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EDP - Energias de Portugal: Accelerating Green Growth Delivery

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Abstract

This Master Thesis takes the form of an Equity Research Report on EDP – Energias de Portugal, aiming to develop a comprehensive investment recommendation regarding the company's stock. This report is part of a two-part report. This part includes a financial analysis of EDP and overview of the industry in which it operates. Additionally, it presents financial forecasts for EDP's renewable division and provides its valuation.

Keywords

Renewables, Energy Transition, Utilities, Equity Research

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This report is part of the EDP Equity Research report (annexed), developed by Duarte G. Pereira and Francisco Pinto and should be read has an integral part of it.

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Financial Analysis:

- **Revenues:**

From 2018 to 2020, EDP's revenues decreased by 18.5%, driven primarily by a reduction in Networks revenue. This trend reversed in 2021 and 2022, with revenues rising considerably by 20.4% and 37.8%, respectively. Growth in 2022 was substantial due to abnormally high Average Selling Prices in Europe. These were caused by supply disruptions following Russia's invasion of Ukraine and the subsequent European sanctions on one of its crucial energy suppliers, alongside surging demand as COVID restrictions eased. Still, revenues returned to decrease in 2023, as CS&EM revenue fell substantially.

- **Margins:**

EDP's overall margins increased in the 2018-2020 period but gradually declined from 2020 until 2022, driven by lower margins in the renewables business unit, largely due to lower margins in the US, surging then again in 2023. Currently, EDP outperforms its peers in terms of EBITDA margin (31.21% vs 27.74%), and EBIT margin (19.14% vs 16.51%).

- **ROIC:**

EDP's ROIC, ROE, and ROA remained around the same level since 2020, reaching 4.1%, 9.6%, and 2.3% in 2023. As for RONIC, it achieved an abnormally high level of 114.49% due to a jump in operational result, normalizing in the next years until reaching 4.3% in 2023. Comparing to its peers, EDP ends up underperforming in terms of ROIC (3.8% vs 13.34%), ROA (2.3% vs 3.23%), and asset turnover (27.5% vs 36.72%), suggesting the firm has not been able to generates returns from the investments at the level of its competitors. Still, the company is able to achieve a higher ROE than the industry average (9.6% vs 7.41%), meaning EDP providing its investors with a higher return, which can enhance the firm's ability to raise capital whenever needed. Also, as the company expands its renewables division, we expect ROIC, ROE, and ROA to increase along the way.

- **Liquidity:**

EDP's current and quick ratio followed an increasing trend until 2021, reaching 1.21x and 1.14x, respectively. However, they declined in 2022 to 0.91x and 0.81x, respectively, due to rising current debt and current accounts payable. In 2023, these ratios remained stable, aligning close with the industry averages of 0.89x and 0.81x, respectively. The cash ratio, after a considerable rise in 2020, declined and then stabilized at 0.25x in 2023, exceeding the industry average of 0.17x. In sum, EDP currently shows solid short-term financial health. Even though its current

ratio is below 1, this is common given the industry's characteristics and stability, and it remains in line with the industry benchmark.

- **Invested Capital:**

EDP is a capital-intensive company, with its Invested Capital in 2023 amounting to 219.5% of its revenues. This compares to a peer average of 135.7% in the same year, suggesting once again that EDP struggles to generate revenues from its investments at a level comparable to its industry counterparts. Besides, we can observe Goodwill as a percentage of revenues increasing from 15.88% in 2021 to 2022 in 20.85%, signalling the greater focus given to the firm's Asset Rotation strategy.

Currently, EDP operates with negative Net Working Capital, as well as its peers. We consider this not to be a warning sign as utility companies invest mostly on long-term assets through long-term debt and equity, not relying much on NWC, besides having low inventory requirements, and a bargaining position that allows them to receive customer payments relatively quickly and take longer to set payments to suppliers.

- **CAPEX and CAPEX needs:**

With PPE comprising 46% of its total assets, EDP has considerable capital needs, with CAPEX accounting for 36.09% of revenues in 2023. Besides, maintenance CAPEX has stayed between 3% and 4% of revenues in recent years, showing considerable requirements to maintain business. With greater efforts to expand renewable capacity, CAPEX has been increasing substantially along the years, up from 13.30% of revenues in 2018 to 36.09% in 2023. Renewables expansion CAPEX in 2023 stood at €4.3 Bn, an 107.7% increase when compared to 2020 levels, and making up 83.9% of total expansion CAPEX. This greater investment in renewables has resulted in a renewable share of 84% in generation.

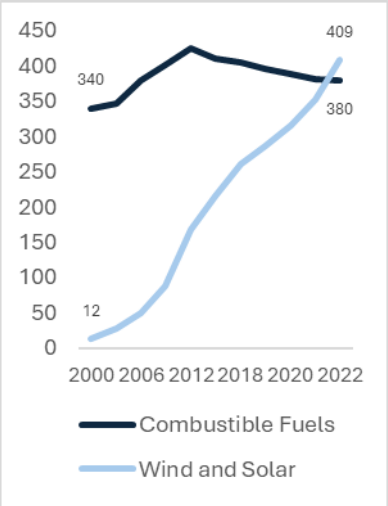
The greater investment on electricity generation assets has led to higher D&A, which had remained relatively stable from 2010 to 2020. In the 2020-2023 period, it increased 34.24%, reflecting the higher capital needs as the business expands.

- **Cash flow:**

As expected from a utilities company, Operating Cash Flow remained stable from 2018 to 2023, except for an unusually high level in 2022, due to a considerable decrease in NWC. Throughout this period, Investing Cash Flow has been increasing substantially, reflecting EDP's focus on expanding renewable installed capacity in recent years. Consequently, there are years where Free Cash Flow ends up being negative, as ICF exceeds OCF. However, in our view, this is not a concern, as these long-term investments create assets with long useful lives that will generate returns throughout several years. To finance itself, EDP issues yearly

consistent levels of debt via bank loans and capital markets, taking advantage of its strong credit rating and financial position to get access to favourable terms. Its stable cash reserves further signal EDP's financial health and business stability.

Figure 1: EU Electrical Installed Capacity per Technology (GW); Source: Eurostat



Industry Overview:

EDP operates within the utilities sector, specifically in the electric utilities and renewable energy segments, both of which have changed significantly in recent years. This way, to understand how these changes may shape EDP's future and the broader sector's direction, it is essential to provide an overview of the sector, alongside an analysis of its key trends, opportunities, and risks.

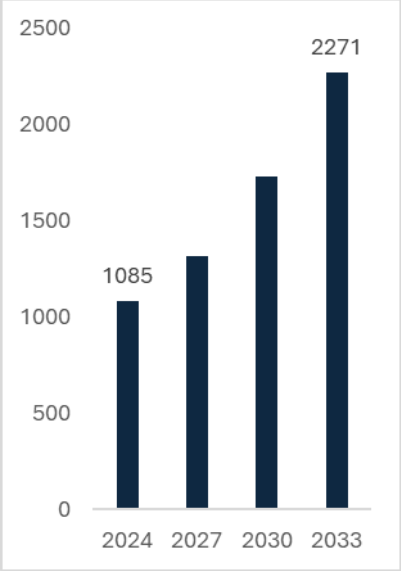
Renewable energy market:

At the start of the 21st century, the renewable energy market was relatively small. In the EU, Wind and Solar combined capacity was only 12.5 GW in 2000, compared to 340 GW from combustible fuels, according to Eurostat. By 2022, Wind and Solar capacity soared to 409 GW, while combustible fuels stayed nearly stagnant, reaching 379 GW. Today, renewable energy makes up great part of the energy market, as the rapid growth driven by cost reductions and technological improvements made it a viable alternative to fossil fuels. Renewables, which accounted for only around 20% of global annual power capacity additions in 2000, made up 86% by 2023.

Just in the last decade, global renewable capacity grew from 1700 GW in 2014, to 3870 GW in 2023, an increase of 127.7%. Looking ahead, the IEA predicts global renewable capacity to grow by 2.7 times by 2030, reaching 9763.1 GW, highlighting the substantial growth potential that still exists in the market.

In fact, according to a report from Straits Research, the global renewable energy market was valued at USD 1085 Billion in 2023, being forecasted to reach USD 2449.6 Billion by 2032, growing at a CAGR of 9.47%. This growth is supported by several trends that will act as catalysts for the sector expansion.

Figure 2: Global Renewable Energy Market Size (USD); Source: Straits Research



Trends:

Energy and infrastructure new demand drivers:

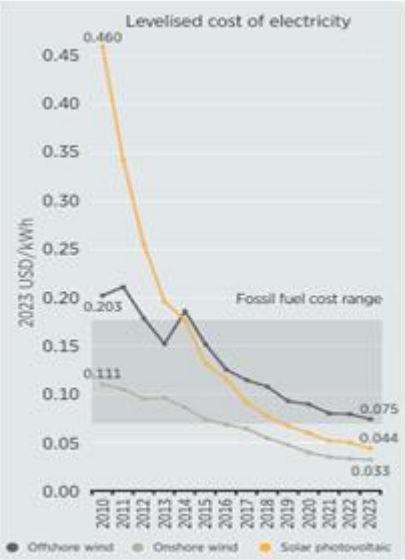
The IEA World Energy Outlook 2024 declared a new "age of electricity", driven by surging demand for air conditioning, electric vehicles, and data centres. In fact, power demand for home cooling is expected to rise by 280% by 2050 due to higher temperatures and incomes, while EVs are forecasted to dominate major European markets by 2025. Besides, in the U.S., the rapid data centre expansion is driving historical growth in power demand, fuelled by their high electricity needs, with

Figure 3: Demand for data centre capacity 2023-2030 (GW); Source: McKinsey

	2023	2030	CAGR
Upper-range scenario	55	171	19%
Midrange scenario	55	219	22%
Low-range scenario	55	298	27%

nearly 24 GW of new data centre capacity announced in the first half of 2024 alone. This way, global electricity demand is expected to grow 3% annually until 2035, presenting an opportunity for the renewable energy and infrastructure markets to continue expanding.

Figure 4: LCOE evolution per technology 2010-2023; Source: IRENA



Renewables' growing competitiveness:

Renewable energy technologies are becoming increasingly cost-competitive, offering now viable and affordable alternatives to fossil fuels. According to IRENA, from 2010 to 2023, the global weighted average LCOE for onshore wind dropped by 70%, driven by turbine technology improvements, such as larger turbines and the optimization of rotor diameter. Offshore wind saw a 64% LCOE decrease, enabled by stable government policies and lower commodity prices. Besides, utility-scale photovoltaic (PV) observed a 90% decline in LCOE, due to factors such as the adoption of larger wafer sizes and the rise of diamond wafering technologies. Despite this progress, challenges like permitting timelines, environmental approvals, and grid availability remain, showing further LCOE reduction potential. Looking ahead, we anticipate an average annual LCOE decline of 1.41% for new onshore wind projects, 7.58% for new solar projects, and 1.10% for new offshore wind projects.

Increasing load factors:

The current average load factor for the EU wind fleet is round 25%, a number brought down by older installations. In fact, newer wind turbines use larger blades and lower generators, being able to achieve higher load factors even in areas with less high-speed wind. According to WindEurope, new onshore wind farms load factors are estimated to be between 30% and 35%, comparing to a current average of 24%, while new offshore wind farms' load factors range between 42% and 55%, compared to current average of 34%. Besides, offshore wind market expansion enables the placement of larger turbines further out at sea, where windier conditions enhance load factors. Wind conditions will naturally influence load factors trends, but we expect load factors across the globe to improve as old fleet is replaced.

Figure 5: LCOE average annual decline forecast; Source: Analysts estimates

New wind onshore projects	
Average LCOE decline (2020-2050)	52,00%
Average annual LCOE decline	1,41%

New solar projects	
Average LCOE decline (2024-30)	55,00%
Average annual LCOE decline	7,58%

New wind offshore projects	
Average LCOE decline (2020-2050)	39,00%
Average annual LCOE decline	1,10%

Solar PV farms are also expected to achieve higher load factors due to technological advancements. In fact, in the US, load factors have been improving, driven by increased efficiency of crystalline-silicon (from 14.8% to 20.7%) and cadmium telluride (from 11% to 18.6%) technologies. From 2028 to 2034, US's National Renewable Energy Laboratory (NREL) projects n-type and tandem module technologies to increase from 26.9% to 29.9% and 22.4% to 24.4%, respectively, replacing less efficient PERC technology. Crystalline-silicon module reliability is expected to improve as well, with enhanced durability and reduced degradation rates contributing to higher solar PV load factors across the globe.

Figure 6: Annual added battery energy storage system (BESS) capacity forecast (GW); Source: McKinsey

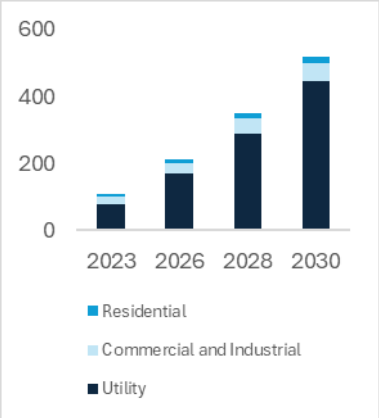


Figure 7: EDP's interest rate expenses (2019-2023); Source: Company's reports

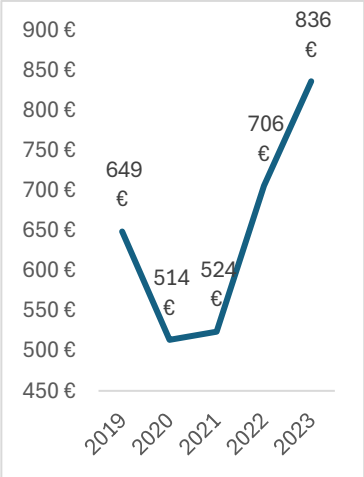
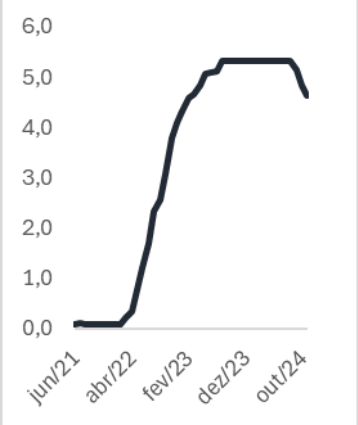


Figure 8: Historical FED Funds Effective Rate; Source: FRED



Opportunities:

Batteries:

The shift to renewable sources like solar and wind challenges grid stability due to dependence on weather and time of the day, which can cause periods of overproduction or shortages. This variability already leads to negative electricity prices during overproduction, forcing renewable energy producers to reduce electricity production, wasting valuable energy. To address this, battery energy storage systems (BESS) can offer a solution, as they allow to store excess electricity for later use, stabilize grids, and avoid negative prices. McKinsey forecasts the global BESS market to reach $120-$150 billion by 2030, with capacity quintupling. This presents a great opportunity for EDP, which is already positioning itself in this market, with plans to install 650 MW BESS capacity until 2026.

Lowering costs of capital:

As a capital-intensive company, EDP suffered with the interest rate hike cycle that started in 2022, with its stock falling 21% since March 2022 (the date of the first interest rate increase since 2018). This decline was driven by higher financing costs and an increase in interest expenses from €524 million in 2021 to €836 million in 2023. However, the rate reduction cycle started by the ECB and the Fed in 2024 is set to benefit the utility sector.

