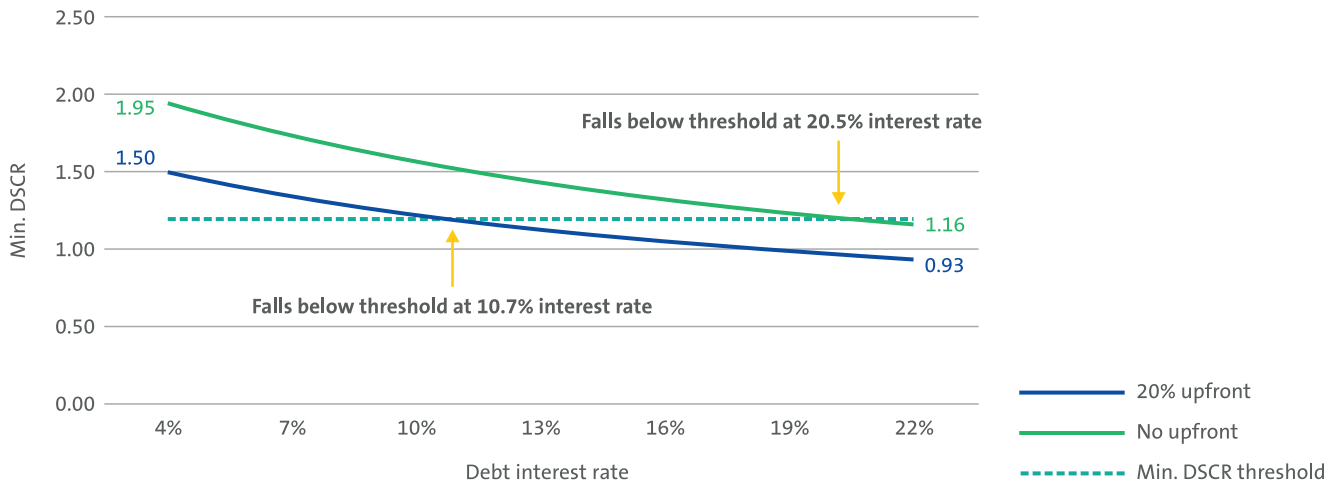
**FIGURE 4.** Customer savings at various diesel and grid power cost levels



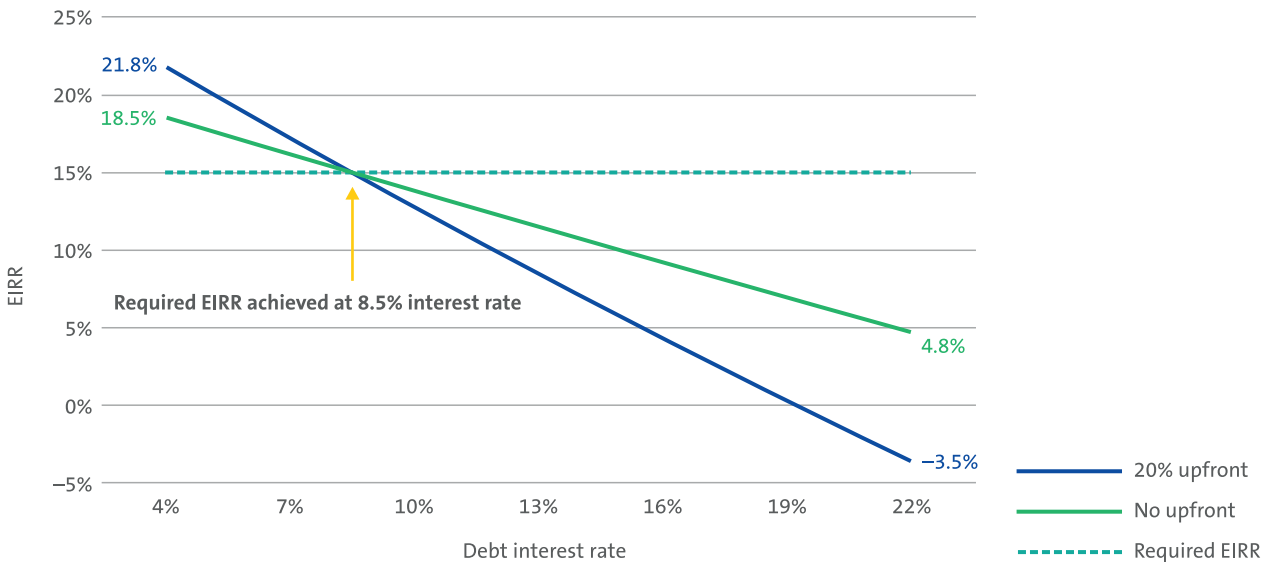
### Debt interest rate scenarios

Figure 5 and Figure 6 illustrate the impact of increases in the debt interest rate on the Project's minimum DSCR and the leasing company's EIRR. The results show that the minimum DSCR threshold will be achieved with debt priced below 10.7% and 20.5% (both above the assumed interest rate of 8.5%) under the 20% upfront and 0% upfront scenarios, respectively. This indicates that the Project cashflows will comfortably cover debt service even at high interest rates. However, higher leasing fees (resulting in lower cost savings) will be required for the leasing company's required EIRR to be achieved at debt pricing above the assumed level.

**FIGURE 5.** Minimum DSCR at various debt interest rates



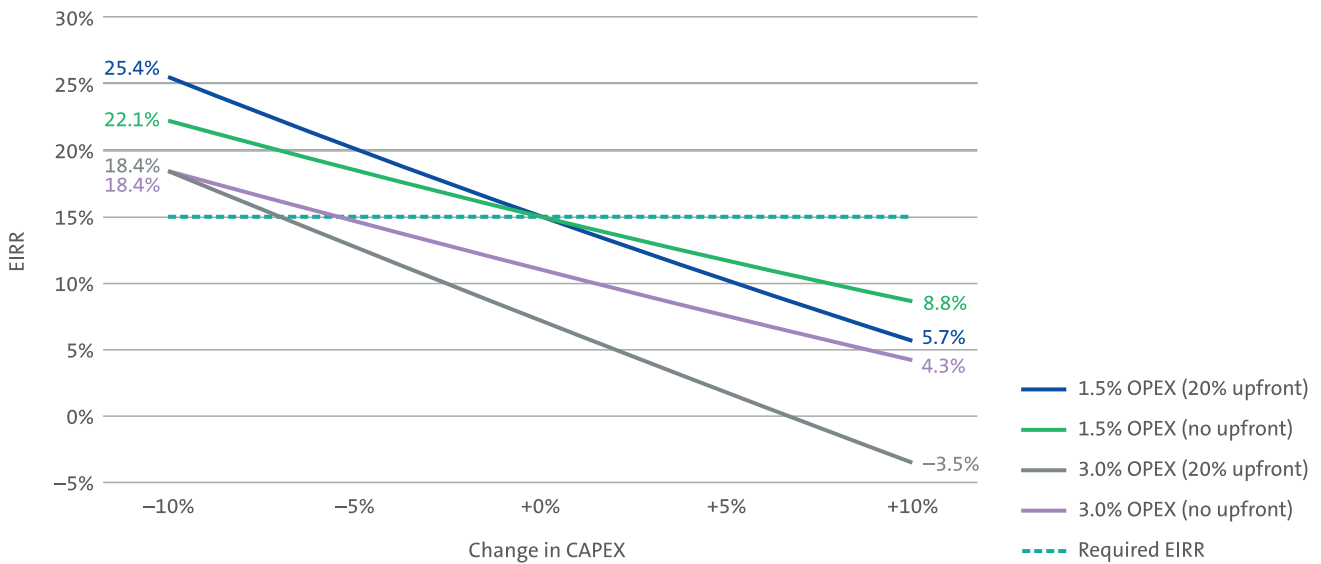
**FIGURE 6.** Leasing company equity IRR at various debt interest rates



### Solar system CAPEX and OPEX scenarios

Figure 7 presents the impact of changes in CAPEX and OPEX on the leasing company's EIRR. The analysis shows that if OPEX remains unchanged and CAPEX increases by 10%, the leasing company's EIRR will fall from 15% to 5.7% and 8.8% under the 20% upfront and 0% upfront scenario, respectively, indicating that the viability of the Project is sensitive to minor capital cost overruns.