In December, the ECB cut its key interest rate to 3%, the fourth quarter-point reduction this year. Analysts forecast further reductions, with ECB's key deposit rate potentially reaching 2% by mid-2025. Similarly, the Fed cut rates in November to a target range of 4.50%-4.75%. A further reduction in December is anticipated and FOMC policy predict rates will likely end 2025 between 3% and 4%.

These rate reductions in EDP's key markets will lower borrowing costs to finance new projects. Besides, utilities are seen as a defensive investment with stable cash flows and dividends. This may also attract investors as their dividends yields become more competitive in relation to bonds with declining interest rates. Currently, EDP has a dividend yield of 6.15%, which is becoming increasingly more competitive given recent rate cuts.

EU structural disadvantage:

As outlined in Mario Draghi's report "The future of European competitiveness", Europe has a structural disadvantage when compared to the US due to significantly higher energy costs. Electricity prices in Europe are 2-3 times those in the US and natural gas prices paid are 4-5 times higher. These high costs are an obstacle to growth and slow the adoption of digital technologies and transport electrification. Recent high energy prices have reduced Europe's potential growth and increased investment uncertainty due to price volatility and hedging costs.

Figure 9: Industrial retail power prices comparison EU vs US; Source: The future of European competitiveness

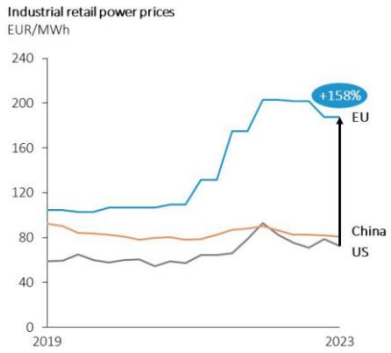


Figure 10: Industrial gas prices comparison EU vs US; Source: The future of European competitiveness

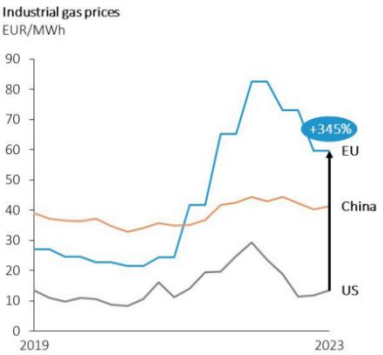
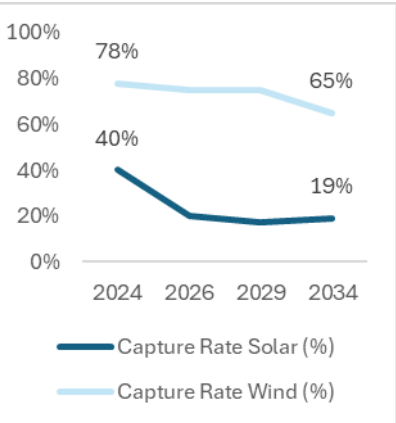


Figure 11: Capture Rates forecasts; Source: EIFO



Without a substantial boost in generation and grid capacity, Europe may struggle with energy intensive tasks like AI training and data centre operations. Current infrastructure investment reveals to be slow and suboptimal, both for renewables and grid development. Recognizing this, Europe has launched initiatives to accelerate progress, such as the European Green Deal, creating attractive opportunities for renewable energy projects.

Threats:

Low capture rates in Spain and energy cannibalization:

As renewable energy sources grow in national energy mixes, they face the challenge of energy cannibalization. In countries with significant renewable penetration, the captured price for these technologies is often lower than the average market price. This occurs because renewables produce the most power when electricity prices are at their lowest. This effect is especially pronounced for solar plants, as their output is concentrated in relatively fewer hours. When the sun shines, the resulting surge in solar power floods the grid, pushing down electricity prices, forcing solar plants to sell their energy at relatively low prices. When the sun sets and solar output decreases, market prices typically rise, but solar plants cannot take advantage of these higher prices. This dynamic poses a special risk for countries like Spain, where abundant sunshine often leads to solar output far exceeding daytime demand, leading to low capture rates. According to the Export and Investment Fund of Denmark (EIFO), Spain's solar capture rates are expected to average around 40% through the end of 2024 and then decline steadily over the coming years to around 17% by 2030 and 19% by 2034, as we adjusted our forecasts accordingly.

This trend could impact solar profitability and slow capacity growth. To address this issue policymakers must develop appropriate incentives for producers and support battery storage solutions.

Negative prices

In Europe, the rapid expansion of renewable energy has outpaced the grid's ability to deal with excess supply, leading to a record level of negative energy prices. From January to August 2024, the number of negative price hours was superior to the one in the 2019 to 2023 period. While beneficial to consumers, negative prices are harmful to producers, threating the financial viability of renewable energy projects. This challenge highlights the price cannibalization effect of renewables, aggravated by government support schemes meant to incentivize renewable projects. This way, finding a way of balancing this new influx of renewable power output and exploring solution such as storage will be crucial to ensure the viability of the renewable transition. Still, one way developers can mitigate this exposure is

Figure 12: Occurrences of negative prices in the EU; Source: ACER

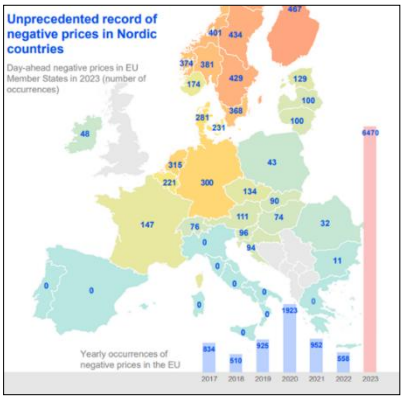


Figure 13: USA Clean Investment by year ($ Bn); Source: Clean Investment Monitor

Figure 14: EDP's offshore wind projects in US; Source: Company's presentation

	COD	Project	Technology	Gross Capacity
Under dev. rights secured	>2030	SouthCoast Wind	Bottom-fixed	2.4
		KF Wind	Floating	1.2
		Hanbando	Bottom-fixed	1.1
		Bluepoint	Bottom-fixed	2.4
		Golden State	Floating	2.0
		Caledonia	Bottom-fixed	2.0
		Arven	Floating	2.3
		High Sea Wind North	Fixed	1.3

through Power Purchase Agreements, a strategy employed by EDP, which had 90% of its generated electricity in 2024 either contracted or hedged.

Return of Trump to the White House:

The November 5th U.S. election delivered a challenging outcome for the renewable energy sector, with clean energy equities tanking across the globe, including EDP, which decreased 8.79% the next day. The election resulted in Donald Trump returning to the White House, alongside Republican control of both the Senate and the House of Representatives, putting many of the energy transition initiatives taken during the Biden administration at risk.

EDP's subsidiary, EDPR, derived 49.4% of its EBITDA coming from North America in the first nine months of 2024, highlighting its significant exposure to the region and vulnerability to Trump's policies.

Trump will surely pull the US out of the Paris Agreement and has signalled his intention to dismantle the 2022 Inflation Reduction Act (IRA), which fuelled a surge in clean energy development, driving clean investment to $236 billion in the US in 2023. Interestingly, most of the funding is going to districts represented by Republican members of Congress, many of whom oppose full repeal. This may complicate Trump's ambitions and a cap on tax credits seems more feasible than a complete rollback.

Trump is also likely to repeal EV tax incentives and has also picked oil executive Chris Wright to be secretary of energy. Wright defends the need for more fossil fuels and has stated that there is no climate crisis. This suggests he is likely to promote fossil fuel development and reverse many Biden-era initiatives.

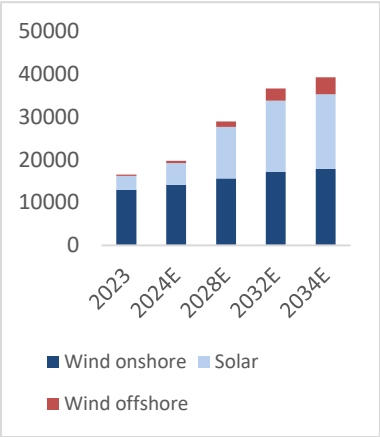
Trump has also vowed to put an end to "horrible" offshore wind turbines, although it is still unclear if Trump will be able to deliver his promise. However, offshore projects could still face legal challenges that could delay their development, potentially reducing their appeal to investors. EDP currently has some exposure to US offshore wind market through its Ocean Winds (OW) joint venture. OW is developing three projects in the US with a combined expected capacity of 6.8 GW, all expected to begin delivering power within the next decade. With this, the return of Trump can increase the risk of delays for these projects.

Overall, Trump's election impact remains uncertain and will greatly depend on internal dynamics within the Republican Party.

Financial Forecast:

Renewables:

Figure 15: Renewables forecasted capacity per technology; Source: Analysts Forecasts



The Renewables division is EDP's largest segment, contributing 56.4% to the Group's EBITDA in the first nine months of 2024, with its significance expected to increase in the coming years, given EDP's efforts to expand renewables' capacity. This division covers energy generated through Hydro, Wind and Solar technologies. Given this, we valued the division by separately assessing the Hydro and the Wind & Solar segments.

Wind & Solar:

The Wind & Solar segment has as its main drivers Installed Capacity, Load Factor, and Average Selling Price.

- **Installed Capacity**

To estimate future installed capacity, we followed EDP 2024-2026 strategic plan, as the plan has already been revised by the management team and is being implemented successfully. In fact, EDP is committed to deploy €12Bn from 2024 to 2026, averaging €4Bn per year. This investment is expected to result in 10GW of capacity added (around 3GW per year): 6GW of solar capacity, 1,7GW of wind onshore, 0.7GW of wind inshore, 0.7GW of batteries, and 0.9GW of solar panels in houses. Following this plan, we estimated EDP to reach a capacity of 24.14 GW in 2026.

From 2026 onwards, we expect this capacity addition growth to slow down in each of EDP's markets (North America, Europe, South America, APAC). Our forecasts extend until 2034, where EDP reaches a capacity of about 39.3 GW, 133.46% up from the current 16.8 GW.

North America:

EDP plans to expand solar capacity well above market growth levels until 2026. After 2026, we expect this growth to converge closer to market levels to 10% by 2030, further slowing down until 2034. On the other hand, wind capacity is expected to expand at 1% annually in the 2024-2026 period, well below market growth rates. We believe this growth is sustainable in the long term and anticipate it to remain constant through 2034.

Europe:

EDP aims to expand solar and offshore wind capacity well above market growth levels until 2026. Afterwards, growth will align with market levels of 8.4% and 24.13%, respectively, in 2030, decelerating further until 2034. For onshore wind, as the strategic plan expects its capacity to grow below the market, we expect this level of growth of 3.8% to persist until 2030, eventually starting to slow down.

South America:

In this region, solar capacity expansion is expected to outpace market growth until 2026, before converging with market rates of 13.81% by 2030 and slowing afterwards. As for wind onshore, as the strategic plan expects its capacity to growth below market growth at 7.18%, we expect this level of growth to continue until 2030 and decline afterwards.

APAC:

In APAC, the strategic plan anticipates capacity to grow at 1.97%. We consider this growth rate sustainable and predict it to remain stable throughout the forecasted period.

- **Load factor:**

Load factors depend not only on weather conditions (wind and solar plants will produce as much as solar and wind conditions allow them to produce) but also on technology efficiency. As mentioned before in the Industry Trends, from 2010 to 2023, load factors improved globally. Solar farms load factors improved from 13.80% to 16.20%, while wind onshore farms load factors improved from 27% to 36%, due to the contributors discussed above.

We expect load factors to keep following this trend, with both Solar and Wind onshore load factors increasing 0.18%, and 0.69% a year, respectively. In fact, as mentioned earlier, new wind turbines use larger blades and lower generators, being able to achieve higher load factors for wind farms. On the other side, between 2028 and 2034, type and tandem module technologies efficiencies are also expected to grow, leading to higher solar load factors.

Also, Europe's new wind offshore additions are expected to be able to achieve load factors of 48.50%, compared to a current average of 34%. We forecast wind offshore load factors to improve as the old fleet is replaced by more advanced and efficient turbines.

However, solar load factors are generally lower than wind load factors, putting downward pressure on overall load factors in the North America, South America and Europe regions as solar capacity, and consequently, solar electricity generation takes on a larger share of the renewables mix. Still, technological improvements more than compensate for this effect, with overall load factors expected to increase gradually over the period forecasted across all regions.

- **Average Selling Price:**

North America:

In the United States, EDP is assumed to sell all its electricity through PPAs, with prices adjusting annually for inflation and reductions in LCOE for both wind and solar technologies. The PPA price in 2024 was 56.58€/MWh for wind and

65.63€/MWh for solar, and both are expected to fall as LCOE decreases. In both Canada and Mexico, the ASP is expected to decrease slightly over the years, as the reduction in LCOE due to technological improvements is expected to outweigh the inflation effect.

Europe:

In Iberia, EDP is assumed to sell 90% of electricity generated through PPAs and 10% in the spot market. PPA prices in Spain were seen around 60€/MWh in 2025 and are expected to adjust to inflation and reductions in LCOE. The part that is sold on the spot market is exposed to the baseload price, which was estimated through future markets. The cannibalization effect is expected to lead to a decrease in the Capture Price form the baseload, with solar energy being more affected than wind. As a result, the ASP of solar is forecasted to decrease along the years, while wind ASP remains relatively constant. In the Rest of Europe, ASP is expected to decrease slightly over the years as the decrease in LCOE outweighs the effect of inflation.

South America:

In Brazil, EDP is assumed to sell 90% of its electricity through PPAs as well, with the remaining 10% being sold on the spot market. PPA prices in Brazil were 179€/MWh in 2024 and are forecasted to adjust to inflation and reductions in LCOE. The portion of electricity sold on the spot market is exposed to the PLD, which is assumed to remain constant. The cannibalization effect in Brazil is expected to not be as pronounced as in Europe, as Capture Prices decrease slightly over the forecasted period. Wind ASP is expected to increase as inflation outpaces LCOE reductions, while solar ASP is projected to decrease, driven by the opposite effect. However, when converted to euros, both wind and solar ASPs are expected to decrease as the BRL is expected to weaken according to FX markets. In Chile, EDP only sells wind energy, and its price is expected to increase over the years as inflation cancels out the decrease in wind LCOE.

APAC:

In the APAC region, the ASP is assumed to remain constant the forecasted period. In fact, EDP operates in APAC mostly through long-term PPAs. This way, ASP is assumed to not vary with spot prices. Additionally, since renewable technologies in APAC do not significantly contribute to the energy mix, we do not expect renewables technological improvements to influence ASP, as the ASP would be set by fossil fuels. EDP's installed capacity in the region is also not expected to grow substantially, with only a few projects on the pipeline. This way, the ASP will continue to be heavily influenced by previously agreed-upon PPAs, being assumed to remain constant over the years.

Hydro:

Like Wind & Solar, Hydro also presents Installed Capacity, Load Factor, and Average Selling Price as key revenue drivers.

Figure 16: Hydro division drivers; Source: Analysts estimates

Hydro		
Installed Capacity	**2023**	**2034E**
Iberia	5520	5520
Brazil	1953	1953
Average Selling Pri	**2023**	**2034E**
Iberia	98,0	54,3
Brazil	214,0	291,9
Load Factor	**2023**	**2034E**
Iberia	28%	22%
Brazil	35%	37%

- **Installed Capacity**

EDP's hydroelectric installed capacity has remained stagnant since 2020. With no disclosed plans to expand or reduce hydro capacity, and a clear strategic focus on Wind & Solar, we anticipate no change in hydro capacity throughout the forecasted period, staying at 6.9 GW.

Besides, hydroelectric potential in Portugal and Spain is almost fully exploited. Aligned with the fact hydro plants require a long permitting process, this further sustains our view that hydro capacity will remain unchanged.

- **Load factor:**

Hydro's load factor is mainly dependent on weather conditions such as rainfall. As such, we assumed that the average from the 2018-2023 period would provide a reasonable estimate for the remaining years, both for Iberia and Brazil, as this timeframe is long enough to average out weather-related fluctuations. Additionally, we do not expect technology improvements to significantly impact load factors throughout the forecasted period.

- **Average Selling Price:**

In Iberia, the average selling price is closely linked to Pool Baseload Prices in Spain. As such, it is forecasted based on future Power Spain Base Load contract prices from OMIP.

In Brazil, almost all EDP's hydro generation is sold under long-term PPA contracts. These contracts are presumed to be indexed to inflation, causing the hydro average selling price in Brazil to vary in line with inflation over the forecasted

Gains on disposals:

Gains on disposals until 2026 are forecasted according to EDP's guidance, which estimates 300 million euros a year in gains over this period. After this, these gains are expected to peak in 2027, before starting a downward trend as EDP reduces CAPEX and its yearly capacity additions, slowing down Asset Rotation activity, selling less MW per year.

Valuation:

To value EDP we used a SOTP valuation approach, segmenting the company into three divisions: Renewables, Networks, and Clients Solutions & Energy

Management. This segmentation reflects the different risk profiles and growth prospects across the divisions. With this, we utilized the Discount Cash Flow (DCF) method to value core operating items, while to value non-core elements we used the book value method.

To value each division, we forecasted EDP's financial statements until 2034, assuming a perpetual growth rate after this period. The future cash flows for Renewables, Networks Iberia, Networks Brazil and Clients Solutions & Energy Management divisions were discounted at a WACC of 5.24%, 4.45%, 5.80%, and 4.82%, respectively. Perpetuity growth rates were based on inflation rates and assumed to be 2%, 2%, 3%, and 2% for each division respectively.

After conducting our analysis, we reached an Enterprise Value of 45.94 billion euros. To reach the Equity Value, we subtracted to the company's Enterprise Value its Net Financial Debt, its Institutional Partnerships Liabilities, and its Minorities, reaching a value of 16.61 billion euros. Dividing the Equity Value by the number of diluted shares outstanding, our analysis predicts a share price of 3.90€, meaning an upside potential of 23.03%.

Figure 17: SOTP valuation; Source: Analysts Forecasts

SOTP	I Thousands
Renewables	26234863
Networks Iberia	10153895
Networks Brazil	3380938
CS&EM	3304901
Intersegments	-561850
Core Business	**42512747**
Investment in Joint Ventures and Assoc	1703802
Net Non-operating assets	1727116
Total EV	**45943665**
Net Financial Debt	23846367
Institutional partnerships liabilities	2233163
Minorities	3249667
Equity Value	**16614467**
Shares	4160000
Dilluted Shares	4260000
Price Target	3,90
Current Price	3,17
Potential Upside	**23,03%**

Renewables:

WACC calculation:

To compute the Weighted Average Cost of Capital for the Renewables division, it was necessary to determine the segment's target D/E ratio, as well as the cost of equity and cost of debt.

Figure 18: WACC Renewables estimation; Source: Analysts Forecasts

WACC Renewables	
Risk Free Rate	2,1%
Re-Levered Beta	0,81
Market Risk Premium	5,8%
Levered cost of equity	**6,8%**
Probability of Default (Annualized)	0,23%
Loss Given Default	0,48
YTM	2,83%
Cost of Debt	2,71%
Tax Rate	16,0%
After-tax cost of debt	**2,3%**
Target D/E	54%
WACC	**5,24%**

The current target D/E ratio of 53.54% was assumed, as we don't predict significant changes in EDP's capital structure in the foreseeable future.

To estimate the cost of debt, we used the outstanding bond with a maturity as close as possible to our forecast duration as the basis base our analysis. This bond currently has a YTM of 2.825% and matures in June of 2028, with a remaining maturity of 3.58 years at the time of valuation. EDP currently as a BBB credit rating, which gives it a 4-year annualized probability of default of 0.23% and a recovery rate of 52%. With this data, and assuming a tax rate of 16%, we were able to reach an after-tax cost of debt of 2.279%.

To estimate the cost of equity, we used CAPM. For the risk-free rate, we used the current yield of the 10-year German bund at 2.145%. The Market Risk Premium was assumed to be 5.8%, after observing the average MRP from 2011 to 2023 in Germany ranged between 5.3% and 5.8%. To obtain the industry unlevered beta, we selected a set of six comparable peers, extracting their raw betas from Yahoo Finance. Each raw beta was unlevered, and the average was computed to reach the industry unlevered beta. We then re-levered this beta using the Renewables division target D/E ratio of 53.54%, resulting in a re-levered beta of 0.81 for the

segment. Using the CAPM formula, we calculated a levered cost of equity of 6.826% for the Renewables segment. With all necessary variables accounted for we reached a WACC of 5.24%.

DCF Renewables:

We expect NOPLAT to increase steadily from 2025 to 2028 at a CAGR of 7.95%, driven mainly by revenues and gains from disposals. However, beyond this point, it is forecasted to decline as EDP slows down its Asset Rotation activity. Also, despite increasing revenues, rising D&A expenses more than offset this growth, leading to a downward trend in NOPLAT through 2034, decreasing 28.55% from 2028 to 2034.

Still, Operating Free Cash Flow is expected to follow an upward trend as the company begins to ease the substantial CAPEX investment starting in 2028.

Using the computed WACC and assuming a terminal growth rate of 2%, we estimate this division to have an Enterprise Value of 26.23 billion euros.

Relative valuation:

After selecting peers based on geographical exposure and business model, we identified a set of seven comparable companies to perform EDP's relative valuation. For this analysis, we utilized multiples such as EV/EBITDA, EV/EBIT, EV/Installed Capacity, and P/B. The P/E multiple was excluded, as differences in capital structures between peers make it unsuitable for meaningful comparisons.

Also, to account for possible outliers which can bias our analysis, our industry benchmarks are based on the median values of these multiples.

Comparing EDP's multiples to the industry benchmarks reveals that EDP is consistently trades below the median (6.71x vs 6.9x for EV/EBITDA, and 10.84x vs 11x for EV/EBIT), despite having the second-best margins and the highest expected growth for 2025 among its peers. However, EDP presents a relatively weaker ROIC and Revenues/PPE, suggesting it is less efficient than its peers in generating revenue from its assets.

The combination of a lower ROIC with a relatively high expected growth seems to weigh on EDP's multiples, as it might lead to value destruction, which is unattractive to investors.

By calculating the median equity value implied by the market-implied multiples, we reach an equity value of 14.49 billion euros, equivalent to a share price of 3.40€. This suggests a potential upside of 7.3%

APPENDIX

EDP S.A.

COMPANY REPORT

UTILITIES

17 DECEMBER 2024

STUDENT: DUARTE G. PEREIRA/FRANCISCO PINTO

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Leveraging Sustainable Growth

Accelerating Green Growth Delivery While Reshuffling the Portfolio

- **Investment Thesis:** We recommend a Buy position, given our computed price target of 3,90€ compared to the current market price of 3,17€, showing a potential **upside of 23,03%**. This upside reflects EDP's encouraging growth opportunities coupled with their well-diversified, sustainable portfolio. Moreover, we expect a sustainable dividend payout of 63%.

- EDP will experience substantial growth in their key markets of North America, Europe, South America and APAC. We project they will reach an installed capacity of 39,3 GW in 2034, up from the current 16,8 GW.

- EDP will **ramp up their investment in their distribution and transmission grid assets**, especially in Brazil, leveraging market needs of increasing electricity demand and renewable energy share. This will allow steady growth in the low-risk, portfolio-stabilizing segment that is Networks.

- As EDP progresses towards their ambitious goals of being coal-free by 2025 and all-green by 2030, the CSEM portfolio will shift away from thermal production and focus on EDP's supply business, where the company expects to solidify their position as market leader and **capitalize on growing consumer demand due to digitalisation**.

Company description

EDP – Energias de Portugal S.A. is a vertically integrated utility company based in Portugal. It is the largest generator, distributor and supplier of electricity in the country and the third-largest electricity generator in the Iberian Peninsula. It has a strong presence in renewable energy driven by its chief subsidiary EDP Renováveis

Recommendation:	**BUY**
Price Target FY25:	**3.90 €**
Price (as of 30-Jan-25)	**3.17 €**

52-week range (€)	3.13 – 4.61
Market Cap (€m)	13320
Outstanding Shares (m)	4160

Source: Yahoo Finance

Source: Yahoo Finance

(Values in € billions)	2023	2024E	2025F
Revenues	16,2	20,4	19,6
EBITDA	4,4	5,2	5,0
EBIT	2,2	3,3	2,9
Net Profit	1,3	1,9	1,6

Source: Analyst's Forecasts

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Company Overview:

EDP – Energias de Portugal S.A. is a vertically integrated utility company based in Portugal with a multinational presence operating in 5 regions: Iberia, Europe, North America, South America and Asia-Pacific. It is the largest generator (26,6 GW installed power generation capacity), distributor (99% of all distribution), and supplier of electricity (40% of all electricity supplied) in Portugal, and the third-largest electricity generator on the Iberian Peninsula.

The company is listed on the Lisbon Stock Exchange, where it is the largest company in the Portuguese Stock Index (PSI-20), with a market capitalization of €13,462 Bn. In 2023, it achieved revenues of €16,2 Bn and an EBITDA of €5 Bn.

EDP's operations are separated into 3 core segments: **Renewables**, which includes EDP's hydro, wind and solar power assets across all geographies; **Networks**, which includes EDP's electricity distribution activities in Iberia and Brazil, as well as electricity transmission in Brazil; **Client Solutions and Energy Management**, which includes EDP's non-renewable generation assets and electricity and natural gas supply activities, operating in the liberalized market in Iberia and Brazil, and in the Portuguese regulated market. Beginning in 2023, the Renewables and Client Solutions and Energy Management segments were combined into one segment in EDP's reporting. However, for the purposes of this valuation and because they have vastly different operations and drivers, both segments were approached separately.

EDP's proposed business plan for 2024-2026 (an updated version of the 2023-2026 business plan) focuses on 4 strategic pillars: accelerated and focused growth; ESG excellence and future proof organization; distinctive and resilient portfolio; superior value creation for stakeholders. The company intends to position itself as a low-risk, cross-diversified and resilient portfolio leading the way in the energy transition. Their aim is to reduce non-renewable generation whilst ensuring the fast deployment of renewables capacity, fueled by their distinctive asset rotation strategy. This asset rotation strategy is based on selling majority stakes in selected renewable assets to generate internal funds that finance their projects, thus creating a less capital-intensive growth model. Even though the 2024 amendment to the Business Plan included a reduction in the proposed investment, we believe that this will not have a negative effect on the company as this will simply mean that the company will target fewer but more profitable projects.

EDP is currently led by CEO Miguel Stilwell d'Andrade. Stilwell has been working at EDP since 2000, starting as an associate in M&A and working his way up the

ranks, becoming the company's CFO in 2018 and finally its CEO in 2020 (initially as Interim CEO). Over his many years at EDP he has acquired a great deal of experience and is generally considered a solid and capable figurehead for the firm.

Shareholder Structure and Dividend Policy

The first stage of the privatisation process of EDP took place in June of 1997, as 30% of the company's capital was sold in an Initial Public Offering (IPO). It took roughly 17 years for EDP to become fully privatized, as the last of the government's minority stake in the company (4,14%) was sold. Today, EDP has a total of 4,16 Bn shares outstanding, together making up a market capitalization of €13,462 Bn. As can be seen in Figure 1, its main shareholder is China Three Gorges Corporation, a Chinese state-owned power company which holds 21,08% of all shares, followed by Oppidum Capital (6,82%) and BlackRock (6,13%).

Shareholder	Ownership (%)
China Three Gorges	21,01%
Oppidum	6,82%
Blackrock Inc.	6,33%
Plan Investment Board	5,37%
EDP (ações próprias)	0,54%
Remaining	

Figure 1: Shareholder Structure; Source: EDP's Annual Report

Aside from being its major shareholder, CTG has also acted as a key partner for EDP in its goal to become a leading global player in the production of renewable energy, originally committing to invest €2 Bn in the purchase of renewable electricity assets. EDP has highlighted the importance of their financial contribution during the sovereign debt crisis, as well as their co-investment in hydroelectric plants in South America. Despite a recent dilution of their stake in the company, CTG had, as of May 2024, already recovered 83% of their investment in EDP.

EDP's 23-26 Business Plan proposed a payout ratio between 60%-70%, with the latest dividend payout of 0,195€ per share representing a payout of 63%. This was the first increase in shareholder remuneration since 2017, with the company having paid 0,19€ per share since that year. The stability of EDP's dividends over the past few years should bring confidence to shareholders, displaying strong results even when facing volatility in the market and macroeconomic environment.

Competitive Landscape:

Fiscal year ended in 2023	EDP	Iberdrola	Enel SpA	Engie
Market Cap (€Mn)	13133	83629	70615	36537
Revenues (€Mn)	14764,2	49335,0	79821,0	82566,0
EBITDA	5163,9	14906,0	21981,0	17437,0
EBIT	3198,6	9096,0	13607,0	6417,0
Installed Capacity	28484	56339	89400	42366
Renewables capacity share	84,0%	78,4%	43,4%	46,2%
Invested Capital t-1	34753,0	89099,0	71969,0	23201,0
Growth estimate 2025	13,5%	0,7%	-6,6%	5,3%
Profitability Ratios				
EBITDA margin	35,0%	30,2%	27,5%	21,1%
EBIT margin	21,7%	18,4%	17,0%	7,8%
ROA	2,3%	4,3%	3,5%	1,9%
ROE	9,6%	8,3%	7,7%	6,2%
Capital Structure Ratios				
Debt-to-Equity	131,6%	92,9%	141,5%	77,2%
Debt-to-EBITDA	4,94	3,8	3,3	1,6
Liquidity Ratios				
Cash Ratio	25,2%	13,6%	13,9%	22,8%
Quick Ratio	84,6%	72,1%	78,4%	92,4%
Current ratio	90,7%	82,2%	85,5%	99,5%
Solvency Ratios				
Solvency Ratio	44,0%	67,2%	30,0%	22,5%
Interest Coverage Ratio	1,2	4,4	3,5	2,6

Figure 2: Peer comparison; Source: Yahoo Finance

EDP's competitors consist of the large European integrated utilities. Despite its peer group, EDP is still quite distant from these major players in terms of both their market cap and revenues. This is natural given that EDP is the dominant electricity company in Portugal (despite their multi-national presence), a smaller country with a less favourable economic environment. This discrepancy between EDP and its peers is also seen in terms of their installed capacity, although they do distinguish themselves by having a superior capacity share of renewable technologies.