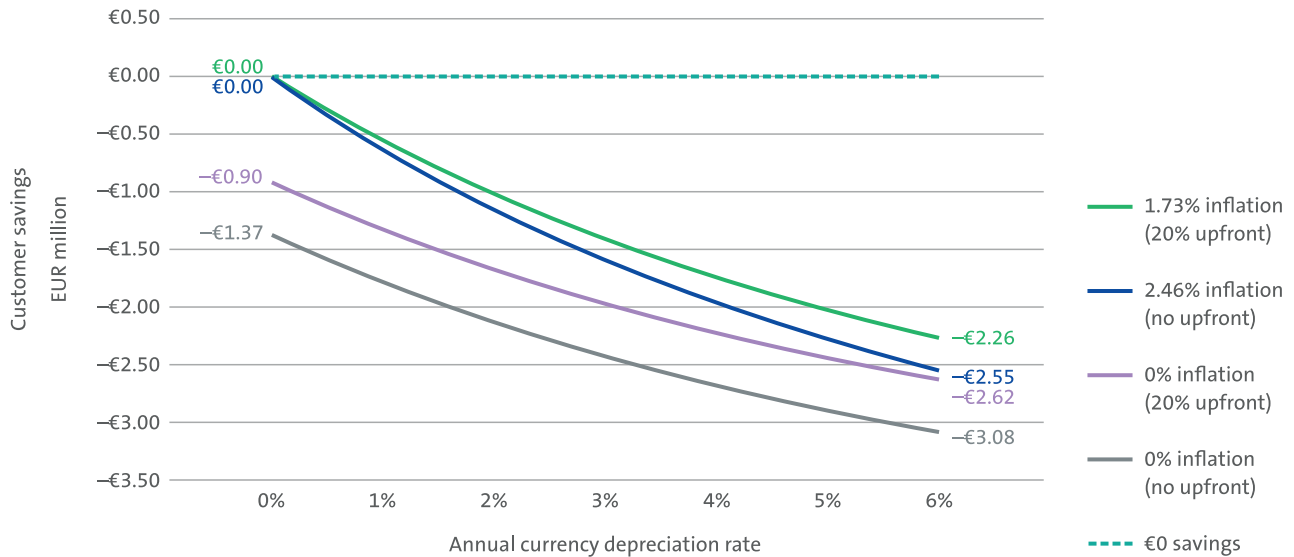
**FIGURE 7.** Leasing company equity IRR at various CAPEX and OPEX levels



### Local currency depreciation and inflation scenarios

Figure 8 shows the impact of increases in the annual local currency depreciation rate and inflation rate on the customer EIRR. The results show that even if the local currency does not depreciate, the Project will only yield cost savings if the cost of grid and diesel power escalate annually by at least 1.7% and 2.5% under the 20% upfront and 0% upfront scenario respectively. This shows that the viability of the Project will depend on annual grid tariff and diesel price increases and the volatility of the MZN.

**FIGURE 8.** Customer savings at various inflation and currency depreciation levels



## CONCLUSIONS AND KEY TAKEAWAYS

Based on the assumptions in this MBC, the Project is estimated to be attractive to both the leasing company and C&I customer under both scenarios with and without VAT and import duty exemptions – but expectedly more attractive with exemptions. The Project is also viable under the scenario where the customer makes a 20% upfront payment and the scenario with no upfront payment. The 20% upfront scenario yields higher cost savings to the customer due to the lower monthly lease payments required, while the 0% upfront scenario yields higher total payments and a shorter project payback period to the leasing company.

However, it is evident from the analysis that the viability of the Project depends heavily on the level of diesel usage by the C&I facility; the Project will not be viable without diesel usage

due to the low grid tariff in Mozambique. The Project’s viability also depends on the annual escalation of the customer’s grid and diesel power costs and the lease contract terms agreed upon between the customer and the leasing company, as well as the ability of the leasing company to manage capital costs. In addition, the leasing company will require low-cost debt in order to minimise leasing fees and provide cost savings attractive enough to the customer.

This MBC signals that C&I solar can be viable for grid-connected facilities in the central and northern regions of Mozambique with poor grid reliability and quality, particularly facilities with sensitive operational processes requiring stable, uninterrupted power supply.

## KEY DEFINITIONS

**Avg. annual electricity cost without solar** is the average annual grid and diesel power cost that the customer would have incurred without the Project over the life of the Project.