Where EDP has also managed to stand out is in its profitability ratios, being above industry average in terms of their EBITDA margin (35%) and operating margin (21,7%). In addition, EDP was also able to compensate their shareholders with a 9,6% return on equity, above its main peers. In terms of the company's capital structure, while their leverage remains quite high, it is important to note that EDP's financial costs actually decreased in 2023, driven by a lower average cost of that, thanks to EDP taking advantage of green financing and reducing the weight of USD debt in their debt mix.

Overall, EDP will look to navigate their competitive environment by leveraging their strong position in the renewable energy market, especially in onshore and offshore wind, whilst continuing to be selective in its investments to sustain a high level of profitability. The efficacy of this strategy is evident when comparing the company's growth estimates for 2025 in comparison with its peers.

Financial Analysis:

- **Revenues:**

From 2018 to 2020, EDP's revenues decreased by 18.5%, driven primarily by a reduction in Networks revenue. This trend reversed in 2021 and 2022, with revenues rising considerably by 20.4% and 37.8%, respectively. Growth in 2022 was substantial due to abnormally high Average Selling Prices in Europe. These were caused by supply disruptions following Russia's invasion of Ukraine and the subsequent European sanctions on one of its crucial energy suppliers, alongside surging demand as COVID restrictions eased. Still, revenues returned to decrease in 2023, as CS&EM revenue fell substantially. Following the graph, we can observe that this trend was similar across the industry.

- **Margins:**

EDP's overall margins increased in the 2018-2020 period but gradually declined from 2020 until 2022, driven by lower margins in the renewables business unit, largely due to lower margins in the US, surging then again in 2023. Currently, EDP outperforms its peers in terms of EBITDA margin (31.21% vs 27.74%), and EBIT margin (19.14% vs 16.51%).

- **ROIC:**

EDP's ROIC, ROE, and ROA remained around the same level since 2020, reaching 4.1%, 9.6%, and 2.3% in 2023. As for RONIC, it achieved an abnormally high level of 114.49% due to a jump in operational result, normalizing in the next years until reaching 4.3% in 2023. Comparing to its peers, EDP ends up underperforming in terms of ROIC (3.8% vs 13.34%), ROA (2.3% vs 3.23%), and asset turnover (27.5% vs 36.72%), suggesting the firm has not been able to generates returns from the investments at the level of its competitors. Still, the company is able to achieve a higher ROE than the industry average (9.6% vs 7.41%), meaning EDP providing its investors with a higher return, which can enhance the firm's ability to raise capital whenever needed. Also, as the company expands its renewables division, we expect ROIC, ROE, and ROA to increase along the way.

- **Liquidity:**

EDP's current and quick ratio followed an increasing trend until 2021, reaching 1.21x and 1.14x, respectively. However, they declined in 2022 to 0.91x and 0.81x, respectively, due to rising current debt and current accounts payable. In 2023, these ratios remained stable, aligning close with the industry averages of 0.89x

and 0.81x, respectively. The cash ratio, after a considerable rise in 2020, declined and then stabilized at 0.25x in 2023, exceeding the industry average of 0.17x. In sum, EDP currently shows solid short-term financial health. Even though its current ratio is below 1, this is common given the industry's characteristics and stability, and it remains in line with the industry benchmark.

- **Invested Capital:**

EDP is a capital-intensive company, with its Invested Capital in 2023 amounting to 219.5% of its revenues. This compares to a peer average of 135.7% in the same year, suggesting once again that EDP struggles to generate revenues from its investments at a level comparable to its industry counterparts. Besides, we can observe Goodwill as a percentage of revenues increasing from 15.88% in 2021 to 2022 in 20.85%, signalling the greater focus given to the firm's Asset Rotation strategy.

Currently, EDP operates with negative Net Working Capital, as well as its peers. We consider this not to be a warning sign as utility companies invest mostly on long-term assets through long-term debt and equity, not relying much on NWC, besides having low inventory requirements, and a bargaining position that allows them to receive customer payments relatively quickly and take longer to set payments to suppliers.

- **CAPEX and CAPEX needs:**

With PPE comprising 46% of its total assets, EDP has considerable capital needs, with CAPEX accounting for 36.09% of revenues in 2023. Besides, maintenance CAPEX has stayed between 3% and 4% of revenues in recent years, showing considerable requirements to maintain business. With greater efforts to expand renewable capacity, CAPEX has been increasing substantially along the years, up from 13.30% of revenues in 2018 to 36.09% in 2023. Renewables expansion CAPEX in 2023 stood at €4.3 Bn, an 107.7% increase when compared to 2020 levels, and making up 83.9% of total expansion CAPEX. This greater investment in renewables has resulted in a renewable share of 84% in generation.

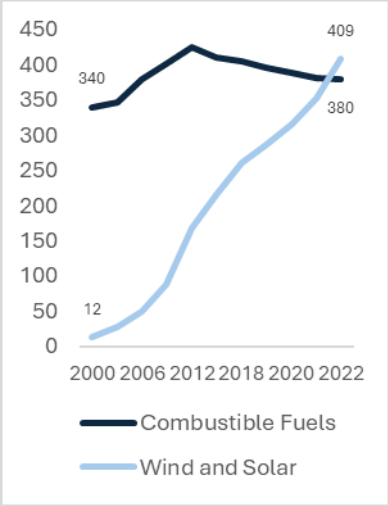
The greater investment on electricity generation assets has led to higher D&A, which had remained relatively stable from 2010 to 2020. In the 2020-2023 period, it increased 34.24%, reflecting the higher capital needs as the business expands.

- **Cash flow:**

As expected from a utilities company, Operating Cash Flow remained stable from 2018 to 2023, except for an unusually high level in 2022, due to a considerable decrease in NWC. Throughout this period, Investing Cash Flow has been

increasing substantially, reflecting EDP's focus on expanding renewable installed capacity in recent years. Consequently, there are years where Free Cash Flow ends up being negative, as ICF exceeds OCF. However, in our view, this is not a concern, as these long-term investments create assets with long useful lives that will generate returns throughout several years. To finance itself, EDP issues yearly consistent levels of debt via bank loans and capital markets, taking advantage of its strong credit rating and financial position to get access to favourable terms. Its stable cash reserves further signal EDP's financial health and business stability.

Figure 3: EU Electrical Installed Capacity per Technology (GW); Source: Eurostat



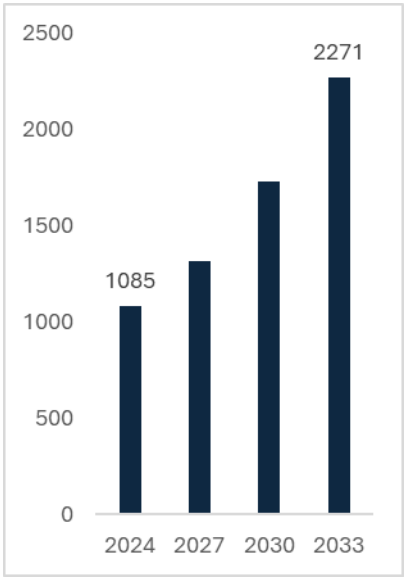
Industry Overview:

EDP operates within the utilities sector, specifically in the electric utilities and renewable energy segments, both of which have changed significantly in recent years. This way, to understand how these changes may shape EDP's future and the broader sector's direction, it is essential to provide an overview of the sector, alongside an analysis of its key trends, opportunities, and risks.

Renewable energy market:

At the start of the 21st century, the renewable energy market was relatively small. In the EU, Wind and Solar combined capacity was only 12.5 GW in 2000, compared to 340 GW from combustible fuels, according to Eurostat. By 2022, Wind and Solar capacity soared to 409 GW, while combustible fuels stayed nearly stagnant, reaching 379 GW. Today, renewable energy makes up great part of the energy market, as the rapid growth driven by cost reductions and technological improvements made it a viable alternative to fossil fuels. Renewables, which accounted for only around 20% of global annual power capacity additions in 2000, made up 86% by 2023.

Figure 4: Global Renewable Energy Market Size (USD); Source: Straits Research



Just in the last decade, global renewable capacity grew from 1700 GW in 2014, to 3870 GW in 2023, an increase of 127.7%. Looking ahead, the IEA predicts global renewable capacity to grow by 2.7 times by 2030, reaching 9763.1 GW, highlighting the substantial growth potential that still exists in the market.

In fact, according to a report from Straits Research, the global renewable energy market was valued at USD 1085 Billion in 2023, being forecasted to reach USD 2449.6 Billion by 2032, growing at a CAGR of 9.47%. This growth is supported by several trends that will act as catalysts for the sector expansion.

Trends:

Energy and infrastructure new demand drivers:

Figure 5: Demand for data centre capacity 2023-2030 (GW); Source: McKinsey

	2023	2030	CAGR
Upper-range scenario	55	171	19%
Midrange scenario	55	219	22%
Low-range scenario	55	298	27%

Figure 6: LCOE evolution per technology 2010-2023; Source: IRENA

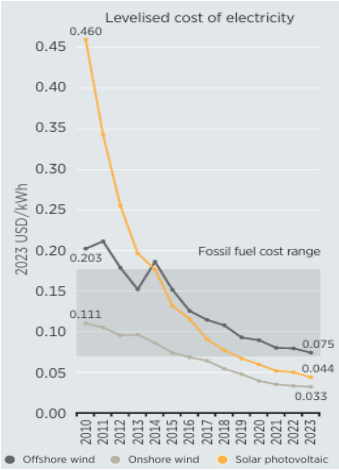


Figure 7: LCOE average annual decline forecast; Source: Analysts estimates

New wind onshore projects	
Average LCOE decline (2020-2050)	52,00%
Average annual LCOE decline	1,41%

New solar projects	
Average LCOE decline (2024-30)	55,00%
Average annual LCOE decline	7,58%

New wind offshore projects	
Average LCOE decline (2020-2050)	39,00%
Average annual LCOE decline	1,10%

The IEA World Energy Outlook 2024 declared a new "age of electricity", driven by surging demand for air conditioning, electric vehicles, and data centres. In fact, power demand for home cooling is expected to rise by 280% by 2050 due to higher temperatures and incomes, while EVs are forecasted to dominate major European markets by 2025. Besides, in the U.S., the rapid data centre expansion is driving historical growth in power demand, fuelled by their high electricity needs, with nearly 24 GW of new data centre capacity announced in the first half of 2024 alone. This way, global electricity demand is expected to grow 3% annually until 2035, presenting an opportunity for the renewable energy and infrastructure markets to continue expanding.

Renewables' growing competitiveness:

Renewable energy technologies are becoming increasingly cost-competitive, offering now viable and affordable alternatives to fossil fuels. According to IRENA, from 2010 to 2023, the global weighted average LCOE for onshore wind dropped by 70%, driven by turbine technology improvements, such as larger turbines and the optimization of rotor diameter. Offshore wind saw a 64% LCOE decrease, enabled by stable government policies and lower commodity prices. Besides, utility-scale photovoltaic (PV) observed a 90% decline in LCOE, due to factors such as the adoption of larger wafer sizes and the rise of diamond wafering technologies. Despite this progress, challenges like permitting timelines, environmental approvals, and grid availability remain, showing further LCOE reduction potential. Looking ahead, we anticipate an average annual LCOE decline of 1.41% for new onshore wind projects, 7.58% for new solar projects, and 1.10% for new offshore wind projects.

Increasing load factors:

The current average load factor for the EU wind fleet is round 25%, a number brought down by older installations. In fact, newer wind turbines use larger blades and lower generators, being able to achieve higher load factors even in areas with less high-speed wind. According to WindEurope, new onshore wind farms load factors are estimated to be between 30% and 35%, comparing to a current average of 24%, while new offshore wind farms' load factors range between 42% and 55%, compared to current average of 34%. Besides, offshore wind market expansion enables the placement of larger turbines further out at sea, where windier conditions enhance load factors. Wind conditions will naturally influence load factors trends, but we expect load factors across the globe to improve as old fleet is replaced.

Figure 8: Annual added battery energy storage system (BESS) capacity forecast (GW); Source: McKinsey

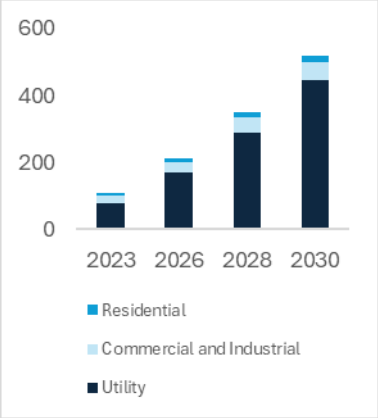


Figure 9: EDP's interest rate expenses (2019-2023); Source: Company's reports

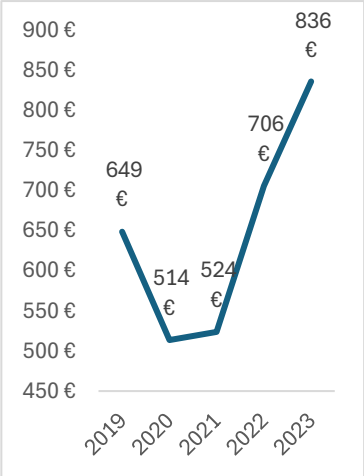
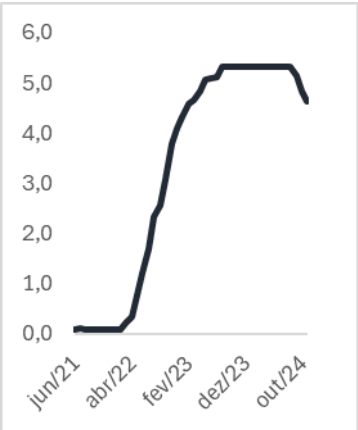


Figure 10: Historical FED Funds Effective Rate; Source: FRED



Solar PV farms are also expected to achieve higher load factors due to technological advancements. In fact, in the US, load factors have been improving, driven by increased efficiency of crystalline-silicon (from 14.8% to 20.7%) and cadmium telluride (from 11% to 18.6%) technologies. From 2028 to 2034, US's National Renewable Energy Laboratory (NREL) projects n-type and tandem module technologies to increase from 26.9% to 29.9% and 22.4% to 24.4%, respectively, replacing less efficient PERC technology. Crystalline-silicon module reliability is expected to improve as well, with enhanced durability and reduced degradation rates contributing to higher solar PV load factors across the globe.

Opportunities:

Batteries:

The shift to renewable sources like solar and wind challenges grid stability due to dependence on weather and time of the day, which can cause periods of overproduction or shortages. This variability already leads to negative electricity prices during overproduction, forcing renewable energy producers to reduce electricity production, wasting valuable energy. To address this, battery energy storage systems (BESS) can offer a solution, as they allow to store excess electricity for later use, stabilize grids, and avoid negative prices. McKinsey forecasts the global BESS market to reach $120-$150 billion by 2030, with capacity quintupling. This presents a great opportunity for EDP, which is already positioning itself in this market, with plans to install 650 MW BESS capacity until 2026.

Lowering costs of capital:

As a capital-intensive company, EDP suffered with the interest rate hike cycle that started in 2022, with its stock falling 21% since March 2022 (the date of the first interest rate increase since 2018). This decline was driven by higher financing costs and an increase in interest expenses from €524 million in 2021 to €836 million in 2023. However, the rate reduction cycle started by the ECB and the Fed in 2024 is set to benefit the utility sector.

In December, the ECB cut its key interest rate to 3%, the fourth quarter-point reduction this year. Analysts forecast further reductions, with ECB's key deposit rate potentially reaching 2% by mid-2025. Similarly, the Fed cut rates in November to a target range of 4.50%-4.75%. A further reduction in December is anticipated and FOMC policy predict rates will likely end 2025 between 3% and 4%.

These rate reductions in EDP's key markets will lower borrowing costs to finance new projects. Besides, utilities are seen as a defensive investment with stable cash flows and dividends. This may also attract investors as their dividends yields

Figure 11: Industrial retail power prices comparison EU vs US; Source: The future of European competitiveness

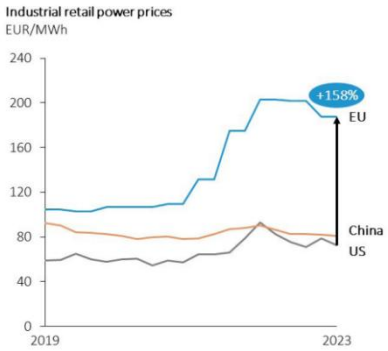


Figure 12: Industrial gas prices comparison EU vs US; Source: The future of European competitiveness

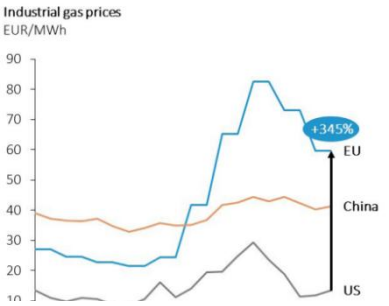


Figure 13: Age of grid infrastructure; Source: EY's Grids for Speed Report

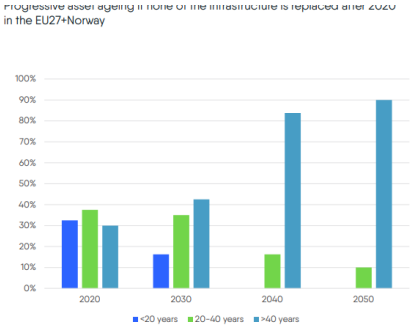
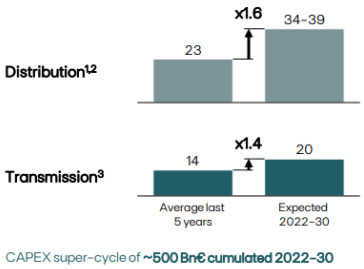


Figure 14: Increase in grid investment; Source: EDP's Business Plan



become more competitive in relation to bonds with declining interest rates. Currently, EDP has a dividend yield of 6.15%, which is becoming increasingly more competitive given recent rate cuts.

EU structural disadvantage:

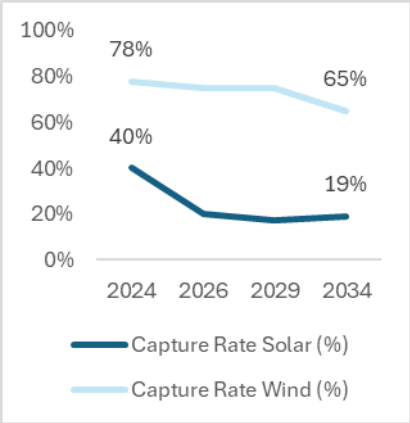
As outlined in Mario Draghi's report "The future of European competitiveness", Europe has a structural disadvantage when compared to the US due to significantly higher energy costs. Electricity prices in Europe are 2-3 times those in the US and natural gas prices paid are 4-5 times higher. These high costs are an obstacle to growth and slow the adoption of digital technologies and transport electrification. Recent high energy prices have reduced Europe's potential growth and increased investment uncertainty due to price volatility and hedging costs. Without a substantial boost in generation and grid capacity, Europe may struggle with energy intensive tasks like AI training and data centre operations. Current infrastructure investment reveals to be slow and suboptimal, both for renewables and grid development. Recognizing this, Europe has launched initiatives to accelerate progress, such as the European Green Deal, creating attractive opportunities for renewable energy projects.

Ramping up investment in grid infrastructure

Electricity grids are the backbone of today's electricity systems, providing critical infrastructure that rapidly delivers power to consumers. As Europe continues to progress in its clean energy transition, they are becoming even more important to ensure that new renewable capacity can be supported. However, they have often been an afterthought, with investment in grids remaining relatively flat at around €274 Bn per year. In an IEA report published in October 2023 it was found that at least 3000 GW of renewable power projects were waiting in grid connection queues, illustrating the need for grid infrastructure to keep up with the pace of society's electrification, digitalisation and decarbonization shifts, so as to not become a bottleneck for development. Furthermore, Europe's electricity grid is also one of the oldest in the world, with an average grid asset age of 40 years old.

For national goals to be reached, not only will aging infrastructure need to be replaced, but expansion will be necessary too, with the IEA predicting that 80 Mn kilometres of grids will need to be added or refurbished by 2040, the equivalent of existing global grid. Continued progress in the modernization and digitalisation of the grids is also critical so that electricity security and efficiency can be achieved. For these reasons, grid investment is predicted to increase substantially by 2030, as can be seen in Figure 14. This presents an opportunity for EDP, as they will be

Figure 15: Capture Rates forecasts; Source: EIFO



able to expand their electricity distribution and transmission networks, investing further in a low-risk business with solid fundamentals.

Threats:

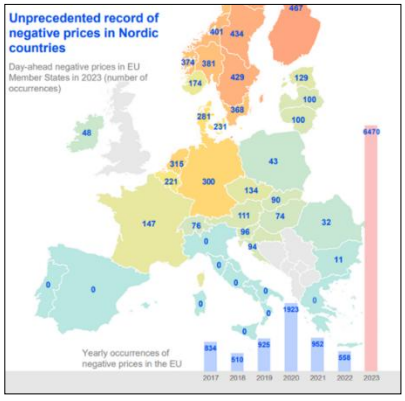
Low capture rates in Spain and energy cannibalization:

As renewable energy sources grow in national energy mixes, they face the challenge of energy cannibalization. In countries with significant renewable penetration, the captured price for these technologies is often lower than the average market price. This occurs because renewables produce the most power when electricity prices are at their lowest. This effect is especially pronounced for solar plants, as their output is concentrated in relatively fewer hours. When the sun shines, the resulting surge in solar power floods the grid, pushing down electricity prices, forcing solar plants to sell their energy at relatively low prices. When the sun sets and solar output decreases, market prices typically rise, but solar plants cannot take advantage of these higher prices. This dynamic poses a special risk for countries like Spain, where abundant sunshine often leads to solar output far exceeding daytime demand, leading to low capture rates. According to the Export and Investment Fund of Denmark (EIFO), Spain's solar capture rates are expected to average around 40% through the end of 2024 and then decline steadily over the coming years to around 17% by 2030 and 19% by 2034, as we adjusted our forecasts accordingly.

This trend could impact solar profitability and slow capacity growth. To address this issue policymakers must develop appropriate incentives for producers and support battery storage solutions.

Negative prices

Figure 16: Occurrences of negative prices in the EU; Source: ACER



In Europe, the rapid expansion of renewable energy has outpaced the grid's ability to deal with excess supply, leading to a record level of negative energy prices. From January to August 2024, the number of negative price hours was superior to the one in the 2019 to 2023 period. While beneficial to consumers, negative prices are harmful to producers, threating the financial viability of renewable energy projects. This challenge highlights the price cannibalization effect of renewables, aggravated by government support schemes meant to incentivize renewable projects. This way, finding a way of balancing this new influx of renewable power output and exploring solution such as storage will be crucial to ensure the viability of the renewable transition. Still, one way developers can mitigate this exposure is through Power Purchase Agreements, a strategy employed by EDP, which had 90% of its generated electricity in 2024 either contracted or hedged.

Return of Trump to the White House:

The November 5th U.S. election delivered a challenging outcome for the renewable energy sector, with clean energy equities tanking across the globe, including EDP, which decreased 8.79% the next day. The election resulted in Donald Trump returning to the White House, alongside Republican control of both the Senate and the House of Representatives, putting many of the energy transition initiatives taken during the Biden administration at risk.

EDP's subsidiary, EDPR, derived 49.4% of its EBITDA coming from North America in the first nine months of 2024, highlighting its significant exposure to the region and vulnerability to Trump's policies.

Figure 17: USA Clean Investment by year ($ Bn); Source: Clean Investment Monitor

Trump will surely pull the US out of the Paris Agreement and has signalled his intention to dismantle the 2022 Inflation Reduction Act (IRA), which fuelled a surge in clean energy development, driving clean investment to $236 billion in the US in 2023. Interestingly, most of the funding is going to districts represented by Republican members of Congress, many of whom oppose full repeal. This may complicate Trump's ambitions and a cap on tax credits seems more feasible than a complete rollback.

Trump is also likely to repeal EV tax incentives and has also picked oil executive Chris Wright to be secretary of energy. Wright defends the need for more fossil fuels and has stated that there is no climate crisis. This suggests he is likely to promote fossil fuel development and reverse many Biden-era initiatives.

Figure 18: EDP's offshore wind projects in US; Source: Company's presentation

	COD	Project	Technology	Gross Capacity
Under dev. rights secured	>2030	SouthCoast Wind	Bottom-fixed	2.4
		KF Wind	Floating	1.2
		Hanbando	Bottom-fixed	1.1
		Bluepoint	Bottom-fixed	2.4
		Golden State	Floating	2.0
		Caledonia	Bottom-fixed	2.0
		Arven	Floating	2.3
		High Sea Wind North	Fixed	1.3

Trump has also vowed to put an end to "horrible" offshore wind turbines, although it is still unclear if Trump will be able to deliver his promise. However, offshore projects could still face legal challenges that could delay their development, potentially reducing their appeal to investors. EDP currently has some exposure to US offshore wind market through its Ocean Winds (OW) joint venture. OW is developing three projects in the US with a combined expected capacity of 6.8 GW, all expected to begin delivering power within the next decade. With this, the return of Trump can increase the risk of delays for these projects.

Overall, Trump's election impact remains uncertain and will greatly depend on internal dynamics within the Republican Party.

At the forefront of ESG management

EDP puts great emphasis on ESG management and has been consistently ranked among the top utilities companies in Europe for this metric. In 2023, they were recognized as the most sustainable electricity company in the world by S&P Global

Figure 19: EDP's ESG accolades; Source: Company's Business Plan

CSA. They continue to be in the leading pack towards the decarbonization of the sector, aiming to be coal free by 2025 and all green by 2030, ending all thermal production in the Client Solutions and Energy Management segment. These targets are considerably more ambitious when compared to some of their European peers and reflect EDP's distinctive "green" positioning, in line with stakeholders growing demands.

We believe that EDP is in a strong position to deal with the material physical and transition risks that can affect their business. Their continued shift away from thermal production reduces their exposure to carbon emissions-related policies, and EDP's management did not quantify a single ESG-related risk as having the potential to affect the company by over €100 Mn. This is consistent with Sustainalytics giving them an 18.2 ESG Risk Rating, placing them in the low-risk category. In addition, EDP are well posed to actually take advantage of opportunities that present themselves due to the increased European efforts toward energy transition, such as incentive policies for renewable production, exploring new green energy sources and lowering their cost of debt via green or sustainability-linked financing.

Financial Forecast:

Renewables:

The Renewables division is EDP's largest segment, contributing 56.4% to the Group's EBITDA in the first nine months of 2024, with its significance expected to increase in the coming years, given EDP's efforts to expand renewables' capacity. This division covers energy generated through Hydro, Wind and Solar technologies. Given this, we valued the division by separately assessing the Hydro and the Wind & Solar segments.

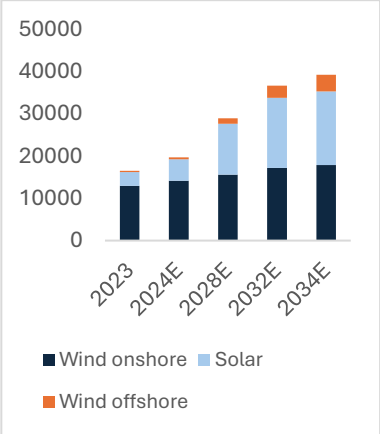
Wind & Solar:

The Wind & Solar segment has as its main drivers Installed Capacity, Load Factor, and Average Selling Price.

- **Installed Capacity**

To estimate future installed capacity, we followed EDP 2024-2026 strategic plan, as the plan has already been revised by the management team and is being implemented successfully. In fact, EDP is committed to deploy €12Bn from 2024 to 2026, averaging €4Bn per year. This investment is expected to result in 10GW of capacity added (around 3GW per year): 6GW of solar capacity, 1,7GW of wind

Figure 20: Renewables forecasted capacity per technology; Source: Analysts Forecasts



onshore, 0.7GW of wind inshore, 0.7GW of batteries, and 0.9GW of solar panels in houses. Following this plan, we estimated EDP to reach a capacity of 24.14 GW in 2026.

From 2026 onwards, we expect this capacity addition growth to slow down in each of EDP's markets (North America, Europe, South America, APAC). Our forecasts extend until 2034, where EDP reaches a capacity of about 39.3 GW, 133.46% up from the current 16.8 GW.

North America:

EDP plans to expand solar capacity well above market growth levels until 2026. After 2026, we expect this growth to converge closer to market levels to 10% by 2030, further slowing down until 2034. On the other hand, wind capacity is expected to expand at 1% annually in the 2024-2026 period, well below market growth rates. We believe this growth is sustainable in the long term and anticipate it to remain constant through 2034.

Europe:

EDP aims to expand solar and offshore wind capacity well above market growth levels until 2026. Afterwards, growth will align with market levels of 8.4% and 24.13%, respectively, in 2030, decelerating further until 2034. For onshore wind, as the strategic plan expects its capacity to grow below the market, we expect this level of growth of 3.8% to persist until 2030, eventually starting to slow down.

South America:

In this region, solar capacity expansion is expected to outpace market growth until 2026, before converging with market rates of 13.81% by 2030 and slowing afterwards. As for wind onshore, as the strategic plan expects its capacity to growth below market growth at 7.18%, we expect this level of growth to continue until 2030 and decline afterwards.

APAC:

In APAC, the strategic plan anticipates capacity to grow at 1.97%. We consider this growth rate sustainable and predict it to remain stable throughout the forecasted period.

- **Load factor:**

Load factors depend not only on weather conditions (wind and solar plants will produce as much as solar and wind conditions allow them to produce) but also on technology efficiency. As mentioned before in the Industry Trends, from 2010 to 2023, load factors improved globally. Solar farms load factors improved from

13.80% to 16.20%, while wind onshore farms load factors improved from 27% to 36%, due to the contributors discussed above.

We expect load factors to keep following this trend, with both Solar and Wind onshore load factors increasing 0.18%, and 0.69% a year, respectively. In fact, as mentioned earlier, new wind turbines use larger blades and lower generators, being able to achieve higher load factors for wind farms. On the other side, between 2028 and 2034, type and tandem module technologies efficiencies are also expected to grow, leading to higher solar load factors.

Also, Europe's new wind offshore additions are expected to be able to achieve load factors of 48.50%, compared to a current average of 34%. We forecast wind offshore load factors to improve as the old fleet is replaced by more advanced and efficient turbines.

However, solar load factors are generally lower than wind load factors, putting downward pressure on overall load factors in the North America, South America and Europe regions as solar capacity, and consequently, solar electricity generation takes on a larger share of the renewables mix. Still, technological improvements more than compensate for this effect, with overall load factors expected to increase gradually over the period forecasted across all regions.