**Avg. annual customer cost savings** is the average annual cost savings realised by the customer over the life of the Project after making payments to the leasing company.

**Avg. annual customer cost savings (%)** is the average annual customer cost savings expressed as a percentage of the customer's average annual electricity cost without solar.

**Total cumulative customer cost savings** is the total cumulative cost savings realised by the customer over the life of the Project.

**Total lease payment (including upfront)** refers to the total lease payments paid to the leasing company by the customer during the lease term in addition to the upfront payment.

**Positive cumulative cost savings year** is the number of years it takes for the cumulative customer cost savings to become positive.

**Total lease payments received (excluding upfront)** is the total lease payments received by the leasing company during the lease term excluding the customer's upfront payment.

**Total operating expenses** is the total annual operating expenses incurred by the leasing company during the lease term.

**Net cashflow to leasing co.** refers to the total cashflow to the leasing company less its investment in the Project.

**After tax equity IRR** is the post-tax internal rate of return on the leasing company's equity investment after taking account of debt service.

**After tax project IRR** is the post-tax internal rate of return on the Project. It is the discount rate at which the net present value (NPV) of the Project is equal to zero.

**Equity NPV** is the net present value of the free cash flows to the leasing company using the required equity rate of return as the discount rate.

**Project payback period (years)** refers to the number of years it takes the leasing company to recover its initial capital expenditure on the Project.

**Avg. DSCR** is the average debt service coverage ratio over the life of the Project.

**Min. DSCR** is the minimum debt service coverage ratio over the life of the Project.

## ABOUT GET.INVEST MARKET INSIGHTS

The first series of GET.invest Market Insights was published in early 2019 covering four renewable energy market segments in three countries, namely: renewable energy applications in the agricultural value-chain (Senegal), captive power (behind the meter) generation (Uganda), mini-grids (Zambia) and stand-alone solar systems (Zambia).

A **Developer Guide** aims to inform project developers, private sector technology suppliers, innovators and entrepreneurs about opportunities in the commercial and industrial (C&I) solar sector in Mozambique. The Guide is organised into four main sections: **1)** introduction; **2)** overview of the C&I solar sector, including the benefits of C&I solar, key indicators to assess C&I solar potential, C&I solar market characteristics in sub-Saharan Africa, and a review of the different business models and financing arrangements applicable to the sector; **3)** description of C&I solar applications in the context of Mozambique, including a review of four C&I sectors (agricultural processing, fisheries, tourism and mining), and a profile of C&I solar suppliers that are active in the country; and **4)** “exploration of the “Route-to-Market” – i.e., how to leverage the market research presented in the Guide to engage in the C&I solar sector in Mozambique.

Accompanying the Guide are two corresponding **Model Business Cases**, which provide financial analyses for concrete business examples. The two Model Business Cases included in this package analyse: **1)** an on-grid C&I solar lease-to-own project; and **2)** a 32 kWp off-grid C&I solar project.

The GET.invest Market Insights summarise a considerable amount of data that may inform early market exploration and pre-feasibility studies. It is therefore recommended to cross-read this Developer Guide and the Model Business Cases for a comprehensive overview. The products are accessible at [www.get-invest.eu](http://www.get-invest.eu).

## ABOUT GET.INVEST MOZAMBIQUE

GET.invest is a European programme that mobilises investment in renewable energy, supported by the European Union, Germany, Sweden, the Netherlands and Austria.

Since 2019, to focus specifically on the Mozambican energy sector, the programme has been operating a country window in Mozambique funded by the European Union and Germany as part of PROMOVE ENERGIA – a comprehensive strategy between the EU and the Government of Mozambique to provide households and businesses in rural areas with access to sustainable and affordable energy. Find out more at [www.get-invest.eu/get-invest-mozambique/](http://www.get-invest.eu/get-invest-mozambique/).

## GET IN TOUCH

We welcome your feedback on the Market Insights by sharing any questions or comments via email at [info@get-invest.eu](mailto:info@get-invest.eu).

## ACKNOWLEDGMENT

This document would not have been possible without the valuable inputs, comments and feedback provided by our collaboration partners and peer reviewers.

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Place and date: Brussels, November 2023  
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