- **Average Selling Price:**

North America:

In the United States, EDP is assumed to sell all its electricity through PPAs, with prices adjusting annually for inflation and reductions in LCOE for both wind and solar technologies. The PPA price in 2024 was 56.58€/MWh for wind and 65.63€/MWh for solar, and both are expected to fall as LCOE decreases. In both Canada and Mexico, the ASP is expected to decrease slightly over the years, as the reduction in LCOE due to technological improvements is expected to outweigh the inflation effect.

Europe:

In Iberia, EDP is assumed to sell 90% of electricity generated through PPAs and 10% in the spot market. PPA prices in Spain were seen around 60€/MWh in 2025 and are expected to adjust to inflation and reductions in LCOE. The part that is sold on the spot market is exposed to the baseload price, which was estimated through future markets. The cannibalization effect is expected to lead to a decrease in the Capture Price form the baseload, with solar energy being more affected than wind. As a result, the ASP of solar is forecasted to decrease along the years, while wind ASP remains relatively constant. In the Rest of Europe, ASP

is expected to decrease slightly over the years as the decrease in LCOE outweighs the effect of inflation.

South America:

In Brazil, EDP is assumed to sell 90% of its electricity through PPAs as well, with the remaining 10% being sold on the spot market. PPA prices in Brazil were 179€/MWh in 2024 and are forecasted to adjust to inflation and reductions in LCOE. The portion of electricity sold on the spot market is exposed to the PLD, which is assumed to remain constant. The cannibalization effect in Brazil is expected to not be as pronounced as in Europe, as Capture Prices decrease slightly over the forecasted period. Wind ASP is expected to increase as inflation outpaces LCOE reductions, while solar ASP is projected to decrease, driven by the opposite effect. However, when converted to euros, both wind and solar ASPs are expected to decrease as the BRL is expected to weaken according to FX markets. In Chile, EDP only sells wind energy, and its price is expected to increase over the years as inflation cancels out the decrease in wind LCOE.

APAC:

In the APAC region, the ASP is assumed to remain constant the forecasted period. In fact, EDP operates in APAC mostly through long-term PPAs. This way, ASP is assumed to not vary with spot prices. Additionally, since renewable technologies in APAC do not significantly contribute to the energy mix, we do not expect renewables technological improvements to influence ASP, as the ASP would be set by fossil fuels. EDP's installed capacity in the region is also not expected to grow substantially, with only a few projects on the pipeline. This way, the ASP will continue to be heavily influenced by previously agreed-upon PPAs, being assumed to remain constant over the years.

Hydro:

Like Wind & Solar, Hydro also presents Installed Capacity, Load Factor, and Average Selling Price as key revenue drivers.

- **Installed Capacity**

EDP's hydroelectric installed capacity has remained stagnant since 2020. With no disclosed plans to expand or reduce hydro capacity, and a clear strategic focus on Wind & Solar, we anticipate no change in hydro capacity throughout the forecasted period, staying at 6.9 GW.

Besides, hydroelectric potential in Portugal and Spain is almost fully exploited. Aligned with the fact hydro plants require a long permitting process, this further sustains our view that hydro capacity will remain unchanged.

- **Load factor:**

Hydro's load factor is mainly dependent on weather conditions such as rainfall. As such, we assumed that the average from the 2018-2023 period would provide a reasonable estimate for the remaining years, both for Iberia and Brazil, as this timeframe is long enough to average out weather-related fluctuations. Additionally, we do not expect technology improvements to significantly impact load factors throughout the forecasted period.

Figure 21: Hydro division drivers; Source: Analysts estimates

Hydro		
Installed Capacity	2023	2034E
Iberia	5520	5520
Brazil	1953	1953
Average Selling Pri	**2023**	**2034E**
Iberia	98,0	54,3
Brazil	214,0	291,9
Load Factor	**2023**	**2034E**
Iberia	28%	22%
Brazil	35%	37%

- **Average Selling Price:**

In Iberia, the average selling price is closely linked to Pool Baseload Prices in Spain. As such, it is forecasted based on future Power Spain Base Load contract prices from OMIP.

In Brazil, almost all EDP's hydro generation is sold under long-term PPA contracts. These contracts are presumed to be indexed to inflation, causing the hydro average selling price in Brazil to vary in line with inflation over the forecasted period.

Gains on disposals:

Gains on disposals until 2026 are forecasted according to EDP's guidance, which estimates 300 million euros a year in gains over this period. After this, these gains are expected to peak in 2027, before starting a downward trend as EDP reduces CAPEX and its yearly capacity additions, slowing down Asset Rotation activity, selling less MW per year.

Networks

Networks is EDP's second largest segment in terms of EBITDA contribution, providing 30% in 2023. Its EBITDA has remained mostly stable, as it is a highly regulated business, notably largely increasing in 2021 due to the acquisition of Viesgo, a Spanish electricity distribution company. EDP operates distribution lines in Portugal, Spain and Brazil, as well as transmission lines in the latter. To achieve as much granularity as possible, we decided to value Networks Iberia and Networks Brazil separately, as we believe that these markets have significant differences, especially in terms of the macro-economic context.

Due to the high capital intensity of the industry, electricity distribution naturally tends to create monopolies, as there are high barriers to entry for potential disruptors. For that reason, revenue in this segment is based on a regulated asset base model, a form of *ex-ante* price control, in which EDP works as the operator for publicly-owned electricity lines, with the return to investors being based on the value of RAB (the value of the investment put in) and WACC, which is set by the

regulator at the beginning of the regulatory period. This business model ensures that Networks remain a low-risk part of EDP's portfolio, which returns on investment ensured by regulators and with EDP being able to generate a larger EBITDA based on the cost savings they can achieve. Therefore, this segment's main drivers are the Regulated Asset Base (RAB), the Rate of Return (RoR) on RAB and cost savings.

Networks Iberia

RAB (€ Mn)	2023	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E	2033E	2034E
Portugal	2939	2968	3002	3036	3069	3102	3136	3170	3205	3240	3275	3311
Spain	1867	1894	1937	1980	2019	2039	2048	2058	2068	2077	2087	2097

Figure 22: Networks Iberia RAB; Source: Analysts Estimates

- **Distribution in Portugal**

EDP is responsible for 99% of all electricity distribution in Portugal, holding a natural monopoly under the regulated model. We do not foresee any changes to the company's standing in the market, with the concessions for high and medium voltage electricity distribution having been given to EDP until 2044. The concessions for low voltage, however, will be auctioned in 2025, having mostly expired in 2022. At this moment, we expect that EDP will renew these concessions, retaining their hold on the country's distribution as a whole. Nonetheless, should they decide not to renew, they will be compensated for their investment for as much as €1,3 billion. Based on their market position, we expect RAB in Portugal will remain relatively stable, growing from €2939M in 2023 to €3036M in 2026, according to their business plan, and growing at a little over 1% a year following that. This growth is due to the expansion of distribution lines to facilitate the energy transition in the country.

As for the rate of return in Portugal, it decreased year-on-year from 2018 to 2021, from 5,43% to 4,76%, before going up again in 2022 at the beginning of the new regulatory period. In Portugal, the RoR has the particularity of being indexed with the 10y Portuguese Government Bond, which currently has a yield of around 2,5%. Based on market expectations, we expect this yield to fall to around 2,42% in 2025, leading to an RoR of 5,34%, which will remain stable going forward, as we do not expect major changes in the next regulatory period, starting in 2026.

As for the country's gross profit and EBITDA, we expect it to stay largely stable, given the modest growth in RAB, a constant rate of return and the cost savings achieved, which we have forecasted as 50% of the previous years' average, as we

do not expect that EDP will be able to sustain such high levels of cost savings in the future, especially after adjustments regarding OPEX in the next regulatory period.

- **Distribution in Spain**

In recent years, EDP's electricity distribution in Spain was mostly marked by the acquisition of Viesgo at the end of 2020, causing the company's EBITDA in the country to more than double the following year, from roughly €166M to €369M. Since then, the business has remained quite stable. RAB in Spain will increase from €1867M in 2023 to €1980M in 2026, following EDP's 24-26 Business Plan. After this point, we expect to see a decrease in the growth rate of RAB in the country, eventually growing at about 0,47% a year. This is because we do not consider the trajectory of RAB until 2026 to be sustainable, given that most if not all of CAPEX being invested in Spain is predicted to go towards maintenance, with the amount invested for this purpose naturally having increased significantly since Viesgo's acquisition.

Regarding the rate of return in Spain, it will remain at 5,58% until the next regulatory period in 2026, at which point, based on market expectations, the regulatory environment is predicted to improve for electricity distribution with the RoR increasing up to 6,5%.

Thanks especially to the expected improvements in the rate of return in the regulatory period starting in 2026, Spain's EBITDA will grow more significantly than in Portugal, despite a marginally smaller growth rate of RAB in the long-term. Cost savings follow the same rationale as in Portugal.

Networks Brazil

RAB (€ Mn)	2023	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E	2033E	2034E
Brazil Distribution	1470	1312	1448	1584	1631	1677	1719	1759	1799	1840	1883	1926
Brazil Transmission	1352	817	908	1000	958	938	938	947	957	966	976	986

Figure 23: Networks Brazil RAB; Source: Analysts Estimates

- **Distribution in Brazil**

Whilst electricity distribution and transmission in Brazil still follow a RAB model, there are some changes. Namely, electricity demand has an effect on the business, since if energy contracted is below 105% of the actual demand, the

companies must cover these costs themselves, by charging tariffs on customers. That being said, we do not believe that EDP will encounter any problems with this in the following years, since the company has excelled in service quality and has captive consumers.

When it comes to networks, Brazil has been the fastest growing geography in recent years. In distribution, despite the adverse effects of the devaluing of BRL, RAB has increased from €1090M to €1470M from 2018 to 2023. EDP's 24-26 Business Plan conveys a plan to invest significantly in Brazil's distribution lines, with RAB reaching €1584M in 2026. After this point, we expect this significant growth to continue, but trend towards the growth of the country's GDP, accompanying the energy transition in Brazil, as this is a more realistic long-term growth rate.

In Brazil we assumed a constant RoR of around 7,29% in our forecasts, with the country's regulatory environment being very attractive for network investment. RoR was calculated as the weighted average between the rate of return in São Paulo and Espírito Santo, based on each of their contribution towards the company's RAB.

Average computed historical cost savings in Brazil have been extremely high in the past few years and we do expect that this trend is likely to continue. Therefore, we expect that these values will trend towards similar levels to those seen in Iberia, which, while still high, are more reasonable, especially as regulators adjust going forward. Furthermore, we expect that the depreciation rate of the country's assets, which is significantly smaller than that seen in Iberia, will moderately increase in the future. Nevertheless, driven by significant growth in RAB and a favorable regulatory environment, Brazil's distribution EBITDA is forecasted to grow quite substantially in coming years.

- **Transmission in Brazil**

Similarly to distribution in Brazil, EDP has been investing heavily in the transmission business, acquiring several new transmission line concessions in recent years. From 0 investment in 2018, EDP currently had a transmission RAB of €1352M in 2023. In February 2024, EDP sold a transmission line of 743km for €482M, negatively affecting RAB. However, EDP's business plan foresees significant investment in this part of the business, with RAB recovering to €1000M in 2026, implying a CAGR of -4,21% between 2022 and 2026. We expect RAB to continue to follow this downward trend, as EDP manages its exposure to Brazil for forex purposes, but based on the expected investment and the attractiveness of

the regulatory environment, we expect this trend to revert, with RAB eventually settling at 1% growth in the long-run.

RoR was taken as a constant 7,56% and cost savings and depreciation rate are expected to follow a similar trend as in Brazil's distribution business.

Client Solutions and Energy Management

EDP's final core sector is Client Solutions and Energy Management. CSEM has suffered great changes in the last few years due to the decrease in non-renewable energy production, especially coal. This segment can be divided into supply and thermal generation.

Supply:

EDP's supply business operates in Portugal, Spain and Brazil, selling both electricity and natural gas (except in Brazil, where they only supply electricity) in the liberalised market, as well as in the regulated market in Portugal. For simplicity, we treated liberalised and regulated energy sold as sold at the same price. We considered its main drivers to be the volume of electricity and gas sold and the EBITDA/GWh ratio.

- **Volume of electricity sold**

In Portugal, the energy sector used to exist under a regulated market with a monopoly by EDP Serviço Universal. However, since 2006, Portugal opened the market to competition and today over 95% of total consumption comes from the liberalised market. As such, EDP holds the position of the incumbent in this market, and their market share has been falling year-on-year, with the company holding around 69% of all liberalised electricity market clients as of 2023, while still maintaining over 95% of all clients in the regulated market. The latter is expected to end in 2025, due to the imminent mandatory transition to the liberalised market in Portugal. We expect EDP will be able to keep its market share in the regulated market for the next 2 years, whilst in the liberalised market we predict that competition will continue to exert downward pressure on EDP Comercial's market share, until it stabilizes at around 60%. We expect to see this type of stabilization due to the high level of confidence and loyalty from consumers, consumers' resistance to change and the concentration of incumbent market shares in other mature liberalised energy markets. As for the natural gas clients, we believe they will follow a similar trajectory to the electricity clients, adjusted for EDP's smaller current market share in that market.

In Spain, EDP has a much smaller market share in the liberalised market (and no present in the regulated market at all), especially after the disposal of the B2C portfolio in 2020, resulting in the company's market share going from over 6% to around 0,11% of clients. The number of clients in the country has nonetheless still seen a slight decline over the past few years, and we expect it to follow this trend, with the market share decreasing by another 0,01% before stabilizing. Despite the stable market share, we expect the number of electricity clients in Spain to actually marginally increase, as the Spanish market continues to follow the course towards further liberalisation, increasing the pool of clients to which the company has access to. Once again, we assumed the gas clients would follow a similar trajectory.

The volume of electricity sold is the product between the number of supply clients and their average electricity/natural gas consumption. We expect that the average of electricity consumed will grow proportionally to the electricity consumption in their respective country, with it growing at a CAGR of 2,12% between 2024-2030 in Portugal, 1,60% in Spain and 3,40% in Brazil. In all 3 countries in which the supply business operates, electricity consumption is expected to increase going forward due to the continued rise in digitalization and decarbonisation projects, despite these effects being somewhat offset by improvements in energy efficiency, In Portugal in particular, some expect its energy consumption to increase drastically, almost reaching 90TWh by 2030. However, we used a more conservative estimation, given that this increase mostly reflects industrial electricity consumption (and a large portion of EDP's clients are residential) and the uncertainty behind the feasibility of some of the projects that would boost this consumption, as was seen by the recent dismissal of the Aurora project by GALP. Demand for natural gas, on the other hand, is expected to decrease at a CAGR of 2,54% in Europe until 2030. Since the increase in a country's electricity consumption already takes into account the effects of population growth, the total number of clients in the electricity markets were considered constant, so as to not double count this effect.

- **EBITDA/GWh:**

To estimate the revenues from the supply business, we used EBITDA/GWh as the main driver. We expect that inflation will cause this caption to increase over time, with 2022 being used as the reference year, as this is the last year we had access to separate supply and thermal generation EBITDAs. In the case of Iberia, inflation was the weighted average of Portugal and Spain's inflations based on their respective contribution to volume sold. EBITDA/GWh therefore was forecasted to

grow from €4870/GWh in 2024 to €5940/GWh in 2034 in Iberia, whereas in Brazil it grew from BRL 6060 in 2024 to BRL 8150 in 2034.

Thermal Generation and Energy Management:

After the sale of the Pecém coal power plant in Brazil in 2023, in line with EDP's strategy to somewhat reduce their exposure to Brazil, EDP's thermal generation is now exclusively conducted in Iberia, where this is a liberalised activity. As of 2024, this segment still includes the generation of Coal, CCGT and Nuclear (all generation considered as "Others" by EDP, including nuclear and co-generation was treated as nuclear, for simplicity and given it is almost negligible). The main drivers for Thermal Generation are the output in GWh, the estimated spreads from each technology and the OPEX.

- **Output (GWH)**

The energy output was calculated based on the installed capacity of each technology and its respective load factor. Starting with the nuclear generation, we do not foresee any changes in the already quite small installed capacity of 17MW and we expect that the load factor of 25% seen thus far in 2024 will remain constant going forward, leading to an annual output of 37 GWh.

Looking at Coal, EDP has nearly completed its transition to being coal-free in 2025, with only 916MW of installed capacity left in Spain. Additionally, the load factor for coal generation, which was on average 40% between 2018 and 2022, has been at 1% over the first 9 months of 2024. Therefore, we forecast a measly generation of 106 GWh (compared to 4152 GWh in 2022) in 2024 and expect EDP to complete the disposal of the remaining coal installed capacity in 2025, with no more energy being produced from this source going forward.

As for CCGT, EDP's goal is to stop the production of CCGT by 2030, 5 years ahead of the European target. For this reason, we forecasted a gradual decline in CCGT installed capacity until it reaches 0 MW in 2030. As for its load factor, CCGT has been operating at a 7% load factor in first 9 months of 2024, a significant drop-off from previous years. We expect this value to recover somewhat in 2025 to an average of the previous four years and remain stable going forward.

- **Technology Spreads and OPEX**

We assumed as the final selling price of thermal generation the baseload energy price in Spain, as this is the value EDP has used in the past to calculate its spreads, and thermal generation is sold on the liberalised market. The estimation of the baseload price, as stated previously was calculated using future Power Spain Base

Load contract prices from OMIP. It can observe that the baseload price is higher in 2024 and 2025, at 64€ and 69,95€ per MWh, respectively, progressively decreasing from there mainly due to renewable energies (with lower marginal costs) being the price-setting technology more often.

The marginal cost of each technology's production was estimated based on the sum between fuel costs and its emission costs (except for nuclear, which does not incur in any emission costs). Fuel costs were calculated based on estimates given by the *Plan Nacional Integrado de Energía y Clima* (PNIEC 2030). Fuel costs for nuclear are expected to stay constant, whereas coal and CCGT fuel costs are expected to grow at around 1,8% and 3,5% per year, respectively. As for the emission costs, those are based on the Co2 licenses' prices and the average emissions of each technology (once again following PNIEC estimates), with Coal having higher emission costs compared to CCGT. Based on the difference between these variable costs and the baseload prices, the quark, clean dark and clean spark spreads were calculated.

Finally, the operating expenses from each technology were estimated as a variable cost based on MWh produced. For CCGT and Coal, we followed ERSE's estimation of 0,2€/MWh generated, and for nuclear a much higher estimation was needed, with the expected OPEX being 20€/MWh.

Valuation:

To value EDP we used a SOTP valuation approach, segmenting the company into three divisions: Renewables, Networks, and Clients Solutions & Energy Management. This segmentation reflects the different risk profiles and growth prospects across the divisions. With this, we utilized the Discount Cash Flow (DCF) method to value core operating items, while to value non-core elements we used the book value method.

To value each division, we forecasted EDP's financial statements until 2034, assuming a perpetual growth rate after this period. The future cash flows for Renewables, Networks Iberia, Networks Brazil and Clients Solutions & Energy Management divisions were discounted at a WACC of 5.24%, 4.45%, 5.80%, and 4.82%, respectively. Perpetuity growth rates were based on inflation rates and assumed to be 2%, 2%, 3%, and 2% for each division respectively.

After conducting our analysis, we reached an Enterprise Value of 45.94 billion euros. To reach the Equity Value, we subtracted to the company's Enterprise Value its Net Financial Debt, its Institutional Partnerships Liabilities, and its Minorities,

Figure 24: SOTP valuation; Source: Analysts Forecasts

SOTP	I Thousands
Renewables	26234863
Networks Iberia	10153895
Networks Brazil	3380938
CS&EM	3304901
Intersegments	-561850
Core Business	**42512747**
Investment in Joint Ventures and Assoc	1703802
Net Non-operating assets	1727116
Total EV	**45943665**
Net Financial Debt	23846367
Institutional partnerships liabilities	2233163
Minorities	3249667
Equity Value	**16614467**
Shares	4160000
Dilluted Shares	4260000
Price Target	3,90
Current Price	3,17
Potential Upside	**23,03%**

reaching a value of 16.61 billion euros. Dividing the Equity Value by the number of diluted shares outstanding, our analysis predicts a share price of 3.90€, meaning an upside potential of 23.03%.

Renewables:

WACC calculation:

To compute the Weighted Average Cost of Capital for the Renewables division, it was necessary to determine the segment's target D/E ratio, as well as the cost of equity and cost of debt.

The current target D/E ratio of 53.54% was assumed, as we don't predict significant changes in EDP's capital structure in the foreseeable future.

Figure 25: WACC Renewables estimation; Source: Analysts Forecasts

WACC Renewables	
Risk Free Rate	2,1%
Re-Levered Beta	0,81
Market Risk Premium	5,8%
Levered cost of equity	**6,8%**
Probability of Default (Annualized)	0,23%
Loss Given Default	0,48
YTM	2,83%
Cost of Debt	2,71%
Tax Rate	16,0%
After-tax cost of debt	**2,3%**
Target D/E	54%
WACC	**5,24%**

To estimate the cost of debt, we used the outstanding bond with a maturity as close as possible to our forecast duration as the basis base our analysis. This bond currently has a YTM of 2.825% and matures in June of 2028, with a remaining maturity of 3.58 years at the time of valuation. EDP currently as a BBB credit rating, which gives it a 4-year annualized probability of default of 0.23% and a recovery rate of 52%. With this data, and assuming a tax rate of 16%, we were able to reach an after-tax cost of debt of 2.279%.

To estimate the cost of equity, we used CAPM. For the risk-free rate, we used the current yield of the 10-year German bund at 2.145%. The Market Risk Premium was assumed to be 5.8%, after observing the average MRP from 2011 to 2023 in Germany ranged between 5.3% and 5.8%. To obtain the industry unlevered beta, we selected a set of six comparable peers, extracting their raw betas from Yahoo Finance. Each raw beta was unlevered, and the average was computed to reach the industry unlevered beta. We then re-levered this beta using the Renewables division target D/E ratio of 53.54%, resulting in a re-levered beta of 0.81 for the segment. Using the CAPM formula, we calculated a levered cost of equity of 6.826% for the Renewables segment.

With all necessary variables accounted for we reached a WACC of 5.24%.

DCF Renewables:

We expect NOPLAT to increase steadily from 2025 to 2028 at a CAGR of 7.95%, driven mainly by revenues and gains from disposals. However, beyond this point, it is forecasted to decline as EDP slows down its Asset Rotation activity. Also, despite increasing revenues, rising D&A expenses more than offset this growth, leading to a downward trend in NOPLAT through 2034, decreasing 28.55% from 2028 to 2034.

Still, Operating Free Cash Flow is expected to follow an upward trend as the company begins to ease the substantial CAPEX investment starting in 2028.

Using the computed WACC and assuming a terminal growth rate of 2%, we estimate this division to have an Enterprise Value of 26.23 billion euros.

Networks:

DCF Networks Iberia:

In Iberia, we expect NOPLAT to increase at a CAGR of 2.95% until 2026, driven by significant growth in the regulated asset base of the region and consistent cost savings. After this, RAB growth slows down, especially in Spain as we expect that most of CAPEX invested in the country will go towards maintenance. For this reason, from 2027 to 2030, NOPLAT CAGR will be at 1.31%.

Operating cash flow will be greatly affected by EDP's investment plan, as we predict CAPEX to increase intangible assets, offsetting most of the growth in gross cash flow. Nonetheless, we expect consistent growth in the operating free cash flow over time. Based on the computed WACC of 4.45%, we estimate Networks Iberia to have an Enterprise Value of €10.15 Bn.

DCF Networks Brazil:

Despite the normalization of cost savings achieved in Brazil over time, we still expect that the rapid growth in the distribution line, coupled with a profitable regulatory environment, will see NOPLAT rise steadily over the forecasted period at a CAGR of 1.8%. Furthermore, the reversal of the trend of a decrease in transmission assets will help sustain growth in the long-term.

Operating cash flow is expected to be negative in 2025 and 2026, as we expect a rapid increase in fixed assets to compensate for the asset rotation deal of a transmission line in February 2024. After this, however, we do not foresee any more sudden in the asset base, allowing for steady growth from 2029 until 2034. Based on the computed WACC of 5.80% and an inflation appropriate 3% terminal growth rate, we estimate Networks Brazil to have an Enterprise Value of €2.78 Bn.

Client Solutions and Energy Management:

DCF Client Solutions and Energy Management:

Due to the disposal of all coal-producing assets in 2025 and the gradual decline in CCGT installed capacity, the CSEM segment will go through significant changes over the forecast period. NOPLAT will increase as substantially as the Supply business takes a greater role in the overall portfolio, with large reductions in D&A due to the loss in installed capacity.

The segment's free cash flows will also benefit from the disposal of CCGT generation assets, leading to a large dip in UFCF in 2031, from €806 Mn to €29 Mn. after the shift to all renewable energy is completed. Beyond this point, however, we expect to see free cash flows continue to rise as the supply business stabilizes its market share and benefits from increase consumer demand for energy. Based on the computed WACC of 5.80%, we estimate the Client Solutions and Energy Management segment to have an Enterprise Value of €3.38 Bn.

Relative valuation:

After selecting peers based on geographical exposure and business model, we identified a set of seven comparable companies to perform EDP's relative valuation. For this analysis, we utilized multiples such as EV/EBITDA, EV/EBIT, EV/Installed Capacity, and P/B. The P/E multiple was excluded, as differences in capital structures between peers make it unsuitable for meaningful comparisons. Also, to account for possible outliers which can bias our analysis, our industry benchmarks are based on the median values of these multiples.

Comparing EDP's multiples to the industry benchmarks reveals that EDP is consistently trades below the median, despite having the second-best margins and the highest expected growth for 2025 among its peers. However, EDP presents a relatively weaker ROIC and Revenues/PPE, suggesting it is less efficient than its peers in generating revenue from its assets.

The combination of a lower ROIC with a relatively high expected growth seems to weigh on EDP's multiples, as it might lead to value destruction, which is unattractive to investors.

By calculating the median equity value implied by the market-implied multiples, we reach an equity value of 14.49 billion euros, equivalent to a share price of 3.40€. This suggests a potential upside of 7.3%.

Sensitivity Analysis:

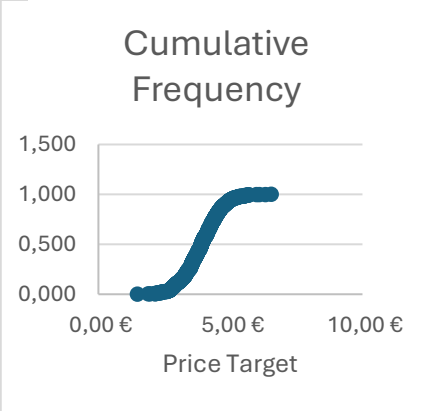
Formula for calculating number of runs

$$N = \left(\frac{z_{\alpha/2}\hat{\sigma}}{\varepsilon} \right)^2$$

Since there are several variables included into our model that are not certain, we performed a sensitivity analysis on our price target using Monte Carlo simulations. A Monte Carlo simulation is a model which takes repeated random samples of model input variables over many simulation runs to better understand how the system will operate when these variables change.

We chose a total of 15 variables to be simulated in the runs, 5 from each segment, based on 2 criteria: that they directly affect key drivers of their respective segment

Figure 26: Price Target Cumulative Frequency; Source: Analysts Estimates



and that their estimations holds a degree of uncertainty. These variables were: the average annual levelized cost of energy decline for new wind onshore, offshore and solar projects; the yearly increase in load factors for wind onshore and solar; The rate of return on the regulated asset base after the new regulatory period in Portugal, Brazil Distribution and Brazil Transmission; Brazil Distribution and Transmission's long-run RAB growth rate; the CAGR of electricity demand in Portugal, Spain and Brazil; EDP's final market share in the liberalised market in Portugal and Spain. We defined probability distribution functions for all these variables, assigning them a mean and a standard deviation.

After this, we calculated the number of simulations we would need to run. We chose a confidence interval of 95% and a level of precision of €0.05. A standard deviation of the price target (~0.73€) was estimated by doing a pilot simulation of 50 runs. Based on these calculations, we simulated 820 runs.

The Monte Carlo simulations yielded an expected value and median value of 3.90€, consistent with the target price computed using the DCF model. Given the high precision level of €0.05, this result proves supportive of our investment thesis, as even with a negative deviation of €0.05 which could arise from variation in the input variables, buying the stock would still provide an upside of 21%. Whilst it is important to note that 15.49% of all runs resulted in a price target below the current market price of the stock, this is still not enough to be of great concern of any potential investor.

Appendix

Financial Statements

Consolidated Cash Flow Map Total	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
EBIT	1200550	1519657	1672688	1467740	1938654	2310783	2526856	2101764	2553178	2578964	2575452	2569414	2450757	2385223	2354038	2351981	2379526
(-) Taxes	179269	350416	353214	281230	549730	594463	616540	508359	643056	636754	633460	632335	601826	587715	584474	587924	598223
NOPLAT	1021281	1169241	1319474	1186510	1388924	1716320	1910316	1593405	1910122	1942209	1941992	1937079	1848931	1797509	1769564	1764057	1781302
(+) D&A and Provisions	1732602	1867149	1743924	1792265	1993547	2221857	1627229	1906317	2003127	2302112	2504451	2534114	2581407	2611576	2628163	2636437	2642510
Gross Cash Flow	2753883	3036390	3063399	2978776	3382471	3938176	3537545	3499722	3913249	4244322	4446443	4471193	4430338	4409085	4397728	4400493	4423812
(-) Change in NWC		-302585	574702	451410	-2473827	1061706	796788	-763158	-77957	-68102	-62889	-53843	-55283	-24862	-17022	-14612	-14391
(-) Change in fixed assets (Net CAPEX + Goodwill)		-1896215	3347265	2252543	6416826	3815920	4232595	3112723	4036689	4400636	4643539	4362240	3867074	3940026	3352038	2982254	2832898
(-) Change in Net Other Operating Assets		4201707	-3107486	883802	1518334	328027	-1939659	-324479	-34115	-14899	-47321	-2350	-24099	1051	-19369	-34685	-42143
Operating Free Cash Flow		1033483	2248917	-608980	-2078862	-1267477	447821	1474637	-11367	-73314	-86886	165146	642646	492870	1082081	1467537	1647449

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Non-Operating Result	229374	177104	305992	261485	412001	216025	291664	294818	324794	415685	454796	476854	492434	481150	462847	451974	450616
(-) Change in Other Non Operating Assets and Liabilities - net		145870	-166716	409373	261924	-49576	111965	99792	62558	-59662	-29734	-55570	194903	74607	-29926	-79661	-84184
Non-Operating Free Cash Flow		**31234**	**472708**	**-147888**	**150077**	**265601**	**179699**	**195026**	**262236**	**475346**	**484530**	**532425**	**297532**	**406543**	**492773**	**531635**	**534800**
Total Cash Flow Avaible to Investors		**1064717**	**2721625**	**-756868**	**-1928785**	**-1001876**	**627520**	**1669663**	**250869**	**402033**	**397643**	**697570**	**940177**	**899412**	**1574855**	**1999172**	**2182248**
(+) Financial Result	-260127	-344184	-330533	-235278	-477084	-478794	-508358	-378969	-210088	-139155	-34379	25032	125370	167144	199468	260159	342767
(+) Change in Net Debt and Other Claims		552299	-1535122	1298274	3872667	112025	947820	-339864	1234861	1134928	1125053	813946	488496	474299	-242239	-699332	-902964
Debt Financing Cash Flow		**208115**	**-1865655**	**1062996**	**3395583**	**-366769**	**439462**	**-718833**	**1024773**	**995773**	**1090675**	**838977**	**613866**	**641443**	**-42771**	**-439173**	**-560197**
(-) Comprehensive Income	990528	1002161	1294933	1212717	1323841	1453550	1693622	1509254	2024828	2218739	2362409	2438965	2466735	2445802	2431879	2476189	2574685
(+) Change in Equity		-270671	438963	906589	-142957	2822195	626640	558424	749186	820933	874092	902417	912692	904947	899795	916190	952633
Equity Financing Cash Flow		**-1272833**	**-855970**	**-306128**	**-1466798**	**1368645**	**-1066982**	**-950830**	**-1275642**	**-1397806**	**-1488318**	**-1536548**	**-1554043**	**-1540855**	**-1532084**	**-1559999**	**-1622052**
Financing Cash Flow		**-1064717**	**-2721625**	**756868**	**1928785**	**1001876**	**-627520**	**-1669663**	**-250869**	**-402033**	**-397643**	**-697570**	**-940177**	**-899412**	**-1574855**	**-1999172**	**-2182248**

EDP Group - Balance Sheet Core Business Thousand euros	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Assets																	
Property, plant and equipment	22707511	19676222	20390294	21099241	24216807	26078762	28328050	28647292	29989561	31471918	32903481	34043481	34638304	35287015	35384745	35135127	34740151
Right-of-use assets	0	828503	1030193	1007029	1320270	1225430	1386419	1411848	1481638	1557593	1630847	1689851	1722262	1754310	1759487	1747716	1728853
Intangible assets	4736530	4223823	4998235	4757493	4984002	4824773	5084927	5761947	6250151	6712518	7220162	7768973	8300972	8862372	9409782	9948371	10482463
Goodwill	2251461	2119862	2335964	2379386	3469228	3378803	3507262	3703812	3894309	4040261	4192993	4332309	4491152	4609493	4688227	4745072	4796344
Debtors and other assets from commercial activities (Non-Current)	2522640	3424220	2747012	2668506	3772126	3915942	3431483	4066018	3618986	3508562	3489139	3495220	3363314	3466497	3571479	3682187	3799104
Non-Current tax assets	53728	389037	251770	173846	109902	122749	211788	263947	220954	209101	205793	204829	191831	199574	207517	216004	225045
Deferred tax assets	1152195	1084046	1206603	1509092	1784292	1409332	1368366	1498356	1460410	1473823	1499618	1526592	1527871	1562272	1594149	1626075	1659037
Current tax assets	354057	415735	414302	551842	814298	830168	615108	716588	647643	638524	645269	654823	640555	661558	681345	701715	723146
Operating Cash	231938	209754	233983	261363	389360	262326	296293	354259	310764	302001	302592	305224	294268	304799	315016	325684	336968
Inventories	342037	368334	323945	733381	1256300	805448	657262	866413	808373	804134	813893	826091	815462	838106	859484	881329	904166
Debtors and other assets from commercial activities (Current)	3167479	2858160	3545611	5928004	4888220	4627654	5879798	6427034	6296038	6325079	6391890	6468869	6451896	6577336	6699942	6824076	6951895
Non-Current Assets held for sale	11065	2255887	22248	700791	101900	1170528	862143	753656	677716	624558	587347	561299	543066	530303	521368	515114	510736
Total Core Assets	**37530641**	**37853583**	**37500160**	**41769974**	**47106705**	**48651915**	**51628897**	**54471170**	**55656542**	**57668072**	**59883025**	**61877560**	**62980954**	**64653634**	**65692542**	**66348471**	**66857909**
Liabilities																	
Provisions (Non-Current)	982515	926426	994105	976588	922059	871019	851208	851208	851208	851208	851208	851208	851208	851208	851208	851208	851208
Employee benefits (Non-Current)	1099049	1128155	1138237	940266	644299	540159	662189	658828	658351	660607	665464	672807	682537	689090	697443	707513	719228
Trade payables and other liabilities from commercial activities (Non-Current)	1356245	1644307	1702005	1806925	1412454	1410757	1522021	2119534	1881572	1840355	1851805	1873722	1818360	1881595	1942034	2004735	2070916
Deferred tax liabilities	574701	503746	871242	989078	1244593	1479223	994043	1096625	1053608	1070439	1102104	1133314	1139491	1171924	1200066	1227903	1256791
Non-current tax liabilities	97637	138212	122743	124362	179250	138834	148996	185691	155444	147106	144779	144100	134956	140404	145992	151962	158323
Current tax liabilities	566089	478594	398634	582686	1001102	733823	661756	765209	698680	689563	695627	704641	690195	711205	731244	751893	773580
Provisions (Current)	35930	126091	260154	110319	51285	51708	52267	52267	52267	52267	52267	52267	52267	52267	52267	52267	52267
Trade payables and other liabilities from commercial activities (Current)	3862245	3859623	3952213	6320011	8404970	6504812	4679929	6197231	5920138	5944463	6044852	6154472	6129214	6285081	6429318	6574837	6726041
Employee benefits (Current)	308253	183514	204067	179534	126767	124710	139100	138548	138596	139210	140366	142039	144210	145696	147556	149774	152335
Non-Current Liabilities held for sale	0	78822	111	88065	0	693148	47611	33328	23330	16331	11431	8002	5601	3921	2745	1921	1345
Total Core Liabilities	**8882664**	**9067490**	**9643511**	**12117834**	**13986779**	**12548193**	**9759119**	**12098468**	**11433194**	**11411549**	**11559904**	**11736573**	**11648040**	**11932391**	**12199873**	**12474012**	**12762033**
Total Core Invested Capital	**28647977**	**28786093**	**27856649**	**29652140**	**33119926**	**36103722**	**41869778**	**42372703**	**44223348**	**46256524**	**48323121**	**50140987**	**51332914**	**52721243**	**53492669**	**53874458**	**54095876**
Non-Core Business **Assets**																	
Investment in joint ventures and associates	951613	1098512	940362	1350445	1605743	1558117	1669493	1769284	1831842	1772181	1742447	1686877	1881779	1956387	1926460	1846799	1762615
Investment property	30973	29944	21378	20668	27294	25344	25934	25934	25934	25934	25934	25934	25934	25934	25934	25934	25934
Available for sale investments	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Non-Core Assets	**982586**	**1128456**	**961740**	**1371113**	**1633037**	**1583461**	**1695426**	**1795218**	**1857776**	**1798114**	**1768381**	**1712810**	**1907713**	**1982320**	**1952394**	**1872732**	**1788548**
Liabilities																	
Hydrological correction account	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Non-Core Liabilities	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Non-Core Invested Capital	**982586**	**1128456**	**961740**	**1371113**	**1633037**	**1583461**	**1695426**	**1795218**	**1857776**	**1798114**	**1768381**	**1712810**	**1907713**	**1982320**	**1952394**	**1872732**	**1788548**
Financial																	
Excess Cash	1571267	1332968	2720319	2961046	4510845	3110106	788083	2423293	3348395	4303462	4736207	5827360	6705205	7379144	8459492	9860711	11515442
Equity instruments at fair value	125147	170806	184748	189942	216418	204752	59133	179975	220279	281588	310920	400051	463473	502831	567868	664137	779277
Other debtors and other assets (Non-Current)	629620	932578	1020788	1841147	1924510	1783967	1355435	1355435	1355435	1355435	1355435	1355435	1355435	1355435	1355435	1355435	1355435
Collateral deposits associated to financial debt (Non-Current)	25466	21690	22848	23397	23765	35512	30712	31516	32637	33881	35212	36585	37968	39229	40670	42029	43440
Other debtors and other assets (Current)	594808	881779	851594	2810855	3371795	1291742	1633762	1633762	1633762	1633762	1633762	1633762	1633762	1633762	1633762	1633762	1633762
Financial assets at fair value through profit or loss	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Collateral deposits associated to financial debt (Current)	167425	39786	9221	26678	29336	35219	67266	69027	71480	74206	77122	80129	83157	86139	89076	92052	95143
Institutional partnerships in North America	2231249	2289784	1933542	2259741	2212162	2188245	2972958	3680469	4318372	5393516	6362884	7236883	7524894	7784570	8018699	8229793	8420118
Medium/Long term financial debt	13462390	13124615	14023940	15299588	15782604	16728111	17836272	18303185	18953800	19676451	20449641	21247101	22049838	22840623	23619519	24408550	25228160
Other liabilities and other payables (Non-Current)	756899	1177119	1739448	3039975	5159496	3299935	3528832	3916504	4420275	4632613	4545838	4753317	4936651	5060913	5041178	4969327	4935028
Short term financial debt	2622509	3446854	2262823	1518348	4239869	3904580	3572635	3666159	3796478	3941226	4096098	4255830	4416620	4575015	4731029	4889074	5053243
Other liabilities and other payables (Current)	770922	623771	597178	2781101	3600893	1370807	2305455	2558729	2887853	3026578	2969886	3105436	3225212	3306394	3293501	3246559	3224151
Net Financial Assets	**-16730236**	**-17282536**	**-15747413**	**-17045688**	**-20918355**	**-21030380**	**-26281761**	**-26432036**	**-27714790**	**-28988051**	**-30275689**	**-31265243**	**-31874216**	**-32570876**	**-32557621**	**-32895175**	**-31438201**
Total Invested Capital	**29630563**	**29914549**	**28818389**	**31023253**	**34752963**	**37687183**	**43565204**	**44167921**	**46081124**	**48054638**	**50091501**	**51853798**	**53240627**	**54703563**	**55445063**	**55747191**	**55884424**
Equity	**12900327**	**12632013**	**13070976**	**13977565**	**13834608**	**16656803**	**17283443**	**17735885**	**18366335**	**19066587**	**19815813**	**20588555**	**21366412**	**22132687**	**22887441**	**23652016**	**24446223**

Income Statement

EDP Group	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Revenues	15278085	14333009	12448205	14982909	20650764	16202308	19427059	22507143	20529621	20198312	20304027	20507121	20028923	20620114	21194579	21783707	22415016
Cost of Good Sold	-10178303	-9115853	-7356487	-10148018	-14523713	-9205348	-12604614	-15411661	-13418421	-12308480	-12801947	-12805295	-12217778	-12635641	-13060279	-13503904	-13986398
Gross Profit	5099182	5217150	5091718	4834891	6121051	6996960	6822445	7095482	7111200	7289832	7502080	7701826	7811145	7984474	8134300	8279803	8428618
EBITDA	2886401	3349672	3338176	3199163	3789602	4438407	4450335	4425569	4504158	4807837	4945876	5035901	5046201	5061061	5051217	5059613	5091460
Depreciation and Provisions	-1732750	-1867149	-1743924	-1792265	-1993546	-2221856	-1859826	-2065531	-2136986	-2204601	-2273105	-2336360	-2387239	-2453562	-2518179	-2568473	-2615919
EBIT	1153651	1482523	1594252	1406898	1796056	2216551	2590509	2360038	2367173	2603236	2672771	2699541	2658962	2601500	2533038	2491140	2475541
Adjusted Taxes	-246817	-416116	-408518	-328459	-561224	-622392	-612898	-584550	-588185	-643915	-662169	-670723	-663246	-651516	-637279	-628976	-626548
Core Result	**844028**	**1025184**	**1158913**	**1021927**	**1243537**	**1412076**	**1910316**	**1593405**	**1910122**	**1942209**	**1941992**	**1937079**	**1848931**	**1797509**	**1769564**	**1764057**	**1781302**
Non-core Business																	
Other income (except institutional partnerships and asset rotation)	267212	196864	431568	259795	282573	294529	304659	303398	338178	456796	508053	539009	548515	530241	508569	498960	501678
Joint ventures and associates	10858	25011	3257	108106	239429	77712	88115	93382	96684	93535	91966	89033	99319	103257	101678	97473	93030
Donations	-21655	-22489	-24822	-21219	-21570	-21677	-22239	-22239	-22239	-22239	-22239	-22239	-22239	-22239	-22239	-22239	-22239
Non-core result before taxes	256415	199386	410003	346682	500432	350564	370535	374541	412624	528092	577780	605803	625596	611260	588008	574195	572469
Adjusted taxes	-27041	-22282	-104011	-85197	-88431	-134539	-78871	-79723	-87829	-112408	-122984	-128943	-133162	-130110	-125161	-122221	-121853
Effective tax rate (Non-core)	-10,5%	-11,2%	-25,4%	-24,6%	-17,7%	-38,4%	-21,3%	-21,3%	-21,3%	-21,3%	-21,3%	-21,3%	-21,3%	-21,3%	-21,3%	-21,3%	-21,3%
Non-core result	**229374**	**177104**	**305992**	**261485**	**412001**	**216025**	**291664**	**294818**	**324794**	**415685**	**454796**	**476854**	**492434**	**481150**	**462847**	**451974**	**450616**
Financial																	
Income arising from institutional partnerships	185171	181570	201783	177205	233505	231055	205226	278820	345174	405000	505833	596746	678714	705726	730079	752037	771835
Financial income	456245	387817	226702	364883	843000	979498	610008	777742	1002440	1112328	1235831	1309809	1453396	1569820	1674782	1821901	2003782
Financial expenses	-1010390	-1057591	-897326	-875816	-1753220	-1889694	-1536309	-1594106	-1645612	-1714711	-1790429	-1871049	-1954282	-2038462	-2121928	-2204919	-2289422
Financial result before taxes	-368974	-488204	-468841	-333728	-676715	-679141	-721075	-537545	-297997	-197383	-48764	35506	177829	237083	282933	369019	486195
Statutory taxes	108847	144020	138308	98450	193631	200347	212717	158576	87909	58228	14385	-10474	-52460	-69340	-83465	-108861	-143427
Financial result	**-260127**	**-344184**	**-330533**	**-235278**	**-477084**	**-478794**	**-508358**	**-378969**	**-210088**	**-139155**	**-34379**	**25032**	**125370**	**167144**	**199468**	**260159**	**342767**

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Buy	Expected total return (including expected capital gains and expected dividend yield) of more than 10% over a 12-month period.
Hold	Expected total return (including expected capital gains and expected dividend yield) between 0% and 10% over a 12-month period.
Sell	Expected negative total return (including expected capital gains and expected dividend yield) over a 12-month period.

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